



December 31, 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. RM06-16-000**

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 for three revised Reliability Standards and one new definition to be added to the NERC Glossary of Terms, as well as the retirement of five existing approved Reliability Standards and one definition.

NERC seeks FERC’s approval of the following revised Reliability Standards contained in **Exhibit A** to this petition:

- EOP-001-1¹ — Emergency Operations Planning

¹ NERC recognizes that revised standard EOP-001 is included for approval in this filing as well as in the Operate within Interconnection Reliability Operating Limits (IROL) filing being filed contemporaneously. The modifications proposed to the EOP-001 standard in this filing and in the IRO filing include changes unique to each project. NERC cannot anticipate the outcome or sequence in which FERC will act on these filings. Therefore, NERC includes in Exhibit A a proposed Version 1 of EOP-001 that contains only the changes developed by the System Restoration and Blackstart project. In the event FERC acts on the System Restoration and Blackstart filing before the IRO filing or if the IRO filing is remanded before the System Restoration and Blackstart filing is acted upon, then Exhibit A Version 1 will be the appropriate standard to approve. In the event FERC approves the IRO filing first, NERC also includes in Exhibit B

- EOP-005-2 — System Restoration from Blackstart Resources
- EOP-006-2 — System Restoration Coordination

NERC also seeks FERC approval of the proposed definition of *Blackstart Resource*.

This filing also includes a request that FERC approve the retirement of five existing Reliability Standards and the definition of *Blackstart Capability Plan* from the NERC Glossary of Terms:

- EOP-001-0 — Emergency Operations Planning
- EOP-005-1 — System Restoration Plans
- EOP-006-1 — Reliability Coordination — System Restoration
- EOP-007-0 — Establish, Maintain, and Document a Regional Blackstart Capability Plan
- EOP-009-0 — Documentation of Blackstart Generating Unit Test Results

The proposed revised Reliability Standards were approved by the NERC Board of Trustees on August 5, 2009. NERC requests that EOP-001-1, EOP-005-2 and EOP-006-2 and the definition of *Blackstart Resource* be made effective in accordance with the effective date provisions contained in the proposed Reliability Standards. NERC further requests approval to retire EOP-001-0, EOP-005-1, EOP-006-1, EOP-007-0 and EOP-009-0, as well as the definition of *Blackstart Capability Plan* concurrent with the implementation of EOP-001-1, EOP-005-2 and EOP-006-2 and the associated definition of *Blackstart Resource*.

Version 2 of EOP-001 that contains both the IRO team directed changes and those proposed in this filing. Because EOP-001-0 is the currently-approved standard in effect, the changes proposed in this filing are applied against this Version 0. Should the IRO filing be affirmatively acted upon first, NERC modifies its requests for FERC approval of EOP-001-2 as provided in Exhibit B.

NERC's petition consists of the following:

- This transmittal letter;
- A table of contents for the entire petition;
- A narrative description explaining how the proposed Reliability Standards meet FERC's requirements;
- Reliability standards EOP-001-1, EOP-005-2, and EOP-006-2 submitted for approval (**Exhibit A**);
- Reliability Standard EOP-001-2 (to be substituted for proposed EOP-001-1 in the event FERC approves NERC's IRO Reliability Standards filing before acting on EOP-001-1) (**Exhibit B**);
- Matrix of FERC Directives and Industry Comments Considered (**Exhibit C**);
- Standard Drafting Team Roster (**Exhibit D**); and
- The complete development record of the proposed revised Reliability Standards (**Exhibit E**).

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 No. RM06-16-000
)**

**PETITION OF THE
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION
FOR APPROVAL OF THREE EMERGENCY PREPAREDNESS AND
OPERATIONS RELIABILITY STANDARDS AND ONE NEW GLOSSARY
TERM AND FOR RETIREMENT OF FIVE EXISTING RELIABILITY
STANDARDS AND ONE GLOSSARY TERM**

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| | Exhibit C — Matrix of FERC Directives and Industry Comments Considered | |
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I. INTRODUCTION

The North American Electric Reliability Corporation (“NERC”)¹ hereby requests the Federal Energy Regulatory Commission (“FERC”) to approve, in accordance with Section 215(d)(1) of the Federal Power Act (“FPA”)² and Section 39.5 of FERC’s regulations, 18 C.F.R. § 39.5, three revised Reliability Standards: EOP-001-1³ — Emergency Operations Planning; EOP-005-2 — System Restoration from Blackstart Resources; and EOP-006-2 — System Restoration Coordination, as well as the concurrent retirement of five existing Reliability Standards: EOP-001-0 — Emergency Operations Planning; EOP-005-1 — System Restoration Plans; EOP-006-1 — Reliability Coordination — System Restoration; EOP-007-0 — Establish, Maintain, and Document a Regional Blackstart Capability Plan; and EOP-009-0 — Documentation of Blackstart Generating Unit Test Results.

The NERC Board of Trustees approved these Reliability Standards on August 5, 2009. NERC requests that FERC approve the proposed Reliability Standards and make them effective in accordance with the effective date provisions set forth in the Reliability Standards. **Exhibit A** to this filing sets forth the proposed Reliability Standards. **Exhibit**

¹ 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, 116 FERC ¶ 61,062 (2006) (“ERO Certification Order”).

² 16 U.S.C. 824o.

³ NERC recognizes that revised standard EOP-001 is included for approval in this filing as well as in the Operate within Interconnection Reliability Operating Limits (IRO) filing being filed contemporaneously. The modifications proposed for the EOP-001 standard in this filing and in the IRO filing include changes unique to each project. NERC cannot anticipate the outcome or sequence in which FERC will act on these filings. Therefore, NERC includes in Exhibit A a proposed Version 1 of EOP-001 that contains only the changes developed by the System Restoration and Blackstart project. In the event FERC acts on the System Restoration and Blackstart filing before the IRO filing or if the IRO filing is remanded before the System Restoration and Blackstart filing is acted upon, then Exhibit A Version 1 will be the appropriate standard to approve. In the event FERC approves the IRO filing first, NERC also includes in Exhibit B Version 2 of EOP-001 that contains both the IRO team directed changes and those proposed in this filing. Because EOP-001-0 is the currently-approved standard in effect, the changes proposed in this filing are applied against this Version 0. Should the IRO filing be affirmatively acted upon first, NERC modifies its requests for FERC approval of EOP-001-2 as provided in Exhibit B.

B contains a provisional Version 2 of proposed EOP-001 that is included in this filing for the reasons outlined in footnote 3. **Exhibit C** contains the Matrix of FERC Directives and Industry Comments Considered in the development of these standards. **Exhibit D** contains the standard drafting team roster of those people that developed the proposed Reliability Standards. **Exhibit E** contains the complete development record of the proposed Reliability Standards.

NERC is also filing these proposed 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 2005,⁴ 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 ERO that would be charged with developing and enforcing mandatory Reliability Standards, subject to FERC approval. Section 215 states that all users, owners and 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 Standard

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:

The Commission 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.⁵

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

⁴ Energy Policy Act of 2005, Pub. L. No. 109-58, Title XII, Subtitle A, 119 Stat. 594, 941 (2005 (codified at 16 U.S.C. § 824o).

⁵ Section 215(d)(2) of the FPA, 16 U.S.C. § 824o(d)(2) (2000).

factors FERC will consider when determining whether proposed Reliability Standards meet the statutory criteria.⁶

c. Basis for Proposed Changes to Reliability Standards

The proposed set of Reliability Standards, EOP-005-2 and EOP-006-2,⁷ are intended to ensure that a set of coordinated plans are in place and that facilities and personnel are prepared to engage in system restoration using designated Blackstart Resources. During the implementation of the system restoration plan activities, the responsible entities are required to focus on maintaining reliability while restoring the interconnection. The proposed standards apply to Transmission Operators, Generator Operators, Reliability Coordinators, Transmission Owners and Distribution Providers specifically identified in the Transmission Operator’s restoration plan.

The proposed EOP-005-2 and EOP-006-2 Reliability Standards represent significant revision and improvement from the current set of enforceable standards. The project to develop the proposed EOP-005-2 and EOP-006-2 Reliability Standards involved upgrading the overall quality of the standards, eliminating gaps and ambiguity in the requirements, eliminating “fill-in-the-blank” standards, and addressing FERC Order No. 693 directives,⁸ as highlighted herein and discussed in detail below.

- The proposed revisions now clearly delineate the responsibilities of the Reliability Coordinator and Transmission Operator in the restoration process and restoration planning. This is intended to eliminate confusion

⁶ 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”).

⁷ Proposed EOP-001-1 removes a previously approved requirement germane to system restoration activities that was incorporated into proposed EOP-005-2 and EOP-006-2. No other conforming changes are being made. Therefore, proposed EOP-001-1 is not included in the discussion regarding system restoration activities.

⁸ See *Mandatory Reliability Standards for the Bulk-Power System*, 18 CFR Part 40, Docket No. RM06-16-000 (March 16, 2007) (“Order No. 693”) at PP 627-630, 636-638.

regarding roles and responsibilities during the restoration process. Specifically, the role of the Reliability Coordinator in overseeing the formulation of the Transmission Operator's restoration plans has been defined. This approach results in wide-area coordination of restoration plans and elimination of potential local conflicts.

- There are now specific requirements for what must be included in a restoration plan, how and when it needs to be updated and approved, what needs to be provided to operators, and what training is necessary for personnel involved in restoration processes. The standard also explains what constitutes restoration and when the restoration phase is complete.
- The role of the Regional Entity (RE) has been eliminated by assigning those responsibilities to other defined functional entities.
- The standard defines the necessary content and periodicity of testing Blackstart Resources, as well as mandated record-keeping.
- Participation in situation drills and simulations is spelled out.
- Restoration requirements have been concentrated in the revised EOP-005-2 and EOP-006-2 standards by transferring the restoration plan requirement from EOP-001-0 to these standards.
- Balancing Authorities have been removed as applicable entities in the revised standards because the Standard Drafting Team determined that the Reliability Coordinator and Transmission Operator are in control of the system until the restoration phase is complete and balancing resources and demand are returned to the Balancing Authority.⁹

NERC also requests that FERC approve the proposed definition of the term “Blackstart Resource” and concurrently retire the term “Blackstart Capability Plan.” The proposed definition of “Blackstart Resource” is:

Blackstart Resource: A generating unit(s) and its associated set of equipment which has the ability to be started without support from the System or is designed to remain energized without connection to the remainder of the System, with the ability to energize a bus, meeting the Transmission Operator's restoration plan needs for real and reactive power capability, frequency and voltage control, and that has been included in the Transmission Operator's restoration plan.

Additionally, the proposed revisions move requirements from five standards into two standards. EOP-005-1, EOP-006-1, EOP-007-0 and EOP-009-0 are proposed to be

⁹ Balancing Authorities continue to have responsibilities under Reliability Standard EOP-001.

retired in their entirety and EOP-001-0 is proposed to be modified with conforming changes.

The changes in these proposed standards reflect consideration of a number of issues that were captured in NERC's original Operating Policies and Planning Standards, referred to as the "Version 0" standards. Also considered were issues noted during the development of compliance measures for the Phase III and Phase IV Reliability Standards developed subsequent to the Version 0 standards and the development of Violation Risk Factors in 2006.

In addition, the Standard Drafting Team (SDT) addressed several directives from FERC Order No. 693. These directives are presented below and are discussed in greater detail later in this filing:

- EOP-005-1 — Develop a modification that identifies time frames for training and review of restoration plan requirements to simulate contingencies and prepare operators for anticipated and unforeseen events.¹⁰
- EOP-006-1 — Develop a modification to EOP-006-1 that ensures that the Reliability Coordinator, which is the highest level of authority responsible for reliability of the bulk power system, is involved in the development and approval of System restoration plans.¹¹
- EOP-007-0 — Consider the suggestions offered by Edison Electric Institute (EEI), FirstEnergy and Midwest Reliability Organization (MRO). These suggestions pertain to assigning compliance obligations to those that directly provide the data and other information instead of the Regional Entity, that the Reliability Coordinator, not the Regional Entity, should be responsible for the Regional blackstart plan for its area of responsibility,

¹⁰ Order No. 693 a P 630.

¹¹ *Id.* at P 636.

that the plans recognize that nuclear units must have priority access to off-site power for safety reasons, and that the definition of a blackstart unit be revised to mean a “diesel, hydro, pump storage, or the combustion turbine generating unit that is used to provide cranking power to a larger steam generating unit designed to restore load” or to mean a “larger steam generating unit designed to restore load.”¹²

- EOP-009-0 — Consider the suggestions offered by Xcel that the Reliability Standard should provide details on what constitutes a blackstart test and FirstEnergy’s thoughts that EOP-009-0 should be consolidated with EOP-007-0.¹³

d. 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 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.¹⁴

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 before its submission to FERC.

¹² *Id.* at PP 644-648.

¹³ *Id.* at P 672.

¹⁴ Order No. 672 at PP 268, 270.

The proposed Reliability Standards set out in **Exhibit A** have been developed and approved by industry stakeholders using NERC's *Reliability Standards Development Procedure*. They were approved by the NERC Board of Trustees on August 5, 2009.

e. Progress in Improving Proposed Reliability Standards

NERC continues to develop new and revised Reliability Standards that address the issues NERC identified in its initial filing of proposed Reliability Standards on April 4, 2006, the concerns noted in the FERC Staff Report issued on May 11, 2006, and the directives FERC has included in multiple subsequent orders pertaining to NERC's Reliability Standards.¹⁵ NERC has incorporated these activities into its *Reliability Standards Development Plan: 2009-2011*, submitted to FERC on February 3, 2009 and its *Reliability Standards Development Plan: 2010-2012*, submitted to FERC on December 2, 2009.

IV. JUSTIFICATION FOR APPROVAL OF PROPOSED RELIABILITY STANDARDS

This section summarizes the development of the proposed Reliability Standards, identifies the incremental changes from EOP-001-0 — Emergency Operations Planning; the revisions to EOP-005-1 — System Restoration Plans, and EOP-006-1 — Reliability Coordination — System Restoration; and the retirement of EOP-001-0— Emergency Operations Planning, EOP-005-1 — System Restoration Plans, EOP-006-1 — Reliability Coordination — System Restoration, EOP-007-0 — Establish, Maintain, and Document a Regional Blackstart Capability Plan, and EOP-009-0 — Documentation of Blackstart

¹⁵ *Mandatory Reliability Standards for the Bulk-Power System*, 118 FERC ¶ 61,218, FERC Stats. & Regs. ¶ 31,242 (2007) (“Order No. 693”), *order on reh’g, Mandatory Reliability Standards for the Bulk-Power System*, 120 FERC ¶ 61,053 (“Order No. 693-A”) (2007).

Generating Unit Test Results. This section also includes evidence that the proposed Reliability Standards meet the criteria for approval established by FERC. That is, the proposed Reliability Standards are just, reasonable, not unduly discriminatory or preferential and in the public interest.

The standard drafting team roster is provided in **Exhibit C**. The complete development record for the proposed Reliability Standards is included in **Exhibit D**. This record includes for the proposed standards the implementation plan, the ballot pool, the final ballot results by registered ballot body members, stakeholder comments received during the development of the Reliability Standards, and an explanation regarding how those comments were considered in developing the Reliability Standards. Additionally, the definition of “Blackstart Resource” that pertains to EOP-005-2 is being proposed for FERC approval and is included in **Exhibit A**.

The purpose of EOP-001-1, which applies to Transmission Operators and Balancing Authorities, is to develop, maintain, and implement a set of plans to mitigate operating emergencies that are to be coordinated with other Transmission Operators, Balancing Authorities, and the Reliability Coordinator.

Requirement R2.4 of EOP-001-1, which requires the Transmission Operator and Balancing Authority to develop, maintain, and implement a set of plans for system restoration, is proposed for deletion because the revised EOP-005-2 and EOP-006-2 now incorporate and expand upon this requirement. No other changes are being proposed for any requirements, measures, Violation Risk Factors, or Violation Severity Levels in EOP-001-1. The implementation plan for this standard requires the entity to be compliant twenty-four months after the first day of the first calendar quarter following

applicable regulatory approval. In jurisdictions where no regulatory approval is required, all requirements go into effect twenty-four months after Board of Trustees adoption.

The purpose of proposed EOP-005-2 is to ensure plans, Facilities, and personnel are prepared to enable system restoration from blackstart resources to assure reliability is maintained during restoration and priority is placed on restoring the Interconnection. The proposed EOP-005-2 standard applies primarily to Transmission Operators and Generator Operators and consists of eighteen requirements and associated sub-requirements, which include the following:

- the need for a formally documented restoration plan and what must be included in the plan;
- a provision for distributing the restoration plan to affected entities and their operators;
- restoration plan review and update requirements and annual submission to its Reliability Coordinator;
- testing of the restoration plan;
- requirements regarding when to implement the restoration plan and how to determine when the restoration plan is complete;
- requirements regarding coordination on resynchronization with the Reliability Coordinator;
- Blackstart Resource testing requirements and documentation;
- operator training requirements;
- participation in Reliability Coordinator drills, exercises and simulations;
and
- Blackstart Resource Agreements and documentation.

The purpose of proposed EOP-006-2 is to ensure that plans are established and personnel are prepared to enable effective coordination of the system restoration process

to ensure reliability is maintained during restoration and priority is placed on restoring the Interconnection. The proposed EOP-006-2 standard applies to Reliability Coordinators and consists of ten requirements and associated sub-requirements, which address the following topics:

- the need for a formally documented restoration plan and what must be included in it;
- distribution of the restoration plan to affected entities and their operators;
- restoration plan review and update requirements;
- monitoring and control of the overall restoration process and progress;
- coordination on resynchronization with the Transmission Operator;
- operator training; and
- conducting situation drills, exercises and simulations.

EOP-007-0 and EOP-009-0 are proposed to be retired in their entirety. All of the requirements from these two standards are now included in EOP-005-2 and EOP-006-2.

The implementation plan for these standards requires an entity to be compliant twenty-four months after the first day of the first calendar quarter following applicable regulatory approval. In those jurisdictions where no regulatory approval is required, all requirements go into effect twenty-four months after NERC Board of Trustees adoption.

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

Section 215 of the FPA requires that Reliability Standards be just, reasonable, not unduly discriminatory or preferential, and in the public interest.¹⁶ In Order No. 672,

¹⁶ Section 215(d)(2)(A) of the FPA; 18 C.F.R. §39.5.

FERC identified criteria it will use to analyze proposed Reliability Standards to ensure that the requirements of Section 215 are met. A review of the proposed Reliability Standards for consistency with these criteria is presented below.

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 Cyber security protection.

The proposed Reliability Standards, EOP-005-2 — System Restoration from Blackstart Resources, and EOP-006-2 — System Restoration Coordination, specifically establish the requirements for having restoration plans and all of the various elements such as approvals, coordination, testing, training, documentation and drills required to prepare an applicable entity for system restoration responsibilities.

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 technically sound methods to achieve the goal of ensuring that a set of coordinated plans are in place and that facilities and personnel are prepared to engage in system restoration using designated Blackstart Resources. These standards describe:

- what must be included in the restoration plan, demonstrated in EOP-005-2, Requirement R1, and EOP-006-2, Requirement R1;
- when to update the restoration plan, demonstrated in EOP-005-2;
- to whom the restoration plan is to be distributed, specified in EOP-005-2, Requirements R2 and R5, and EOP-006-2, Requirements R2 and R6;
- validation requirements, included in EOP-005-2, Requirement R6;
- training and testing, which is included in EOP-005-2, Requirements R9, R10, R11, R16, and R17, and EOP-006-2, Requirement R9;
- participation in Reliability Coordinator drills, included in EOP-005-2, Requirements R12 and R18;
- coordinating the plans of all entities within its footprint and “supervising” the actual restoration, including providing specific direction and approval of when to tie Systems together, included in EOP-006-2, Requirements R7 and R8; and
- conducting restoration drills and simulations, which is specified in EOP-006-2, Requirement R10.

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.

The proposed Reliability Standards are applicable to users, owners and operators of the bulk power system, and not others. The proposed standards are specifically applicable to Reliability Coordinators, Transmission Operators, Transmission Owners,

Generator Operators, and Distribution Providers as identified in the Transmission Operator's restoration plan. Each of these entities is clearly a user, owner or operator of the bulk power system.

4. Proposed Reliability Standards must be clear and unambiguous regarding 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 Standards are clear and unambiguous regarding what is required and who is required to comply. Each requirement clearly states the applicable entity(ies) and what they are required to do. For example, the revised standards now clearly state when restoration efforts begin and when they end (*see* EOP-005-2, Requirement R1 and EOP-006-2, Requirement R1). They also define the division of effort and responsibilities between the Transmission Operator, Generator Operator, and the Reliability Coordinator (*see* EOP-005-2, Requirements R3, R4, R8, R13, and R15 and EOP-006-2, Requirement R7).

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 Reliability Standards include clear and understandable consequences. For example, each primary requirement is assigned a Violation Risk Factor ("VRF") and a Violation Severity Level ("VSL") which support the determination of a base penalty amount for violations of the requirements, as required by the NERC

Sanction Guidelines. NERC will include a consistency review of these VSLs with FERC's VSL guidelines in the comprehensive VSL guideline analysis due to be filed with FERC on March 1, 2010.¹⁷

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.

The proposed Reliability Standards identify clear and objective criteria to support enforcement in a consistent and non-preferential manner. Each requirement has an associated measure, and each requirement clearly identifies the expected performance that will serve as the basis for development of compliance enforcement objectives, typically provided through the Reliability Standard Audit Worksheets. The language used in the requirements clearly identifies what is expected of the applicable entity.

7. Proposed Reliability Standards should achieve a reliability goal effectively and efficiently — but do 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 Standards achieve their reliability goal effectively and efficiently. Expanding the requirements to meet the reliability objectives of the standards was carefully considered in the *Reliability Standards Development Process*, and the

¹⁷ See *Order on Violation Severity Levels Proposed by the Electric Reliability Organization*, 123 FERC ¶ 61,284 (2008). *Order on Rehearing and Clarification and Accepting Compliance Filing*, 125 FERC ¶ 61,212 (2008).

standards were structured to address the standards' objectives without unduly burdening applicable entities. For example, the field operations personnel training requirements were carefully tailored to apply only to personnel involved in performing unique tasks in restoration, as compared to their normal duties, in order to avoid unnecessary training costs. Similarly, required participation in and conduct of drills and simulations has been limited to a level considered appropriate to retain the necessary skills to effectively implement restoration plans. Testing of Blackstart Resources has also been staged over three years.

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 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.

The proposed Reliability Standards are more stringent than current requirements in several areas. Documentation (EOP-005-2, Requirements R1, R2, R3, R4, R5, R13 and R14; and EOP-006-2, Requirements R1, R2 and R6), testing (EOP-005-2, Requirements R6, R9 and R16), training (EOP-005-2, Requirements R10, R11 and R17; and EOP-006-2, Requirement R9), and required drill participation (EOP-005-2, Requirements R12 and R19; and EOP-006-2, Requirement R10) all reflect significant increases in responsibilities and expectations for applicable entities from the previous version of the standards.

For example, EOP-005-1, Requirements R7 and R10 require the Transmission Operator to verify the restoration procedures by actual testing or simulation, and that the Transmission Operator shall demonstrate at least once every five years that the blackstart generating units in the plan can perform their intended functions. Proposed EOP-005-2, Requirement R6, “raises the bar” by adding much greater specificity to the expectations of these tests by requiring the Transmission Operator to verify at least every five years through actual events, steady state and dynamic simulations, or testing that the plan accomplishes its intended function. Greater specificity is provided in sub-parts 6.1 through 6.3 that require the verification of the capability of Blackstart Resources to meet the Real and Reactive Power requirements of the Cranking Paths and the dynamic capability to supply initial loads, and the location and magnitude of loads and the capability of generating resources required to control voltages and frequency within acceptable operating limits. Requirement R9 in EOP-005-2 requires testing the Blackstart Resource at least once every three years and includes required tests for the ability to start the unit when isolated with no support from the Bulk Electric System and the ability to energize a bus during the test. Requirement R16 requires the Generator Operator of Blackstart Resources to perform such tests and maintain testing records to be made available within 30 days of the request from the Reliability Coordinator and Transmission Operator.

Similarly on the topic of training, EOP-005-1, Requirement R6 simply states that each Transmission Operator shall train its operating personnel in the implementation of the restoration plan that includes simulated exercises if practical. EOP-005-2, Requirements R10, R11, and R17, as well as EOP-006-2, Requirement R9 provide much

greater specificity to the training expectations. Requirement R10 requires a Transmission Operator to include annual system restoration training in its operations training program that shall include training on the system restoration plan and the coordination with the Reliability Coordinator and Generator Operators, restoration priorities, building of cranking paths, and synchronizing re-energized sections of the system. Requirement R11 requires each Transmission Operator, and each applicable Transmission Owner and Distribution Provider, to provide a minimum of two hours system restoration training every two years to field switching personnel who perform tasks unique to system restoration activities. Requirement R17 similarly requires a minimum two hours per two year obligation to train the Generator Operator personnel with Blackstart Resources.

9. Proposed Reliability Standards may consider costs to implement for 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.

The proposed Reliability Standards do not differentiate among entities based on size or cost. These requirements apply equally to all entities with responsibility for restoration tasks.

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 that 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 Standards are designed to apply throughout North America. The standards as drafted propose no regional differences or variances.

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, the Commission 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.

There is no basis for anticipating that the proposed Reliability Standards will adversely affect competition or restrict available transmission capability beyond what is necessary for reliability.

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, the Commission 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.

The proposed Reliability Standards identify the proposed effective date for those standards. As noted, the proposed Reliability Standards are more stringent in several areas: documentation (EOP-005-2, Requirements R1, R2, R3, R4, R5, R13 and R14; and EOP-006-2, Requirements R1, R2 and R6), testing (EOP-005-2, Requirements R6, R9 and R16), training (EOP-005-2, Requirements R10, R11 and R17; and EOP-006-2, Requirement R9), and required drill participation (EOP-005-2, Requirements R12 and R19; EOP-006-2, Requirement R10.). NERC believes the proposed effective date represents a reasonable time for all entities to adequately prepare for compliance with the new requirements. Compliance is already required for Reliability Standards EOP-001-0, EOP-005-1, EOP-006-1, EOP-007-0, and EOP-009-0.

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 Commission-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 the Commission.

NERC develops Reliability Standards in accordance with Section 300 (Reliability Standards Development) of its Rules of Procedure and the NERC *Reliability Standards Development Procedure*, which was incorporated into the Rules of Procedure as Appendix 3A. In the 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. 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 the process found in NERC's *Reliability Standards Development Procedure*, and were approved by the NERC Board of Trustees on August 5, 2009 for filing with FERC. Therefore, NERC has utilized its approved 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.

These standards are focused on ensuring that system restoration is implemented and that Interconnection reliability is maintained. No other environmental, social, or other goals are reflected or considered in these standards.

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, the Commission 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. The Commission 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.

An overview of the issues raised in consideration of the proposed standards, included in Exhibit C, is presented in a matrix and demonstrates how industry comments from previous work, as well as directives from Order No. 693, were addressed in this standard development project.

V. Violation Risk Factors and Violation Severity Levels

The proposed Reliability Standards include VRFs and VSLs that are specific to individual Requirements. The ranges of penalties for violations of standards are 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, which can be found in Appendix 4B of NERC's Rules of Procedure. Consistent with NERC's August 10, 2009 informational filing, assignments of VRFs and VSLs were made at the main requirement level of each standard. Further analysis of the

VSL assignments for consistency with the FERC VSL guidelines will be presented in the comprehensive VSL FERC Guideline review filing, due to be filed at FERC on March 1, 2010.

VRF assignments were based on the criteria stated in the guidelines:

- High — A requirement that, if violated, could directly cause or contribute to Bulk Power System (BPS) instability, separation, or a cascading sequence of failures, or could place the BPS 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 BPS, or the ability to effectively monitor and control the BPS. However, violation of a medium risk requirement is unlikely to lead to BPS instability, separation, or cascading failures.
- Low — A requirement that, if violated, would not be expected to adversely affect the electrical state or capability of the BPS, or the ability to effectively monitor and control the BPS. A requirement that is administrative in nature.

Utilizing these criteria, the VRFs for EOP-005-2 were assigned as follows:

- A high VRF was assigned to those requirements dealing with the actual operation of the system during restoration and the need for an approved restoration plan (Requirements R1, R7 and R8).
- A medium VRF was assigned to those requirements dealing with the ‘infrastructure’ required to support those requirements that received a high VRF. These items, while certainly important in their own right, were not seen as directly leading to BPS instability. Therefore, a medium VRF was assigned to Requirements R3, R4, R6, R9, R10, R11, R12, R13, R14, R15, R16, R17 and R18.
- A lower VRF was assigned to Requirements R2 and R5 which were seen as mainly administrative in nature.

The VRFs for EOP-006-2 were assigned in a similar manner with the following result:

- A high VRF was assigned to Requirements R1, R7, and R8 because these items were seen as having a direct bearing on BPS instability.
- A medium VRF was assigned to Requirements R3, R4, R5, R9 and R10 on the basis that these items were not considered as directly leading to BPS instability.
- A lower VRF was given to Requirements R2 and R6 because these requirements are primarily administrative in nature.

VI. SUMMARY OF THE RELIABILITY STANDARD DEVELOPMENT PROCEEDINGS

a. Development History

On October 26, 2006, NERC received, and the Standards Committee accepted, a standards authorization request (“SAR”) for Project 2006-03 which included revisions to EOP-005-1, EOP-006-1, EOP-007-0 and EOP-009-0. The SAR was posted for two industry comment opportunities and then approved by the Standards Committee for standard development on April 18, 2007.

The assigned standard drafting team posted the draft standards for a 45-day industry comment period from August 15, 2007 to September 28, 2007. In response, 46 sets of comments were received from representatives of 60 organizations and 9 of the 10 industry segments. Comments mainly dealt with applicability issues, training, and the role of the Reliability Coordinator in the oversight and approval of plans. The standard drafting team revised the draft standards accordingly and re-posted for industry comment from January 7, 2008 to February 5, 2008. As a result of the re-post, 44 sets of comments were received from 60 organizations representing 9 of the 10 industry segments.

Comments received were mainly focused on clarification of the intent of the standard drafting team with certain requirements, and included comments on the following:

- Timing of the restoration task — commenters questioned when the timing begins and when it ends.
- Training requirements — commenters questioned why field personnel have to be trained as a requirement of this standard rather than including these training requirements in the PER standards.
- The timeframe suggested in the implementation plan — several commenters thought a 24 month implementation timeframe was too aggressive.

The standard drafting team again revised the draft standards to accommodate industry concerns and posted them for a third time between April 15, 2008 and May 29, 2008. In response to the third posting, there were 29 sets of comments from 50 organizations representing 8 of the 10 industry segments. Comments dealt with the role of the Balancing Authority, if any; clarifications on who needed to be trained; and on the proposed definition of Blackstart Resource. The standard drafting team elected to post the revised standards again between October 21, 2008 and November 18, 2008. Most of the commenters agreed that the draft standards were ready for balloting, and the NERC Standards Committee approved the standards for balloting.

During the development process, the standard drafting team faced several key decision points:

- Does the Balancing Authority have responsibilities during restoration?
The standard drafting team decided that the Reliability Coordinator and the Transmission Operator have primary responsibility during

restoration and that the Balancing Authority will pick up its normal balancing duties after restoration is completed.

- Should the standards specify a minimum Blackstart Resource level?

The standard drafting team decided that there was no reasonable minimum that could be set at a national level as this level is a regional variable.

- Should the standard drafting team specify a maximum time to restore the system? Again, the team decided that there was no single national number that can be enforced because there are too many regional variables to consider.

NERC conducted an initial ballot from April 14, 2009 through April 23, 2009.

With an 89.81 percent quorum participating in the ballot, the proposed Reliability Standards achieved a weighted segment vote of 76.63 percent. There were 63 negative ballots submitted for the initial ballot, 41 of which included a comment, thereby initiating the need for a recirculation ballot.

There were three main themes to the comments from the initial balloting:

1. Reliability Coordinator approval of the restoration plan — Commenters continued to object to the Reliability Coordinator being involved in the development and approval of the Transmission Operator's restoration plan.
2. Timing requirements of Reliability Coordinator approval of the Transmission Operators plans — Commenters noted a potential start-up problem that the Reliability Coordinators and Transmission Operators will have to coordinate to address.
3. Training — Commenters continued to express concern that restoration training was addressed in the EOP standards instead of the PER standards. (FERC Order

693 requires, however, that restoration training be included in the restoration standards.)

The standard drafting team addressed all of the ballot comments, and no changes were made to the standards.

The standard drafting team posted its Consideration of Comments reports in response to the initial ballot comments on May 5, 2009, and NERC conducted a recirculation ballot from May 6, 2009 through May 18, 2009. With a 92.08 percent quorum participating in the recirculation ballot, the proposed Reliability Standard achieved a weighted segment vote of 75.39 percent. The proposed Reliability Standard achieved the required two-thirds weighted segment vote and at least a 75 percent quorum of the ballot pool. The NERC Board of Trustees approved the proposed Reliability Standards during its August 5, 2009 meeting.

VII. CONCLUSION

For the reasons stated above, NERC respectfully requests that FERC approve three revised Reliability Standards: EOP-001-1¹⁸ — Emergency Operations Planning, EOP-005-2 — System Restoration from Blackstart Resources, and EOP-006-2 — System Restoration Coordination, as well as the concurrent retirement of five existing Reliability Standards: EOP-001-0 — Emergency Operations Planning, EOP-005-1 — System Restoration Plans, EOP-006-1 — Reliability Coordination — System Restoration, EOP-007-0 — Establish, Maintain, and Document a Regional Blackstart Capability Plan, and EOP-009-0 — Documentation of Blackstart Generating Unit Test Results, 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 also requests that the definition of “Blackstart Resource,” included in **Exhibit A**, be approved as part of the NERC Glossary of Terms, and that the concurrent retirement of the previously approved definition of “Blackstart Capability Plan” be approved. NERC requests that the proposed Reliability Standards, retirement of FERC-approved Reliability Standards, and the revised definitions be made effective in accordance with the effective date provisions set forth in the proposed Reliability Standards.

¹⁸ Should EOP-001-1 first receive FERC approval as part of the IRO project filed with FERC on December 31, 2009, NERC requests that proposed EOP-001-2 included in Exhibit B, be approved and the request for approving EOP-001-1 in Exhibit A be withdrawn.

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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 31st day of December, 2009.

/s/ Holly A. Hawkins
Holly A. Hawkins
*Attorney for the North American Electric
Reliability Corporation*

Exhibit A

Reliability Standards Proposed for Approval

Proposed Clean and Redline of EOP-001-1

A. Introduction

1. **Title:** **Emergency Operations Planning**
2. **Number:** EOP-001-1
3. **Purpose:** Each Transmission Operator and Balancing Authority needs to develop, maintain, and implement a set of plans to mitigate operating emergencies. These plans need to be coordinated with other Transmission Operators and Balancing Authorities, and the Reliability Coordinator.
4. **Applicability**
 - 4.1. Balancing Authorities.
 - 4.2. Transmission Operators.
5. **Effective Date:** Twenty-four months after the first day of the first calendar quarter following applicable regulatory approval. In those jurisdictions where no regulatory approval is required, all requirements go into effect twenty-four months after Board of Trustees adoption.

B. Requirements

- R1. Balancing Authorities shall have operating agreements with adjacent Balancing Authorities that shall, at a minimum, contain provisions for emergency assistance, including provisions to obtain emergency assistance from remote Balancing Authorities.
- R2. The Transmission Operator shall have an emergency load reduction plan for all identified IROLs. The plan shall include the details on how the Transmission Operator will implement load reduction in sufficient amount and time to mitigate the IROL violation before system separation or collapse would occur. The load reduction plan must be capable of being implemented within 30 minutes.
- R3. Each Transmission Operator and Balancing Authority shall:
 - R3.1. Develop, maintain, and implement a set of plans to mitigate operating emergencies for insufficient generating capacity.
 - R3.2. Develop, maintain, and implement a set of plans to mitigate operating emergencies on the transmission system.
 - R3.3. Develop, maintain, and implement a set of plans for load shedding.
- R4. Each Transmission Operator and Balancing Authority shall have emergency plans that will enable it to mitigate operating emergencies. At a minimum, Transmission Operator and Balancing Authority emergency plans shall include:
 - R4.1. Communications protocols to be used during emergencies.
 - R4.2. A list of controlling actions to resolve the emergency. Load reduction, in sufficient quantity to resolve the emergency within NERC-established timelines, shall be one of the controlling actions.
 - R4.3. The tasks to be coordinated with and among adjacent Transmission Operators and Balancing Authorities.
 - R4.4. Staffing levels for the emergency.
- R5. Each Transmission Operator and Balancing Authority shall include the applicable elements in Attachment 1-EOP-001-0 when developing an emergency plan.

- R6.** The Transmission Operator and Balancing Authority shall annually review and update each emergency plan. The Transmission Operator and Balancing Authority shall provide a copy of its updated emergency plans to its Reliability Coordinator and to neighboring Transmission Operators and Balancing Authorities.
- R7.** The Transmission Operator and Balancing Authority shall coordinate its emergency plans with other Transmission Operators and Balancing Authorities as appropriate. This coordination includes the following steps, as applicable:
 - R7.1.** The Transmission Operator and Balancing Authority shall establish and maintain reliable communications between interconnected systems.
 - R7.2.** The Transmission Operator and Balancing Authority shall arrange new interchange agreements to provide for emergency capacity or energy transfers if existing agreements cannot be used.
 - R7.3.** The Transmission Operator and Balancing Authority shall coordinate transmission and generator maintenance schedules to maximize capacity or conserve the fuel in short supply. (This includes water for hydro generators.)
 - R7.4.** The Transmission Operator and Balancing Authority shall arrange deliveries of electrical energy or fuel from remote systems through normal operating channels.

C. Measures

- M1.** The Transmission Operator and Balancing Authority shall have its emergency plans available for review by the Regional Reliability Organization at all times.
- M2.** The Transmission Operator and Balancing Authority shall have its two most recent annual self-assessments available for review by the Regional Reliability Organization at all times.

D. Compliance

1. Compliance Monitoring Process

1.1. Compliance Monitoring Responsibility

Regional Reliability Organization.

1.2. Compliance Monitoring Period and Reset Timeframes

The Regional Reliability Organization shall review and evaluate emergency plans every three years to ensure that the plans consider the applicable elements of Attachment 1-EOP-001-0.

The Regional Reliability Organization may elect to request self-certification of the Transmission Operator and Balancing Authority in years that the full review is not done.

Reset: one calendar year.

1.3. Data Retention

Current plan available at all times.

1.4. Additional Compliance Information

Not specified.

Standard EOP-001-1 — Emergency Operations Planning

2. Violation Severity Levels

| Requirement | Lower | Moderate | High | Severe |
|-------------|--|---|--|--|
| R1 | The Balancing Authority failed to demonstrate the existence of the necessary operating agreements for less than 25% of the adjacent BAs. Or less than 25% of those agreements do not contain provisions for emergency assistance. | The Balancing Authority failed to demonstrate the existence of the necessary operating agreements for 25% to 50% of the adjacent BAs. Or 25 to 50% of those agreements do not contain provisions for emergency assistance. | The Balancing Authority failed to demonstrate the existence of the necessary operating agreements for 50% to 75% of the adjacent BAs. Or 50% to 75% of those agreements do not contain provisions for emergency assistance. | The Balancing Authority failed to demonstrate the existence of the necessary operating agreements for 75% or more of the adjacent BAs. Or more than 75% of those agreements do not contain provisions for emergency assistance. |
| R2 | The Transmission Operator has demonstrated the existence of the emergency load reduction plan but the plan will take longer than 30 minutes. | N/A | The Transmission Operator fails to include details on how load reduction is to be implemented in sufficient amount and time to mitigate IROL violation. | The Transmission Operator failed to demonstrate the existence of emergency load reduction plans for all identified IROLs. |
| R3 | The Transmission Operator or Balancing Authority failed to comply with one (1) of the sub-components. | The Transmission Operator or Balancing Authority failed to comply with two (2) of the sub-components. | N/A | The Transmission Operator or Balancing Authority has failed to comply with three (3) of the sub-components. |
| R3.1 | The Transmission Operator or Balancing Authority's emergency plans to mitigate insufficient generating capacity are missing minor details or minor program/procedural elements. | The Transmission Operator or Balancing Authority's has demonstrated the existence of emergency plans to mitigate insufficient generating capacity emergency plans but the plans are not maintained. | The Transmission Operator or Balancing Authority's emergency plans to mitigate insufficient generating capacity emergency plans are neither maintained nor implemented. | The Transmission Operator or Balancing Authority has failed to develop emergency mitigation plans for insufficient generating capacity. |
| R3.2 | The Transmission Operator or Balancing Authority's plans to mitigate transmission system emergencies are missing minor details or minor program/procedural elements. | The Transmission Operator or Balancing Authority's has demonstrated the existence of transmission system emergency plans but are not maintained. | The Transmission Operator or Balancing Authority's transmission system emergency plans are neither maintained nor implemented. | The Transmission Operator or Balancing Authority has failed to develop, maintain, and implement operating emergency mitigation plans for emergencies on the transmission system. |

Standard EOP-001-1 — Emergency Operations Planning

| Requirement | Lower | Moderate | High | Severe |
|-------------|--|--|---|--|
| R3.3 | The Transmission Operator or Balancing Authority's load shedding plans are missing minor details or minor program/procedural elements. | The Transmission Operator or Balancing Authority's has demonstrated the existence of load shedding plans but are not maintained. | The Transmission Operator or Balancing Authority's load shedding plans are partially compliant with the requirement but are neither maintained nor implemented. | The Transmission Operator or Balancing Authority has failed to develop, maintain, and implement load shedding plans. |
| R4 | The Transmission Operator or Balancing Authority failed to comply with one (1) of the sub-components. | The Transmission Operator or Balancing Authority failed to comply with two (2) of the sub-components. | The Transmission Operator or Balancing Authority has failed to comply with three (3) of the sub-components. | The Transmission Operator or Balancing Authority has failed to comply with all four (4) of the sub-components. |
| R4.1 | The Transmission Operator or Balancing Authority's communication protocols included in the emergency plan are missing minor program/procedural elements. | N/A | N/A | The Transmission Operator or Balancing Authority has failed to include communication protocols in its emergency plans to mitigate operating emergencies. |
| R4.2 | The Transmission Operator or Balancing Authority's list of controlling actions has resulted in meeting the intent of the requirement but is missing minor program/procedural elements. | N/A | The Transmission Operator or Balancing Authority provided a list of controlling actions, however the actions fail to resolve the emergency within NERC-established timelines. | The Transmission Operator or Balancing Authority has failed to provide a list of controlling actions to resolve the emergency. |
| R4.3 | The Transmission Operator or Balancing Authority has demonstrated coordination with Transmission Operators and Balancing Authorities but is missing minor program/procedural elements. | N/A | N/A | The Transmission Operator or Balancing Authority has failed to demonstrate the tasks to be coordinated with adjacent Transmission Operator and Balancing Authorities as directed by the requirement. |
| R4.4 | The Transmission Operator or Balancing Authority's emergency plan does not include staffing levels for the emergency | N/A | N/A | N/A |

Standard EOP-001-1 — Emergency Operations Planning

| Requirement | Lower | Moderate | High | Severe |
|-------------|--|--|---|---|
| R5 | The Transmission Operator and Balancing Authority's emergency plan has complied with 90% or more of the number of sub-components. | The Transmission Operator and Balancing Authority's emergency plan has complied with 70% to 90% of the number of sub-components. | The Transmission Operator and Balancing Authority's emergency plan has complied with between 50% to 70% of the number of sub-components. | The Transmission Operator and Balancing Authority's emergency plan has complied with 50% or less of the number of sub-components |
| R6 | The Transmission Operator and Balancing Authority is missing minor program/procedural elements. | The Transmission Operator and Balancing Authority has failed to annually review one of it's emergency plans | The Transmission Operator and Balancing Authority has failed to annually review two of its emergency plans or communicate with one of it's neighboring Balancing Authorities. | The Transmission Operator and Balancing Authority has failed to annually review and/or communicate any emergency plans with its Reliability Coordinator, neighboring Transmission Operators or Balancing Authorities. |
| R7 | The Transmission Operator and/or the Balancing Authority failed to comply with one (1) of the sub-components. | The Transmission Operator and/or the Balancing Authority failed to comply with two (2) of the sub-components. | The Transmission Operator and/or the Balancing Authority has failed to comply with three (3) of the sub-components. | The Transmission Operator and/or the Balancing Authority has failed to comply with four (4) or more of the sub-components. |
| R7.1 | The Transmission Operator or Balancing Authority has failed to establish and maintain reliable communication between interconnected systems. | N/A | N/A | N/A |
| R7.2 | The Transmission Operator or Balancing Authority has failed to arrange new interchange agreements to provide for emergency capacity or energy transfers with required entities when existing agreements could not be used. | N/A | N/A | N/A |
| R7.3 | The Transmission Operator or Balancing Authority has failed to coordinate transmission and generator maintenance schedules to maximize capacity or conserve fuel in short supply. | N/A | N/A | N/A |

Standard EOP-001-1 — Emergency Operations Planning

| Requirement | Lower | Moderate | High | Severe |
|-------------|---|----------|------|--------|
| R7.4 | The Transmission Operator or Balancing Authority has failed to arrange for deliveries of electrical energy or fuel from remote systems through normal operating channels. | N/A | N/A | N/A |

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 | August 5, 2009 | Approved by Board of Trustees Replaced Levels of Non-compliance with the February 28, 2008 BOT approved Violation Severity Levels Corrected typographical errors in BOT approved version of VSLs | Revision |
| | | | |

Attachment 1-EOP-001-0

Elements for Consideration in Development of Emergency Plans

1. Fuel supply and inventory — An adequate fuel supply and inventory plan that recognizes reasonable delays or problems in the delivery or production of fuel.
2. Fuel switching — Fuel switching plans for units for which fuel supply shortages may occur, e.g., gas and light oil.
3. Environmental constraints — Plans to seek removal of environmental constraints for generating units and plants.
4. System energy use — The reduction of the system’s own energy use to a minimum.
5. Public appeals — Appeals to the public through all media for voluntary load reductions and energy conservation including educational messages on how to accomplish such load reduction and conservation.
6. Load management — Implementation of load management and voltage reductions, if appropriate.
7. Optimize fuel supply — The operation of all generating sources to optimize the availability.
8. Appeals to customers to use alternate fuels — In a fuel emergency, appeals to large industrial and commercial customers to reduce non-essential energy use and maximize the use of customer-owned generation that rely on fuels other than the one in short supply.
9. Interruptible and curtailable loads — Use of interruptible and curtailable customer load to reduce capacity requirements or to conserve the fuel in short supply.
10. Maximizing generator output and availability — The operation of all generating sources to maximize output and availability. This should include plans to winterize units and plants during extreme cold weather.
11. Notifying IPPs — Notification of cogeneration and independent power producers to maximize output and availability.
12. Requests of government — Requests to appropriate government agencies to implement programs to achieve necessary energy reductions.
13. Load curtailment — A mandatory load curtailment plan to use as a last resort. This plan should address the needs of critical loads essential to the health, safety, and welfare of the community. Address firm load curtailment.
14. Notification of government agencies — Notification of appropriate government agencies as the various steps of the emergency plan are implemented.
15. Notifications to operating entities — Notifications to other operating entities as steps in emergency plan are implemented.

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A. Introduction

1. **Title:** Emergency Operations Planning
2. **Number:** EOP-001-10
3. **Purpose:** Each Transmission Operator and Balancing Authority needs to develop, maintain, and implement a set of plans to mitigate operating emergencies. These plans need to be coordinated with other Transmission Operators and Balancing Authorities, and the Reliability Coordinator.
4. **Applicability**
 - 4.1. Balancing Authorities.
 - 4.2. Transmission Operators.

5. **Effective Date:** Twenty-four months after the first day of the first calendar quarter following applicable regulatory approval. In those jurisdictions where no regulatory approval is required, all requirements go into effect twenty-four months after Board of Trustees adoption, April 1, 2005

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B. Requirements

- R1. Balancing Authorities shall have operating agreements with adjacent Balancing Authorities that shall, at a minimum, contain provisions for emergency assistance, including provisions to obtain emergency assistance from remote Balancing Authorities.
- R2. The Transmission Operator shall have an emergency load reduction plan for all identified IROLs. The plan shall include the details on how the Transmission Operator will implement load reduction in sufficient amount and time to mitigate the IROL violation before system separation or collapse would occur. The load reduction plan must be capable of being implemented within 30 minutes.
- R3. Each Transmission Operator and Balancing Authority shall:
 - R3.1. Develop, maintain, and implement a set of plans to mitigate operating emergencies for insufficient generating capacity.
 - R3.2. Develop, maintain, and implement a set of plans to mitigate operating emergencies on the transmission system.
 - R3.3. Develop, maintain, and implement a set of plans for load shedding.
 - ~~R3.4. Develop, maintain, and implement a set of plans for system restoration.~~
- R4. Each Transmission Operator and Balancing Authority shall have emergency plans that will enable it to mitigate operating emergencies. At a minimum, Transmission Operator and Balancing Authority emergency plans shall include:
 - R4.1. Communications protocols to be used during emergencies.
 - R4.2. A list of controlling actions to resolve the emergency. Load reduction, in sufficient quantity to resolve the emergency within NERC-established timelines, shall be one of the controlling actions.
 - R4.3. The tasks to be coordinated with and among adjacent Transmission Operators and Balancing Authorities.
 - R4.4. Staffing levels for the emergency.

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- R5.** Each Transmission Operator and Balancing Authority shall include the applicable elements in Attachment 1-EOP-001-0 when developing an emergency plan.
- R6.** The Transmission Operator and Balancing Authority shall annually review and update each emergency plan. The Transmission Operator and Balancing Authority shall provide a copy of its updated emergency plans to its Reliability Coordinator and to neighboring Transmission Operators and Balancing Authorities.
- R7.** The Transmission Operator and Balancing Authority shall coordinate its emergency plans with other Transmission Operators and Balancing Authorities as appropriate. This coordination includes the following steps, as applicable:
 - R7.1.** The Transmission Operator and Balancing Authority shall establish and maintain reliable communications between interconnected systems.
 - R7.2.** The Transmission Operator and Balancing Authority shall arrange new interchange agreements to provide for emergency capacity or energy transfers if existing agreements cannot be used.
 - R7.3.** The Transmission Operator and Balancing Authority shall coordinate transmission and generator maintenance schedules to maximize capacity or conserve the fuel in short supply. (This includes water for hydro generators.)
 - R7.4.** The Transmission Operator and Balancing Authority shall arrange deliveries of electrical energy or fuel from remote systems through normal operating channels.

C. Measures

- M1.** The Transmission Operator and Balancing Authority shall have its emergency plans available for review by the Regional Reliability Organization at all times.
- M2.** The Transmission Operator and Balancing Authority shall have its two most recent annual self-assessments available for review by the Regional Reliability Organization at all times.

D. Compliance

1. Compliance Monitoring Process

1.1. Compliance Monitoring Responsibility

Regional Reliability Organization.

1.2. Compliance Monitoring Period and Reset Timeframes

The Regional Reliability Organization shall review and evaluate emergency plans every three years to ensure that the plans consider the applicable elements of Attachment 1-EOP-001-0.

The Regional Reliability Organization may elect to request self-certification of the Transmission Operator and Balancing Authority in years that the full review is not done.

Reset: one calendar year.

1.3. Data Retention

Current plan available at all times.

1.4. Additional Compliance Information

Not specified.

Standard EOP-001-0-1 — Emergency Operations Planning

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1. Violation Severity Levels

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| Requirement | Lower | Moderate | High | Severe |
|-------------|--|---|--|--|
| R1 | <u>The Balancing Authority failed to demonstrate the existence of the necessary operating agreements for less than 25% of the adjacent BAs. Or less than 25% of those agreements do not contain provisions for emergency assistance.</u> | <u>The Balancing Authority failed to demonstrate the existence of the necessary operating agreements for 25% to 50% of the adjacent BAs. Or 25 to 50% of those agreements do not contain provisions for emergency assistance.</u> | <u>The Balancing Authority failed to demonstrate the existence of the necessary operating agreements for 50% to 75% of the adjacent BAs. Or 50% to 75% of those agreements do not contain provisions for emergency assistance.</u> | <u>The Balancing Authority failed to demonstrate the existence of the necessary operating agreements for 75% or more of the adjacent BAs. Or more than 75% of those agreements do not contain provisions for emergency assistance.</u> |
| R2 | <u>The Transmission Operator has demonstrated the existence of the emergency load reduction plan but the plan will take longer than 30 minutes.</u> | N/A | <u>The Transmission Operator fails to include details on how load reduction is to be implemented in sufficient amount and time to mitigate IROL violation.</u> | <u>The Transmission Operator failed to demonstrate the existence of emergency load reduction plans for all identified IROLS.</u> |
| R3 | <u>The Transmission Operator or Balancing Authority failed to comply with one (1) of the sub-components.</u> | <u>The Transmission Operator or Balancing Authority failed to comply with two (2) of the sub-components.</u> | N/A | <u>The Transmission Operator or Balancing Authority has failed to comply with three (3) of the sub-components.</u> |
| R3.1 | <u>The Transmission Operator or Balancing Authority's emergency plans to mitigate insufficient generating capacity are missing minor details or minor program/procedural elements.</u> | <u>The Transmission Operator or Balancing Authority's has demonstrated the existence of emergency plans to mitigate insufficient generating capacity emergency plans but the plans are not maintained.</u> | <u>The Transmission Operator or Balancing Authority's emergency plans to mitigate insufficient generating capacity emergency plans are neither maintained nor implemented.</u> | <u>The Transmission Operator or Balancing Authority has failed to develop emergency mitigation plans for insufficient generating capacity.</u> |
| R3.2 | <u>The Transmission Operator or Balancing Authority's plans to mitigate transmission system emergencies are missing minor details or minor program/procedural elements.</u> | <u>The Transmission Operator or Balancing Authority's has demonstrated the existence of transmission system emergency plans but are not maintained.</u> | <u>The Transmission Operator or Balancing Authority's transmission system emergency plans are neither maintained nor implemented.</u> | <u>The Transmission Operator or Balancing Authority has failed to develop, maintain, and implement operating emergency mitigation plans for emergencies on the transmission system.</u> |

Standard EOP-001-0-1 — Emergency Operations Planning

| Requirement | Lower | Moderate | High | Severe |
|-------------|--|--|---|--|
| R3.3 | The Transmission Operator or Balancing Authority's load shedding plans are missing minor details or minor program/procedural elements. | The Transmission Operator or Balancing Authority's has demonstrated the existence of load shedding plans but are not maintained. | The Transmission Operator or Balancing Authority's load shedding plans are partially compliant with the requirement but are neither maintained nor implemented. | The Transmission Operator or Balancing Authority has failed to develop, maintain, and implement load shedding plans. |
| R4 | The Transmission Operator or Balancing Authority failed to comply with one (1) of the sub-components. | The Transmission Operator or Balancing Authority failed to comply with two (2) of the sub-components. | The Transmission Operator or Balancing Authority has failed to comply with three (3) of the sub-components. | The Transmission Operator or Balancing Authority has failed to comply with all four (4) of the sub-components. |
| R4.1 | The Transmission Operator or Balancing Authority's communication protocols included in the emergency plan are missing minor program/procedural elements. | N/A | N/A | The Transmission Operator or Balancing Authority has failed to include communication protocols in its emergency plans to mitigate operating emergencies. |
| R4.2 | The Transmission Operator or Balancing Authority's list of controlling actions has resulted in meeting the intent of the requirement but is missing minor program/procedural elements. | N/A | The Transmission Operator or Balancing Authority provided a list of controlling actions, however the actions fail to resolve the emergency within NERC-established timelines. | The Transmission Operator or Balancing Authority has failed to provide a list of controlling actions to resolve the emergency. |
| R4.3 | The Transmission Operator or Balancing Authority has demonstrated coordination with Transmission Operators and Balancing Authorities but is missing minor program/procedural elements. | N/A | N/A | The Transmission Operator or Balancing Authority has failed to demonstrate the tasks to be coordinated with adjacent Transmission Operator and Balancing Authorities as directed by the requirement. |
| R4.4 | The Transmission Operator or Balancing Authority's emergency plan does not include staffing levels for the emergency | N/A | N/A | N/A |

Standard EOP-001-0-1 — Emergency Operations Planning

| Requirement | Lower | Moderate | High | Severe |
|-------------|---|---|--|--|
| R5 | <u>The Transmission Operator and Balancing Authority's emergency plan has complied with 90% or more of the number of sub-components.</u> | <u>The Transmission Operator and Balancing Authority's emergency plan has complied with 70% to 90% of the number of sub-components.</u> | <u>The Transmission Operator and Balancing Authority's emergency plan has complied with between 50% to 70% of the number of sub-components.</u> | <u>The Transmission Operator and Balancing Authority's emergency plan has complied with 50% or less of the number of sub-components</u> |
| R6 | <u>The Transmission Operator and Balancing Authority is missing minor program/procedural elements.</u> | <u>The Transmission Operator and Balancing Authority has failed to annually review one of it's emergency plans</u> | <u>The Transmission Operator and Balancing Authority has failed to annually review two of its emergency plans or communicate with one of it's neighboring Balancing Authorities.</u> | <u>The Transmission Operator and Balancing Authority has failed to annually review and/or communicate any emergency plans with its Reliability Coordinator, neighboring Transmission Operators or Balancing Authorities.</u> |
| R7 | <u>The Transmission Operator and/or the Balancing Authority failed to comply with one (1) of the sub-components.</u> | <u>The Transmission Operator and/or the Balancing Authority failed to comply with two (2) of the sub-components.</u> | <u>The Transmission Operator and/or the Balancing Authority has failed to comply with three (3) of the sub-components.</u> | <u>The Transmission Operator and/or the Balancing Authority has failed to comply with four (4) or more of the sub-components.</u> |
| R7.1 | <u>The Transmission Operator or Balancing Authority has failed to establish and maintain reliable communication between interconnected systems.</u> | N/A | N/A | N/A |
| R7.2 | <u>The Transmission Operator or Balancing Authority has failed to arrange new interchange agreements to provide for emergency capacity or energy transfers with required entities when existing agreements could not be used.</u> | N/A | N/A | N/A |
| R7.3 | <u>The Transmission Operator or Balancing Authority has failed to coordinate transmission and generator maintenance schedules to maximize capacity or conserve fuel in short supply.</u> | N/A | N/A | N/A |

Standard EOP-001-~~0-1~~ — Emergency Operations Planning

| <u>Requirement</u> | <u>Lower</u> | <u>Moderate</u> | <u>High</u> | <u>Severe</u> |
|--------------------|---|-----------------|-------------|---------------|
| <u>R7.4</u> | The Transmission Operator or Balancing Authority has failed to arrange for deliveries of electrical energy or fuel from remote systems through normal operating channels. | <u>N/A</u> | <u>N/A</u> | <u>N/A</u> |

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~~2. Levels of Non-Compliance~~

- ~~2.1. Level 1: One of the applicable elements of Attachment 1 EOP 001-0 has not been addressed in the emergency plans.~~
- ~~2.2. Level 2: Two of the applicable elements of Attachment 1 EOP 001-0 have not been addressed in the emergency plans.~~
- ~~2.3. Level 3: Three of the applicable elements of Attachment 1 EOP 001-0 have not been addressed in the emergency plans.~~
- ~~2.4. Level 4: Four or more of the applicable elements of Attachment 1 EOP 001-0 have not been addressed in the emergency plans or a plan does not exist.~~

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 |
| <u>1</u> | <u>August 5, 2009</u> | <u>Approved by Board of Trustees</u> <u>Replaced Levels of Non-compliance with the February 28, 2008 BOT approved Violation Severity Levels</u> <u>Corrected typographical errors in BOT approved version of VSLs</u> | <u>Revision</u> |
| | | | |

Attachment 1-EOP-001-0.

Elements for Consideration in Development of Emergency Plans

1. Fuel supply and inventory — An adequate fuel supply and inventory plan that recognizes reasonable delays or problems in the delivery or production of fuel.
2. Fuel switching — Fuel switching plans for units for which fuel supply shortages may occur, e.g., gas and light oil.
3. Environmental constraints — Plans to seek removal of environmental constraints for generating units and plants.
4. System energy use — The reduction of the system's own energy use to a minimum.
5. Public appeals — Appeals to the public through all media for voluntary load reductions and energy conservation including educational messages on how to accomplish such load reduction and conservation.
6. Load management — Implementation of load management and voltage reductions, if appropriate.
7. Optimize fuel supply — The operation of all generating sources to optimize the availability.
8. Appeals to customers to use alternate fuels — In a fuel emergency, appeals to large industrial and commercial customers to reduce non-essential energy use and maximize the use of customer-owned generation that rely on fuels other than the one in short supply.
9. Interruptible and curtailable loads — Use of interruptible and curtailable customer load to reduce capacity requirements or to conserve the fuel in short supply.
10. Maximizing generator output and availability — The operation of all generating sources to maximize output and availability. This should include plans to winterize units and plants during extreme cold weather.
11. Notifying IPPs — Notification of cogeneration and independent power producers to maximize output and availability.
12. Requests of government — Requests to appropriate government agencies to implement programs to achieve necessary energy reductions.
13. Load curtailment — A mandatory load curtailment plan to use as a last resort. This plan should address the needs of critical loads essential to the health, safety, and welfare of the community. Address firm load curtailment.
14. Notification of government agencies — Notification of appropriate government agencies as the various steps of the emergency plan are implemented.
15. Notifications to operating entities — Notifications to other operating entities as steps in emergency plan are implemented.

Proposed Clean and Redline of EOP-005-2

(Includes Proposed Definition for “Blackstart Resource”)

Definitions of Terms Used in Standard

This section includes all newly defined or revised terms used in the proposed standard. Terms already defined in the Reliability Standards Glossary of Terms are not repeated here. New or revised definitions listed below become approved when the proposed standard is approved. When the standard becomes effective, these defined terms will be removed from the individual standard and added to the Glossary.

Blackstart Capability Plan: Existing definition is retired.

Blackstart Resource: A generating unit(s) and its associated set of equipment which has the ability to be started without support from the System or is designed to remain energized without connection to the remainder of the System, with the ability to energize a bus, meeting the Transmission Operator's restoration plan needs for real and reactive power capability, frequency and voltage control, and that has been included in the Transmission Operator's restoration plan.

A. Introduction

1. **Title:** System Restoration from Blackstart Resources
2. **Number:** EOP-005-2
3. **Purpose:** Ensure plans, Facilities, and personnel are prepared to enable System restoration from Blackstart Resources to assure reliability is maintained during restoration and priority is placed on restoring the Interconnection.
4. **Applicability:**
 - 4.1. Transmission Operators.
 - 4.2. Generator Operators.
 - 4.3. Transmission Owners identified in the Transmission Operators restoration plan.
 - 4.4. Distribution Providers identified in the Transmission Operators restoration plan.
5. **Proposed Effective Date:** Twenty-four months after the first day of the first calendar quarter following applicable regulatory approval. In those jurisdictions where no regulatory approval is required, all requirements go into effect twenty-four months after Board of Trustees adoption.

B. Requirements

- R1. Each Transmission Operator shall have a restoration plan approved by its Reliability Coordinator. The restoration plan shall allow for restoring the Transmission Operator's System following a Disturbance in which one or more areas of the Bulk Electric System (BES) shuts down and the use of Blackstart Resources is required to restore the shut down area to service, to a state whereby the choice of the next Load to be restored is not driven by the need to control frequency or voltage regardless of whether the Blackstart Resource is located within the Transmission Operator's System. The restoration plan shall include: *[Violation Risk Factor = High] [Time Horizon = Operations Planning]*
 - R1.1. Strategies for system restoration that are coordinated with the Reliability Coordinator's high level strategy for restoring the Interconnection.
 - R1.2. A description of how all Agreements or mutually agreed upon procedures or protocols for off-site power requirements of nuclear power plants, including priority of restoration, will be fulfilled during System restoration.
 - R1.3. Procedures for restoring interconnections with other Transmission Operators under the direction of the Reliability Coordinator.
 - R1.4. Identification of each Blackstart Resource and its characteristics including but not limited to the following: the name of the Blackstart Resource, location, megawatt and megavar capacity, and type of unit.
 - R1.5. Identification of Cranking Paths and initial switching requirements between each Blackstart Resource and the unit(s) to be started.
 - R1.6. Identification of acceptable operating voltage and frequency limits during restoration.

- R1.7.** Operating Processes to reestablish connections within the Transmission Operator's System for areas that have been restored and are prepared for reconnection.
- R1.8.** Operating Processes to restore Loads required to restore the System, such as station service for substations, units to be restarted or stabilized, the Load needed to stabilize generation and frequency, and provide voltage control.
- R1.9.** Operating Processes for transferring authority back to the Balancing Authority in accordance with the Reliability Coordinator's criteria.
- R2.** Each Transmission Operator shall provide the entities identified in its approved restoration plan with a description of any changes to their roles and specific tasks prior to the implementation date of the plan. *[Violation Risk Factor = Lower] [Time Horizon = Operations Planning]*
- R3.** Each Transmission Operator shall review its restoration plan and submit it to its Reliability Coordinator annually on a mutually agreed predetermined schedule. *[Violation Risk Factor = Medium] [Time Horizon = Operations Planning]*
 - R3.1.** If there are no changes to the previously submitted restoration plan, the Transmission Operator shall confirm annually on a predetermined schedule to its Reliability Coordinator that it has reviewed its restoration plan and no changes were necessary.
- R4.** Each Transmission Operator shall update its restoration plan within 90 calendar days after identifying any unplanned permanent System modifications, or prior to implementing a planned BES modification, that would change the implementation of its restoration plan. *[Violation Risk Factor = Medium] [Time Horizon = Operations Planning]*
 - R4.1.** Each Transmission Operator shall submit its revised restoration plan to its Reliability Coordinator for approval within the same 90 calendar day period.
- R5.** Each Transmission Operator shall have a copy of its latest Reliability Coordinator approved restoration plan within its primary and backup control rooms so that it is available to all of its System Operators prior to its implementation date. *[Violation Risk Factor = Lower] [Time Horizon = Operations Planning]*
- R6.** Each Transmission Operator shall verify through analysis of actual events, steady state and dynamic simulations, or testing that its restoration plan accomplishes its intended function. This shall be completed every five years at a minimum. Such analysis, simulations or testing shall verify: *[Violation Risk Factor = Medium] [Time Horizon = Long-term Planning]*
 - R6.1.** The capability of Blackstart Resources to meet the Real and Reactive Power requirements of the Cranking Paths and the dynamic capability to supply initial Loads.
 - R6.2.** The location and magnitude of Loads required to control voltages and frequency within acceptable operating limits.

- R6.3.** The capability of generating resources required to control voltages and frequency within acceptable operating limits.
- R7.** Following a Disturbance in which one or more areas of the BES shuts down and the use of Blackstart Resources is required to restore the shut down area to service, each affected Transmission Operator shall implement its restoration plan. If the restoration plan cannot be executed as expected the Transmission Operator shall utilize its restoration strategies to facilitate restoration. [*Violation Risk Factor = High*] [*Time Horizon = Real-time Operations*]
- R8.** Following a Disturbance in which one or more areas of the BES shuts down and the use of Blackstart Resources is required to restore the shut down area to service, the Transmission Operator shall resynchronize area(s) with neighboring Transmission Operator area(s) only with the authorization of the Reliability Coordinator or in accordance with the established procedures of the Reliability Coordinator. [*Violation Risk Factor = High*] [*Time Horizon = Real-time Operations*]
- R9.** Each Transmission Operator shall have Blackstart Resource testing requirements to verify that each Blackstart Resource is capable of meeting the requirements of its restoration plan. These Blackstart Resource testing requirements shall include: [*Violation Risk Factor = Medium*] [*Time Horizon = Operations Planning*]
- R9.1.** The frequency of testing such that each Blackstart Resource is tested at least once every three calendar years.
- R9.2.** A list of required tests including:
- R9.2.1.** The ability to start the unit when isolated with no support from the BES or when designed to remain energized without connection to the remainder of the System.
- R9.2.2.** The ability to energize a bus. If it is not possible to energize a bus during the test, the testing entity must affirm that the unit has the capability to energize a bus such as verifying that the breaker close coil relay can be energized with the voltage and frequency monitor controls disconnected from the synchronizing circuits.
- R9.3.** The minimum duration of each of the required tests.
- R10.** Each Transmission Operator shall include within its operations training program, annual System restoration training for its System Operators to assure the proper execution of its restoration plan. This training program shall include training on the following: [*Violation Risk Factor = Medium*] [*Time Horizon = Operations Planning*]
- R10.1.** System restoration plan including coordination with the Reliability Coordinator and Generator Operators included in the restoration plan.
- R10.2.** Restoration priorities.
- R10.3.** Building of cranking paths.
- R10.4.** Synchronizing (re-energized sections of the System).

- R11.** Each Transmission Operator, each applicable Transmission Owner, and each applicable Distribution Provider shall provide a minimum of two hours of System restoration training every two calendar years to their field switching personnel identified as performing unique tasks associated with the Transmission Operator's restoration plan that are outside of their normal tasks. *[Violation Risk Factor = Medium] [Time Horizon = Operations Planning]*
- R12.** Each Transmission Operator shall participate in its Reliability Coordinator's restoration drills, exercises, or simulations as requested by its Reliability Coordinator. *[Violation Risk Factor = Medium] [Time Horizon = Operations Planning]*
- R13.** Each Transmission Operator and each Generator Operator with a Blackstart Resource shall have written Blackstart Resource Agreements or mutually agreed upon procedures or protocols, specifying the terms and conditions of their arrangement. Such Agreements shall include references to the Blackstart Resource testing requirements. *[Violation Risk Factor = Medium] [Time Horizon = Operations Planning]*
- R14.** Each Generator Operator with a Blackstart Resource shall have documented procedures for starting each Blackstart Resource and energizing a bus. *[Violation Risk Factor = Medium] [Time Horizon = Operations Planning]*
- R15.** Each Generator Operator with a Blackstart Resource shall notify its Transmission Operator of any known changes to the capabilities of that Blackstart Resource affecting the ability to meet the Transmission Operator's restoration plan within 24 hours following such change. *[Violation Risk Factor = Medium] [Time Horizon = Operations Planning]*
- R16.** Each Generator Operator with a Blackstart Resource shall perform Blackstart Resource tests, and maintain records of such testing, in accordance with the testing requirements set by the Transmission Operator to verify that the Blackstart Resource can perform as specified in the restoration plan. *[Violation Risk Factor = Medium] [Time Horizon = Operations Planning]*
- R16.1.** Testing records shall include at a minimum: name of the Blackstart Resource, unit tested, date of the test, duration of the test, time required to start the unit, an indication of any testing requirements not met under Requirement R9.
- R16.2.** Each Generator Operator shall provide the blackstart test results within 30 calendar days following a request from its Reliability Coordinator or Transmission Operator.
- R17.** Each Generator Operator with a Blackstart Resource shall provide a minimum of two hours of training every two calendar years to each of its operating personnel responsible for the startup of its Blackstart Resource generation units and energizing a bus. The training program shall include training on the following: *[Violation Risk Factor = Medium] [Time Horizon = Operations Planning]*
- R17.1.** System restoration plan including coordination with the Transmission Operator.
- R17.2.** The procedures documented in Requirement R14.

- R18.** Each Generator Operator shall participate in the Reliability Coordinator's restoration drills, exercises, or simulations as requested by the Reliability Coordinator. [*Violation Risk Factor = Medium*] [*Time Horizon = Operations Planning*]

C. Measures

- M1.** Each Transmission Operator shall have a dated, documented System restoration plan developed in accordance with Requirement R1 that has been approved by its Reliability Coordinator as shown with the documented approval from its Reliability Coordinator.
- M2.** Each Transmission Operator shall have evidence such as e-mails with receipts or registered mail receipts that it provided the entities identified in its approved restoration plan with a description of any changes to their roles and specific tasks prior to the implementation date of the plan in accordance with Requirement R2.
- M3.** Each Transmission Operator shall have documentation such as a dated review signature sheet, revision histories, e-mails with receipts, or registered mail receipts, that it has annually reviewed and submitted the Transmission Operator's restoration plan to its Reliability Coordinator in accordance with Requirement R3.
- M4.** Each Transmission Operator shall have documentation such as dated review signature sheets, revision histories, e-mails with receipts, or registered mail receipts, that it has updated its restoration plan and submitted it to its Reliability Coordinator in accordance with Requirement R4.
- M5.** Each Transmission Operator shall have documentation that it has made the latest Reliability Coordinator approved copy of its restoration plan available in its primary and backup control rooms and its System Operators prior to its implementation date in accordance with Requirement R5.
- M6.** Each Transmission Operator shall have documentation such as power flow outputs, that it has verified that its latest restoration plan will accomplish its intended function in accordance with Requirement R6.
- M7.** If there has been a Disturbance in which Blackstart Resources have been utilized in restoring the shut down area of the BES to service, each Transmission Operator involved shall have evidence such as voice recordings, e-mail, dated computer printouts, or operator logs, that it implemented its restoration plan or restoration plan strategies in accordance with Requirement R7.
- M8.** If there has been a Disturbance in which Blackstart Resources have been utilized in restoring the shut down area of the BES to service, each Transmission Operator involved in such an event shall have evidence, such as voice recordings, e-mail, dated computer printouts, or operator logs, that it resynchronized shut down areas in accordance with Requirement R8.
- M9.** Each Transmission Operator shall have documented Blackstart Resource testing requirements in accordance with Requirement R9.
- M10.** Each Transmission Operator shall have an electronic or hard copy of the training program material provided for its System Operators for System restoration training in accordance with Requirement R10.

- M11.** Each Transmission Operator, each applicable Transmission Owner, and each applicable Distribution Provider shall have an electronic or hard copy of the training program material provided to their field switching personnel for System restoration training and the corresponding training records including training dates and duration in accordance with Requirement R11.
- M12.** Each Transmission Operator shall have evidence, such as training records, that it participated in the Reliability Coordinator's restoration drills, exercises, or simulations as requested in accordance with Requirement R12.
- M13.** Each Transmission Operator and Generator Operator with a Blackstart Resource shall have the dated Blackstart Resource Agreements or mutually agreed upon procedures or protocols in accordance with Requirement R13.
- M14.** Each Generator Operator with a Blackstart Resource shall have dated documented procedures on file for starting each unit and energizing a bus in accordance with Requirement R14.
- M15.** Each Generator Operator with a Blackstart Resource shall provide evidence, such as e-mails with receipts or registered mail receipts, showing that it notified its Transmission Operator of any known changes to its Blackstart Resource capabilities within twenty-four hours of such changes in accordance with Requirement R15.
- M16.** Each Generator Operator with a Blackstart Resource shall maintain dated documentation of its Blackstart Resource test results and shall have evidence such as e-mails with receipts or registered mail receipts, that it provided these records to its Reliability Coordinator and Transmission Operator when requested in accordance with Requirement R16.
- M17.** Each Generator Operator with a Blackstart Resource shall have an electronic or hard copy of the training program material provided to its operating personnel responsible for the startup and synchronization of its Blackstart Resource generation units and a copy of its dated training records including training dates and durations showing that it has provided training in accordance with Requirement R17.
- M18.** Each Generator Operator shall have evidence, such as dated training records, that it participated in the Reliability Coordinator's restoration drills, exercises, or simulations if requested to do so in accordance with Requirement R18.

D. Compliance

- 1. Compliance Monitoring Process**
 - 1.1. Compliance Enforcement Authority**

Regional Entity.
 - 1.2. Compliance Monitoring Period and Reset Time Frame**

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

The 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:

- Approved restoration plan and any restoration plans in force since the last compliance audit for Requirement R1, Measure M1.
- Provided the entities identified in its approved restoration plan with a description of any changes to their roles and specific tasks prior to the implementation date of the plan for the current calendar year and three prior calendar years for Requirement R2, Measure M2.
- Submission of the Transmission Operator's annually reviewed restoration plan to its Reliability Coordinator for the current calendar year and three prior calendar years for Requirement R3, Measure M3.
- Submission of an updated restoration plan to its Reliability Coordinator for all versions for the current calendar year and the prior three years for Requirement R4, Measure M4.
- The current, restoration plan approved by the Reliability Coordinator and any restoration plans for the last three calendar years that was made available in its control rooms for Requirement R5, Measure M5.
- The verification results for the current, approved restoration plan and the previous approved restoration plan for Requirement R6, Measure M6.
- Implementation of its restoration plan or restoration plan strategies on any occasion for three calendar years if there has been a Disturbance in which Blackstart Resources have been utilized in restoring the shut down area of the BES to service for Requirement R7, Measure M7.
- Resynchronization of shut down areas on any occasion over three calendar years if there has been a Disturbance in which Blackstart Resources have been utilized in restoring the shut down area of the BES to service for Requirement R8, Measure M8.
- The verification process and results for the current Blackstart Resource testing requirements and the last previous Blackstart Resource testing requirements for Requirement R9, Measure M9.
- Actual training program materials or descriptions for three calendar years for Requirement R10, Measure M10.
- Records of participation in all requested Reliability Coordinator restoration drills, exercises, or simulations since its last compliance audit

as well as one previous compliance audit period for Requirement R12, Measure M12.

If a Transmission Operator is found non-compliant for any requirement, it shall keep information related to the non-compliance until found compliant.

The Transmission Operator, applicable Transmission Owner, and applicable Distribution provider 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:

- Actual training program materials or descriptions and actual training records for three calendar years for Requirement R11, Measure M11.

If a Transmission Operator, applicable Transmission owner, or applicable Distribution Provider is found non-compliant for any requirement, it shall keep information related to the non-compliance until found compliant.

The Transmission Operator and Generator Operator with a Blackstart Resource 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:

- Current Blackstart Resource Agreements and any Blackstart Resource Agreements or mutually agreed upon procedures or protocols in force since its last compliance audit for Requirement R13, Measure M13.

The Generator Operator with a Blackstart Resource 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:

- Current documentation and any documentation in force since its last compliance audit on procedures to start each Blackstart Resources and for energizing a bus for Requirement R14, Measure M14.
- Notification to its Transmission Operator of any known changes to its Blackstart Resource capabilities over the last three calendar years for Requirement R15, Measure M15.
- The verification test results for the current set of requirements and one previous set for its Blackstart Resources for Requirement R16, Measure M16.
- Actual training program materials and actual training records for three calendar years for Requirement R17, Measure M17.

If a Generation Operator with a Blackstart Resource is found non-compliant for any requirement, it shall keep information related to the non-compliance until found compliant.

The Generator 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:

- Records of participation in all requested Reliability Coordinator restoration drills, exercises, or simulations since its last compliance audit for Requirement R18, Measure M18.

If a Generation Operator is found non-compliant for any requirement, 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. | The Transmission Operator has an approved plan but failed to comply with one of the sub-requirements within the requirement. | The Transmission Operator has an approved plan but failed to comply with two of the sub-requirements within the requirement. | The Transmission Operator has an approved plan but failed to comply with three of the sub-requirements within the requirement. | The Transmission Operator does not have an approved restoration plan. |
| R2. | The Transmission Operator failed to provide one of the entities identified in its approved restoration plan with a description of any changes to their roles and specific tasks prior to the implementation date of the plan. OR The Transmission Operator provided the information to all entities but was up to 30 calendar days late in doing so. | The Transmission Operator failed to provide two of the entities identified in its approved restoration plan with a description of any changes to their roles and specific tasks prior to the implementation date of the plan. OR The Transmission Operator provided the information to all entities but was more than 30 and less than or equal to 60 calendar days late in doing so. | The Transmission Operator failed to provide three of the entities identified in its approved restoration plan with a description of any changes to their roles and specific tasks prior to the implementation date of the plan. OR The Transmission Operator provided the information to all entities but was more than 60 and less than or equal to 90 calendar days late in doing so. | The Transmission Operator failed to provide four or more of the entities identified in its approved restoration plan with a description of any changes to their roles and specific tasks prior to the implementation date of the plan. OR The Transmission Operator provided the information to all entities but was more than 90 calendar days late in doing so. |
| R3. | The Transmission Operator submitted the reviewed restoration plan or confirmation of no change within 30 calendar days after the pre-determined schedule. | The Transmission Operator submitted the reviewed restoration plan or confirmation of no change more than 30 and less than or equal to 60 calendar days after the pre-determined schedule. | The Transmission Operator submitted the reviewed restoration plan or confirmation of no change more than 60 and less than or equal to 90 calendar days after the pre-determined schedule. | The Transmission Operator submitted the reviewed restoration plan or confirmation of no change more than 90 calendar days after the pre-determined schedule. |
| R4. | The Transmission Operator failed to update and submit its restoration plan to the Reliability Coordinator within 90 calendar days of an | The Transmission Operator failed to update and submit its restoration plan to the Reliability Coordinator within more than 90 calendar days but | The Transmission Operator has failed to update and submit its restoration plan to the Reliability Coordinator within more than 120 calendar days but | The Transmission Operator has failed to update and submit its restoration plan to the Reliability Coordinator within more than 150 calendar days of |

Standard EOP-005-2 — System Restoration from Blackstart Resources

| R# | Lower VSL | Moderate VSL | High VSL | Severe VSL |
|------------|---|---|--|---|
| | unplanned change. | less than 120 calendar days of an unplanned change. | less than 150 calendar days of unplanned change. | an unplanned change. OR The Transmission Operator failed to update and submit its restoration plan to the Reliability Coordinator prior to a planned BES modification. |
| R5. | N/A | N/A | N/A | The Transmission Operator did not make the latest Reliability Coordinator approved restoration plan available in its primary and backup control rooms prior to its implementation date. |
| R6. | The Transmission Operator performed the verification within the required timeframe but did not comply with one of the sub-requirements. | The Transmission Operator performed the verification within the required timeframe but did not comply with two of the sub-requirements. | The Transmission Operator performed the verification but did not complete it within the five calendar year period. | The Transmission Operator did not perform the verification or it took more than six calendar years to complete the verification. OR The Transmission Operator performed the verification within the required timeframe but did not comply with any of the sub-requirements. |
| R7. | N/A | N/A | N/A | The Transmission Operator did not implement its restoration plan following a Disturbance in which Blackstart Resources have been utilized in restoring the shut down area of the BES. Or, if the restoration plan cannot |

Standard EOP-005-2 — System Restoration from Blackstart Resources

| R# | Lower VSL | Moderate VSL | High VSL | Severe VSL |
|-------------|---|---|---|--|
| | | | | be executed as expected, the Transmission Operator did not utilize its restoration plan strategies to facilitate restoration. |
| R8. | N/A | N/A | N/A | The Transmission Operator resynchronized without approval of the Reliability Coordinator or not in accordance with the established procedures of the Reliability Coordinator following a Disturbance in which Blackstart Resources have been utilized in restoring the shut down area of the BES to service. |
| R9. | N/A | N/A | N/A | The Transmission Operator’s Blackstart Resource testing requirements do not address one or more of the sub-requirements of Requirement R9. |
| R10. | The Transmission Operator’s training does not address one of the sub-requirements of Requirement R10. | The Transmission Operator’s training does not address two of the sub-requirements of Requirement R10. | The Transmission Operator’s training does not address three or more of the sub-requirements of Requirement R10. | The Transmission Operator has not included System restoration training in its operations training program. |
| R11. | The Transmission Operator, applicable Transmission Owner, or applicable Distribution Provider did not train less than or equal to 10% of the personnel required by Requirement R11 within a two calendar year | The Transmission Operator, applicable Transmission Owner, or applicable Distribution Provider did not train more than 10% and less than or equal to 25% of the personnel required by Requirement R11 within a | The Transmission Operator, applicable Transmission Owner, or applicable Distribution Provider did not train more than 25% and less than or equal to 50% of the personnel required by Requirement R11 within a | The Transmission Operator, applicable Transmission Owner, or applicable Distribution Provider did not train more than 50 % of the personnel required by Requirement R11 within a |

Standard EOP-005-2 — System Restoration from Blackstart Resources

| R# | Lower VSL | Moderate VSL | High VSL | Severe VSL |
|-------------|--|--|--|---|
| | period. | two calendar year period. | two calendar year period. | two calendar year period. |
| R12. | N/A. | N/A | N/A | The Transmission Operator has failed to comply with a request for their participation from the Reliability Coordinator. |
| R13. | N/A | The Transmission Operator and Generator Operator with a Blackstart Resource do not reference Blackstart Resource Testing requirements in their written Blackstart Resource Agreements or mutually agreed upon procedures or protocols. | N/A | The Transmission Operator and Generator Operator with a Blackstart resource do not have a written Blackstart Resource Agreement or mutually agreed upon procedure or protocol. |
| R14. | N/A | N/A | N/A | The Generator Operator does not have documented starting and bus energizing procedures for each Blackstart Resource. |
| R15. | The Generator Operator with a Blackstart Resource did not notify the Transmission Operator of a change in Blackstart Resource capability affecting the ability to meet the Transmission Operator’s restoration plan within 24 hours but did make the notification within 48 hours. | The Generator Operator with a Blackstart Resource did not notify the Transmission Operator of a change in Blackstart Resource capability affecting the ability to meet the Transmission Operator’s restoration plan within 24 hours but did make the notification within 72 hours. | The Generator Operator with a Blackstart Resource did not notify the Transmission Operator of a change in Blackstart Resource capability affecting the ability to meet the Transmission Operator’s restoration plan within 24 hours but did make the notification within 96 hours. | The Generator Operator with a Blackstart Resource did not notify the Transmission Operator of a change in Blackstart Resource capability affecting the ability to meet the Transmission Operator’s restoration plan for more than 96 hours. |
| R16. | The Generator Operator with a Blackstart Resource did not maintain testing records for one of the requirements for a | The Generator Operator with a Blackstart Resource did not maintain testing records for two of the requirements for a | The Generator Operator with a Blackstart Resource did not maintain testing records for three of the requirements for a | The Generator Operator with a Blackstart Resource did not maintain testing records for a Blackstart Resource. Or did not |

Standard EOP-005-2 — System Restoration from Blackstart Resources

| R# | Lower VSL | Moderate VSL | High VSL | Severe VSL |
|-------------|---|---|---|---|
| | Blackstart Resource. Or did not supply the Blackstart Resource testing records as requested within 59 calendar days of the request. | Blackstart Resource. Or did not supply the Blackstart Resource testing records as requested for 60 days to 89 calendar days after the request. | Blackstart Resource. Or did not supply the Blackstart Resource testing records as requested for 90 to 119 calendar days after the request. | supply the Blackstart Resource testing records as requested for 120 days or more after the request. |
| R17. | The Generator Operator with a Blackstart Resource did not train less than or equal to 10% of the personnel required by Requirement R17 within a two calendar year period. | The Generator Operator with a Blackstart Resource did not train more than 10% and less than or equal to 25% of the personnel required by Requirement R17 within a two calendar year period. | The Generator Operator with a Blackstart Resource did not train more than 25% and less than or equal to 50% of the personnel required by Requirement R17 within a two calendar year period. | The Generator Operator with a Blackstart Resource did not train more than 50% of the personnel required by Requirement R17 within a two calendar year period. |
| R18. | N/A. | N/A | N/A | The Generator Operator has failed to comply with a request for their participation from the Reliability Coordinator. |

E. Regional Variances

None.

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 | May 2, 2007 | Approved by Board of Trustees | Revised |
| 2 | TBD | Revisions pursuant to Project 2006-03 | Updated testing requirements Incorporated Attachment 1 into the requirements Updated Measures and Compliance to match new Requirements |
| 2 | August 5, 2009 | Approved by Board of Trustees | Revised |

A. Introduction

1. **Title:** System Restoration from Blackstart Resources
2. **Number:** EOP-005-2
3. **Purpose:** Ensure plans, Facilities, and personnel are prepared to enable System restoration from Blackstart Resources to assure reliability is maintained during restoration and priority is placed on restoring the Interconnection.
4. **Applicability:**
 - 4.1. Transmission Operators.
 - 4.2. Generator Operators.
 - 4.3. Transmission Owners identified in the Transmission Operators restoration plan.
 - 4.4. Distribution Providers identified in the Transmission Operators restoration plan.
5. **Proposed Effective Date:** ~~As per the Implementation Plan~~ Twenty-four months after the first day of the first calendar quarter following applicable regulatory approval. In those jurisdictions where no regulatory approval is required, all requirements go into effect twenty-four months after Board of Trustees adoption.

B. Requirements

- R1. Each Transmission Operator shall have a restoration plan approved by its Reliability Coordinator. The restoration plan shall allow for restoring the Transmission Operator's System following a Disturbance in which one or more areas of the Bulk Electric System (BES) shuts down and the use of Blackstart Resources is required to restore the shut down area to service, to a state whereby the choice of the next Load to be restored is not driven by the need to control frequency or voltage regardless of whether the Blackstart Resource is located within the Transmission Operator's System. The restoration plan shall include: *[Violation Risk Factor = High] [Time Horizon = Operations Planning]*
 - R1.1. Strategies for system restoration that are coordinated with the Reliability Coordinator's high level strategy ~~A description of how the plan follows the high level strategies~~ for restoring the Interconnection ~~as outlined in the Transmission Operator's Reliability Coordinator restoration plan.~~
 - R1.2. A description of ~~the manner in which~~ how all Agreements or mutually agreed upon procedures or protocols for off-site power requirements of nuclear power plants, including priority of restoration, will be fulfilled during System restoration.
 - R1.3. Procedures for restoring interconnections with other Transmission Operators under the direction of the Reliability Coordinator.
 - R1.4. Identification of each Blackstart Resource and its characteristics including but not limited to the following: the name of the Blackstart Resource, location, megawatt and megavar capacity, and type of unit.
 - R1.5. Identification of Cranking Paths and initial switching requirements between each Blackstart Resource and the unit(s) to be started.

- R1.6. Identification of acceptable operating voltage and frequency limits during restoration.
- R1.7. Operating Processes to reestablish connections within the Transmission Operator's System for areas that have been restored and are prepared for reconnection.
- R1.8. Operating Processes to restore Loads required to restore the System, such as station service for substations, units to be restarted or stabilized, the Load needed to stabilize generation and frequency, and provide voltage control.
- R1.9. ~~Criteria~~ Operating Processes for transferring ~~operations and~~ authority back to the Balancing Authority in accordance with the Reliability Coordinator's criteria.
- R2. Each Transmission Operator shall provide the ~~operational~~ entities identified in its approved restoration plan with a description of any changes to their roles and specific tasks prior to the implementation date of the plan. *[Violation Risk Factor = Lower] [Time Horizon = Operations Planning]*
- R3. Each Transmission Operator shall review ~~the Transmission Operator's~~ its restoration plan and submit it to its Reliability Coordinator annually on a mutually agreed predetermined schedule. *[Violation Risk Factor = Medium] [Time Horizon = Operations Planning]*
 - R3.1. If there are no changes to the previously submitted restoration plan, the Transmission Operator shall confirm annually on a predetermined schedule to its Reliability Coordinator that it has reviewed its restoration plan and no changes were necessary.
- R4. Each Transmission Operator shall update its restoration plan within ~~ninety~~ 90 calendar days after identifying any unplanned permanent System modifications, or prior to implementing a planned ~~System-BES~~ modification, that would change the implementation of its restoration plan. *[Violation Risk Factor = Medium] [Time Horizon = Operations Planning]*
 - R4.1. Each Transmission Operator shall submit its revised restoration plan to its Reliability Coordinator for approval within the same ~~ninety~~ 90 calendar day period.
- R5. Each Transmission Operator shall have a copy of its latest Reliability Coordinator approved restoration plan within its primary and backup control rooms ~~and~~ so that it is available to all of its System Operators prior to its implementation date. *[Violation Risk Factor = Lower] [Time Horizon = Operations Planning]*
- R6. Each Transmission Operator shall verify through analysis of actual events, steady state and dynamic simulations, or testing that its restoration plan accomplishes its intended function. This shall be completed every five years at a minimum. Such analysis, simulations or testing shall verify: *[Violation Risk Factor = Medium] [Time Horizon = Long-term Planning]*

- R6.1.** The capability of Blackstart Resources to meet the Real and Reactive Power requirements of the Cranking Paths and [the dynamic capability](#) to supply initial Loads.
- R6.2.** The location and magnitude of Loads required to control voltages and frequency within acceptable operating limits.
- R6.3.** The capability of generating resources required to control voltages and frequency within acceptable operating limits.
- R7.** Following a Disturbance in which one or more areas of the BES shuts down and the use of Blackstart Resources is required to restore the shut down area to service, each affected Transmission Operator shall implement its restoration plan. If the restoration plan cannot be executed as expected ~~because actual conditions do not match the studied conditions,~~ the Transmission Operator shall utilize its restoration ~~plan~~ strategies to facilitate restoration. *[Violation Risk Factor = High] [Time Horizon = Real-time Operations]*
- R8.** Following a Disturbance in which one or more areas of the BES shuts down and the use of Blackstart Resources is required to restore the shut down area to service, the Transmission Operator shall resynchronize area(s) with neighboring Transmission Operator area(s) only with the authorization of the Reliability Coordinator or in accordance with the established procedures of the Reliability Coordinator. *[Violation Risk Factor = High] [Time Horizon = Real-time Operations]*
- R9.** Each Transmission Operator shall have Blackstart Resource testing requirements to verify that each Blackstart Resource is capable of meeting the requirements of its restoration plan. These Blackstart Resource testing requirements shall include: *[Violation Risk Factor = Medium] [Time Horizon = Operations Planning]*
- R9.1.** The frequency of testing such that each Blackstart Resource is tested at least once every three [calendar](#) years.
- R9.2.** A list of required tests including:
- R9.2.1.** The ability to start the unit when isolated with no support from the BES or when designed to remain energized without connection to the remainder of the System.
- R9.2.2.** The ability to energize a bus. If it is not possible to energize a bus during the test, the testing entity must affirm that the unit has the capability to energize a bus such as verifying that the breaker close coil relay can be energized with the voltage and frequency monitor controls disconnected [from the synchronizing circuits](#).
- R9.3.** The minimum duration of each of the required tests.
- R10.** Each Transmission Operator shall include within its operations training program, annual System restoration training ~~to~~[for](#) its System Operators to assure the proper execution of its restoration plan. This training program shall include training on the following: *[Violation Risk Factor = Medium] [Time Horizon = Operations Planning]*

- R10.1.** System restoration plan including coordination with the Reliability Coordinator and Generator Operators included in the restoration plan.
- R10.2.** Restoration priorities.
- R10.3.** Building of cranking paths.
- R10.4.** Synchronizing (re-energized sections of the System).
- R11.** Each Transmission Operator, each applicable Transmission Owner, and each applicable Distribution Provider shall provide a minimum of two hours of System restoration training every two calendar years to their field switching personnel identified as performing unique tasks associated with the Transmission Operator's restoration plan that are outside of their normal tasks. [*Violation Risk Factor = ~~Lower~~Medium*] [*Time Horizon = Operations Planning*]
- R12.** Each Transmission Operator shall participate in its Reliability Coordinator's restoration drills, exercises, or simulations as requested by its Reliability Coordinator. [*Violation Risk Factor = Medium*] [*Time Horizon = Operations Planning*]
- R13.** Each Transmission Operator and each Generator Operator with a Blackstart Resource shall have written Blackstart Resource Agreements or mutually agreed upon procedures or protocols, specifying the terms and conditions of their arrangement. Such Agreements shall include references to the Blackstart Resource testing requirements. [*Violation Risk Factor = Medium*] [*Time Horizon = Operations Planning*]
- R14.** Each Generator Operator with a Blackstart Resource shall have documented procedures for starting each Blackstart Resource and energizing a bus. [*Violation Risk Factor = Medium*] [*Time Horizon = Operations Planning*]
- R15.** Each Generator Operator with a Blackstart Resource shall notify its Transmission Operator of any known changes to the capabilities of that Blackstart Resource affecting the ability to meet the Transmission Operator's restoration plan within ~~twenty-four~~ 24 hours following such change. [*Violation Risk Factor = Medium*] [*Time Horizon = Operations Planning*]
- R16.** Each Generator Operator with a Blackstart Resource shall perform Blackstart Resource tests, and maintain records of such testing, in accordance with the testing requirements set by the Transmission Operator to verify that the Blackstart Resource can perform as specified in the restoration plan. [*Violation Risk Factor = Medium*] [*Time Horizon = Operations Planning*]
- R16.1.** Testing records shall include at a minimum: name of the Blackstart Resource, unit tested, date of the test, duration of the test, time required to start the unit, an indication of any testing requirements not met under Requirement R9.
- R16.2.** Each Generator Operator shall provide the blackstart test results within ~~thirty~~30 calendar days following a request from its Reliability Coordinator or Transmission Operator.
- R17.** Each Generator Operator with a Blackstart Resource shall provide a minimum of two hours of training every two calendar years to each of its operating personnel

responsible for the startup of its Blackstart Resource generation units and energizing a bus. The training program shall include training on the following: [*Violation Risk Factor = Medium*] [*Time Horizon = Operations Planning*]

R17.1. System restoration plan including coordination with the Transmission Operator.

R17.2. The procedures documented in Requirement R14.

R18. Each Generator Operator shall participate in the Reliability Coordinator's restoration drills, exercises, or simulations as requested by the Reliability Coordinator. [*Violation Risk Factor = Medium*] [*Time Horizon = Operations Planning*]

C. Measures

M1. Each Transmission Operator shall have a dated, documented System restoration plan developed in accordance with Requirement R1 that has been approved by its Reliability Coordinator as shown with the ~~written~~-documented approval ~~letter~~ from its Reliability Coordinator.

M2. Each Transmission Operator shall have evidence such as e-mails with receipts or registered mail receipts that it provided the ~~operational~~ entities identified in its approved restoration plan with a description of any changes to their roles and specific tasks prior to the implementation date of the plan in accordance with Requirement R2.

M3. Each Transmission Operator shall have documentation such as a dated review signature sheet, revision histories, e-mails with receipts, or registered mail receipts, that it has annually reviewed and submitted the Transmission Operator's restoration plan to its Reliability Coordinator in accordance with Requirement R3.

M4. Each Transmission Operator shall have documentation such as dated review signature sheets, revision histories, e-mails with receipts, or registered mail receipts, that it has updated its restoration plan and submitted it to its Reliability Coordinator in accordance with Requirement R4.

M5. Each Transmission Operator shall have documentation that it has made the latest Reliability Coordinator approved copy of its restoration plan available in its primary and backup control rooms and ~~to each of~~ its System Operators prior to its implementation date in accordance with Requirement R5.

M6. Each Transmission Operator shall have documentation such as power flow outputs, that it has verified that its latest restoration plan will accomplish its intended function in accordance with Requirement R6.

M7. If there has been a Disturbance in which Blackstart Resources have been utilized in restoring the shut down area of the ~~System~~-BES to service, each Transmission Operator involved shall have evidence such as voice recordings, e-mail, dated computer printouts, or operator logs, that it implemented its restoration plan or restoration plan strategies in accordance with Requirement R7.

M8. If there has been a Disturbance in which Blackstart Resources have been utilized in restoring the shut down area of the ~~System~~-BES to service, each Transmission Operator involved in such an event shall have evidence, such as voice recordings, e-mail, dated

computer printouts, or operator logs, that it resynchronized shut down areas in accordance with Requirement R8.

- M9.** Each Transmission Operator shall have documented Blackstart Resource testing requirements in accordance with Requirement R9.
- M10.** Each Transmission Operator shall have an electronic or hard copy of the training program material provided ~~to~~for its System Operators for System restoration training in accordance with Requirement R10.
- M11.** Each Transmission Operator, each applicable Transmission Owner, and each applicable Distribution Provider shall have an electronic or hard copy of the training program material provided to their field switching personnel for System restoration training and the corresponding training records including training dates and duration in accordance with Requirement R11.
- M12.** Each Transmission Operator shall have evidence, such as training records, that it participated in the Reliability Coordinator's restoration drills, exercises, or simulations as requested in accordance with Requirement R12.
- M13.** Each Transmission Operator and Generator Operator with a Blackstart Resource shall have the dated Blackstart Resource Agreements or mutually agreed upon procedures or protocols in accordance with Requirement R13.
- M14.** Each Generator Operator with a Blackstart Resource shall have dated documented procedures on file for starting each unit and energizing a bus in accordance with Requirement R14.
- M15.** Each Generator Operator with a Blackstart Resource shall provide evidence, such as e-mails with receipts or registered mail receipts, showing that it notified its Transmission Operator of any known changes to its Blackstart Resource capabilities within twenty-four hours of such changes in accordance with Requirement R15.
- M16.** Each Generator Operator with a Blackstart Resource shall maintain dated documentation of its Blackstart Resource test results and shall have evidence such as e-mails with receipts or registered mail receipts, that it provided these records to its Reliability Coordinator and Transmission Operator when requested in accordance with Requirement R16.
- M17.** Each Generator Operator with a Blackstart Resource shall have an electronic or hard copy of the training program material provided to its operating personnel responsible for the startup and synchronization of its Blackstart Resource generation units and a copy of its dated training records including training dates and durations showing that it has provided training in accordance with Requirement R17.
- M18.** Each Generator Operator shall have evidence, such as dated training records, that it participated in the Reliability Coordinator's restoration drills, exercises, or simulations if requested to do so in accordance with Requirement R18.

D. Compliance

- 1. Compliance Monitoring Process**
 - 1.1. Compliance Enforcement Authority**

Regional Entity.

1.2. Compliance Monitoring Period and Reset Time Frame

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

The 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:

- Approved restoration plan and any restoration plans in force since the last compliance audit for Requirement R1, Measure M1.
- Provided the ~~operational~~-entities identified in its approved restoration plan with a description of any changes to their roles and specific tasks prior to the implementation date of the plan for the current calendar year and three prior calendar years for Requirement R2, Measure M2.
- Submission of the Transmission Operator's annually reviewed restoration plan to its Reliability Coordinator for the current calendar year and three prior calendar years for Requirement R3, Measure M3.
- Submission of an updated restoration plan to its Reliability Coordinator for all versions for the current calendar year and the prior three years for Requirement R4, Measure M4.
- The current, restoration plan approved by the Reliability Coordinator ~~restoration plan~~ and any restoration plans ~~in force~~ for the last three calendar years that was made available in its control rooms for Requirement R5, Measure M5.
- The verification results for the current, approved restoration plan and the previous approved restoration plan for Requirement R6, Measure M6.
- Implementation of its restoration plan or restoration plan strategies on any occasion for three calendar years if there has been a Disturbance in which Blackstart Resources have been utilized in restoring the shut down area of the ~~System~~-BES to service for Requirement R7, Measure M7.
- Resynchronization of shut down areas on any occasion over three calendar years if there has been a Disturbance in which Blackstart Resources have

been utilized in restoring the shut down area of the ~~System~~ [BES](#) to service for Requirement R8, Measure M8.

- The verification process and results for the current Blackstart Resource testing requirements and the last previous Blackstart Resource testing requirements for Requirement R9, Measure M9.
- Actual training program materials or descriptions for three calendar years for Requirement R10, Measure M10.
- Records of participation in all requested Reliability Coordinator restoration drills, exercises, or simulations since its last compliance audit as well as one previous compliance audit period for Requirement R12, Measure M12.

If a Transmission Operator is found non-compliant for any requirement, it shall keep information related to the non-compliance until found compliant.

The Transmission Operator, applicable Transmission Owner, and applicable Distribution provider 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:

- Actual training program materials or descriptions and actual training records for three calendar years for Requirement R11, Measure M11.

If a Transmission Operator, applicable Transmission owner, or applicable Distribution Provider is found non-compliant for any requirement, it shall keep information related to the non-compliance until found compliant.

The Transmission Operator and Generator Operator with a Blackstart Resource 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:

- Current Blackstart Resource Agreements and any Blackstart Resource Agreements or mutually agreed upon procedures or protocols in force since its last compliance audit for Requirement R13, Measure M13.

The Generator Operator with a Blackstart Resource 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:

- Current documentation and any documentation in force since its last compliance audit on procedures to start each Blackstart Resources and for energizing a bus for Requirement R14, Measure M14.
- Notification to its Transmission Operator of any known changes to its Blackstart Resource capabilities over the last three [calendar](#) years for Requirement R15, Measure M15.

- The verification test results for the current set of requirements and one previous set for its Blackstart Resources for Requirement R16, Measure M16.
- Actual training program materials and actual training records for three calendar years for Requirement R17, Measure M17.

If a Generation Operator with a Blackstart Resource is found non-compliant for any requirement, it shall keep information related to the non-compliance until found compliant.

The Generator 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:

- Records of participation in all requested Reliability Coordinator restoration drills, exercises, or simulations since its last compliance audit for Requirement R18, Measure M18.

If a Generation Operator is found non-compliant for any requirement, 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. | The Transmission Operator <u>has an approved plan but</u> failed to comply with one of the sub-requirements within the requirement. | The Transmission Operator <u>has an approved plan but</u> failed to comply with two of the sub-requirements within the requirement. | The Transmission Operator has <u>an approved plan but</u> failed to comply with three of the sub-requirements within the requirement. | The Transmission Operator has failed to comply with four or more of the sub-requirements within the requirement. <u>The Transmission Operator does not have an approved restoration plan.</u> |
| R2. | The Transmission Operator failed to provide one of the operational entities identified in its approved restoration plan with a description of any changes to their roles and specific tasks prior to the implementation date of the plan. OR ; † The Transmission Operator provided the information to all entities but was <u>up to thirty 30 calendar</u> days late in doing so- | The Transmission Operator failed to provide two of the operational entities identified in its approved restoration plan with a description of any changes to their roles and specific tasks prior to the implementation date of the plan. OR ; † The Transmission Operator provided the information to all entities but was <u>more than 30 and less than or equal to sixty 60 calendar</u> days or more late in doing so- | The Transmission Operator failed to provide three of the operational entities identified in its approved restoration plan with a description of any changes to their roles and specific tasks prior to the implementation date of the plan. OR ; † The Transmission Operator provided the information to all entities but was <u>more than 60 and less than or equal to ninety 90 calendar</u> days or more late in doing so. | The Transmission Operator failed to provide four or more of the operational entities identified in its approved restoration plan with a description of any changes to their roles and specific tasks prior to the implementation date of the plan. OR ; † The Transmission Operator provided the information to all entities but was <u>more than 90 calendar +20</u> days or more late in doing so. |
| R3. | The Transmission Operator did not submit <u>submitted</u> the reviewed restoration plan or confirmation of no change within twenty nine 30 calendar days of after the pre-determined schedule. | The Transmission Operator did not submit <u>submitted</u> the reviewed restoration plan or confirmation of no change within more than thirty 30 to fifty nine <u>and less than or equal to 60</u> calendar days of after the pre-determined schedule. | The Transmission Operator did not submit <u>submitted</u> the reviewed restoration plan or confirmation of no change within more than sixty 60 to eighty nine <u>and less than or equal to 90</u> calendar days of after the pre-determined schedule. | The Transmission Operator did not submit <u>submitted</u> the reviewed restoration plan or confirmation of no change within more than ninety 90 calendar days or longer after of the pre-determined schedule. |

Standard EOP-005-2 — System Restoration from Blackstart Resources

| R# | Lower VSL | Moderate VSL | High VSL | Severe VSL |
|-----|---|---|--|---|
| R4. | The Transmission Operator failed to update and submit its restoration plan to the Reliability Coordinator within ninety <u>90</u> calendar days of the <u>an</u> <u>unplanned</u> change. | The Transmission Operator failed to update and submit its restoration plan to the Reliability Coordinator within <u>more than 90 calendar days but less than 120</u> calendar days of the <u>an</u> <u>unplanned</u> change. | The Transmission Operator has failed to update and submit its restoration plan to the Reliability Coordinator within <u>more than 120 calendar days but less than 150</u> calendar days of the <u>unplanned</u> change. | The Transmission Operator has failed to update and submit its restoration plan to the Reliability Coordinator within 180 <u>more than 150</u> calendar days of the <u>an</u> <u>unplanned</u> change. <u>OR</u> <u>The Transmission Operator failed to update and submit its restoration plan to the Reliability Coordinator prior to a planned BES modification.</u> |
| R5. | N/A | N/A | N/A | The Transmission Operator did not make the latest Reliability Coordinator approved restoration plan available in its primary and backup control rooms and available to all of its System Operators prior to its implementation date. |
| R6. | The Transmission Operator performed the verification but did not complete it within the five year period. <u>The Transmission Operator performed the verification within the required timeframe but did not comply with one of the sub-requirements.</u> | N/A <u>The Transmission Operator performed the verification within the required timeframe but did not comply with two of the sub-requirements.</u> | N/A <u>The Transmission Operator performed the verification but did not complete it within the five calendar year period.</u> | The Transmission Operator did not perform the verification or it took more than six <u>calendar</u> years to complete the verification. <u>OR:</u> <u>The Transmission Operator performed the verification within the required timeframe but did not comply with any of the sub-requirements.</u> |
| R7. | N/A | N/A | N/A | The Transmission Operator did |

| R# | Lower VSL | Moderate VSL | High VSL | Severe VSL |
|-------------|--|--|---|---|
| | | | | <p>not implement its restoration plan following a Disturbance in which Blackstart Resources have been utilized in restoring the shut down area of the SystemBES. Or, if the restoration plan cannot be executed as expected because actual conditions do not match the studied conditions, the Transmission Operator did not utilize its restoration plan strategies to facilitate restoration.</p> |
| R8. | N/A | N/A | N/A | <p>The Transmission Operator resynchronized without approval of the Reliability Coordinator or not in accordance with the established procedures of the Reliability Coordinator following a Disturbance in which Blackstart Resources have been utilized in restoring the shut down area of the SystemBES to service.</p> |
| R9. | N/A | N/A | N/A | <p>The Transmission Operator's Blackstart Resource testing requirements do not address one or more of the sub-requirements of Requirement R9.</p> |
| R10. | The Transmission Operator's training does not address one of | The Transmission Operator's training does not address two of | The Transmission Operator's training does not address three | The Transmission Operator has not included System restoration |

Standard EOP-005-2 — System Restoration from Blackstart Resources

| R# | Lower VSL | Moderate VSL | High VSL | Severe VSL |
|------|---|---|---|---|
| | the sub-requirements of Requirement R10. | the sub-requirements of Requirement R10. | or more of the sub-requirements of Requirement R10. | training in its operations training program. |
| R11. | <u>The Transmission Operator, applicable Transmission Owner, or applicable Distribution Provider did not train less than or equal to 10% of the personnel required by Requirement R11 within a two calendar year period.</u> N/A | <u>The Transmission Operator, applicable Transmission Owner, or applicable Distribution Provider did not train more than 10% and less than or equal to 25% of the personnel required by Requirement R11 within a two calendar year period.</u> N/A | <u>The Transmission Operator, applicable Transmission Owner, or applicable Distribution Provider did not train more than 25% and less than or equal to 50% of the personnel required by Requirement R11 within a two calendar year period.</u> N/A | The Transmission Operator, applicable Transmission Owner, or applicable Distribution Provider did not supply any training more than 50 % or more of to the personnel required by Requirement R11 within a two <u>calendar</u> year period. |
| R12. | N/A. | N/A | N/A | The Transmission Operator has failed to comply with a request for their participation from the Reliability Coordinator. |
| R13. | N/A | The Transmission Operator and Generator Operator with a Blackstart Resource do not reference Blackstart Resource Testing requirements in their written Blackstart Resource Agreements or mutually agreed upon procedures or protocols. | N/A | The Transmission Operator and Generator Operator with a Blackstart resource do not have a written Blackstart Resource Agreement or mutually agreed upon procedure or protocol. |
| R14. | N/A | N/A | N/A | The Generator Operator does not have documented starting and bus energizing procedures for each Blackstart Resources. |
| R15. | The Generator Operator with a Blackstart Resource did not notify the Transmission Operator of a change in | The Generator Operator with a Blackstart Resource did not notify the Transmission Operator of a change in | The Generator Operator with a Blackstart Resource did not notify the Transmission Operator of a change in | The Generator Operator with a Blackstart Resource did not notify the Transmission Operator of a change in |

Standard EOP-005-2 — System Restoration from Blackstart Resources

| R# | Lower VSL | Moderate VSL | High VSL | Severe VSL |
|------|--|---|---|--|
| | Blackstart Resource capability <u>affecting the ability to meet the Transmission Operator’s restoration plan</u> within twenty-four 24 hours <u>but did make the notification within 48 hours.</u> | Blackstart Resource capability <u>affecting the ability to meet the Transmission Operator’s restoration plan</u> within seventy-two 72 hours <u>but did make the notification within 72 hours.</u> | Blackstart Resource capability <u>affecting the ability to meet the Transmission Operator’s restoration plan</u> within ninety-six 96 hours <u>but did make the notification within 96 hours.</u> | Blackstart Resource capability <u>affecting the ability to meet the Transmission Operator’s restoration plan</u> for more than ninety-six 96 hours. |
| R16. | The Generator Operator with a Blackstart Resource did not maintain testing records for one of the requirements for a Blackstart Resource. Or did not supply the Blackstart Resource testing records as requested within fifty-nine 59 calendar days of the request. | The Generator Operator with a Blackstart Resource did not maintain testing records for two of the requirements for a Blackstart Resource. Or did not supply the Blackstart Resource testing records as requested for sixty 60 days to eighty-nine 89 calendar days after the request. | The Generator Operator with a Blackstart Resource did not maintain testing records for three of the requirements for a Blackstart Resource. Or did not supply the Blackstart Resource testing records as requested for ninety 90 to 119 calendar days after the request. | The Generator Operator with a Blackstart Resource did not maintain testing records for a Blackstart Resource. Or did not supply the Blackstart Resource testing records as requested for 120 days or more after the request. |
| R17. | <u>The Generator Operator with a Blackstart Resource did not train less than or equal to 10% of the personnel required by Requirement R17 within a two calendar year period.</u> N/A | <u>The Generator Operator with a Blackstart Resource did not train more than 10% and less than or equal to 25% of the personnel required by Requirement R17 within a two calendar year period.</u> N/A | <u>The Generator Operator with a Blackstart Resource did not train more than 25% and less than or equal to 50% of the personnel required by Requirement R17 within a two calendar year period.</u> N/A | The Generator Operator with a Blackstart Resource did not supply any of the training <u>more than 50% or more of the personnel</u> required by Requirement R18 <u>R17</u> within a two <u>calendar</u> year period to each operator responsible for startup of its Blackstart Resource generation units and energizing a bus. |
| R18. | N/A. | N/A | N/A | The Generator Operator has failed to comply with a request for their participation from the Reliability Coordinator. |

E. Regional Variances

None.

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 | May 2, 2007 | Approved by Board of Trustees | Revised |
| 2 | TBD | Revisions pursuant to Project 2006-03 | Updated testing requirements Incorporated Attachment 1 into the requirements Updated Measures and Compliance to match new Requirements |

Proposed Clean and Redline of EOP-006-2

A. Introduction

1. **Title:** System Restoration Coordination
2. **Number:** EOP-006-2
3. **Purpose:** Ensure plans are established and personnel are prepared to enable effective coordination of the System restoration process to ensure reliability is maintained during restoration and priority is placed on restoring the Interconnection.
4. **Applicability:**
 - 4.1. Reliability Coordinators.
5. **Proposed Effective Date:** Twenty-four months after the first day of the first calendar quarter following applicable regulatory approval. In those jurisdictions where no regulatory approval is required, all requirements go into effect twenty-four months after Board of Trustees adoption.

B. Requirements

- R1. Each Reliability Coordinator shall have a Reliability Coordinator Area restoration plan. The scope of the Reliability Coordinator's restoration plan starts when Blackstart Resources are utilized to re-energize a shut down area of the Bulk Electric System (BES), or separation has occurred between neighboring Reliability Coordinators, or an energized island has been formed on the BES within the Reliability Coordinator Area. The scope of the Reliability Coordinator's restoration plan ends when all of its Transmission Operators are interconnected and ~~it~~ its Reliability Coordinator Area is connected to all of its neighboring Reliability Coordinator Areas. The restoration plan shall include: *[Violation Risk Factor = High] [Time Horizon = Operations Planning]*
 - R1.1. A description of the high level strategy to be employed during restoration events for restoring the Interconnection including minimum criteria for meeting the objectives of the Reliability Coordinator's restoration plan.
 - R1.2. Operating Processes for restoring the Interconnection.
 - R1.3. Descriptions of the elements of coordination between individual Transmission Operator restoration plans.
 - R1.4. Descriptions of the elements of coordination of restoration plans with neighboring Reliability Coordinators.
 - R1.5. Criteria and conditions for reestablishing interconnections with other Transmission Operators within its Reliability Coordinator Area, with Transmission Operators in other Reliability Coordinator Areas, and with other Reliability Coordinators.
 - R1.6. Reporting requirements for the entities within the Reliability Coordinator Area during a restoration event.
 - R1.7. Criteria for sharing information regarding restoration with neighboring Reliability Coordinators and with Transmission Operators and Balancing Authorities within its Reliability Coordinator Area.

- R1.8.** Identification of the Reliability Coordinator as the primary contact for disseminating information regarding restoration to neighboring Reliability Coordinators, and to Transmission Operators, and Balancing Authorities within its Reliability Coordinator Area.
- R1.9.** Criteria for transferring operations and authority back to the Balancing Authority.
- R2.** The Reliability Coordinator shall distribute its most recent Reliability Coordinator Area restoration plan to each of its Transmission Operators and neighboring Reliability Coordinators within 30 calendar days of creation or revision. *[Violation Risk Factor = Lower] [Time Horizon = Operations Planning]*
- R3.** Each Reliability Coordinator shall review its restoration plan within 13 calendar months of the last review. *[Violation Risk Factor = Medium] [Time Horizon = Operations Planning]*
- R4.** Each Reliability Coordinator shall review their neighboring Reliability Coordinator's restoration plans. *[Violation Risk Factor = Medium] [Time Horizon = Operations Planning]*

 - R4.1.** If the Reliability Coordinator finds conflicts between its restoration plans and any of its neighbors, the conflicts shall be resolved in 30 calendar days.
- R5.** Each Reliability Coordinator shall review the restoration plans required by EOP-005 of the Transmission Operators within its Reliability Coordinator Area. *[Violation Risk Factor = Medium] [Time Horizon = Operations Planning]*

 - R5.1.** The Reliability Coordinator shall determine whether the Transmission Operator's restoration plan is coordinated and compatible with the Reliability Coordinator's restoration plan and other Transmission Operators' restoration plans within its Reliability Coordinator Area. The Reliability Coordinator shall approve or disapprove, with stated reasons, the Transmission Operator's submitted restoration plan within 30 calendar days following the receipt of the restoration plan from the Transmission Operator.
- R6.** Each Reliability Coordinator shall have a copy of its latest restoration plan and copies of the latest approved restoration plan of each Transmission Operator in its Reliability Coordinator Area within its primary and backup control rooms so that it is available to all of its System Operators prior to the implementation date. *[Violation Risk Factor = Lower] [Time Horizon = Operations Planning]*
- R7.** Each Reliability Coordinator shall work with its affected Generator Operators, and Transmission Operators as well as neighboring Reliability Coordinators to monitor restoration progress, coordinate restoration, and take actions to restore the BES frequency within acceptable operating limits. If the restoration plan cannot be completed as expected the Reliability Coordinator shall utilize its restoration plan strategies to facilitate System restoration. *[Violation Risk Factor = High] [Time Horizon = Real-time Operations]*
- R8.** The Reliability Coordinator shall coordinate or authorize resynchronizing islanded areas that bridge boundaries between Transmission Operators or Reliability

Coordinators. If the resynchronization cannot be completed as expected the Reliability Coordinator shall utilize its restoration plan strategies to facilitate resynchronization. [Violation Risk Factor = High] [Time Horizon = Real-time Operations]

R9. Each Reliability Coordinator shall include within its operations training program, annual System restoration training for its System Operators to assure the proper execution of its restoration plan. This training program shall address the following: [Violation Risk Factor = Medium] [Time Horizon = Operations Planning]

R9.1. The coordination role of the Reliability Coordinator.

R9.2. Reestablishing the Interconnection.

R10. Each Reliability Coordinator shall conduct two System restoration drills, exercises, or simulations per calendar year, which shall include the Transmission Operators and Generator Operators as dictated by the particular scope of the drill, exercise, or simulation that is being conducted. [Violation Risk Factor = Medium] [Time Horizon = Operations Planning]

R10.1. Each Reliability Coordinator shall request each Transmission Operator identified in its restoration plan and each Generator Operator identified in the Transmission Operators' restoration plans to participate in a drill, exercise, or simulation at least every two calendar years.

C. Measures

M1. Each Reliability Coordinator shall have available a dated copy of its restoration plan in accordance with Requirement R1.

M2. Each Reliability Coordinator shall provide evidence such as e-mails with receipts, posting to a secure web site with notification to affected entities, or registered mail receipts, that its most recent restoration plan has been distributed in accordance with Requirement R2.

M3. Each Reliability Coordinator shall provide evidence such as a review signature sheet, or revision histories, that it has reviewed its restoration plan within 13 calendar months of the last review in accordance with Requirement R3.

M4. Each Reliability Coordinator shall provide evidence such as dated review signature sheets that it has reviewed its neighboring Reliability Coordinator's restoration plans and resolved any conflicts within 30 calendar days in accordance with Requirement R4.

M5. Each Reliability Coordinator shall provide evidence, such as a review signature sheet or emails, that it has reviewed, approved or disapproved, and notified its Transmission Operator's within 30 calendar days following the receipt of the restoration plan from the Transmission Operator in accordance with Requirement R5.

M6. Each Reliability Coordinator shall have documentation such as e-mail receipts that it has made the latest copy of its restoration plan and copies of the latest approved restoration plan of each Transmission Operator in its Reliability Coordinator Area available in its primary and backup control rooms and to each of its System Operators prior to the implementation date in accordance with Requirement R6.

- M7.** Each Reliability Coordinator involved shall have evidence such as voice recordings, e-mail, dated computer printouts, or operator logs, that it monitored and coordinated restoration progress in accordance with Requirement R7.
- M8.** If there has been a resynchronizing of an islanded area, each Reliability Coordinator involved shall have evidence such as voice recordings, e-mail, or operator logs, that it coordinated or authorized resynchronizing in accordance with Requirement R8.
- M9.** Each Reliability Coordinator shall have an electronic or hard copy of its training records available showing that it has provided training in accordance with Requirement R9.
- M10.** Each Reliability Coordinator shall have evidence that it conducted two System restoration drills, exercises, or simulations per calendar year and that Transmission Operators and Generator Operators included in the Reliability Coordinator's restoration plan were invited in accordance with Requirement R10.

D. Compliance

1. Compliance Monitoring Process

1.1. Compliance Enforcement Authority

Regional Entity.

1.2. Compliance Monitoring Period and Reset Time Frame

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

The Reliability Coordinator 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:

- The current restoration plan and any restoration plans in force since the last compliance audit for Requirement R1, Measure M1.
- Distribution of its most recent restoration plan and any restoration plans in force for the current calendar year and three prior calendar years for Requirement R2, Measure M2.
- It's reviewed restoration plan for the current review period and the last three prior review periods for Requirement R3, Measure M3.

- Reviewed copies of neighboring Reliability Coordinator restoration plans for the current calendar year and the three prior calendar years for Requirement R4, Measure M4.
- The reviewed restoration plans for the current calendar year and the last three prior calendar years for Requirement R5, Measure M5.
- The current, approved restoration plan and any restoration plans in force for the last three calendar years was made available in its control rooms for Requirement R6, Measure M6.
- If there has been a restoration event, implementation of its restoration plan on any occasion over a rolling 12 month period for Requirement R7, Measure M7.
- If there has been a resynchronization of an islanded area, implementation of its restoration plan on any occasion over a rolling 12 month period for Requirement R8, Measure M8.
- Actual training program materials or descriptions for three calendar years for Requirements R9, Measure M9.
- Records of all Reliability Coordinator restoration drills, exercises, or simulations since its last compliance audit as well as one previous compliance audit period for Requirement R10, Measure M10.

If a Reliability Coordinator 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. | The Reliability Coordinator failed to include one sub-requirement of Requirement R1 within its restoration plan. | The Reliability Coordinator failed to include two sub-requirements of Requirement R1 within its restoration plan. | The Reliability Coordinator failed to include three of the sub-requirements of Requirement R1 within its restoration plan. | The Reliability Coordinator failed to include four or more of the sub-requirements within its restoration plan. |
| R2. | The Reliability Coordinator distributed the most recent Reliability Coordinator Area restoration plan to the entities identified in Requirement R2 but was more than 30 calendar days late but less than 60 calendar days late. | The Reliability Coordinator distributed the most recent Reliability Coordinator Area restoration plan to the entities identified in Requirement R2 but was 60 calendar days or more late, but less than 90 calendar days late. | The Reliability Coordinator distributed the most recent Reliability Coordinator Area restoration plan to the entities identified in Requirement R2 but was 90 or more calendar days late but less than 120 calendar days late. | The Reliability Coordinator distributed the most recent Reliability Coordinator Area restoration plan to entities identified in Requirement R2 but was 120 calendar days or more late. |
| R3. | N/A | N/A | N/A | The Reliability Coordinator did not review its restoration plan within 13 calendar months of the last review. |
| R4. | The Reliability Coordinator did not review and resolve conflicts with the submitted restoration plans from its neighboring Reliability Coordinators within 30 calendar days but did resolve conflicts within 60 calendar days. | The Reliability Coordinator did not review and resolve conflicts with the submitted restoration plans from its neighboring Reliability Coordinators within 30 calendar days but did resolve conflicts within 90 calendar days. | –The Reliability Coordinator did not review and resolve conflicts with the submitted restoration plans from its neighboring Reliability Coordinators within 30 calendar days but did resolve conflicts within 120 calendar days. | The Reliability Coordinator did not review and resolve conflicts with the submitted restoration plans from its neighboring Reliability Coordinators within 120 calendar days. |

Standard EOP-006-2 — System Restoration Coordination

| | | | | |
|-------------------|---|---|---|--|
| <p>R5.</p> | <p>The Reliability Coordinator did not review and approve/disapprove the submitted restoration plans from its Transmission Operators and neighboring Reliability Coordinators within 30 calendar days of receipt but did review and approve/disapprove the plans within 45 calendar days of receipt.</p> <p>OR</p> <p>The Reliability Coordinator failed to notify the Transmission Operator of its approval or disapproval with stated reasons for disapproval within 30 calendar days of receipt but did notify the Transmission Operator of its approval or disapproval with reasons within 45 calendar days of receipt.</p> | <p>The Reliability Coordinator did not review and approve/disapprove the submitted restoration plans from its Transmission Operators and neighboring Reliability Coordinators within 30 calendar days of receipt but did review and approve/disapprove the plans within 60 calendar days of receipt.</p> <p>OR</p> <p>The Reliability Coordinator failed to notify the Transmission Operator of its approval or disapproval with stated reasons for disapproval within 30 calendar days of receipt, but did notify the Transmission Operator of its approval or disapproval with reasons within 60 calendar days of receipt</p> | <p>The Reliability Coordinator did not review and approve/disapprove the submitted restoration plans from its Transmission Operators and neighboring Reliability Coordinators within 30 calendar days of receipt but did review and approve/disapprove the plans within 90 calendar days of receipt.</p> <p>OR</p> <p>The Reliability Coordinator failed to notify the Transmission Operator of its approval or disapproval with stated reasons for disapproval within 30 calendar days of receipt but did notify the Transmission Operator of its approval or disapproval with reasons within 90 calendar days of receipt.</p> | <p>The Reliability Coordinator did not review and approve/disapprove the submitted restoration plans from its Transmission Operators and neighboring Reliability Coordinators for more than 90 calendar days of receipt.</p> <p>OR</p> <p>The Reliability Coordinator failed to notify the Transmission Operator of its approval or disapproval with stated reasons for disapproval for more than 90 calendar days of receipt. .</p> |
| <p>R6.</p> | <p>The Reliability Coordinator did not make its latest restoration plan and the latest approved restoration plan of each Transmission Operator in its Reliability Coordinator Area available to all of its System</p> | <p>The Reliability Coordinator did not make its latest restoration plan and the latest approved restoration plan of each Transmission Operator in its Reliability Coordinator Area available to all of its System</p> | <p>The Reliability Coordinator did not make its latest restoration plan and the latest approved restoration plan of each Transmission Operator in its Reliability Coordinator Area available to all of its System</p> | <p>The Reliability Coordinator did not make its latest restoration plan and the latest approved restoration plan of each Transmission Operator in its Reliability Coordinator Area available to all of its System</p> |

Standard EOP-006-2 — System Restoration Coordination

| | Operators in its primary and backup control rooms prior to the implementation date within 15 calendar days of the implementation date. | Operators in its primary and backup control rooms within 20 calendar days of the implementation date. | Operators in its primary and backup control rooms within 25 calendar days of the implementation date. | Operators in its primary and backup control rooms for more than 25 calendar days after its implementation date. |
|-------------|--|---|---|--|
| R7. | N/A | N/A | N/A | The Reliability Coordinator did not work with its affected Generator Operators and Transmission Operators as well as neighboring Reliability Coordinators to monitor restoration progress, coordinate restoration, and take actions to restore the BES frequency within acceptable operating limits. |
| R8. | N/A | N/A | N/A | The Reliability Coordinator did not coordinate or authorize resynchronizing islanded areas that bridge boundaries between Transmission Operators or Reliability Coordinators. |
| R9. | N/A | N/A | N/A | The Reliability Coordinator supplied annual System restoration training but did not address both of the sub-requirements. OR The Reliability Coordinator supplied the required System restoration training but it was over two calendar years from the last training offered. |
| R10. | The Reliability Coordinator | The Reliability Coordinator did | N/A | The Reliability Coordinator did |

Standard EOP-006-2 — System Restoration Coordination

| | | | | |
|--|--|---|--|---|
| | only held one restoration drill, exercise, or simulation during the calendar year. | not invite a Transmission Operator or Generator Operator identified in its restoration plan to participate in a drill, exercise, or simulation within two calendar years. | | not hold a restoration drill, exercise, or simulation during the calendar year. |
|--|--|---|--|---|

E. Regional Variances

None.

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 | TBD | Revisions pursuant to Project 2006-03 | Updated Measures and Compliance to match new Requirements |
| 2 | August 5, 2009 | Adopted by Board of Trustees | Revised |

A. Introduction

1. **Title:** System Restoration Coordination
2. **Number:** EOP-006-2
3. **Purpose:** Ensure plans are established and personnel are prepared to enable effective coordination of the System restoration process to ensure reliability is maintained during restoration and priority is placed on restoring the Interconnection.
4. **Applicability:**
 - 4.1. Reliability Coordinators.
5. **Proposed Effective Date:** ~~TBD~~ Twenty-four months after the first day of the first calendar quarter following applicable regulatory approval. In those jurisdictions where no regulatory approval is required, all requirements go into effect twenty-four months after Board of Trustees adoption.

B. Requirements

- R1. Each Reliability Coordinator shall have a Reliability Coordinator Area restoration plan. The scope of the Reliability Coordinator's restoration plan starts when Blackstart Resources are utilized to re-energize a shut down area of the Bulk Electric System (BES), or separation has occurred between neighboring Reliability Coordinators, or an energized island has been formed on the BES within the Reliability Coordinator Area. The scope of the Reliability Coordinator's restoration plan ends when all of its Transmission Operators are interconnected and ~~it~~ its Reliability Coordinator Area is connected to all of its neighboring Reliability Coordinator Areas. The restoration plan shall include: *[Violation Risk Factor = High] [Time Horizon = Operations Planning]*
 - R1.1. A description of the high level strategy to be employed during restoration events for restoring the Interconnection including minimum ~~blackstart capability requirements~~ criteria for meeting the objectives of the Reliability Coordinator's restoration plan.
 - R1.2. Operating Processes for restoring the Interconnection.
 - R1.3. Descriptions of the elements of coordination between individual Transmission Operator restoration plans.
 - R1.4. Descriptions of the elements of coordination of restoration plans with neighboring Reliability Coordinators.
 - R1.5. Criteria and conditions for reestablishing interconnections with other Transmission Operators within its Reliability Coordinator Area, ~~between with neighboring~~ Transmission Operators ~~and in other~~ Reliability Coordinator Areas, and with other Reliability Coordinators.
 - ~~R1.6. Identification of acceptable voltage and frequency limits during restoration.~~
 - ~~R1.7.~~ R1.6. Reporting requirements for the entities within the Reliability Coordinator Area during a restoration event.

~~R1.8.~~R1.7. Criteria for sharing information regarding restoration with neighboring Reliability Coordinators and with Transmission Operators and Balancing Authorities within its Reliability Coordinator Area.

~~R1.9.~~R1.8. Identification of the Reliability Coordinator as the primary contact for disseminating information regarding restoration to neighboring Reliability Coordinators, and to Transmission Operators, and Balancing Authorities within its Reliability Coordinator Area.

~~R1.10.~~R1.9. Criteria for transferring operations and authority back to the Balancing Authority.

R2. The Reliability Coordinator shall distribute its most recent Reliability Coordinator Area restoration plan to each of its Transmission Operators and neighboring Reliability Coordinators within ~~thirty~~30 calendar days of creation or revision. *[Violation Risk Factor = Lower] [Time Horizon = Operations Planning]*

R3. Each Reliability Coordinator shall review its restoration plan within ~~thirteen~~13 calendar months of the last review. *[Violation Risk Factor = Medium] [Time Horizon = Operations Planning]*

R4. Each Reliability Coordinator shall review their neighboring Reliability Coordinator's restoration plans. *[Violation Risk Factor = Medium] [Time Horizon = Operations Planning]*

R4.1. If the Reliability Coordinator finds conflicts between its restoration plans and any of its neighbors, the conflicts shall be resolved in ~~thirty~~30 calendar days.

R5. Each Reliability Coordinator shall review the restoration plans required by EOP-005 of the Transmission Operators within its Reliability Coordinator Area ~~and neighboring Reliability Coordinators, when received.~~ *[Violation Risk Factor = Medium] [Time Horizon = Operations Planning]*

R5.1. The Reliability Coordinator shall determine whether the Transmission Operator's restoration plan is coordinated and compatible with the Reliability Coordinator's restoration plan and other Transmission Operators' restoration plans within its Reliability Coordinator Area. The Reliability Coordinator shall approve or disapprove, with stated reasons, the Transmission Operator's submitted restoration plan within ~~thirty~~30 calendar days following the receipt of the restoration plan from the Transmission Operator.

R6. Each Reliability Coordinator shall have a copy of its latest restoration plan and copies of the latest approved restoration plan of each Transmission Operator in its Reliability Coordinator Area within its primary and backup control rooms ~~and~~so that it is available to all of its System Operators prior to the implementation date. *[Violation Risk Factor = Lower] [Time Horizon = Operations Planning]*

R7. Each Reliability Coordinator shall work with its affected Generator Operators, and Transmission Operators as well as neighboring Reliability Coordinators to monitor restoration progress, coordinate restoration, and take actions to restore the BES frequency within acceptable operating limits. If the restoration plan cannot be completed as expected ~~because actual conditions do not match the studied conditions,~~

the Reliability Coordinator shall utilize its restoration plan strategies to facilitate System restoration. [*Violation Risk Factor = High*] [*Time Horizon = Real-time Operations*]

- R8.** The Reliability Coordinator shall coordinate or authorize resynchronizing islanded areas that bridge boundaries between Transmission Operators or Reliability Coordinators. If the resynchronization cannot be completed as expected ~~because actual conditions do not match the studied conditions~~, the Reliability Coordinator shall utilize its restoration plan strategies to facilitate resynchronization. [*Violation Risk Factor = High*] [*Time Horizon = Real-time Operations*]
- R9.** Each Reliability Coordinator shall include within its operations training program, annual System restoration training for its System Operators to assure the proper execution of its restoration plan. This training program shall address the following: [*Violation Risk Factor = Medium*] [*Time Horizon = Operations Planning*]
- R9.1.** The coordination role of the Reliability Coordinator.
- R9.2.** Reestablishing the Interconnection.
- R10.** Each Reliability Coordinator shall conduct two System restoration drills, exercises, or simulations per calendar year, which shall include the Transmission Operators and Generator Operators as dictated by the particular scope of the drill, exercise, or simulation that is being conducted. [*Violation Risk Factor = Medium*] [*Time Horizon = Operations Planning*]
- R10.1.** Each Reliability Coordinator shall request each Transmission Operator ~~and Generator Operator~~ identified in its restoration plan and each Generator Operator identified in the Transmission Operators' restoration plans to participate in a drill, exercise, or simulation at least every two calendar years.

C. Measures

- M1.** Each Reliability Coordinator shall have available a dated copy of its restoration plan in accordance with Requirement R1.
- M2.** Each Reliability Coordinator shall provide evidence such as e-mails with receipts, posting to a secure web site with notification to affected entities, or registered mail receipts, that its most recent restoration plan has been distributed in accordance with Requirement R2.
- M3.** Each Reliability Coordinator shall provide evidence such as a review signature sheet, or revision histories, that it has reviewed its restoration plan within ~~thirteen~~13 calendar months of the last review in accordance with Requirement R3.
- M4.** Each Reliability Coordinator shall provide evidence such as dated review signature sheets that it has reviewed its neighboring Reliability Coordinator's restoration plans and resolved any conflicts within ~~thirty~~30 calendar days in accordance with Requirement R4.
- M5.** Each Reliability Coordinator shall provide evidence, such as a review signature sheet or emails, that it has reviewed, approved or disapproved, and notified its Transmission Operator's; within 30 calendar days following the receipt of the restoration plan from

~~the Transmission Operator and reviewed its neighboring Reliability Coordinator's, submitted restoration plan(s) and updated its restoration plan, if necessary,~~ in accordance with Requirement R5.

- M6.** Each Reliability Coordinator shall have documentation such as e-mail receipts that it has made the latest copy of its restoration plan and copies of the latest approved restoration plan of each Transmission Operator in its Reliability Coordinator Area available in its primary and backup control rooms and to each of its System Operators prior to the implementation date in accordance with Requirement R6.
- M7.** Each Reliability Coordinator involved shall have evidence such as voice recordings, e-mail, dated computer printouts, or operator logs, that it monitored and coordinated restoration progress in accordance with Requirement R7.
- M8.** If there has been a resynchronizing of an islanded area, each Reliability Coordinator involved shall have evidence such as voice recordings, e-mail, or operator logs, that it coordinated ~~and~~ or authorized resynchronizing in accordance with Requirement R8.
- M9.** Each Reliability Coordinator shall have an electronic or hard copy of its training records available showing that it has provided training in accordance with Requirement R9.
- M10.** Each Reliability Coordinator shall have evidence that it conducted two System restoration drills, exercises, or simulations per calendar year and that Transmission Operators and Generator Operators included in the Reliability Coordinator's restoration plan were invited in accordance with Requirement R10.

D. Compliance

1. Compliance Monitoring Process

1.1. Compliance Enforcement Authority

Regional Entity.

1.2. Compliance Monitoring Period and Reset Time Frame

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

The Reliability Coordinator 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:

- The current restoration plan and any restoration plans in force since the last compliance audit for Requirement R1, Measure M1.
- Distribution of its most recent restoration plan and any restoration plans in force for the current [calendar](#) year and three prior calendar years for Requirement R2, Measure M2.
- It's reviewed restoration plan for the current review period and the last three prior review periods for Requirement R3, Measure M3.
- Reviewed copies of neighboring Reliability Coordinator restoration plans for the current [calendar](#) year and the three prior calendar years for Requirement R4, Measure M4.
- The reviewed restoration plans for the current [calendar](#) year and the last three prior calendar years for Requirement R5, Measure M5.
- The current, approved restoration plan and any restoration plans in force for the last three calendar years was made available in its control rooms for Requirement R6, Measure M6.
- If there has been a restoration event, implementation of its restoration plan on any occasion over a rolling ~~twelve~~[12](#) month period for Requirement R7, Measure M7.
- If there has been a resynchronization of an islanded area, implementation of its restoration plan on any occasion over a rolling ~~twelve~~[12](#) month period for Requirement R8, Measure M8.
- Actual training program materials or descriptions for three calendar years for Requirements R9, Measure M9.
- Records of all Reliability Coordinator restoration drills, exercises, or simulations since its last compliance audit as well as one previous compliance audit period for Requirement R10, Measure M10.

If a Reliability Coordinator 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. | The Reliability Coordinator failed to include one sub-requirement of Requirement R1 within its restoration plan. | The Reliability Coordinator failed to include two sub-requirements of Requirement R1 within its restoration plan. | The Reliability Coordinator failed to include three of the sub-requirements of Requirement R1 within its restoration plan. | The Reliability Coordinator failed to include four or more of the sub-requirements within its restoration plan. |
| R2. | The Reliability Coordinator distributed the most recent Reliability Coordinator Area restoration plan to the entities identified in Requirement R2 but was more than thirty <u>30</u> <u>calendar</u> days late <u>but less than 60 calendar days late</u> . | The Reliability Coordinator distributed the most recent Reliability Coordinator Area restoration plan to the entities identified in Requirement R2 but was more than sixty <u>60</u> <u>calendar</u> days <u>or more late, but less than 90 calendar days late</u> . | The Reliability Coordinator distributed the most recent Reliability Coordinator Area restoration plan to the entities identified in Requirement R2 but was <u>90 or more calendar days late but less than ninety</u> 9 <u>120 calendar</u> days late. | The Reliability Coordinator distributed the most recent Reliability Coordinator Area restoration plan to entities identified in Requirement R2 but was more than <u>120 calendar</u> days <u>or more</u> late. |
| R3. | N/A | N/A | N/A | The Reliability Coordinator did not review its restoration plan within thirteen <u>13</u> <u>calendar</u> months of the last review. |
| R4. | The Reliability Coordinator did not review and resolve conflicts with the submitted restoration plans from its neighboring Reliability Coordinators within thirty <u>30</u> <u>calendar</u> days <u>but did resolve conflicts within 60 calendar days</u> . | The Reliability Coordinator did not review and resolve conflicts with the submitted restoration plans from its neighboring Reliability Coordinators within sixty <u>30</u> <u>calendar</u> days <u>but did resolve conflicts within 90 calendar days</u> . | –The Reliability Coordinator did not review and resolve conflicts with the submitted restoration plans from its neighboring Reliability Coordinators within ninety <u>30</u> <u>calendar</u> days <u>but did resolve conflicts within 120 calendar days</u> . | The Reliability Coordinator did not review and resolve conflicts with the submitted restoration plans from its neighboring Reliability Coordinators within 120 <u>calendar</u> days. |

| | | | | |
|-------------------|---|---|--|--|
| <p>R5.</p> | <p>The Reliability Coordinator did not review and approve/disapprove the submitted restoration plans from its Transmission Operators and neighboring Reliability Coordinators within thirty <u>30</u> calendar days of receipt <u>but did review and approve/disapprove the plans within 45 calendar days of receipt.</u></p> <p><u>OR</u></p> <p>‡ ‡The Reliability Coordinator failed to notify the Transmission Operator of its approval or disapproval with stated reasons for disapproval within thirty <u>30</u> calendar days of receipt <u>but did notify the Transmission Operator of its approval or disapproval with reasons within 45 calendar days of receipt.</u></p> | <p>The Reliability Coordinator did not review and approve/disapprove the submitted restoration plans from its Transmission Operators and neighboring Reliability Coordinators within forty five <u>30</u> calendar days of receipt <u>but did review and approve/disapprove the plans within 60 calendar days of receipt.</u></p> <p><u>OR</u></p> <p>‡ ‡The Reliability Coordinator failed to notify the Transmission Operator of its approval or disapproval with stated reasons for disapproval within forty five <u>30</u> calendar days of receipt. <u>but did notify the Transmission Operator of its approval or disapproval with reasons within 60 calendar days of receipt</u></p> | <p>The Reliability Coordinator did not review and approve/disapprove the submitted restoration plans from its Transmission Operators and neighboring Reliability Coordinators within sixty <u>30</u> calendar days of receipt <u>but did review and approve/disapprove the plans within 90 calendar days of receipt.</u></p> <p><u>OR</u></p> <p>‡ ‡The Reliability Coordinator failed to notify the Transmission Operator of its approval or disapproval with stated reasons for disapproval within sixty <u>30</u> calendar days of receipt <u>but did notify the Transmission Operator of its approval or disapproval with reasons within 90 calendar days of receipt.</u> Or the Reliability Coordinator failed to revise its restoration plan after identifying changes required by new or revised restoration plans received from its Transmission Operators and neighboring Reliability Coordinators within ninety calendar days of receipt.</p> | <p>The Reliability Coordinator did not review and approve/disapprove the submitted restoration plans from its Transmission Operators and neighboring Reliability Coordinators within <u>for more than ninety</u> 90 calendar days of receipt.</p> <p><u>OR</u></p> <p>‡ ‡The Reliability Coordinator failed to notify the Transmission Operator of its approval or disapproval with stated reasons for disapproval within <u>for more than ninety</u> 90 calendar days of receipt. Or the Reliability Coordinator failed to revise its restoration plan after identifying changes required by new or revised restoration plans received from its Transmission Operators and neighboring Reliability Coordinators within 150 calendar days of receipt.</p> |
|-------------------|---|---|--|--|

Standard EOP-006-2 — System Restoration Coordination

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|------------|--|---|--|--|
| R6. | The Reliability Coordinator did not make its latest restoration plan and the latest approved restoration plan of each Transmission Operator in its Reliability Coordinator Area available to all of its System Operators in its primary and backup control rooms prior to the implementation date <u>within 15 calendar days of the implementation date.</u> | The Reliability Coordinator did not make its latest restoration plan and the latest approved restoration plan of each Transmission Operator in its Reliability Coordinator Area available to all of its System Operators in its primary and backup control rooms within fifteen calendar days of its implementation date <u>20 calendar days of the implementation date.</u> | The Reliability Coordinator did not make its latest restoration plan and the latest approved restoration plan of each Transmission Operator in its Reliability Coordinator Area available to all of its System Operators in its primary and backup control rooms within twenty calendar days of its implementation date <u>25 calendar days of the implementation date.</u> | The Reliability Coordinator did not make its latest restoration plan and the latest approved restoration plan of each Transmission Operator in its Reliability Coordinator Area available to all of its System Operators in its primary and backup control rooms within for more than twenty-five <u>25</u> calendar days of <u>after</u> its implementation date. |
| R7. | N/A | N/A | N/A | The Reliability Coordinator did not work with its affected Generator Operators and Transmission Operators as well as neighboring Reliability Coordinators to monitor restoration progress, coordinate restoration, and take actions to restore the BES frequency within acceptable operating limits. |
| R8. | N/A | N/A | N/A | The Reliability Coordinator did not coordinate or authorize resynchronizing islanded areas that bridge boundaries between Transmission Operators or Reliability Coordinators. |
| R9. | N/A | . N/A | N/A | The Reliability Coordinator supplied annual System restoration training but did not address both of the sub- |

Standard EOP-006-2 — System Restoration Coordination

| | | | | |
|-------------|--|---|-----|---|
| | | | | requirements. OR † † The Reliability Coordinator supplied the required System restoration training but it was over two calendar years from the last training offered. |
| R10. | The Reliability Coordinator only held one restoration drill, exercise, or simulation during the calendar year. | The Reliability Coordinator did not invite a Transmission Operator or Generator Operator identified in its restoration plan to participate in a drill, exercise, or simulation within two calendar years. | N/A | The Reliability Coordinator did not hold a restoration drill, exercise, or simulation during the calendar year. |

E. Regional Variances

None.

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 | TBD | Revisions pursuant to Project 2006-03 | Updated Measures and Compliance to match new Requirements |

Exhibit B

Reliability Standard EOP-001-2

(to be substituted for proposed EOP-001-1 in the event FERC approves NERC's contemporaneous IRO Reliability Standards filing before acting on EOP-001-1)

A. Introduction

1. **Title:** **Emergency Operations Planning**
2. **Number:** EOP-001-2
3. **Purpose:** Each Transmission Operator and Balancing Authority needs to develop, maintain, and implement a set of plans to mitigate operating emergencies. These plans need to be coordinated with other Transmission Operators and Balancing Authorities, and the Reliability Coordinator.
4. **Applicability**
 - 4.1. Balancing Authorities.
 - 4.2. Transmission Operators.
5. **Proposed Effective Date:** Twenty-four months after the first day of the first calendar quarter following applicable regulatory approval. In those jurisdictions where no regulatory approval is required, all requirements go into effect twenty-four months after Board of Trustees adoption.

B. Requirements

- R1. Balancing Authorities shall have operating agreements with adjacent Balancing Authorities that shall, at a minimum, contain provisions for emergency assistance, including provisions to obtain emergency assistance from remote Balancing Authorities.
- R2. Each Transmission Operator and Balancing Authority shall:
 - R2.1. Develop, maintain, and implement a set of plans to mitigate operating emergencies for insufficient generating capacity.
 - R2.2. Develop, maintain, and implement a set of plans to mitigate operating emergencies on the transmission system.
 - R2.3. Develop, maintain, and implement a set of plans for load shedding.
- R3. Each Transmission Operator and Balancing Authority shall have emergency plans that will enable it to mitigate operating emergencies. At a minimum, Transmission Operator and Balancing Authority emergency plans shall include:
 - R3.1. Communications protocols to be used during emergencies.
 - R3.2. A list of controlling actions to resolve the emergency. Load reduction, in sufficient quantity to resolve the emergency within NERC-established timelines, shall be one of the controlling actions.
 - R3.3. The tasks to be coordinated with and among adjacent Transmission Operators and Balancing Authorities.
 - R3.4. Staffing levels for the emergency.
- R4. Each Transmission Operator and Balancing Authority shall include the applicable elements in Attachment 1-EOP-001-0 when developing an emergency plan.
- R5. The Transmission Operator and Balancing Authority shall annually review and update each emergency plan. The Transmission Operator and Balancing Authority shall provide a copy of its updated emergency plans to its Reliability Coordinator and to neighboring Transmission Operators and Balancing Authorities.

- R6.** The Transmission Operator and Balancing Authority shall coordinate its emergency plans with other Transmission Operators and Balancing Authorities as appropriate. This coordination includes the following steps, as applicable:
- R6.1.** The Transmission Operator and Balancing Authority shall establish and maintain reliable communications between interconnected systems.
 - R6.2.** The Transmission Operator and Balancing Authority shall arrange new interchange agreements to provide for emergency capacity or energy transfers if existing agreements cannot be used.
 - R6.3.** The Transmission Operator and Balancing Authority shall coordinate transmission and generator maintenance schedules to maximize capacity or conserve the fuel in short supply. (This includes water for hydro generators.)
 - R6.4.** The Transmission Operator and Balancing Authority shall arrange deliveries of electrical energy or fuel from remote systems through normal operating channels.

C. Measures

- M1.** The Transmission Operator and Balancing Authority shall have its emergency plans available for review by the Regional Reliability Organization at all times.
- M2.** The Transmission Operator and Balancing Authority shall have its two most recent annual self-assessments available for review by the Regional Reliability Organization at all times.

D. Compliance

1. Compliance Monitoring Process

1.1. Compliance Monitoring Responsibility

Regional Reliability Organization.

1.2. Compliance Monitoring Period and Reset Time Frame

The Regional Reliability Organization shall review and evaluate emergency plans every three years to ensure that the plans consider the applicable elements of Attachment 1-EOP-001-0.

The Regional Reliability Organization may elect to request self-certification of the Transmission Operator and Balancing Authority in years that the full review is not done.

Reset: one calendar year.

1.3. Data Retention

Current plan available at all times.

1.4. Additional Compliance Information

Not specified.

Standard EOP-001-2 — Emergency Operations Planning

2. Violation Severity Levels:

| Requirement | Lower | Moderate | High | Severe |
|-------------|--|---|--|--|
| R1 | The Balancing Authority failed to demonstrate the existence of the necessary operating agreements for less than 25% of the adjacent BAs. Or less than 25% of those agreements do not contain provisions for emergency assistance. | The Balancing Authority failed to demonstrate the existence of the necessary operating agreements for 25% to 50% of the adjacent BAs. Or 25 to 50% of those agreements do not contain provisions for emergency assistance. | The Balancing Authority failed to demonstrate the existence of the necessary operating agreements for 50% to 75% of the adjacent BAs. Or 50% to 75% of those agreements do not contain provisions for emergency assistance. | The Balancing Authority failed to demonstrate the existence of the necessary operating agreements for 75% or more of the adjacent BAs. Or more than 75% of those agreements do not contain provisions for emergency assistance. |
| R2 | The Transmission Operator or Balancing Authority failed to comply with one (1) of the sub-components. | The Transmission Operator or Balancing Authority failed to comply with two (2) of the sub-components. | N/A | The Transmission Operator or Balancing Authority has failed to comply with three (3) of the sub-components. |
| R2.1 | The Transmission Operator or Balancing Authority's emergency plans to mitigate insufficient generating capacity are missing minor details or minor program/procedural elements. | The Transmission Operator or Balancing Authority's has demonstrated the existence of emergency plans to mitigate insufficient generating capacity emergency plans but the plans are not maintained. | The Transmission Operator or Balancing Authority's emergency plans to mitigate insufficient generating capacity emergency plans are neither maintained nor implemented. | The Transmission Operator or Balancing Authority has failed to develop emergency mitigation plans for insufficient generating capacity. |
| R2.2 | The Transmission Operator or Balancing Authority's plans to mitigate transmission system emergencies are missing minor details or minor program/procedural elements. | The Transmission Operator or Balancing Authority's has demonstrated the existence of transmission system emergency plans but are not maintained. | The Transmission Operator or Balancing Authority's transmission system emergency plans are neither maintained nor implemented. | The Transmission Operator or Balancing Authority has failed to develop, maintain, and implement operating emergency mitigation plans for emergencies on the transmission system. |

Standard EOP-001-2 — Emergency Operations Planning

| Requirement | Lower | Moderate | High | Severe |
|--------------------|--|--|---|--|
| R2.3 | The Transmission Operator or Balancing Authority's load shedding plans are missing minor details or minor program/procedural elements. | The Transmission Operator or Balancing Authority's has demonstrated the existence of load shedding plans but are not maintained. | The Transmission Operator or Balancing Authority's load shedding plans are partially compliant with the requirement but are neither maintained nor implemented. | The Transmission Operator or Balancing Authority has failed to develop, maintain, and implement load shedding plans. |
| R3 | The Transmission Operator or Balancing Authority failed to comply with one (1) of the sub-components. | The Transmission Operator or Balancing Authority failed to comply with two (2) of the sub-components. | The Transmission Operator or Balancing Authority has failed to comply with three (3) of the sub-components. | The Transmission Operator or Balancing Authority has failed to comply with all four (4) of the sub-components. |
| R3.1 | The Transmission Operator or Balancing Authority's communication protocols included in the emergency plan are missing minor program/procedural elements. | N/A | N/A | The Transmission Operator or Balancing Authority has failed to include communication protocols in its emergency plans to mitigate operating emergencies. |
| R3.2 | The Transmission Operator or Balancing Authority's list of controlling actions has resulted in meeting the intent of the requirement but is missing minor program/procedural elements. | N/A | The Transmission Operator or Balancing Authority provided a list of controlling actions, however the actions fail to resolve the emergency within NERC-established timelines. | The Transmission Operator or Balancing Authority has failed to provide a list of controlling actions to resolve the emergency. |

Standard EOP-001-2 — Emergency Operations Planning

| Requirement | Lower | Moderate | High | Severe |
|--------------------|--|--|---|---|
| R3.3 | The Transmission Operator or Balancing Authority has demonstrated coordination with Transmission Operators and Balancing Authorities but is missing minor program/procedural elements. | N/A | N/A | The Transmission Operator or Balancing Authority has failed to demonstrate the tasks to be coordinated with adjacent Transmission Operator and Balancing Authorities as directed by the requirement. |
| R3.4 | The Transmission Operator or Balancing Authority's emergency plan does not include staffing levels for the emergency | N/A | N/A | N/A |
| R4 | The Transmission Operator and Balancing Authority's emergency plan has complied with 90% or more of the number of sub-components. | The Transmission Operator and Balancing Authority's emergency plan has complied with 70% to 90% of the number of sub-components. | The Transmission Operator and Balancing Authority's emergency plan has complied with between 50% to 70% of the number of sub-components. | The Transmission Operator and Balancing Authority's emergency plan has complied with 50% or less of the number of sub-components |
| R5 | The Transmission Operator and Balancing Authority is missing minor program/procedural elements. | The Transmission Operator and Balancing Authority has failed to annually review one of it's emergency plans | The Transmission Operator and Balancing Authority has failed to annually review two of its emergency plans or communicate with one of it's neighboring Balancing Authorities. | The Transmission Operator and Balancing Authority has failed to annually review and/or communicate any emergency plans with its Reliability Coordinator, neighboring Transmission Operators or Balancing Authorities. |
| R6 | The Transmission Operator and/or the Balancing Authority failed to comply with one (1) of the sub-components. | The Transmission Operator and/or the Balancing Authority failed to comply with two (2) of the sub-components. | The Transmission Operator and/or the Balancing Authority has failed to comply with three (3) of the sub-components. | The Transmission Operator and/or the Balancing Authority has failed to comply with four (4) or more of the sub-components. |

Standard EOP-001-2 — Emergency Operations Planning

| Requirement | Lower | Moderate | High | Severe |
|--------------------|--|-----------------|-------------|---------------|
| R6.1 | The Transmission Operator or Balancing Authority has failed to establish and maintain reliable communication between interconnected systems. | N/A | N/A | N/A |
| R6.2 | The Transmission Operator or Balancing Authority has failed to arrange new interchange agreements to provide for emergency capacity or energy transfers with required entities when existing agreements could not be used. | N/A | N/A | N/A |
| R6.3 | The Transmission Operator or Balancing Authority has failed to coordinate transmission and generator maintenance schedules to maximize capacity or conserve fuel in short supply. | N/A | N/A | N/A |
| R6.4 | The Transmission Operator or Balancing Authority has failed to arrange for deliveries of electrical energy or fuel from remote systems through normal operating channels. | N/A | N/A | N/A |

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 | October 17, 2008 | Deleted R2 Replaced Levels of Non-compliance with the February 28, 2008 BOT approved Violation Severity Levels Corrected typographical errors in BOT approved version of VSLs | Revised |
| 2 | To be determined | Removed R2.4 as redundant with EOP-005-2 Requirement R1 for the Transmission Operator; the Balancing Authority does not need a restoration plan. | |
| 2 | August 5, 2009 | Approved by Board of Trustees | Revised |

Attachment 1-EOP-001-0

Elements for Consideration in Development of Emergency Plans

1. Fuel supply and inventory — An adequate fuel supply and inventory plan that recognizes reasonable delays or problems in the delivery or production of fuel.
2. Fuel switching — Fuel switching plans for units for which fuel supply shortages may occur, e.g., gas and light oil.
3. Environmental constraints — Plans to seek removal of environmental constraints for generating units and plants.
4. System energy use — The reduction of the system's own energy use to a minimum.
5. Public appeals — Appeals to the public through all media for voluntary load reductions and energy conservation including educational messages on how to accomplish such load reduction and conservation.
6. Load management — Implementation of load management and voltage reductions, if appropriate.
7. Optimize fuel supply — The operation of all generating sources to optimize the availability.
8. Appeals to customers to use alternate fuels — In a fuel emergency, appeals to large industrial and commercial customers to reduce non-essential energy use and maximize the use of customer-owned generation that rely on fuels other than the one in short supply.
9. Interruptible and curtailable loads — Use of interruptible and curtailable customer load to reduce capacity requirements or to conserve the fuel in short supply.
10. Maximizing generator output and availability — The operation of all generating sources to maximize output and availability. This should include plans to winterize units and plants during extreme cold weather.
11. Notifying IPPs — Notification of cogeneration and independent power producers to maximize output and availability.
12. Requests of government — Requests to appropriate government agencies to implement programs to achieve necessary energy reductions.
13. Load curtailment — A mandatory load curtailment plan to use as a last resort. This plan should address the needs of critical loads essential to the health, safety, and welfare of the community. Address firm load curtailment.
14. Notification of government agencies — Notification of appropriate government agencies as the various steps of the emergency plan are implemented.
15. Notifications to operating entities — Notifications to other operating entities as steps in emergency plan are implemented.

A. Introduction

1. **Title:** Emergency Operations Planning
2. **Number:** EOP-001-~~1~~2
3. **Purpose:** Each Transmission Operator and Balancing Authority needs to develop, maintain, and implement a set of plans to mitigate operating emergencies. These plans need to be coordinated with other Transmission Operators and Balancing Authorities, and the Reliability Coordinator.
4. **Applicability**
 - 4.1. Balancing Authorities.
 - 4.2. Transmission Operators.

~~Proposed Effective Dates: Twenty-four months after the first day of the first calendar quarter following applicable regulatory approval. In those jurisdictions where no regulatory approval is required, all requirements go into effect twenty-four months after Board of Trustees adoption. In those jurisdictions where no regulatory approval is required, the standard shall become effective on the latter of either April 1, 2009 or the first day of the first calendar quarter, three months after Board of Trustee adoption.~~

~~5. In those jurisdictions where regulatory approval is required, the standard shall become effective on the latter of either April 1, 2009 or the first day of the first calendar quarter, three months after applicable regulatory approval.~~

B. Requirements

- R1. Balancing Authorities shall have operating agreements with adjacent Balancing Authorities that shall, at a minimum, contain provisions for emergency assistance, including provisions to obtain emergency assistance from remote Balancing Authorities.
- R2. Each Transmission Operator and Balancing Authority shall:
 - R2.1. Develop, maintain, and implement a set of plans to mitigate operating emergencies for insufficient generating capacity.
 - R2.2. Develop, maintain, and implement a set of plans to mitigate operating emergencies on the transmission system.
 - R2.3. Develop, maintain, and implement a set of plans for load shedding.
 - ~~R2.3. Develop, maintain, and implement a set of plans for system restoration.~~
- R3. Each Transmission Operator and Balancing Authority shall have emergency plans that will enable it to mitigate operating emergencies. At a minimum, Transmission Operator and Balancing Authority emergency plans shall include:
 - R3.1. Communications protocols to be used during emergencies.
 - R3.2. A list of controlling actions to resolve the emergency. Load reduction, in sufficient quantity to resolve the emergency within NERC-established timelines, shall be one of the controlling actions.
 - R3.3. The tasks to be coordinated with and among adjacent Transmission Operators and Balancing Authorities.
 - R3.4. Staffing levels for the emergency.

- R4. Each Transmission Operator and Balancing Authority shall include the applicable elements in Attachment 1-EOP-001-0 when developing an emergency plan.
- R5. The Transmission Operator and Balancing Authority shall annually review and update each emergency plan. The Transmission Operator and Balancing Authority shall provide a copy of its updated emergency plans to its Reliability Coordinator and to neighboring Transmission Operators and Balancing Authorities.
- R6. The Transmission Operator and Balancing Authority shall coordinate its emergency plans with other Transmission Operators and Balancing Authorities as appropriate. This coordination includes the following steps, as applicable:
 - R6.1. The Transmission Operator and Balancing Authority shall establish and maintain reliable communications between interconnected systems.
 - R6.2. The Transmission Operator and Balancing Authority shall arrange new interchange agreements to provide for emergency capacity or energy transfers if existing agreements cannot be used.
 - R6.3. The Transmission Operator and Balancing Authority shall coordinate transmission and generator maintenance schedules to maximize capacity or conserve the fuel in short supply. (This includes water for hydro generators.)
 - R6.4. The Transmission Operator and Balancing Authority shall arrange deliveries of electrical energy or fuel from remote systems through normal operating channels.

C. Measures

- M1. The Transmission Operator and Balancing Authority shall have its emergency plans available for review by the Regional Reliability Organization at all times.
- M2. The Transmission Operator and Balancing Authority shall have its two most recent annual self-assessments available for review by the Regional Reliability Organization at all times.

D. Compliance

1. Compliance Monitoring Process

1.1. Compliance Monitoring Responsibility

Regional Reliability Organization.

1.2. Compliance Monitoring Period and Reset Time Frame

The Regional Reliability Organization shall review and evaluate emergency plans every three years to ensure that the plans consider the applicable elements of Attachment 1-EOP-001-0.

The Regional Reliability Organization may elect to request self-certification of the Transmission Operator and Balancing Authority in years that the full review is not done.

Reset: one calendar year.

1.3. Data Retention

Current plan available at all times.

1.4. Additional Compliance Information

Not specified.

Standard EOP-001-~~1~~2— Emergency Operations Planning

2. Violation Severity Levels:

| Requirement | Lower | Moderate | High | Severe |
|-------------|--|---|--|--|
| R1 | The Balancing Authority failed to demonstrate the existence of the necessary operating agreements for less than 25% of the adjacent BAs. Or less than 25% of those agreements do not contain provisions for emergency assistance. | The Balancing Authority failed to demonstrate the existence of the necessary operating agreements for 25% to 50% of the adjacent BAs. Or 25 to 50% of those agreements do not contain provisions for emergency assistance. | The Balancing Authority failed to demonstrate the existence of the necessary operating agreements for 50% to 75% of the adjacent BAs. Or 50% to 75% of those agreements do not contain provisions for emergency assistance. | The Balancing Authority failed to demonstrate the existence of the necessary operating agreements for 75% or more of the adjacent BAs. Or more than 75% of those agreements do not contain provisions for emergency assistance. |
| R2 | The Transmission Operator or Balancing Authority failed to comply with one (1) of the sub-components. | The Transmission Operator or Balancing Authority failed to comply with two (2) of the sub-components. | The Transmission Operator or Balancing Authority has failed to comply with three (3) of the sub-components. N/A | The Transmission Operator or Balancing Authority has failed to comply with four (4) <u>three (3)</u> of the sub-components. |
| R2.1 | The Transmission Operator or Balancing Authority's emergency plans to mitigate insufficient generating capacity are missing minor details or minor program/procedural elements. | The Transmission Operator or Balancing Authority's has demonstrated the existence of emergency plans to mitigate insufficient generating capacity emergency plans but the plans are not maintained. | The Transmission Operator or Balancing Authority's emergency plans to mitigate insufficient generating capacity emergency plans are neither maintained nor implemented. | The Transmission Operator or Balancing Authority has failed to develop emergency mitigation plans for insufficient generating capacity. |
| R2.2 | The Transmission Operator or Balancing Authority's plans to mitigate transmission system emergencies are missing minor details or minor program/procedural elements. | The Transmission Operator or Balancing Authority's has demonstrated the existence of transmission system emergency plans but are not maintained. | The Transmission Operator or Balancing Authority's transmission system emergency plans are neither maintained nor implemented. | The Transmission Operator or Balancing Authority has failed to develop, maintain, and implement operating emergency mitigation plans for emergencies on the transmission system. |

Standard EOP-001-1.2— Emergency Operations Planning

| Requirement | Lower | Moderate | High | Severe |
|-----------------|--|---|---|---|
| R2.3 | The Transmission Operator or Balancing Authority's load shedding plans are missing minor details or minor program/procedural elements. | The Transmission Operator or Balancing Authority's has demonstrated the existence of load shedding plans but are not maintained. | The Transmission Operator or Balancing Authority's load shedding plans are partially compliant with the requirement but are neither maintained nor implemented. | The Transmission Operator or Balancing Authority has failed to develop, maintain, and implement load shedding plans. |
| R2.4 | The Transmission Operator or Balancing Authority's system restoration plans are missing minor details or minor program/procedural elements. | The Transmission Operator or Balancing Authority's system restoration plans are partially compliant with the requirement but are not maintained. | The Transmission Operator or Balancing Authority's restoration plans are neither maintained nor implemented. | The Transmission Operator or Balancing Authority has failed to develop, maintain, and implement operating emergency mitigation plans for system restoration. |
| R3 | The Transmission Operator or Balancing Authority failed to comply with one (1) of the sub-components. | The Transmission Operator or Balancing Authority failed to comply with two (2) of the sub-components. | The Transmission Operator or Balancing Authority has failed to comply with three (3) of the sub-components. | The Transmission Operator or Balancing Authority has failed to comply with all four (4) of the sub-components. |
| R3.1 | The Transmission Operator or Balancing Authority's communication protocols included in the emergency plan are missing minor program/procedural elements. | N/A | N/A | The Transmission Operator or Balancing Authority has failed to include communication protocols in its emergency plans to mitigate operating emergencies. |
| R3.2 | The Transmission Operator or Balancing Authority's list of controlling actions has resulted in meeting the intent of the requirement but is missing minor program/procedural elements. | N/A | The Transmission Operator or Balancing Authority provided a list of controlling actions, however the actions fail to resolve the emergency within NERC-established timelines. | The Transmission Operator or Balancing Authority has failed to provide a list of controlling actions to resolve the emergency. |

Standard EOP-001-1.2 — Emergency Operations Planning

| Requirement | Lower | Moderate | High | Severe |
|--------------------|--|--|---|---|
| R3.3 | The Transmission Operator or Balancing Authority has demonstrated coordination with Transmission Operators and Balancing Authorities but is missing minor program/procedural elements. | N/A | N/A | The Transmission Operator or Balancing Authority has failed to demonstrate the tasks to be coordinated with adjacent Transmission Operator and Balancing Authorities as directed by the requirement. |
| R3.4 | The Transmission Operator or Balancing Authority's emergency plan does not include staffing levels for the emergency | N/A | N/A | N/A |
| R4 | The Transmission Operator and Balancing Authority's emergency plan has complied with 90% or more of the number of sub-components. | The Transmission Operator and Balancing Authority's emergency plan has complied with 70% to 90% of the number of sub-components. | The Transmission Operator and Balancing Authority's emergency plan has complied with between 50% to 70% of the number of sub-components. | The Transmission Operator and Balancing Authority's emergency plan has complied with 50% or less of the number of sub-components |
| R5 | The Transmission Operator and Balancing Authority is missing minor program/procedural elements. | The Transmission Operator and Balancing Authority has failed to annually review one of it's emergency plans | The Transmission Operator and Balancing Authority has failed to annually review two of its emergency plans or communicate with one of it's neighboring Balancing Authorities. | The Transmission Operator and Balancing Authority has failed to annually review and/or communicate any emergency plans with its Reliability Coordinator, neighboring Transmission Operators or Balancing Authorities. |
| R6 | The Transmission Operator and/or the Balancing Authority failed to comply with one (1) of the sub-components. | The Transmission Operator and/or the Balancing Authority failed to comply with two (2) of the sub-components. | The Transmission Operator and/or the Balancing Authority has failed to comply with three (3) of the sub-components. | The Transmission Operator and/or the Balancing Authority has failed to comply with four (4) or more of the sub-components. |

Standard EOP-001-1.2 — Emergency Operations Planning

| Requirement | Lower | Moderate | High | Severe |
|-------------|--|----------|------|--------|
| R6.1 | The Transmission Operator or Balancing Authority has failed to establish and maintain reliable communication between interconnected systems. | N/A | N/A | N/A |
| R6.2 | The Transmission Operator or Balancing Authority has failed to arrange new interchange agreements to provide for emergency capacity or energy transfers with required entities when existing agreements could not be used. | N/A | N/A | N/A |
| R6.3 | The Transmission Operator or Balancing Authority has failed to coordinate transmission and generator maintenance schedules to maximize capacity or conserve fuel in short supply. | N/A | N/A | N/A |
| R6.4 | The Transmission Operator or Balancing Authority has failed to arrange for deliveries of electrical energy or fuel from remote systems through normal operating channels. | N/A | N/A | N/A |

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 | October 17, 2008 | Deleted R2 Replaced Levels of Non-compliance with the February 28, 2008 BOT approved Violation Severity Levels Corrected typographical errors in BOT approved version of VSLs | Revised |
| <u>2</u> | To be determined | Removed R2.4 as redundant with EOP-005-2 Requirement R1 for the Transmission Operator; the Balancing Authority does not need a restoration plan. | |

Attachment 1-EOP-001-0

Elements for Consideration in Development of Emergency Plans

1. Fuel supply and inventory — An adequate fuel supply and inventory plan that recognizes reasonable delays or problems in the delivery or production of fuel.
2. Fuel switching — Fuel switching plans for units for which fuel supply shortages may occur, e.g., gas and light oil.
3. Environmental constraints — Plans to seek removal of environmental constraints for generating units and plants.
4. System energy use — The reduction of the system's own energy use to a minimum.
5. Public appeals — Appeals to the public through all media for voluntary load reductions and energy conservation including educational messages on how to accomplish such load reduction and conservation.
6. Load management — Implementation of load management and voltage reductions, if appropriate.
7. Optimize fuel supply — The operation of all generating sources to optimize the availability.
8. Appeals to customers to use alternate fuels — In a fuel emergency, appeals to large industrial and commercial customers to reduce non-essential energy use and maximize the use of customer-owned generation that rely on fuels other than the one in short supply.
9. Interruptible and curtailable loads — Use of interruptible and curtailable customer load to reduce capacity requirements or to conserve the fuel in short supply.
10. Maximizing generator output and availability — The operation of all generating sources to maximize output and availability. This should include plans to winterize units and plants during extreme cold weather.
11. Notifying IPPs — Notification of cogeneration and independent power producers to maximize output and availability.
12. Requests of government — Requests to appropriate government agencies to implement programs to achieve necessary energy reductions.
13. Load curtailment — A mandatory load curtailment plan to use as a last resort. This plan should address the needs of critical loads essential to the health, safety, and welfare of the community. Address firm load curtailment.
14. Notification of government agencies — Notification of appropriate government agencies as the various steps of the emergency plan are implemented.
15. Notifications to operating entities — Notifications to other operating entities as steps in emergency plan are implemented.

Exhibit C

Matrix of Issues Considered

EXHIBIT C

**MATRIX OF ISSUES CONSIDERED — SYSTEM RESTORATION AND
BLACKSTART STANDARDS DEVELOPMENT**

| Source | Standard No. | Language | Reference |
|------------------------|--------------|--|---|
| Fill in the Blank Team | EOP-005-1 | Address EOP-005, EOP-006 EOP-007 and EOP-009 concurrently. | Project 2006-03 contained all four standards. |
| Fill in the Blank Team | EOP-005-1 | References in EOP-005, EOP-006, and EOP-009 to meet RRO/Regional requirements need to be modified and EOP-007 needs to be more specific. | All references to RRO/RE have been eliminated. Pertinent requirements have been re-assigned to the RC within EOP-006. EOP-007 has been retired. EOP-009 RRO responsibilities reassigned to TOP in EOP-005 |
| Fill in the Blank Team | EOP-005-1 | See notes for EOP-007 | All references to RRO/RE have been eliminated. Pertinent requirements have been re-assigned to the RC within EOP-006. EOP-007 has been retired |
| Version 0 Team | EOP-005-1 | Priority to integrity of interconnection | EOP-005-2, R1.1 & EOP-006-1, R1.1 address the intent of this point although the industry has objected to the use of the word 'integrity' as indefinable. |
| Version 0 Team | EOP-005-1 | BA does not have all required information | BA has been removed as an applicable entity by the SDT. The position of the SDT is that the RC and TOP are in charge until the System is stable enough to bring balancing back into the picture. EOP-005-2, R1.10 & EOP-006-2, R1.10 ensure that Operating Procedures are in place to properly transfer responsibility back to the BA at the proper moment in time. |
| Version 0 Team | EOP-005-1 | Interdependency of planning and implementation missing as well as between functional entities | EOP-005-2 has undergone an extensive re-write and logical ties have been considered. |
| Version 0 Team | EOP-005-1 | LSE & GO should have plans | LSE & GO are not included as applicable entities. LSE operates under auspices of TOP. The SDT believes that the GO does not need to be included – the GOP is the key entity at that level and it is now included as an applicable entity. EOP-005-2, R2 - TOP to coordinate with all entities identified in its plan. |
| Version 0 Team | EOP-005-1 | Additional element consideration | EOP-005-2 has undergone an extensive re-write and several additional elements have been added to the requirements. |
| Version 0 Team | EOP-005-1 | Can't really test plan | EOP-005-2, R6 |

| Source | Standard No. | Language | Reference |
|-------------------|--------------|---|--|
| Phase III/IV Team | EOP-005-1 | Add LSEs to Applicability | LSE operates under auspices of TOP |
| Phase III/IV Team | EOP-005-1 | Add a requirement for a blackstart agreement between the transmission operator and the generator owner - include items such as identification of generator owner/operator facilities required to participate in the blackstart plan; when and how quickly a blackstart unit must respond; and what cranking path requires energization | EOP-005-2, R13 |
| Phase III/IV Team | EOP-005-1 | Add a requirement for a cranking path agreement between the transmission operator and the generator owner/operator | EOP-005-2, R1.4 & R13 |
| Phase III/IV Team | EOP-005-1 | Condense the requirements and measures - R1 the requirement to develop the restoration plan and all the components required of that plan; and R2 the requirement to prove and document that the plan works. Then, two measurements would follow: one to assess the contents of the plan and one to assess the simulation or testing of the plan. | N/A – the project did a massive re-write of all requirements and re-ordered them in a logical progression. |
| Phase III/IV Team | EOP-005-1 | Need to resolve the issue of the elements on the Attachment – are these mandatory or not – there is a mismatch between R1 and levels of non-compliance | The attachment has been removed and all applicable requirements moved into the body of the standard as specific requirements or sub-requirements. |
| Phase III/IV Team | EOP-005-1 | R3 – revise to place emphasis for TOP on restoring local transmission system as preparation for restoring the integrity of the Interconnection. | EOP-005-2, R1.1 & EOP-006-1, R1.1 address the intent of this point although the industry has objected to the use of the word 'integrity' as indefinable. |
| Phase III/IV Team | EOP-005-1 | R4 – Add LSEs | LSE operates under auspices of TOP. |
| Phase III/IV Team | EOP-005-1 | R5 – replace 'periodic' with a specific periodicity for testing | EOP-005-2, R9 |
| Phase III/IV Team | EOP-005-1 | R6 – add specificity to frequency and scope of required training | Training addressed in EOP-005-2, R10, R11, R12, R17, and R18 as well as EOP-0006-2, R9 and R10. |
| Phase III/IV Team | EOP-005-1 | R11.5 - replace the word, 'may' with: The affected Transmission Operators shall not resynchronize the isolated area(s) with the surrounding area(s) until the following conditions are met: the voltage, frequency, and phase angle permit, the affected reliability coordinator(s) and the adjacent areas are notified, and reliability coordinator approval is given. | EOP-005-2, R8 |

| Source | Standard No. | Language | Reference |
|------------------------|--------------|---|--|
| Phase III/IV Team | EOP-005-1 | Delete R11.5.4. It does not seem reasonable or logical for a control area to be required to shed 5,000 MWs of load, for example, in order for their neighbor to reconnect 1,000 MWs of their own load. | Requirement has been removed. RC is in charge of over-all restoration effort. |
| Phase III/IV Team | EOP-005-1 | R11.5. Should exclude islands within a system that do not affect surrounding areas | Requirement has been removed. |
| VRFs Team | EOP-005-1 | R1, 5 & 8 – Does not just apply to local restoration | EOP-005-2 has undergone an extensive re-write and this comment is no longer applicable. |
| VRFs Team | EOP-005-1 | R2 – Could be broken up into 2 requirements | EOP-005-2 has undergone an extensive re-write and this comment is no longer applicable. |
| VRFs Team | EOP-005-1 | R11.4 – Ambiguous | EOP-005-2 has undergone an extensive re-write and this comment is no longer applicable. |
| VRFs Team | EOP-005-1 | R11.5 - This needs to be looked at for 30 days - should be done prior to access being granted. | EOP-005-2 has undergone an extensive re-write and this comment is no longer applicable. |
| FERC Order 693 | EOP-005-1 | Identify time frames for training and review of restoration plan requirements to simulate contingencies and prepare operators for anticipated and unforeseen events. | Training addressed in EOP-005-2, R10, R11, R12, R17, and R18 as well as EOP-0006-2, R9 and R10. |
| FERC Order 693 | EOP-005-1 | NERC shall gather data from simulations and drills of system restoration on the time it takes to restore power to the auxiliary power systems of nuclear power plants under its data gathering authority and report the information to the Commission on a quarterly basis. | Not within scope of SDT. NERC has undertaken a separate data request process to collect and provide this data. NERC filed two such reports in 2009. |
| FERC Order 693 | EOP-005-1 | Consider commenters concerns in future modifications of the reliability standard, including those that refer to Attachment 1. | The attachment has been removed and all applicable requirements moved into the body of the standard as specific requirements or sub-requirements. |
| Fill in the Blank Team | EOP-006-1 | Address EOP-005, EOP-006 EOP-007 and EOP-009 concurrently | Project 2006-03 contained all four standards. |
| Fill in the Blank Team | EOP-006-1 | References in EOP-005, EOP-006, and EOP-009 to meet RRO/Regional requirements need to be modified and EOP-007 needs to be more specific | All references to RRO/RE have been eliminated. Pertinent requirements have been re-assigned to the RC within EOP-006 or the TOP in EOP-005. EOP-007 and EOP-009 have been retired. |
| Fill in the Blank Team | EOP-006-1 | See notes for EOP-007 | N/A |
| FERC Order 693 | EOP-006-1 | Ensure the reliability coordinator is involved in the development and approval | EOP-006-2, R4 & R5 |

| Source | Standard No. | Language | Reference |
|------------------------|--------------|--|--|
| | | of system restoration plans. | |
| Fill in the Blank Team | EOP-007-0 | Address EOP-005, EOP-006 EOP-007 and EOP-009 concurrently | Project 2006-03 contained all four standards. |
| Fill in the Blank Team | EOP-007-0 | References in EOP-005, EOP-006, and EOP-009 to meet RRO/Regional requirements need to be modified and EOP-007 needs to be more specific. | All references to RRO/RE have been eliminated. Pertinent requirements have been re-assigned to the RC within EOP-006 or the TOP in EOP-005. EOP-007 and EOP-009 have been retired. |
| Fill in the Blank Team | EOP-007-0 | This is currently a fill-in-the-blank standard tied to EOP-005, EOP-006, and EOP-009; every region should have procedures currently in place required by EOP-007-0; question why this is even an RRO function; they are not operating entities, should be RCs and operating entities that have the black start plan; black start plans need to be coordinated regionally. | Pertinent requirements have been re-assigned to the RC within EOP-006 or the TOP in EOP-005. EOP-007 and EOP-009 have been retired. |
| Fill in the Blank Team | EOP-007-0 | Consider retiring EOP-007 and moving these elements to EOP-005; EOP-006; and EOP-009. That would remove fill-in-blank elements. Still may need to evaluate role of RRO.R1 & R2 considerations | Pertinent requirements have been re-assigned to the RC within EOP-006 or the TOP in EOP-005. EOP-007 and EOP-009 have been retired. |
| Fill in the Blank Team | EOP-007-0 | Consider rewording of references in EOP-005, EOP-006, and EOP-009 to RRO/regional requirements and | Pertinent requirements have been re-assigned to the RC within EOP-006 or the TOP in EOP-005. EOP-007 and EOP-009 have been retired. |
| Fill in the Blank Team | EOP-007-0 | Define the specific requirements for R 1.2, R 1.3, etc. and either clearly define in EOP-007 or retire EOP-007 and place specific requirements in EOP-005, EOP-006, and EOP-009. | Pertinent requirements have been re-assigned to the RC within EOP-006 or the TOP in EOP-005. EOP-007 and EOP-009 have been retired. |
| Fill in the Blank Team | EOP-007-0 | Consider developing testing requirements on a national basis – this is already well established across the regions. The harder task is isolating the restoration issues in the various standards as described in the EOP-007 write-up to merge into a new NERC standard which then establishes which units are designated Blackstart units. This standard could be written independent of the units' identity and focus on testing of any Blackstart unit. | The SDT discussed national testing requirements but felt that this was a situation where it was best left to the individual TOP to address. |
| Version 0 Team | EOP-007-0 | Clarify testing requirements | EOP-005-2, R9 |
| FERC Order 693 | EOP-007-0 | Until the changes to EOP-006-1 are implemented, the regional reliability organization should continue to perform this role (approval). | Pertinent requirements have been re-assigned to the RC within EOP-006. EOP-007 has been retired. Implementation plan addresses transfer to |

| Source | Standard No. | Language | Reference |
|------------------------|--------------|--|---|
| | | | RC. |
| FERC Order 693 | EOP-007-0 | Consider EEI, FirstEnergy and MRO's suggestions in future revisions to the standard. | Pertinent requirements have been re-assigned to the RC within EOP-006. EOP-007 has been retired. |
| Fill in the Blank Team | EOP-009-0 | Address EOP-005, EOP-006 EOP-007 and EOP-009 concurrently. | Project 2006-03 contained all four standards. |
| Fill in the Blank Team | EOP-009-0 | References in EOP-005, EOP-006, and EOP-009 to meet RRO/Regional requirements need to be modified and EOP-007 needs to be more specific. | All references to RRO/RE have been eliminated. Pertinent requirements have been re-assigned to the TOP within EOP-005. EOP-007 and EOP-009 have been retired. |
| Fill in the Blank Team | EOP-009-0 | See notes for EOP-007 | All references to RRO/RE have been eliminated. Pertinent requirements have been re-assigned to the TOP within EOP-005. EOP-007 and EOP-009 have been retired. |
| Version 0 Team | EOP-009-0 | Distinction between RA & TO vs. RRO for test results | EOP-005-2, R16 |
| FERC Order 693 | EOP-009-0 | Consider suggestions for improvements in future revisions of the standards. | Pertinent requirements have been re-assigned to the TOP within EOP-005. EOP-009 has been retired. |

Exhibit D

Standard Drafting Team Roster

System Restoration and Blackstart Standard Drafting Team (Project 2006-03)

| | | |
|--|---|--|
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Exhibit E

Record of Development of Proposed Reliability Standards



November 6, 2006

TO: REGISTERED BALLOT BODY

Ladies and Gentlemen:

**Announcement
Comment Period Opens for two SARs;
Nomination Period Opens for two SAR Drafting Teams**

The Standards Committee (SC) announces the following standards actions:

System Restoration and Blackstart SAR (November 6–December 5, 2006)

A new SAR, [System Restoration and Blackstart](#), has been posted for a 30-day comment period from November 6 through December 5, 2006. The SAR calls for the modification of the following standards:

- EOP-005 — System Restoration Plans
- EOP-006 — Reliability Coordination – System Restoration
- EOP-007 — Establish, Maintain, and Document a Regional Blackstart Capability Plan
- EOP-009 — Documentation of Blackstart Generating Unit Test Results

This project involves upgrading the overall quality of the four standards; eliminating some gaps in the requirements; eliminating some ambiguity, and eliminating some ‘fill-in-the-blank’ components.

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable, and technically sufficient bulk power system reliability standards.

Please use the [comment form](#) to provide comments on this SAR.

Backup Facilities SAR (November 6–December 5, 2006)

A new SAR, [Backup Facilities](#), has been posted for a 30-day comment period from November 6 through December 5, 2006. The SAR calls for the modification of the following standards:

- COM-001: Telecommunications
- EOP-008: Plans for Loss of Control Center Functionality

This project involves upgrading the overall quality of the standards; adding specificity to the existing requirements; and eliminating redundancies with other standards.

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

REGISTERED BALLOT BODY

November 6, 2006

Page Two

Please use the [comment form](#) to provide comments on this SAR.

Nominations for System Restoration and Blackstart SAR Drafting Team (November 6–17, 2006)

The Standards Committee is seeking industry experts to serve on the System Restoration and Blackstart SAR Drafting Team. If you are interested in serving on this team, please complete this [nomination form](#) and return it to Richard Schneider (Richard.schneider@nerc.net) no later than November 17, 2006.

Nominations for Backup Facilities SAR Drafting Team (November 6–17, 2006)

The Standards Committee is also seeking industry experts to serve on the Backup Facilities SAR Drafting Team. If you are interested in serving on this team, please complete this [nomination form](#) and return it to Richard Schneider (Richard.schneider@nerc.net) no later than November 17, 2006.

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

Standards Process Manager

cc: Registered Ballot Body Registered Users
Standards Mailing List
NERC Roster

Standard Authorization Request Form

| | |
|----------------------------|--|
| Title of Proposed Standard | Revisions to System Restoration and Blackstart Standards Project 2006-03 |
| Request Date | October 26, 2006 |

| SAR Requestor Information | SAR Type <i>(Check a box for each one that applies.)</i> |
|--|--|
| Name Richard J Kafka | <input type="checkbox"/> New Standard |
| Primary Contact Richard J Kafka | <input checked="" type="checkbox"/> Revision to existing Standards EOP-005, EOP-006, EOP-007, EOP-009 |
| Telephone (301) 469-5274 Fax (301) 469-5235 | <input type="checkbox"/> Withdrawal of existing Standard |
| E-mail rjkafka@pepcoholdings.com | <input type="checkbox"/> Urgent Action |

Purpose (Describe the purpose of the standard — what the standard will achieve in support of reliability.)

EOP-005 — System Restoration Plans
EOP-006 — Reliability Coordination - System Restoration
EOP-007 — Establish, Maintain, and Document a Regional Blackstart Capability Plan
EOP-009 — Documentation of Blackstart Generating Unit Test Results

The purpose of revising the above four standards is to:

1. Provide an adequate level of reliability for the North American bulk power systems - the standards are complete and the requirements are set at an appropriate level to ensure reliability.
2. Ensure they are enforceable as mandatory reliability standards with financial penalties - the applicability to bulk power system owners, operators, and users, and as appropriate particular classes of facilities, are clearly defined; the purpose, requirements, and measures are results-focused and unambiguous; the consequences of violating the requirements are clear.
3. Incorporate other general improvements described in the standards development work plan. (See attachments)
4. Consider stakeholder comments received during the initial development of the standards and other comments received from ERO regulatory authorities, as noted in the attached review sheets.
5. Satisfy the standards procedure requirement for five-year review of the standards.

Standards Authorization Request Form

Industry Need (Provide a detailed statement justifying the need for the proposed standard, along with any supporting documentation.)

EOP-005 is a Version 0 standard that was modified to add some requirements that were translated from the Phase III & IV measures; EOP-006, EOP-007, and EOP-009 are Version 0 standards. As the electric reliability organization begins enforcing compliance with reliability standards under Section 215 of the Federal Power Act in the United States and applicable statutes and regulations in Canada, the industry needs a set of clear, measurable, and enforceable reliability standards. The Version 0 standards and the translation of Phase III & IV planning measures, while a good foundation, were translated from historical operating and planning policies and guides that were appropriate in an era of voluntary compliance. The Version 0 standards, Phase III & IV standards, and recent updates were put in place as a temporary starting point to start up the electric reliability organization and begin enforcement of mandatory standards. However, it is important to update the standards in a timely manner, incorporating improvements to make the standards more suitable for enforcement and to capture prior recommendations that were deferred during the Version 0 and Phase III & IV translations. In addition, FERC indicated it will not propose to accept or remand EOP-007-0, as it applies only to regional reliability organizations.

Brief Description (Describe the proposed standard in sufficient detail to clearly define the scope in a manner that can be easily understood by others.)

This project involves upgrading the requirements in the four standards. Industry debate is needed over the contents of Attachment 1 in EOP-005. The attachment includes a list of elements that must be contained in a system restoration plan, 'if applicable'. The elements in the attachment need to be reviewed and the conditions under which an entity is exempt from including an element in its system restoration plan need to be specified. If possible, the required elements should be removed from the attachment and included in the body of the requirements.

EOP-005 only requires the Transmission Operator and the Balancing Authority to have a system restoration plan – the Reliability Coordinator does not have any requirement to have a system restoration plan.

Both EOP-005 and EOP-006 contain a mix of requirements that address advance planning and real-time operations. These need to be carefully reviewed to ensure that the lines of authority clarified under the Reliability Coordination (Project 2006-03) and Real Time Transmission Operations and Balancing of Load and Generation (Project 2007-03) are fully supported in the refinement of this set of standards.

EOP-007 and EOP-009 have some 'fill-in-the-blank' components to eliminate.

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable, and technically sufficient bulk power system reliability standards.

Standards Authorization Request Form

Reliability Functions

| The Standard will Apply to the Following Functions <i>(Check box for each one that applies.)</i> | | |
|---|-------------------------------|--|
| <input checked="" type="checkbox"/> | Reliability Authority | Ensures the reliability of the bulk transmission system within its Reliability Authority area. This is the highest Reliability Authority. |
| <input checked="" type="checkbox"/> | 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. |
| <input type="checkbox"/> | Interchange Authority | Authorizes valid and balanced Interchange Schedules. |
| <input checked="" type="checkbox"/> | Planning Authority | Plans the Bulk Electric System. |
| <input type="checkbox"/> | Resource Planner | Develops a long-term (>one year) plan for the resource adequacy of specific loads within a Planning Authority area. |
| <input type="checkbox"/> | Transmission Planner | Develops a long-term (>one year) plan for the reliability of transmission systems within its portion of the Planning Authority area. |
| <input type="checkbox"/> | Transmission Service Provider | Provides transmission services to qualified market participants under applicable transmission service agreements |
| <input type="checkbox"/> | Transmission Owner | Owns transmission facilities. |
| <input checked="" type="checkbox"/> | Transmission Operator | Operates and maintains the transmission facilities, and executes switching orders. |
| <input checked="" type="checkbox"/> | Distribution Provider | Provides and operates the "wires" between the transmission system and the customer. |
| <input checked="" type="checkbox"/> | Generator Owner | Owns and maintains generation unit(s). |
| <input checked="" type="checkbox"/> | Generator Operator | Operates generation unit(s) and performs the functions of supplying energy and Interconnected Operations Services. |
| <input type="checkbox"/> | Purchasing-Selling Entity | The function of purchasing or selling energy, capacity, and all necessary Interconnected Operations Services as required. |
| <input type="checkbox"/> | Market Operator | Integrates energy, capacity, balancing, and transmission resources to achieve an economic, reliability-constrained dispatch. |
| <input checked="" type="checkbox"/> | Load-Serving Entity | Secures energy and transmission (and related generation services) to serve the end user. |

Standards Authorization Request Form

Reliability and Market Interface Principles

| | |
|--|--|
| Applicable Reliability Principles <i>(Check box for all that apply.)</i> | |
| <input type="checkbox"/> | 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. |
| <input type="checkbox"/> | 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. |
| <input type="checkbox"/> | 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. |
| <input checked="" type="checkbox"/> | 4. Plans for emergency operation and system restoration of interconnected bulk electric systems shall be developed, coordinated, maintained and implemented. |
| <input type="checkbox"/> | 5. Facilities for communication, monitoring and control shall be provided, used and maintained for the reliability of interconnected bulk electric systems. |
| <input type="checkbox"/> | 6. Personnel responsible for planning and operating interconnected bulk electric systems shall be trained, qualified, and have the responsibility and authority to implement actions. |
| <input type="checkbox"/> | 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? <i>(Select 'yes' or 'no' from the drop-down box.)</i> | |
| 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 | |

Related Standards

| Standard No. | Explanation |
|--------------|-------------|
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Related SARs

| SAR ID | Explanation |
|--------|-------------|
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Regional Differences

| Region | Explanation |
|--------|-------------|
| ERCOT | |
| FRCC | |
| MRO | |
| NPCC | |
| SERC | |
| RFC | |
| SPP | |
| WECC | |

| Standard Review Form | | |
|--|--|--|
| Project 2006-03 System Restoration and Blackstart | | |
| Standard # | EOP-005-0 | Comments |
| Title | System Restoration Plans | Okay |
| Purpose | | Okay |
| Applicability | | Okay |
| Requirements | <i>Conditions</i> | Interconnection is capitalized. |
| | <i>Who?</i> | Okay |
| | <i>Shall do what?</i> | R2 mentions simulated exercises – where did that come from? R3 – isn't this a function of the extent of the outage? R5 – define periodically R6 – provide training requirements R8 – how do you verify? R115.2 – what does considered mean R11.5.3 – depends on extent |
| | <i>Result or Outcome</i> | Missing |
| Measures | | 2 M for 11 R |
| To Do List | <p>FERC NOPR</p> <ul style="list-style-type: none"> o Include Measures; and o Identify time frames for training and review of restoration plan requirements to simulate contingencies and prepare operators for anticipated and unforeseen events. <p>FERC staff report</p> <ul style="list-style-type: none"> o Periodicity of training o Lack of Measures <p>Regional Fill-in-the-Blank Team Comments</p> <ul style="list-style-type: none"> o Drafting team should address EOP-005, EOP-006 EOP-007 and EOP-009 concurrently. Primarily, references in EOP-005, EOP-006, and EOP-009 to meet RRO/Regional requirements need to be modified and EOP-007 needs to be more specific. o See notes for EOP-007 <p>V0 Industry Comments</p> <ul style="list-style-type: none"> o Priority to integrity of interconnection o BA does not have all required information o Interdependency of planning and implementation missing as well as between functional entities o LSE & GO should have plans o Additional element consideration o Can't really test plan <p>Phase III/IV comments</p> <ul style="list-style-type: none"> o Add LSEs to Applicability o Add a requirement for a blackstart agreement between the transmission operator and the generator owner - include items such as identification of generator owner/operator facilities required to participate in the blackstart plan; when and how quickly a blackstart unit must respond; and what cranking path requires energization o Add a requirement for a cranking path agreement between the transmission operator and the generator owner/operator o Condense the requirements and measures - R1 the requirement to develop the restoration plan and all the components required of that plan; and R2 the requirement to prove and document that the plan | |

2006-03 System Restoration and Blackstart

| | |
|--|--|
| | <p>works. Then, two measurements would follow: one to assess the contents of the plan and one to assess the simulation or testing of the plan.</p> <ul style="list-style-type: none">○ Need to resolve the issue of the elements on the Attachment – are these mandatory or not – there is a mismatch between R1 and levels of non-compliance○ R3 – revise to place emphasis for TOP on restoring local transmission system as preparation for restoring the integrity of the Interconnection.○ R4 – Add LSEs○ R5 – replace ‘periodic’ with a specific periodicity for testing○ R6 – add specificity to frequency and scope of required training○ R11.5 - replace the word, ‘may’ with: The affected Transmission Operators shall not resynchronize the isolated area(s) with the surrounding area(s) until the following conditions are met: the voltage, frequency, and phase angle permit, the affected reliability coordinator(s) and the adjacent areas are notified, and reliability coordinator approval is given.○ Delete R11.5.4. It does not seem reasonable or logical for a control area to be required to shed 5,000 MWs of load, for example, in order for their neighbor to reconnect 1,000 MWs of their own load.○ R11.5. Should exclude islands within a system that do not affect surrounding areas <p>VRF comments</p> <ul style="list-style-type: none">○ R1, 5 & 8 – Does not just apply to local restoration○ R2 – Could be broken up into 2 requirements○ R11.4 – Ambiguous○ R11.5 - This needs to be looked at for 30 days - should be done prior to access being granted. |
|--|--|

| Standard Review Form Project 2006-03 System Restoration and Blackstart | | |
|---|---|---|
| Standard # | EOP-006-0 | Comments |
| Title | Reliability Coordination – System Restoration | Okay |
| Purpose | | Don't need names. Interconnection is capitalized. |
| Applicability | | Okay |
| Requirements | <i>Conditions</i> | Okay |
| | <i>Who?</i> | Okay |
| | <i>Shall do what?</i> | R5 – burden is capitalized R6 – define actions |
| | <i>Result or Outcome</i> | Missing |
| Measures | | Addressed by CESDT. |
| To Do List | FERC NOPR <ul style="list-style-type: none"> o Require that the reliability coordinator be involved in the development and approval of restoration plans; and o Include Measures and Levels of Non-Compliance FERC staff report <ul style="list-style-type: none"> o RC should be involved in approving TO & BA plans o Expect new standard in November Regional Fill-in-the-Blank Team Comments <ul style="list-style-type: none"> o Drafting team should address EOP-005, EOP-006 EOP-007 and EOP-009 concurrently. Primarily, references in EOP-005, EOP-006, and EOP-009 to meet RRO/Regional requirements need to be modified and EOP-007 needs to be more specific. o See notes for EOP-007 | |
| Misc. Items | | Compliance not specified but appears in CESDT version |

| Standard Review Form Project 2006-03 System Restoration and Blackstart | | |
|---|--|--|
| Standard # | EOP-007-0 | Comments |
| Title | Establish, Maintain, and Document a Regional Blackstart Capability Plan | Too long |
| Purpose | | Need benefit or value proposition. |
| Applicability | | Need to check applicability for RRO as per SAR. |
| Requirements | <i>Conditions</i> | Okay |
| | <i>Who?</i> | Okay |
| | <i>Shall do what?</i> | R1.1 – quicker if unit status changes |
| | <i>Result or Outcome</i> | Missing |
| Measures | | M1 – need to spell out measures M2 – define evidence |
| To Do List | FERC NOPR <ul style="list-style-type: none"> o Commission will not propose to accept or remand EOP-007-0, as it applies only to regional reliability organizations. FERC staff report <ul style="list-style-type: none"> o Appropriateness of RRO questioned Regional Fill-in-the-Blank Team Comments <ul style="list-style-type: none"> o R1 & R2 considerations VO Industry Comments <ul style="list-style-type: none"> o Clarify testing requirements | |
| Misc. Items | | Question reasonability of simulation as proof of capability. |

| Standard Review Form | | |
|--|---|--|
| Project 2006-03 System Restoration and Blackstart | | |
| Standard # | EOP-009-0 | Comments |
| Title | Documentation of Blackstart Generating Unit Test Results | 'Documentation of' could probably be dropped. |
| Purpose | | Title and purpose do not align. Same purpose as EOP-008. |
| Applicability | | Need to check applicability for GO & GOP as per SAR. |
| Requirements | <i>Conditions</i> | Okay |
| | <i>Who?</i> | Okay |
| | <i>Shall do what?</i> | R1 – do we need MW values? R2 – within how many days? |
| | <i>Result or Outcome</i> | Missing |
| Measures | | M1 only applies to R2 and needs to define evidence. |
| To Do List | FERC NOPR o No changes identified. FERC staff report o Lack of periodicity for testing Regional Fill-in-the-Blank Team Comments o Region mentioned in Requirements VO Industry Comments o Distinction between RA & TO vs. RRO for test results | |

Nomination Form — System Restoration and Blackstart SAR Drafting Team

Please return this form to sarcomm@nerc.com by November 17, 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 in December 2006 (probably by WebEx) to respond to the comments on the SAR.

| | | | | | | | | | | | |
|--|---|--------------------------|-------------------------|--------------------------|---|--------------------------|---------------------------|--------------------------|--------------------------------------|--------------------------|-------------------------|
| Name: Organization: Address: Office Telephone: E-mail: | | | | | | | | | | | |
| <p>Please briefly describe your experience and qualifications to serve on the System Restoration and Blackstart SAR Drafting Team. Prefer experience in developing system restoration plans, in developing blackstart capability plans or in specifying or conducting blackstart testing. Previous experience working on or applying NERC or IEEE standards is beneficial, but not a requirement.</p> | | | | | | | | | | | |
| I represent the following NERC Reliability Region(s) (check all that apply): | I represent the following Industry Segment (check one): | | | | | | | | | | |
| <input type="checkbox"/> ERCOT <input type="checkbox"/> FRCC <input type="checkbox"/> MRO <input type="checkbox"/> NPCC <input type="checkbox"/> RFC | <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 20px; text-align: center;"><input type="checkbox"/></td> <td>1 — Transmission Owners</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td>2 — RTOs, ISOs, Regional Reliability Councils</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td>3 — Load-serving Entities</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td>4 — Transmission-dependent Utilities</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td>5 — Electric Generators</td> </tr> </table> | <input type="checkbox"/> | 1 — Transmission Owners | <input type="checkbox"/> | 2 — RTOs, ISOs, Regional Reliability Councils | <input type="checkbox"/> | 3 — Load-serving Entities | <input type="checkbox"/> | 4 — Transmission-dependent Utilities | <input type="checkbox"/> | 5 — Electric Generators |
| <input type="checkbox"/> | 1 — Transmission Owners | | | | | | | | | | |
| <input type="checkbox"/> | 2 — RTOs, ISOs, Regional Reliability Councils | | | | | | | | | | |
| <input type="checkbox"/> | 3 — Load-serving Entities | | | | | | | | | | |
| <input type="checkbox"/> | 4 — Transmission-dependent Utilities | | | | | | | | | | |
| <input type="checkbox"/> | 5 — Electric Generators | | | | | | | | | | |

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|--|--------------------------|--|
| <input type="checkbox"/> SERC | <input type="checkbox"/> | 6 — Electricity Brokers, Aggregators, and Marketers |
| <input type="checkbox"/> SPP | <input type="checkbox"/> | 7 — Large Electricity End Users |
| <input type="checkbox"/> WECC | <input type="checkbox"/> | 8 — Small Electricity End Users |
| <input type="checkbox"/> NA – Not Applicable | <input type="checkbox"/> | 9 — Federal, State, and Provincial Regulatory or other Government Entities |
| | <input type="checkbox"/> | 10 – Regional Reliability Organizations and Regional Entities |

Which of the following Function(s)¹ do you have expertise or responsibilities:

| | |
|--|--|
| <input type="checkbox"/> Reliability Coordinator | <input type="checkbox"/> Transmission Service Provider |
| <input type="checkbox"/> Balancing Authority | <input type="checkbox"/> Transmission Owner |
| <input type="checkbox"/> Interchange Authority | <input type="checkbox"/> Load Serving Entity |
| <input type="checkbox"/> Planning Authority | <input type="checkbox"/> Distribution Provider |
| <input type="checkbox"/> Transmission Operator | <input type="checkbox"/> Purchasing-selling Entity |
| <input type="checkbox"/> Generator Operator | <input type="checkbox"/> Generator Owner |
| <input type="checkbox"/> Transmission Planner | <input type="checkbox"/> Resource Planner |
| | <input type="checkbox"/> 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.

Comment Form — 1st Draft of SAR for System Restoration and Blackstart

Please use this form to submit comments on the proposed SAR for System Restoration and Blackstart. Comments must be submitted by **December 5, 2006**. You may submit the completed form by e-mail to sarcomm@nerc.com with the words "System Restoration" in the subject line. If you have questions please contact Ed Dobrowolski at Ed.Dobrowolski@nerc.net or by telephone at 609-452-8060.

| Individual Commenter Information | | |
|---|--------------------------|--|
| (Complete this page for comments from one organization or individual.) | | |
| Name: | | |
| Organization: | | |
| Telephone: | | |
| E-mail: | | |
| NERC Region | <input type="checkbox"/> | Registered Ballot Body Segment |
| <input type="checkbox"/> ERCOT | <input type="checkbox"/> | 1 — Transmission Owners |
| <input type="checkbox"/> FRCC | <input type="checkbox"/> | 2 — RTOs, ISOs, |
| <input type="checkbox"/> MRO | <input type="checkbox"/> | 3 — Load-serving Entities |
| <input type="checkbox"/> NPCC | <input type="checkbox"/> | 4 — Transmission-dependent Utilities |
| <input type="checkbox"/> RFC | <input type="checkbox"/> | 5 — Electric Generators |
| <input type="checkbox"/> SERC | <input type="checkbox"/> | 6 — Electricity Brokers, Aggregators, and Marketers |
| <input type="checkbox"/> SPP | <input type="checkbox"/> | 7 — Large Electricity End Users |
| <input type="checkbox"/> WECC | <input type="checkbox"/> | 8 — Small Electricity End Users |
| <input type="checkbox"/> NA – Not Applicable | <input type="checkbox"/> | 9 — Federal, State, Provincial Regulatory or other Government Entities |
| | <input type="checkbox"/> | 10 — Regional Reliability Organizations and Regional Entities |

| Group Comments (Complete this page if comments are from a group.) | | | |
|---|---------------------------------------|--|-----------------|
| Group Name: | | Midwest ISO and Collaborating Stakeholders | |
| 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* |
| Roderick Conwell | IPL | RFC | 1 |
| Jim Cyrulewski | JDRJC Associates | | 8 |
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*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:

This project involves upgrading the requirements in these four standards:

- EOP-005 — System Restoration Plans
- EOP-006 — Reliability Coordination - System Restoration
- EOP-007 — Establish, Maintain, and Document a Regional Blackstart Capability Plan
- EOP-009 — Documentation of Blackstart Generating Unit Test Results

There are many stakeholder comments about this set of standards that need to be resolved. For example, EOP-005 only requires the Transmission Operator and the Balancing Authority to have a system restoration plan – the Reliability Coordinator does not have any requirement to have a system restoration plan.

Industry debate is needed over the contents of Attachment 1 in EOP-005. The attachment includes a list of elements that must be contained in a system restoration plan, 'if applicable'. The elements in the attachment need to be reviewed and the conditions under which an entity is exempt from including an element in its system restoration plan need to be specified. If possible, the required elements should be removed from the attachment and included in the body of the requirements.

Both EOP-005 and EOP-006 contain a mix of requirements that address advance planning and real-time operations. These need to be carefully reviewed to ensure that the lines of authority clarified under the Reliability Coordination (Project 2006-03) and Real Time Transmission Operations and Balancing of Load and Generation (Project 2007-03) are fully supported in the refinement of this set of standards.

EOP-007 and EOP-009 have some 'fill-in-the-blank' components to eliminate.

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable, and technically sufficient bulk power system reliability standards.

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. Do you believe that there is a reliability-related need to upgrade the requirements in this set of standards?

Yes

No

Comments: We agree that the restoration-related standards need improvement.

2. Do you agree with the scope of the proposed project? (The scope includes all the items noted on the 'Standard Review Forms' attached to the SAR as well as other improvements to the standards that meet the consensus of stakeholders, consistent with establishing high quality, enforceable, and technically sufficient bulk power system reliability standards.)

Yes

No

Comments: TThe scope should be more focused. Right now it looks like a laundry-list.

3. Please identify any additional revisions that should be incorporated into this set of standards, beyond those that have already been identified in the SAR.

Yes

No

Comments: This does not appear to be a yes-no question and may be an indication of the haste in putting this together. There are some good things mentioned in the SAR (better training, involvement of LSEs and Generators, etc.), but it appears this may well get out of control. The intent is to prepare for restoration, not to add scores of administrative requirements. We are concerned about the suggestion to have "blackstart agreements " and "cranking path agreements". Since we don't know how an event will evolve or propogate, restoration plans should be heavy on philosophy, simple to manage once implemented, and not overly prescriptive in detail. It appears this is going down a path to create a reference that will be used to second-guess operators after the fact when conditions require deviation from their plan.

Comment Form — 1st Draft of SAR for System Restoration and Blackstart

Please use this form to submit comments on the proposed SAR for System Restoration and Blackstart. Comments must be submitted by **December 5, 2006**. You may submit the completed form by e-mail to sarcomm@nerc.com with the words "System Restoration" in the subject line. If you have questions please contact Ed Dobrowolski at Ed.Dobrowolski@nerc.net or by telephone at 609-452-8060.

| 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 |
| <input checked="" type="checkbox"/> ERCOT | <input checked="" type="checkbox"/> | 1 — Transmission Owners |
| <input type="checkbox"/> FRCC | <input type="checkbox"/> | 2 — RTOs, ISOs, |
| <input type="checkbox"/> MRO | <input type="checkbox"/> | 3 — Load-serving Entities |
| <input type="checkbox"/> NPCC | <input type="checkbox"/> | 4 — Transmission-dependent Utilities |
| <input type="checkbox"/> RFC | <input type="checkbox"/> | 5 — Electric Generators |
| <input type="checkbox"/> SERC | <input type="checkbox"/> | 6 — Electricity Brokers, Aggregators, and Marketers |
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| | <input type="checkbox"/> | 10 — Regional Reliability Organizations and Regional Entities |

Background Information:

This project involves upgrading the requirements in these four standards:

- EOP-005 — System Restoration Plans
- EOP-006 — Reliability Coordination - System Restoration
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There are many stakeholder comments about this set of standards that need to be resolved. For example, EOP-005 only requires the Transmission Operator and the Balancing Authority to have a system restoration plan – the Reliability Coordinator does not have any requirement to have a system restoration plan.

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Both EOP-005 and EOP-006 contain a mix of requirements that address advance planning and real-time operations. These need to be carefully reviewed to ensure that the lines of authority clarified under the Reliability Coordination (Project 2006-03) and Real Time Transmission Operations and Balancing of Load and Generation (Project 2007-03) are fully supported in the refinement of this set of standards.

EOP-007 and EOP-009 have some 'fill-in-the-blank' components to eliminate.

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Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

1. Do you believe that there is a reliability-related need to upgrade the requirements in this set of standards?

Yes

No

Comments:

2. Do you agree with the scope of the proposed project? (The scope includes all the items noted on the 'Standard Review Forms' attached to the SAR as well as other improvements to the standards that meet the consensus of stakeholders, consistent with establishing high quality, enforceable, and technically sufficient bulk power system reliability standards.)

Yes

No

Comments:

3. Please identify any additional revisions that should be incorporated into this set of standards, beyond those that have already been identified in the SAR.

Yes

No

Comments:

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| Individual Commenter Information | | |
|---|-------------------------------------|--|
| (Complete this page for comments from one organization or individual.) | | |
| Name: | Martin Trence | |
| Organization: | Xcel Energy - Northern States Power | |
| Telephone: | (612) - 337 - 2152 | |
| E-mail: | martin.s.trencei@xcelenergy.com | |
| NERC Region | | Registered Ballot Body Segment |
| <input type="checkbox"/> ERCOT | <input checked="" type="checkbox"/> | 1 — Transmission Owners |
| <input type="checkbox"/> FRCC | <input type="checkbox"/> | 2 — RTOs, ISOs, |
| <input checked="" type="checkbox"/> MRO | <input type="checkbox"/> | 3 — Load-serving Entities |
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1. Do you believe that there is a reliability-related need to upgrade the requirements in this set of standards?

Yes

No

Comments: The structure of these and a few additional standards need to be revised to reflect a more realistic approach to planning, real-time execution, and measurable compliance to system restoration standards

2. Do you agree with the scope of the proposed project? (The scope includes all the items noted on the 'Standard Review Forms' attached to the SAR as well as other improvements to the standards that meet the consensus of stakeholders, consistent with establishing high quality, enforceable, and technically sufficient bulk power system reliability standards.)

Yes

No

Comments: It is questionable if the concept of a "Regional Restoration Plan" should remain in existence as the responsibility of implementing restoration plans lie with the Transmission Operator, Balancing Authority, Generator Operator (where applicable), and Reliability Coordinator. A Regional Reliability Organization is not structured to implement system restoration plans, their function has evolved for the most part to set standards and perform in conjunction with the ERO compliance monitoring. There are also critical utility infrastructure issues that need to be addressed in the sharing of restoration plans.

3. Please identify any additional revisions that should be incorporated into this set of standards, beyond those that have already been identified in the SAR.

Yes

No

Comments: Additional Standards that make reference to System Restoration Plans (e.g. EOP-001) should be reviewed and such references be removed from those standards as they are redundant, distracting, and provide no additional support to these standards being addressed in this SAR.

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| Individual Commenter Information | | |
|---|---|--|
| (Complete this page for comments from one organization or individual.) | | |
| Name: | Will Franklin | |
| Organization: | Entergy Services, Inc. - System Planning & Operations | |
| Telephone: | 281-297-3594 | |
| E-mail: | wfrankl@entergy.com | |
| NERC Region | | Registered Ballot Body Segment |
| <input type="checkbox"/> ERCOT | <input type="checkbox"/> | 1 — Transmission Owners |
| <input type="checkbox"/> FRCC | <input type="checkbox"/> | 2 — RTOs, ISOs, |
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Lead Contact:
Contact Organization:
Contact Segment:
Contact Telephone:
Contact E-mail:

| Additional Member Name | Additional Member Organization | Region* | Segment* |
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Yes

No

Comments:

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Yes

No

Comments:

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Yes

No

Comments:

EOP-005 -?

Should version 1 be the version subject to review and update?

R1 - is the "loss of vital communications" necessary? This seems redundant to COM-001

R2 - the comment about correcting deficiencies during simulation exercises seems out of place.

R3 - how is "coordination" defined?

R10 & 10.1 - does this include testing of the generators as specified in EOP-009? Is it the same? Need clarification on this.

VRFs need to be revisited. The proposed VRFs on the current ballot for this Standards have administrative tasks rated as HIGH.

EOP-007-0

This standard contain requirements for a BCP that outlines blackstart unit testing requirements. Blackstart unit testing requirements should not be spread across several EOPs. Consolidate, Consider merging EOP-007 and 009, and the blackstart unit testing portions of EOP-005.

EOP-009-0

See comments above.

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| Individual Commenter Information | | |
|---|---|--|
| (Complete this page for comments from one organization or individual.) | | |
| Name: | Anita Lee | |
| Organization: | Alberta Electric System Operator (AESO) | |
| Telephone: | 403 539 2479 | |
| E-mail: | anita.lee@aeso.ca | |
| NERC Region | <input type="checkbox"/> | Registered Ballot Body Segment |
| <input type="checkbox"/> ERCOT | <input type="checkbox"/> | 1 — Transmission Owners |
| <input type="checkbox"/> FRCC | <input checked="" type="checkbox"/> | 2 — RTOs, ISOs, |
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Yes

No

Comments:

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Yes

No

Comments:

3. Please identify any additional revisions that should be incorporated into this set of standards, beyond those that have already been identified in the SAR.

Yes

No

Comments: The AESO recommends the following revisions to be incorporated:

1. The SAR should refer to the most updated and current standards. Let's say EOP-005-1 and EOP-006-1 and not EOP-005-0 and EOP-006-0

2. Considering adding definitions to EOP-005-1 for:

- Partial or total shut down;
- Vital telecommunications channels;
- System restoration;
- Blackstart capability plan; and
- System restoration plan.

3. Consider adding a requirement for Generator Operators to have generating facilities blackstart procedures. Those procedures shall be coordinated with the Transmission Operator's System Restoration plan

4. Consider revising training in R6. Training requirements should be quoted as stated and required in a different standard, let's say PRC. And with regards to training, it shall be state "what" should be the minimum training required for TO, BA and Generating facilities. And also, clarification as "what" is expected as "simulated exercises". What are those? It is DTS what is required? Or is it a table top adequated?

5. Consider defining what is as a minimum the required criteria for "simulated exercises" in the understanding that it will not be practical to perform "an actual test"

to the entire restoration plan. Further more, What is the meaning for simulation ? DTS? Power flows? EMTP? Other?

6. Consider revising EOP-005-1 R9 "switching requirements" and trying not to be prescriptive in telling the "hows" instead of the "what" is required to comply with. The requirement should not be a "cook book". If considering keeping this requirement, then consider defining "switching requirements".

7. Consider revising EOP-005-1 R10 in order to clarify "simulation testing"

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| Individual Commenter Information | | |
|---|-------------------------------------|--|
| (Complete this page for comments from one organization or individual.) | | |
| Name: | Brian Thumm | |
| Organization: | ITC Transmission | |
| Telephone: | 248-374-7846 | |
| E-mail: | bthumm@itctransco.com | |
| NERC Region | | Registered Ballot Body Segment |
| <input type="checkbox"/> ERCOT | <input checked="" type="checkbox"/> | 1 — Transmission Owners |
| <input type="checkbox"/> FRCC | <input type="checkbox"/> | 2 — RTOs, ISOs, |
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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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Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

1. Do you believe that there is a reliability-related need to upgrade the requirements in this set of standards?

Yes

No

Comments: Many of the items in the "To Do" lists appear administrative in nature, and not necessarily rooted in a reliability need. The requirements could use some upgrading, yes, but the need does not appear to be purely reliability-related.

2. Do you agree with the scope of the proposed project? (The scope includes all the items noted on the 'Standard Review Forms' attached to the SAR as well as other improvements to the standards that meet the consensus of stakeholders, consistent with establishing high quality, enforceable, and technically sufficient bulk power system reliability standards.)

Yes

No

Comments: The scope of the SAR for EOP-006, 007, and 009 are overly vague. The scope of the SAR is indiscernable. The scope of the SAR for EOP-005 appears to desire industry debate on several topics more than it desires to actually upgrade a standard.

3. Please identify any additional revisions that should be incorporated into this set of standards, beyond those that have already been identified in the SAR.

Yes

No

Comments:

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| Name: | | |
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| NERC Region | <input type="checkbox"/> | Registered Ballot Body Segment |
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Group Comments (Complete this page if comments are from a group.)

Group Name: IRC Standards Review Committee
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 |
| Mike Calimano | NYISO | NPCC | 2 |
| Ron Falsetti | IESO | NPCC | 2 |
| Matt Goldberg | ISO-NE | NPCC | 2 |
| Brent Kingsford | CAISO | WECC | 2 |
| Anita Lee | AESO | WECC | 2 |
| Steve Myers | ERCOT | ERCOT | 2 |
| Bill Phillips | MISO | RFC | 2 |
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Both EOP-005 and EOP-006 contain a mix of requirements that address advance planning and real-time operations. These need to be carefully reviewed to ensure that the lines of authority clarified under the Reliability Coordination (Project 2006-03) and Real Time Transmission Operations and Balancing of Load and Generation (Project 2007-03) are fully supported in the refinement of this set of standards.

EOP-007 and EOP-009 have some 'fill-in-the-blank' components to eliminate.

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable, and technically sufficient bulk power system reliability standards.

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. Do you believe that there is a reliability-related need to upgrade the requirements in this set of standards?

Yes

No

Comments:

2. Do you agree with the scope of the proposed project? (The scope includes all the items noted on the 'Standard Review Forms' attached to the SAR as well as other improvements to the standards that meet the consensus of stakeholders, consistent with establishing high quality, enforceable, and technically sufficient bulk power system reliability standards.)

Yes

No

Comments: The SRC would suggest that the SAR be clear that it will be a complete review of the subject requirements: to include the addition, deletion and modification of requirements as agreed to by public consensus and not be limited to the "TO DO LIST" identified in this draft.

3. Please identify any additional revisions that should be incorporated into this set of standards, beyond those that have already been identified in the SAR.

Yes

No

Comments: The SRC agrees that there is a need to review, upgrade and revise the Restoration and Blackstart set of standards. However, the SRC would also recommend the SAR be rewritten to clearly describe the scope of process being proposed.

At a minimum, the SAR should identify which standards will be under review: the version 0 or version 1 standards. It is unclear if and why EOP-005-0 and EOP-006-0 would be reviewed rather than EOP-005-1 and EOP-006-1.

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| Individual Commenter Information | | |
|---|-------------------------------------|--|
| (Complete this page for comments from one organization or individual.) | | |
| Name: | David Kiguel | |
| Organization: | Hydro One Networks Inc. | |
| Telephone: | 416-345-5313 | |
| E-mail: | David.Kiguel@HydroOne.com | |
| NERC Region | | Registered Ballot Body Segment |
| <input type="checkbox"/> ERCOT | <input checked="" type="checkbox"/> | 1 — Transmission Owners |
| <input type="checkbox"/> FRCC | <input type="checkbox"/> | 2 — RTOs, ISOs, |
| <input type="checkbox"/> MRO | <input type="checkbox"/> | 3 — Load-serving Entities |
| <input checked="" type="checkbox"/> NPCC | <input type="checkbox"/> | 4 — Transmission-dependent Utilities |
| <input type="checkbox"/> RFC | <input type="checkbox"/> | 5 — Electric Generators |
| <input type="checkbox"/> SERC | <input type="checkbox"/> | 6 — Electricity Brokers, Aggregators, and Marketers |
| <input type="checkbox"/> SPP | <input type="checkbox"/> | 7 — Large Electricity End Users |
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| | <input type="checkbox"/> | 10 — Regional Reliability Organizations and Regional Entities |

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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:

This project involves upgrading the requirements in these four standards:

- EOP-005 — System Restoration Plans
- EOP-006 — Reliability Coordination - System Restoration
- EOP-007 — Establish, Maintain, and Document a Regional Blackstart Capability Plan
- EOP-009 — Documentation of Blackstart Generating Unit Test Results

There are many stakeholder comments about this set of standards that need to be resolved. For example, EOP-005 only requires the Transmission Operator and the Balancing Authority to have a system restoration plan – the Reliability Coordinator does not have any requirement to have a system restoration plan.

Industry debate is needed over the contents of Attachment 1 in EOP-005. The attachment includes a list of elements that must be contained in a system restoration plan, 'if applicable'. The elements in the attachment need to be reviewed and the conditions under which an entity is exempt from including an element in its system restoration plan need to be specified. If possible, the required elements should be removed from the attachment and included in the body of the requirements.

Both EOP-005 and EOP-006 contain a mix of requirements that address advance planning and real-time operations. These need to be carefully reviewed to ensure that the lines of authority clarified under the Reliability Coordination (Project 2006-03) and Real Time Transmission Operations and Balancing of Load and Generation (Project 2007-03) are fully supported in the refinement of this set of standards.

EOP-007 and EOP-009 have some 'fill-in-the-blank' components to eliminate.

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable, and technically sufficient bulk power system reliability standards.

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. Do you believe that there is a reliability-related need to upgrade the requirements in this set of standards?

Yes

No

Comments:

2. Do you agree with the scope of the proposed project? (The scope includes all the items noted on the 'Standard Review Forms' attached to the SAR as well as other improvements to the standards that meet the consensus of stakeholders, consistent with establishing high quality, enforceable, and technically sufficient bulk power system reliability standards.)

Yes

No

Comments:

3. Please identify any additional revisions that should be incorporated into this set of standards, beyond those that have already been identified in the SAR.

Yes

No

Comments: In EOP-5, Compliance, Section 1.4.1 -Hydro One requests clarification of the phrase "critical load requirements".

The phrase can be interpreted as:

(i) available and easily accessible loads to be restored for voltage control in network restoration on the bulk power system level. These are loads employed to expedite the restoration of the interconnection.

(ii) loads of importance to health/safety/national security - police, hospitals, govt. offices. These are really distribution loads that are restored once the interconnection is restored and the transmission system is rebuilt.

(iii) restoring off-site power to key transmission facilities.

We suggest that mention of critical loads should be replaced by the restoration of critical transmission and generation facilities necessary to restore load.

With regard to the Phase III/IV comments on EOP-005 Restoration Plans:

(1) Locking the restoration to single, contractual cranking path.

A robust restoration plan must be flexible. It is impossible to define in advance what equipment will be available for service in the aftermath of a system collapse.

The concept of an explicitly defined cranking path, locked into a restoration plan by contractual requirements, precludes flexibility and is restrictive-further complicating what may be an intricate process. Identifying and communicating and coordinating the intended cranking path is a valid aspect of restoration. This is included in the second bullet of the Phase III/IV comments. The fourth bullet of the Phase III/IV comments should be removed from the SAR.

2) R3- Placing emphasis on restoring local transmission.

There is no need for the bullet on R3. The recommendation as noted encourages the restoration of local transmission and load at a higher priority than reestablishing the interconnection. Restoring the interconnection is the highest priority. In the process of achieving that end, some, minimal restoration of local transmission will be involved.

This is in direct conflict with the industry comments on V0 Standards which requires modifications to assign priority to the integrity of the interconnection.

Changing the emphasis of R3 should be removed from the SAR.

3) R11.5- Placing local load restoration above re-establishing the interconnection.

This follows the same argument addressed above. Restoration of the interconnection is a higher priority than the restoration of local load.

R11.5 should be retained in the SAR.

R6 mentions providing training requirements however this training requirement is already in PER-002-R3.1. There is also a training requirement in PER-004 R4 for the RC requirement.

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| Individual Commenter Information | | |
|---|---|--|
| (Complete this page for comments from one organization or individual.) | | |
| Name: | Dede Subakti | |
| Organization: | Midwest ISO Emergency Preparedness and System Restoration Working Group | |
| Telephone: | (651) - 632 - 8400 | |
| E-mail: | dsubakti@midwestiso.org | |
| NERC Region | | Registered Ballot Body Segment |
| <input type="checkbox"/> ERCOT | <input type="checkbox"/> | 1 — Transmission Owners |
| <input type="checkbox"/> FRCC | <input checked="" type="checkbox"/> | 2 — RTOs, ISOs, |
| <input checked="" type="checkbox"/> MRO | <input type="checkbox"/> | 3 — Load-serving Entities |
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Comment Form — 1st Draft of SAR for System Restoration and Blackstart

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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- EOP-006 — Reliability Coordination - System Restoration
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There are many stakeholder comments about this set of standards that need to be resolved. For example, EOP-005 only requires the Transmission Operator and the Balancing Authority to have a system restoration plan – the Reliability Coordinator does not have any requirement to have a system restoration plan.

Industry debate is needed over the contents of Attachment 1 in EOP-005. The attachment includes a list of elements that must be contained in a system restoration plan, 'if applicable'. The elements in the attachment need to be reviewed and the conditions under which an entity is exempt from including an element in its system restoration plan need to be specified. If possible, the required elements should be removed from the attachment and included in the body of the requirements.

Both EOP-005 and EOP-006 contain a mix of requirements that address advance planning and real-time operations. These need to be carefully reviewed to ensure that the lines of authority clarified under the Reliability Coordination (Project 2006-03) and Real Time Transmission Operations and Balancing of Load and Generation (Project 2007-03) are fully supported in the refinement of this set of standards.

EOP-007 and EOP-009 have some 'fill-in-the-blank' components to eliminate.

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable, and technically sufficient bulk power system reliability standards.

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. Do you believe that there is a reliability-related need to upgrade the requirements in this set of standards?

Yes

No

Comments:

2. Do you agree with the scope of the proposed project? (The scope includes all the items noted on the 'Standard Review Forms' attached to the SAR as well as other improvements to the standards that meet the consensus of stakeholders, consistent with establishing high quality, enforceable, and technically sufficient bulk power system reliability standards.)

Yes

No

Comments: The scope of this project should not be limited to just revising four Standards due to directives from regulatory bodies, but should be flexible to meet industry needs, whether additional or fewer Standards are required to address System Restoration and Blackstart needs. Review and modification of other existing Standards may be required (e.g.EOP-001).

3. Please identify any additional revisions that should be incorporated into this set of standards, beyond those that have already been identified in the SAR.

Yes

No

Comments: Regional Reliability Organizations (RRO's) do not have an active role in Emergency Operations, the applicability of EOP - 007 for RRO's is questionable. The requirements in EOP-007 should be applicable to the Reliability Coordinator function as it has the responsibility of maintaining integrity of the Bulk Electric System over a wide area and must coordinate its activities with its neighboring Reliability Coordinators.

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| 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 | <input type="checkbox"/> | Registered Ballot Body Segment |
| <input type="checkbox"/> ERCOT | <input checked="" type="checkbox"/> | 1 — Transmission Owners |
| <input type="checkbox"/> FRCC | <input type="checkbox"/> | 2 — RTOs, ISOs, |
| <input type="checkbox"/> MRO | <input type="checkbox"/> | 3 — Load-serving Entities |
| <input type="checkbox"/> NPCC | <input type="checkbox"/> | 4 — Transmission-dependent Utilities |
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Comment Form — 1st Draft of SAR for System Restoration and Blackstart

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* |
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Background Information:

This project involves upgrading the requirements in these four standards:

- EOP-005 — System Restoration Plans
- EOP-006 — Reliability Coordination - System Restoration
- EOP-007 — Establish, Maintain, and Document a Regional Blackstart Capability Plan
- EOP-009 — Documentation of Blackstart Generating Unit Test Results

There are many stakeholder comments about this set of standards that need to be resolved. For example, EOP-005 only requires the Transmission Operator and the Balancing Authority to have a system restoration plan – the Reliability Coordinator does not have any requirement to have a system restoration plan.

Industry debate is needed over the contents of Attachment 1 in EOP-005. The attachment includes a list of elements that must be contained in a system restoration plan, 'if applicable'. The elements in the attachment need to be reviewed and the conditions under which an entity is exempt from including an element in its system restoration plan need to be specified. If possible, the required elements should be removed from the attachment and included in the body of the requirements.

Both EOP-005 and EOP-006 contain a mix of requirements that address advance planning and real-time operations. These need to be carefully reviewed to ensure that the lines of authority clarified under the Reliability Coordination (Project 2006-03) and Real Time Transmission Operations and Balancing of Load and Generation (Project 2007-03) are fully supported in the refinement of this set of standards.

EOP-007 and EOP-009 have some 'fill-in-the-blank' components to eliminate.

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable, and technically sufficient bulk power system reliability standards.

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. Do you believe that there is a reliability-related need to upgrade the requirements in this set of standards?

Yes

No

Comments:

We believe there is not a reliability-related need to upgrade the requirements in this set of standards. We do agree these standards need to be reviewed and revised to make them better standards.

2. Do you agree with the scope of the proposed project? (The scope includes all the items noted on the 'Standard Review Forms' attached to the SAR as well as other improvements to the standards that meet the consensus of stakeholders, consistent with establishing high quality, enforceable, and technically sufficient bulk power system reliability standards.)

Yes

No

Comments:

There are several issues within the proposed SAR that concern scope, timing and sequence.

Attachment 1 of EOP-005 contains elements that should be reviewed in the development of a restoration plan. However, we disagree with the SAR authors that - the conditions under which an entity is exempt from including an element in its system restoration plan need to be specified - should be deleted. All the reasons that a developer may need for not including an element can not be specified nor included in the requirements of a standard or a plan.

The second paragraph of the Brief Description contains a statement that in EOP-005 the RC does not have any requirement to have a system restoration plan. We are not sure what the authors mean by this vague statement. However, we think it is appropriate and correct that the RC does not have a system restoration plan. We agree with the existing standards that the TOP and BA have restoration plans as required in EOP-005 and the RC assists with coordinating the implementation of those plans as required in EOP-006. Therefore, please delete the second paragraph of the Brief Description.

The second sentence of the third paragraph of the Brief Description contains a statement about ensuring the lines of authority clarified under the RC (Project 2006-03) and Real-time Transmission Operations and Balancing of Load and Generation (Project 2007-03) are fully supported in the refinement of this set of standards. This

sentence should be deleted. The SAR contains something identified as Project 2006-03 System Restoration and Blackstart which does not seem to address the lines of authority of the RC. In addition, there is no Project 2007-03 in the SAR so we can not agree to making the EOP standards conform to requirements that are not available. In addition, the lines of authority of the RC should be contained in EOP-006.

We agree with the idea that the fill-in-the-blank components of EOP-007 and EOP-009 should be filled in, which is what we think is meant by the term "eliminate". We do not agree with the elimination of the fill-in-the-blanks if the authors really meant.

We are concerned about the open-ended statements in the SAR. The statement that - development may include other improvements to the standards deemed appropriate - should contain a statement that those other improvements will be limited to the standards and requirements identified in this SAR, and approval of this SAR is not an open-ended approval to change standards and requirements other than the standards identified in this SAR in other standards that directly concern system restoration and are directly applicable to this approved SAR.

3. Please identify any additional revisions that should be incorporated into this set of standards, beyond those that have already been identified in the SAR.

Yes

No

Comments:

We have no additional revisions at this time.

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| (Complete this page for comments from one organization or individual.) | | |
| Name: | | |
| Organization: | | |
| Telephone: | | |
| E-mail: | | |
| NERC Region | <input type="checkbox"/> | Registered Ballot Body Segment |
| <input type="checkbox"/> ERCOT | <input type="checkbox"/> | 1 — Transmission Owners |
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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: 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* |
|------------------------|--------------------------------|---------|----------|
| Ralph Rufrano | New York Power Authority | NPCC | 1 |
| Kathleen Goodman | ISO New England | NPCC | 2 |
| Bill Shemley | ISO New England | NPCC | 2 |
| Greg Campoli | New York ISO | NPCC | 2 |
| Roger Champagne | TransEnergie HydroQuebec | NPCC | 1 |
| David Kiguel | Hydro One | NPCC | 1 |
| Herbert Schrayshuen | National Grid US | NPCC | 1 |
| Donald Nelson | MA Dept. of Tele and Energy | NPCC | 9 |
| Ed Thompson | ConEd | NPCC | 1 |
| Ron Falsetti | The IESO | NPCC | 2 |
| Al Adamson | New York State Rel. Council | NPCC | 2 |
| Guy Zito | NPCC | NPCC | 2 |
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Yes

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Yes

No

Comments:

3. Please identify any additional revisions that should be incorporated into this set of standards, beyond those that have already been identified in the SAR.

Yes

No

Comments:

In EOP-5, Compliance, Section 1.4.1 -NPCC requests clarification of the phrase "critical load requirements".

The phrase can be interpreted as:

(A) available and easily accessible loads to be restored for voltage control in network restoration on the bulk power system level. These are loads employed to expedite the restoration of the interconnection.

(B) loads of importance to health/safety/national security - police, hospitals, govt. offices. These are really distribution loads that are restored once the interconnection is restored and the transmission system is rebuilt.

(C) restoring off-site power to key transmission facilities.

NPCC Participating members believe that the mention of critical load should be replaced by the restoration of critical transmission and generation facilities necessary to restore load.

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1) Locking the restoration to single, contractual cranking path.

Flexibility is an essential element of a robust restoration plan. It is impossible to define in advance what equipment will be available for service in the aftermath of a system collapse.

The concept of an explicitly defined cranking path, locked into a restoration plan by contractual requirements, precludes flexibility and is restrictive-further complicating what may be an intricate process. Identifying and communicating the coordination necessary to provide the intended cranking path is a valid aspect of restoration. This is included in the second bullet of the Phase III/IV comments. The fourth bullet of the Phase III/IV comments should be removed from the SAR.

2) R3- Placing emphasis on restoring local transmission.

There is no need for the bullet on R3. The recommendation as noted encourages the restoration of local transmission and load at a higher priority than reestablishing the interconnection. Restoring the interconnection is the highest priority. In the process of achieving that end, some, minimal restoration of local transmission will be involved.

This is in direct conflict with the industry comments on V0 Standards which requires modifications to assign priority to the integrity of the interconnection.

Changing the emphasis of R3 should be removed from the SAR.

3) R11.5- Placing local load restoration above re-establishing the interconnection.

This follows the same argument addressed above. Restoration of the interconnection is a higher priority than the restoration of local load.

R11.5 should be retained in the SAR.

R6 mentions providing training requirements however this training requirement is already in PER-002-R3.1. There is also a training requirement in PER-004 R4 for the RC requirement.

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| Individual Commenter Information | | |
|---|-------------------------------------|--|
| (Complete this page for comments from one organization or individual.) | | |
| Name: | Jack Kerr | |
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| Telephone: | 804-273-3393 | |
| E-mail: | jack_kerr@dom.com | |
| NERC Region | | Registered Ballot Body Segment |
| <input type="checkbox"/> ERCOT | <input checked="" type="checkbox"/> | 1 — Transmission Owners |
| <input type="checkbox"/> FRCC | <input type="checkbox"/> | 2 — RTOs, ISOs, |
| <input type="checkbox"/> MRO | <input type="checkbox"/> | 3 — Load-serving Entities |
| <input type="checkbox"/> NPCC | <input type="checkbox"/> | 4 — Transmission-dependent Utilities |
| <input type="checkbox"/> RFC | <input type="checkbox"/> | 5 — Electric Generators |
| <input checked="" type="checkbox"/> SERC | <input type="checkbox"/> | 6 — Electricity Brokers, Aggregators, and Marketers |
| <input type="checkbox"/> SPP | <input type="checkbox"/> | 7 — Large Electricity End Users |
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| <input type="checkbox"/> NA – Not Applicable | <input type="checkbox"/> | 9 — Federal, State, Provincial Regulatory or other Government Entities |
| | <input type="checkbox"/> | 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* |
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*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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There are many stakeholder comments about this set of standards that need to be resolved. For example, EOP-005 only requires the Transmission Operator and the Balancing Authority to have a system restoration plan – the Reliability Coordinator does not have any requirement to have a system restoration plan.

Industry debate is needed over the contents of Attachment 1 in EOP-005. The attachment includes a list of elements that must be contained in a system restoration plan, 'if applicable'. The elements in the attachment need to be reviewed and the conditions under which an entity is exempt from including an element in its system restoration plan need to be specified. If possible, the required elements should be removed from the attachment and included in the body of the requirements.

Both EOP-005 and EOP-006 contain a mix of requirements that address advance planning and real-time operations. These need to be carefully reviewed to ensure that the lines of authority clarified under the Reliability Coordination (Project 2006-03) and Real Time Transmission Operations and Balancing of Load and Generation (Project 2007-03) are fully supported in the refinement of this set of standards.

EOP-007 and EOP-009 have some 'fill-in-the-blank' components to eliminate.

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable, and technically sufficient bulk power system reliability standards.

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. Do you believe that there is a reliability-related need to upgrade the requirements in this set of standards?

Yes

No

Comments:

2. Do you agree with the scope of the proposed project? (The scope includes all the items noted on the 'Standard Review Forms' attached to the SAR as well as other improvements to the standards that meet the consensus of stakeholders, consistent with establishing high quality, enforceable, and technically sufficient bulk power system reliability standards.)

Yes

No

Comments: Contrary to what the SAR says, there is indeed a requirement for Reliability Coordinators to have System Restoration Plans. In fact, requirement R3 of EOP-006 states, "The Reliability Coordinator shall have a Reliability Coordinator Area restoration plan that provides coordination between individual Transmission Operator restoration plans and that ensures reliability is maintained during system restoration events." With this requirement, it is not necessary for RCs to have restoration plans that are equivalent to the TO and BA plans. However, RCs must be involved in the development and approval of the TO and BA plans in order to ensure that the RC's over-arching plan is viable and actually maintains reliability during system restoration events.

3. Please identify any additional revisions that should be incorporated into this set of standards, beyond those that have already been identified in the SAR.

Yes

No

Comments: The existing standards (and the Functional Model) do not address the role of the Transmission Owner in system restoration. For example, assessment of the extent of isolation of a storm-ravaged system usually requires "boots on the ground" if normal data/voice communications are disrupted. Also, assessments of transmission asset damage requires visual inspections. Typically, it is Transmission Owner personnel who perform these assessments and inspections. Also, the repair of damaged transmission facilities and the determination of the readiness of those facilities to be re-energized is the responsibility of the asset owner. A determination of readiness for re-energization usually involves a re-examination of facility limits, calculation of short-circuit current availability, and an evaluation of protective relaying viability given the abnormal system topologies that can result from a major storm. These are typically Transmission Owner responsibilities. Transmission Owners have restoration plans to ensure that they are ready and able to perform these vital restoration tasks.

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| Individual Commenter Information | | |
|---|-------------------------------------|--|
| (Complete this page for comments from one organization or individual.) | | |
| Name: | | |
| Organization: | | |
| Telephone: | | |
| E-mail: | | |
| NERC Region | <input type="checkbox"/> | Registered Ballot Body Segment |
| <input type="checkbox"/> ERCOT | <input checked="" type="checkbox"/> | 1 — Transmission Owners |
| <input type="checkbox"/> FRCC | <input type="checkbox"/> | 2 — RTOs, ISOs, |
| <input type="checkbox"/> MRO | <input type="checkbox"/> | 3 — Load-serving Entities |
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- EOP-009 — Documentation of Blackstart Generating Unit Test Results

There are many stakeholder comments about this set of standards that need to be resolved. For example, EOP-005 only requires the Transmission Operator and the Balancing Authority to have a system restoration plan – the Reliability Coordinator does not have any requirement to have a system restoration plan.

Industry debate is needed over the contents of Attachment 1 in EOP-005. The attachment includes a list of elements that must be contained in a system restoration plan, 'if applicable'. The elements in the attachment need to be reviewed and the conditions under which an entity is exempt from including an element in its system restoration plan need to be specified. If possible, the required elements should be removed from the attachment and included in the body of the requirements.

Both EOP-005 and EOP-006 contain a mix of requirements that address advance planning and real-time operations. These need to be carefully reviewed to ensure that the lines of authority clarified under the Reliability Coordination (Project 2006-03) and Real Time Transmission Operations and Balancing of Load and Generation (Project 2007-03) are fully supported in the refinement of this set of standards.

EOP-007 and EOP-009 have some 'fill-in-the-blank' components to eliminate.

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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. Do you believe that there is a reliability-related need to upgrade the requirements in this set of standards?

Yes

No

Comments:

2. Do you agree with the scope of the proposed project? (The scope includes all the items noted on the 'Standard Review Forms' attached to the SAR as well as other improvements to the standards that meet the consensus of stakeholders, consistent with establishing high quality, enforceable, and technically sufficient bulk power system reliability standards.)

Yes

No

Comments: There is a concern that the SAR process is being skipped over (due to the granular nature of the recommendation changes) and the changes being recommended are more inclined to be addressed by the Standard (not SAR) drafting team. The SAR is not "clearly defining the scope". For example, they have started attaching some documents with the title "Standard Review Form". Those documents contain comments generated by FERC, NERC, and the industry. However, the SAR does not say whether these comments must be accomodated or whether they just need to be considered.

3. Please identify any additional revisions that should be incorporated into this set of standards, beyond those that have already been identified in the SAR.

Yes

No

Comments: Some items that need to be considered is that in some of the comments it recommends "Add a requirement for..". Does this mean the standards drafting team must add a requirement or just have to consider adding the requirement and only do so if they think it is the right thing to do? Another example can be found in the scope section. The following statement is made: "EOP-005 only requires the Transmission Operator and the Balancing Authority to have a system resoration plan - the Reliability Coordinator does not have any requirement to have a system restoration plan." That is all that is said about it. Does this compel the standards drafting team to add a requirement for the Reliability Coordinator? Or does it merely mean that the SDT should consider adding a requirement? These examples need to be clear to the drafting team.

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| Individual Commenter Information | | |
|---|-------------------------------------|--|
| (Complete this page for comments from one organization or individual.) | | |
| Name: | Jason Shaver | |
| Organization: | American Transmission Co. | |
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| E-mail: | jshaver@atcllc.com | |
| NERC Region | | Registered Ballot Body Segment |
| <input type="checkbox"/> ERCOT | <input checked="" type="checkbox"/> | 1 — Transmission Owners |
| <input type="checkbox"/> FRCC | <input type="checkbox"/> | 2 — RTOs, ISOs, |
| <input checked="" type="checkbox"/> MRO | <input type="checkbox"/> | 3 — Load-serving Entities |
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Both EOP-005 and EOP-006 contain a mix of requirements that address advance planning and real-time operations. These need to be carefully reviewed to ensure that the lines of authority clarified under the Reliability Coordination (Project 2006-03) and Real Time Transmission Operations and Balancing of Load and Generation (Project 2007-03) are fully supported in the refinement of this set of standards.

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Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

1. Do you believe that there is a reliability-related need to upgrade the requirements in this set of standards?

Yes

No

Comments: ATC agrees that an upgrade is needed on this set of standards.

2. Do you agree with the scope of the proposed project? (The scope includes all the items noted on the 'Standard Review Forms' attached to the SAR as well as other improvements to the standards that meet the consensus of stakeholders, consistent with establishing high quality, enforceable, and technically sufficient bulk power system reliability standards.)

Yes

No

Comments: The SAR DT needs to provide a more detailed explanation as to the role of each entity that is checked under the "Reliability Functions" section, particularly those roles that have not been identified under the Applicability section for these Standards in the past, such as Planning Authority, Distribution Provider and Load Serving Entity.

The SAR should task the SDT with developing a comprehensive set of standards that address blackstart planning, testing and coordination. In order to perform this task the team should be given wide latitude in developing a new set of standards and requirements. Therefore the SAR should not limit the team to organize its work within a predefined number of standards as more standards may be required to address the roles of new entities not subject to these standards in the past.

Does the SDT envision any major changes to the roles currently performed by the Transmission Operator, Balancing Authority, Reliability Authority, Generator Owner, Generator Operator? If so, what are they?

Finally, ATC believes that any proposed requirements for parties to execute contractual agreements, as described under "Phase III/IV comments," are outside the scope and purview of the SDT.

EOP-007-0

ATC agrees that this standard should not apply to the RRO. ATC suggests that the SDT review Standard EOP-007-0 in terms of having the Reliability Coordinator perform those tasks currently performed by the RRO.

EOP-005-1 (Attachment 1)

Lastly, ATC would like to see a change to one of the sentences in the Brief Description section of the SAR.

Third Sentence of the First Paragraph:

"The Elements in the attachment need to be reviewed and the condition under which an entity is exempt...."

Suggested Change:

The elements in the attachment need to specify which entities are responsible for each element listed.

3. Please identify any additional revisions that should be incorporated into this set of standards, beyond those that have already been identified in the SAR.

Yes

No

Comments:

References to Standard EOP-005-0 (Version 0) should be replaced with EOP-005-1 (Version 1) which will be effective on January 1, 2007

References to Standard EOP-006-0 (Version 0) should be replaced with EOP-006-1 (Version 1) which will be effective on January 1, 2007

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| Individual Commenter Information | | |
|---|-------------------------------------|--|
| (Complete this page for comments from one organization or individual.) | | |
| Name: | Jerad Barnhart | |
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| E-mail: | jerad_barnhart@nstaronline.com | |
| NERC Region | | Registered Ballot Body Segment |
| <input type="checkbox"/> ERCOT | <input checked="" type="checkbox"/> | 1 — Transmission Owners |
| <input type="checkbox"/> FRCC | <input type="checkbox"/> | 2 — RTOs, ISOs, |
| <input type="checkbox"/> MRO | <input type="checkbox"/> | 3 — Load-serving Entities |
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Yes

No

Comments:

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Yes

No

Comments:

3. Please identify any additional revisions that should be incorporated into this set of standards, beyond those that have already been identified in the SAR.

Yes

No

Comments:

In EOP-5, Compliance, Section 1.4.1 -NSTAR Electric requests clarification of the phrase "critical load requirements".

The phrase can be interpreted as:

(A) available and easily accessible loads to be restored for voltage control in network restoration on the bulk power system level.

(B) loads of importance to health/safety/national security - police, hospitals, govt. offices. These are really distribution loads that are restored once the interconnection is restored and the transmission system is rebuilt.

(C) restoring off-site power to key transmission facilities.

NSTAR Electric believes that the mention of critical load should be replaced by the restoration of critical transmission and generation facilities necessary to restore load.

With regard to the Phase III/IV comments on EOP-005 Restoration Plans:

1) Locking the restoration to single, contractual cranking path.

Flexibility is an essential element of a robust restoration plan. It is impossible to define in advance what equipment will be available for service in the aftermath of a system collapse.

The concept of an explicitly defined cranking path, locked into a restoration plan by contractual requirements, precludes flexibility and is restrictive-further complicating what may be an intricate process. Identifying and communicating the coordination necessary to provide the intended cranking path is a valid aspect of restoration. This is included in the second bullet of the Phase III/IV comments. The fourth bullet of the Phase III/IV comments should be removed from the SAR.

2) R3 - Placing emphasis on restoring local transmission.

There is no need for the bullet on R3. The recommendation as noted encourages the restoration of local transmission and load at a higher priority than reestablishing the interconnection. Restoring the interconnection is the highest priority. In the process of achieving that end, some, restoration of local transmission will be involved.

This is in direct conflict with the industry comments on V0 Standards which requires modifications to assign priority to the integrity of the interconnection.

Changing the emphasis of R3 should be removed from the SAR.

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R11.5 should be retained in the SAR.

R6 mentions providing training requirements, however this training requirement is already in PER-002-R3.1. There is also a training requirement in PER-004 R4 for the RC requirement. Duplication should be avoided and training requirements should be included in a training standard.

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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 | |
| Telephone: | (614) 716-2370 | |
| E-mail: | jhsorrels@AEP.com | |
| NERC Region | <input type="checkbox"/> | Registered Ballot Body Segment |
| <input checked="" type="checkbox"/> ERCOT | <input checked="" type="checkbox"/> | 1 — Transmission Owners |
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1. Do you believe that there is a reliability-related need to upgrade the requirements in this set of standards?

Yes

No

Comments:

2. Do you agree with the scope of the proposed project? (The scope includes all the items noted on the 'Standard Review Forms' attached to the SAR as well as other improvements to the standards that meet the consensus of stakeholders, consistent with establishing high quality, enforceable, and technically sufficient bulk power system reliability standards.)

Yes

No

Comments:

3. Please identify any additional revisions that should be incorporated into this set of standards, beyond those that have already been identified in the SAR.

Yes

No

Comments: None identified at this time.

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| Individual Commenter Information | | |
|---|-------------------------------------|--|
| (Complete this page for comments from one organization or individual.) | | |
| Name: | Jim Useldinger | |
| Organization: | Kansas City Power & Light Company | |
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| NERC Region | | Registered Ballot Body Segment |
| <input type="checkbox"/> ERCOT | <input checked="" type="checkbox"/> | 1 — Transmission Owners |
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| <input type="checkbox"/> NA – Not Applicable | <input type="checkbox"/> | 9 — Federal, State, Provincial Regulatory or other Government Entities |
| | <input type="checkbox"/> | 10 — Regional Reliability Organizations and Regional Entities |

Background Information:

This project involves upgrading the requirements in these four standards:

- EOP-005 — System Restoration Plans
- EOP-006 — Reliability Coordination - System Restoration
- EOP-007 — Establish, Maintain, and Document a Regional Blackstart Capability Plan
- EOP-009 — Documentation of Blackstart Generating Unit Test Results

There are many stakeholder comments about this set of standards that need to be resolved. For example, EOP-005 only requires the Transmission Operator and the Balancing Authority to have a system restoration plan – the Reliability Coordinator does not have any requirement to have a system restoration plan.

Industry debate is needed over the contents of Attachment 1 in EOP-005. The attachment includes a list of elements that must be contained in a system restoration plan, 'if applicable'. The elements in the attachment need to be reviewed and the conditions under which an entity is exempt from including an element in its system restoration plan need to be specified. If possible, the required elements should be removed from the attachment and included in the body of the requirements.

Both EOP-005 and EOP-006 contain a mix of requirements that address advance planning and real-time operations. These need to be carefully reviewed to ensure that the lines of authority clarified under the Reliability Coordination (Project 2006-03) and Real Time Transmission Operations and Balancing of Load and Generation (Project 2007-03) are fully supported in the refinement of this set of standards.

EOP-007 and EOP-009 have some 'fill-in-the-blank' components to eliminate.

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable, and technically sufficient bulk power system reliability standards.

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. Do you believe that there is a reliability-related need to upgrade the requirements in this set of standards?

Yes

No

Comments: There are reliability-related reasons to upgrade the requirements in these standards

2. Do you agree with the scope of the proposed project? (The scope includes all the items noted on the 'Standard Review Forms' attached to the SAR as well as other improvements to the standards that meet the consensus of stakeholders, consistent with establishing high quality, enforceable, and technically sufficient bulk power system reliability standards.)

Yes

No

Comments: The scope needs to be more focused.

EOP-5

All comments under the various groups identified are not specific enough to respond to except the comments under "FERC NOPR", "FERC Staff", 4th bulleted item under "VO Industry Comments" and all bullets under "Phase III/IV Comments". Agree with all bulleted items under "FERC NOPR" and "FERC Staff". Do not agree with bulleted items 1-7 or 10-12 and agree with bulleted items 8 & 9 under "Phase III/IV Comments". Regarding bulleted items 8 & 9 under "Phase III/IV Comments", would recommend the testing and training periodicity for R5 and R6 be on an annual basis.

Do not agree that Load Serving Entities or Generation Owners should have restoration plans. The proposed EOP-5 version 1 does not include any requirement or applicability for the LSE and GO and this is the way it should be.

EOP-6

Agree with comments regarding the measures and the measures proposed in EOP-6 version 1. Do not agree with any of the other comments under "FERC NOPR" or "FERC Staff". The comments under "Regional Fill-in-the-Blank Team Comments" are not specific enough to respond to.

3. Please identify any additional revisions that should be incorporated into this set of standards, beyond those that have already been identified in the SAR.

Yes

No

Comments: This does not require a yes/no response. These Standards should continue to focus on preparing for restoration and not add more administrative requirements.

EOP-5

R9: It is unnecessary to include cranking paths in R9. It should only be necessary to establish the black start unit(s) with which the system restoration will begin in the restoration plan for the TOP. However, it is of no consequence to remove or change the language proposed in EOP-5 version 1.

EOP-6

Would suggest the addition of an RC requirement to assess initial disturbance conditions for the purpose of:

1. Establish the need to suspend energy and ancillary service market operations in whole or in part
2. Establish the need to implement TOP and BA system restoration plans or for TOP or BA to await further instruction from the RC

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| Individual Commenter Information | | |
|---|-------------------------------------|--|
| (Complete this page for comments from one organization or individual.) | | |
| Name: | John E. Sullivan | |
| Organization: | Ameren | |
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| E-mail: | JSullivan@ameren.com | |
| NERC Region | | Registered Ballot Body Segment |
| <input type="checkbox"/> ERCOT | <input checked="" type="checkbox"/> | 1 — Transmission Owners |
| <input type="checkbox"/> FRCC | <input type="checkbox"/> | 2 — RTOs, ISOs, |
| <input type="checkbox"/> MRO | <input type="checkbox"/> | 3 — Load-serving Entities |
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Background Information:

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There are many stakeholder comments about this set of standards that need to be resolved. For example, EOP-005 only requires the Transmission Operator and the Balancing Authority to have a system restoration plan – the Reliability Coordinator does not have any requirement to have a system restoration plan.

Industry debate is needed over the contents of Attachment 1 in EOP-005. The attachment includes a list of elements that must be contained in a system restoration plan, 'if applicable'. The elements in the attachment need to be reviewed and the conditions under which an entity is exempt from including an element in its system restoration plan need to be specified. If possible, the required elements should be removed from the attachment and included in the body of the requirements.

Both EOP-005 and EOP-006 contain a mix of requirements that address advance planning and real-time operations. These need to be carefully reviewed to ensure that the lines of authority clarified under the Reliability Coordination (Project 2006-03) and Real Time Transmission Operations and Balancing of Load and Generation (Project 2007-03) are fully supported in the refinement of this set of standards.

EOP-007 and EOP-009 have some 'fill-in-the-blank' components to eliminate.

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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. Do you believe that there is a reliability-related need to upgrade the requirements in this set of standards?

Yes

No

Comments: No additional comments.

2. Do you agree with the scope of the proposed project? (The scope includes all the items noted on the 'Standard Review Forms' attached to the SAR as well as other improvements to the standards that meet the consensus of stakeholders, consistent with establishing high quality, enforceable, and technically sufficient bulk power system reliability standards.)

Yes

No

Comments: Does this SAR apply to Reliability Standards EOP-005-0 and EOP-006-0, or to EOP-005-1 and EOP-006-1?

We do not see a benefit to adding LSE's to the Applicability section of EOP-005-1, and we do not believe adding LSE's to R4 of EOP-005-1 would contribute to the effectiveness of the restoration plan, and would make implementation of the plan more onerous.

We do not agree with deleting R11.5.4 of EOP-005-1. However, this item should be retained as a consideration, not a requirement.

3. Please identify any additional revisions that should be incorporated into this set of standards, beyond those that have already been identified in the SAR.

Yes

No

Comments: The VRF comments to EOP-005-1 are confusing. It is not certain to what these comments refer.

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Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

1. Do you believe that there is a reliability-related need to upgrade the requirements in this set of standards?

Yes

No

Comments: We do not agree that there should be a requirement for an RC Restoration Plan in EOP-005. It may be appropriate to add a requirement in 005 that says the RC is aware of the TO and BA Plans but is not bound to it as they are looking at the bigger picture. The requirements in EOP-006, for the RC's role in System Restoration, are sufficient and as long as the Functional Model separates entities then it is appropriate for their requirements to be in separate standards as we see it.

There is a "mix of requirements" between Advance Planning and Real-Time activities and we think they need to be separated with section headings for the two.

We don't understand what the "fill-in-the-blank" components are.

We don't agree that Attachment 1 from EOP-005 should be moved into the requirements of the Standard. Instead, the industry should be asked to submit what they think should be included.

2. Do you agree with the scope of the proposed project? (The scope includes all the items noted on the 'Standard Review Forms' attached to the SAR as well as other improvements to the standards that meet the consensus of stakeholders, consistent with establishing high quality, enforceable, and technically sufficient bulk power system reliability standards.)

Yes

No

Comments: All of the "Standard Review Forms" refer to the Version 0 documents...why not include the Version 1 that is due to go into affect in '07 for EOP-005 and EOP-006?

3. Please identify any additional revisions that should be incorporated into this set of standards, beyond those that have already been identified in the SAR.

Yes

No

Comments:

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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 | |
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| NERC Region | <input type="checkbox"/> | Registered Ballot Body Segment |
| <input type="checkbox"/> ERCOT | <input type="checkbox"/> | 1 — Transmission Owners |
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Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

1. Do you believe that there is a reliability-related need to upgrade the requirements in this set of standards?

Yes

No

Comments:

2. Do you agree with the scope of the proposed project? (The scope includes all the items noted on the 'Standard Review Forms' attached to the SAR as well as other improvements to the standards that meet the consensus of stakeholders, consistent with establishing high quality, enforceable, and technically sufficient bulk power system reliability standards.)

Yes

No

Comments:

3. Please identify any additional revisions that should be incorporated into this set of standards, beyond those that have already been identified in the SAR.

Yes

No

Comments:

In EOP-5, Compliance, Section 1.4.1 -ISO New England requests clarification of the phrase "critical load requirements".

The phrase can be interpreted as:

(A) available and easily accessible loads to be restored for voltage control in network restoration on the bulk power system level.

(B) loads of importance to health/safety/national security - police, hospitals, govt.

offices. These are really distribution loads that are restored once the interconnection is restored and the transmission system is rebuilt.

(C) restoring off-site power to key transmission facilities.

ISO New England believes that the mention of critical load should be replaced by the restoration of critical transmission and generation facilities necessary to restore load.

With regard to the Phase III/IV comments on EOP-005 Restoration Plans:

1) Locking the restoration to single, contractual cranking path.

Flexibility is an essential element of a robust restoration plan. It is impossible to define in advance what equipment will be available for service in the aftermath of a system collapse.

The concept of an explicitly defined cranking path, locked into a restoration plan by contractual requirements, precludes flexibility and is restrictive-further complicating what may be an intricate process. Identifying and communicating the coordination necessary to provide the intended cranking path is a valid aspect of restoration. This is included in the second bullet of the Phase III/IV comments. The fourth bullet of the Phase III/IV comments should be removed from the SAR.

2) R3 - Placing emphasis on restoring local transmission.

There is no need for the bullet on R3. The recommendation as noted encourages the restoration of local transmission and load at a higher priority than reestablishing the interconnection. Restoring the interconnection is the highest priority. In the process of achieving that end, some, restoration of local transmission will be involved.

This is in direct conflict with the industry comments on V0 Standards which requires modifications to assign priority to the integrity of the interconnection.

Changing the emphasis of R3 should be removed from the SAR.

3) R11.5 - Placing local load restoration above re-establishing the interconnection.

This follows the same argument addressed above. Restoration of the interconnection is a higher priority than the restoration of local load.

R11.5 should be retained in the SAR.

R6 mentions providing training requirements, however this training requirement is already in PER-002-R3.1. There is also a training requirement in PER-004 R4 for the RC requirement. Duplication should be avoided and training requirements should be included in a training standard.

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| Individual Commenter Information | | |
|---|-------------------------------------|--|
| (Complete this page for comments from one organization or individual.) | | |
| Name: | Michael Anthony | |
| Organization: | Progress Energy Carolinas | |
| Telephone: | 919-546-5690 | |
| E-mail: | mike.anthony@pgnmail.com | |
| NERC Region | | Registered Ballot Body Segment |
| <input type="checkbox"/> ERCOT | <input checked="" type="checkbox"/> | 1 — Transmission Owners |
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Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

1. Do you believe that there is a reliability-related need to upgrade the requirements in this set of standards?

Yes

No

Comments:

2. Do you agree with the scope of the proposed project? (The scope includes all the items noted on the 'Standard Review Forms' attached to the SAR as well as other improvements to the standards that meet the consensus of stakeholders, consistent with establishing high quality, enforceable, and technically sufficient bulk power system reliability standards.)

Yes

No

Comments:

3. Please identify any additional revisions that should be incorporated into this set of standards, beyond those that have already been identified in the SAR.

Yes

No

Comments:

EOP-005:

1. Requirements in EOP-005 should include a definition of "periodically." We would recommend a periodicity of annually to coincide with annual requirement to review and update the restoration plan at least annually.

2. R3 could be rolled into R1.

EOP-006:

The SAR indicates actions should be defined for R6. The actions taken to restore normal operations would depend on the operating emergency. Prescriptive actions should be avoided.

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Yes

No

Comments: There are gaps in the current version

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Yes

No

Comments: The group agrees with the scope of the proposed project, but feels that clarification of the portion of blackstart and restoration plans that the reliability coordinator approves needs to be restricted to a reasonable expectation. The Reliability Coordinator should review and approve only those portions of individual restoration plans that establish the backbone power system. There is no need for the Reliability Coordinator to be responsible for detailed plans of the BA, TO, GOP, LSE, etc. Specify the portions of the individual plans that need Reliability Coordinator review and approval.

3. Please identify any additional revisions that should be incorporated into this set of standards, beyond those that have already been identified in the SAR.

Yes

No

Comments:

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| <input type="checkbox"/> SERC | <input type="checkbox"/> | 6 — Electricity Brokers, Aggregators, and Marketers |
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| <input type="checkbox"/> NA – Not Applicable | <input type="checkbox"/> | 9 — Federal, State, Provincial Regulatory or other Government Entities |
| | <input type="checkbox"/> | 10 — Regional Reliability Organizations and Regional Entities |

Background Information:

This project involves upgrading the requirements in these four standards:

- EOP-005 — System Restoration Plans
- EOP-006 — Reliability Coordination - System Restoration
- EOP-007 — Establish, Maintain, and Document a Regional Blackstart Capability Plan
- EOP-009 — Documentation of Blackstart Generating Unit Test Results

There are many stakeholder comments about this set of standards that need to be resolved. For example, EOP-005 only requires the Transmission Operator and the Balancing Authority to have a system restoration plan – the Reliability Coordinator does not have any requirement to have a system restoration plan.

Industry debate is needed over the contents of Attachment 1 in EOP-005. The attachment includes a list of elements that must be contained in a system restoration plan, 'if applicable'. The elements in the attachment need to be reviewed and the conditions under which an entity is exempt from including an element in its system restoration plan need to be specified. If possible, the required elements should be removed from the attachment and included in the body of the requirements.

Both EOP-005 and EOP-006 contain a mix of requirements that address advance planning and real-time operations. These need to be carefully reviewed to ensure that the lines of authority clarified under the Reliability Coordination (Project 2006-03) and Real Time Transmission Operations and Balancing of Load and Generation (Project 2007-03) are fully supported in the refinement of this set of standards.

EOP-007 and EOP-009 have some 'fill-in-the-blank' components to eliminate.

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable, and technically sufficient bulk power system reliability standards.

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. Do you believe that there is a reliability-related need to upgrade the requirements in this set of standards?

Yes

No

Comments:

2. Do you agree with the scope of the proposed project? (The scope includes all the items noted on the 'Standard Review Forms' attached to the SAR as well as other improvements to the standards that meet the consensus of stakeholders, consistent with establishing high quality, enforceable, and technically sufficient bulk power system reliability standards.)

Yes

No

Comments:

3. Please identify any additional revisions that should be incorporated into this set of standards, beyond those that have already been identified in the SAR.

Yes

No

Comments: None identified.

Comment Form — 1st Draft of SAR for System Restoration and Blackstart

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| Individual Commenter Information | | |
|---|-------------------------------------|--|
| (Complete this page for comments from one organization or individual.) | | |
| Name: | Robert Coish | |
| Organization: | Manitoba Hydro | |
| Telephone: | 204-487-5479 | |
| E-mail: | rgcoish@hydro.mb.ca | |
| NERC Region | | Registered Ballot Body Segment |
| <input type="checkbox"/> ERCOT | <input checked="" type="checkbox"/> | 1 — Transmission Owners |
| <input type="checkbox"/> FRCC | <input type="checkbox"/> | 2 — RTOs, ISOs, |
| <input checked="" type="checkbox"/> MRO | <input checked="" type="checkbox"/> | 3 — Load-serving Entities |
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EOP-007 and EOP-009 have some 'fill-in-the-blank' components to eliminate.

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable, and technically sufficient bulk power system reliability standards.

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. Do you believe that there is a reliability-related need to upgrade the requirements in this set of standards?

Yes

No

Comments: There is too much ambiguity in the requirements and measures, plus some requirements may allow too much leeway which may affect reliability of restoring the system. It is also not clear which standard is being reviewed; ie. the SAR form lists the first standard as EOP-005-0 but the comments are based on EOP-005-1.

2. Do you agree with the scope of the proposed project? (The scope includes all the items noted on the 'Standard Review Forms' attached to the SAR as well as other improvements to the standards that meet the consensus of stakeholders, consistent with establishing high quality, enforceable, and technically sufficient bulk power system reliability standards.)

Yes

No

Comments: Manitoba Hydro believes these standards need to be as high quality as possible, as consistent as possible and have the measurements in place to ensure reliability. This SAR should require that Violation Risk Factors (VRF's) be assigned to all the requirements in the revised standards and that the VRF's be included in the revised standards. This can be coordinated with the current activity on

3. Please identify any additional revisions that should be incorporated into this set of standards, beyond those that have already been identified in the SAR.

Yes

No

Comments: EOP-005-0 and -1

Applicability - This should apply to Reliability Coordinators as well as TOs and BAs.

R1 (-0 + -1) - As part of integrating the appendix items into the requirements section the last sentence of R1 could be eliminated.

R5 (-0 + -1) - I think the testing period of the telecommunications systems should be defined as well as the type of testing that needs to be done. If auditors start asking questions about tests that are not defined or required its not fair to the entity being audited if they haven't performed that particular test. It should also be identified if main or backup systems need to be tested or if there should be backup systems.

R6 (-0 + -1) - Reliability Coordinator needs to be included in the training of personnel as part of this standard. Also the type of training needs to be defined (simulations, table top exercises), and the base topics to be trained on (philosophy, building of islands, blackstart) should be defined.

R7 (-0 + -1) - The type of testing or simulations should be defined; should dynamic stability studies, as well as voltage and frequency studies be done on the restoration plans or is running a simulation sufficient, unfortunately a simulation doesn't give you a complete enough evaluation.

R8 (-0) - availability and location aren't enough to ensure the blackstart units can do the job, you also have to ensure the capability of the units and the number of units are sufficient to blackstart. Testing and studies need to be done to ensure the units can accomplish the task.

R8 (-1) - Verification should be done by dynamic, voltage and frequency studies. Verification that the blackstart units are capable should be included with the "number, size, and location". The RRO isn't included in the Applicability section yet it looks like its their plan that the TO should be meeting instead of meeting the TO plan.

R9 (-1) - Its not clear as to which units this requirement is referring to, is it referring to a remote blackstart unit or other units on the system that need to be started as part of restoring the system?

R9.4 (-0) and R11.4 (-1) - For systems that have nuclear stations it should be made a part of their plans to give restoration of off-site power to the plants a high priority.

R9.5.1 (-0) and R11.5.1 (-1) - When tying two islands together the emphasis should be on minimizing the flow through the tie point once synched and closed rather than when voltage, frequency and phase angle permit. The resultant flow could be greater than expected if the system operator simply relies on the relaying to allow closing. Special attention should be paid to frequency and voltage when tying islands and bringing them as close as possible together prior to closing.

R9.5.4 (-0) and R11.5.4 (-1) - Typically is not the surrounding areas that require shedding of load to reconnect. The surrounding areas usually means the stable or larger of areas meaning frequency in the surrounding areas should be good to start with. It's the area that want to synch that should be adding generation or shedding load to be able to synch with the surrounding areas.

R10 (-1) - The word simulation comes up again, it should be defined what simulation is or whether its really referring to studies as done by system performance such as dynamic stability studies.

C. Measures (-1) M1. - Should read studies instead of simulations.

D. Compliance, 1.1.1 (-0) and 1.4.1 (-1) - its not clear what is meant by "identification of critical requirements", is it just identifying where critical loads exist so they can be brought on as part of the restoration process or do the voltage and frequency requirements of each critical load have to be identified as part of the restoration plan.

1.4.6 (-1) - the units to be started should be clarified.

1.4.7 (-1) - should refer to the TO restoration plan. If the regional plan is included there needs to be a requirement to share the regional plan with the TOs.

Attachment 1-EOP-005-0 and attachment EOP-005 - 3. - It would be impractical to have a plan for every possibility.

6. - Should this not fall under the dynamic type studies done by engineering studies personnel. To what extent should plans be simulated or tested?

EOP-006-0 and -1

R1 (-0) and (-1) - The RC should be more than just aware, the Reliability Coordinator's system restoration plan should coordinate with the TO's plan so the RC should thoroughly knowledgable with the TO plans.

R5 (-0) and (-1) - "major system islands" needs to be defined, at what point the RC gets involved needs to be clear. They don't necessarily need to be involved with the location of the synchronization point (the TOs should be aware of where they can synchronize).

EOP-007-0

R1.2 - Simulation doesn't give the dynamic response the proper studies can give (ie; dynamic stability studies, voltage and frequency studies).

R1.3.1 - What if it's the same one third that gets tested each year, the remaining two thirds may not be usable when the time comes to do a real restoration. You can't assume that each year a different one third will be tested. Also in order to provide training to plant personnel testing all blackstart units each year will ensure more plant operators are trained in the procedure.

R1.3.2 - this needs to be more specific as to the type of testing required.

Footer 1 - this should be included in the requirements section.

EOP-009-0

R1 - Besides the RRO the TO has blackstart requirements that need to be met.

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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 | <input type="checkbox"/> | Registered Ballot Body Segment |
| <input type="checkbox"/> ERCOT | <input type="checkbox"/> | 1 — Transmission Owners |
| <input type="checkbox"/> FRCC | <input checked="" type="checkbox"/> | 2 — RTOs, ISOs, |
| <input type="checkbox"/> MRO | <input type="checkbox"/> | 3 — Load-serving Entities |
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Industry debate is needed over the contents of Attachment 1 in EOP-005. The attachment includes a list of elements that must be contained in a system restoration plan, 'if applicable'. The elements in the attachment need to be reviewed and the conditions under which an entity is exempt from including an element in its system restoration plan need to be specified. If possible, the required elements should be removed from the attachment and included in the body of the requirements.

Both EOP-005 and EOP-006 contain a mix of requirements that address advance planning and real-time operations. These need to be carefully reviewed to ensure that the lines of authority clarified under the Reliability Coordination (Project 2006-03) and Real Time Transmission Operations and Balancing of Load and Generation (Project 2007-03) are fully supported in the refinement of this set of standards.

EOP-007 and EOP-009 have some 'fill-in-the-blank' components to eliminate.

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable, and technically sufficient bulk power system reliability standards.

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Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

1. Do you believe that there is a reliability-related need to upgrade the requirements in this set of standards?

Yes

No

Comments:

2. Do you agree with the scope of the proposed project? (The scope includes all the items noted on the 'Standard Review Forms' attached to the SAR as well as other improvements to the standards that meet the consensus of stakeholders, consistent with establishing high quality, enforceable, and technically sufficient bulk power system reliability standards.)

Yes

No

Comments:

3. Please identify any additional revisions that should be incorporated into this set of standards, beyond those that have already been identified in the SAR.

Yes

No

Comments:

This SAR updates EOP-005-0 and EOP-006-0 standards. The industry already approved EOP-005-1 & EOP-006-1. What will happen to those standards if this SAR is approved? Is this an oversight?

A comment on the Compliance section of EOP-005.

In EOP-005, Compliance, Section 1.4.1 - The intent of the phrase "critical load requirements" needs to be clarified.

The phrase can be interpreted as:

(A) available and easily accessible loads to be restored for voltage control in network restoration on the bulk power system level. These are loads employed to expedite the restoration of the interconnection.

(B) loads of importance to health/safety/national security - police, hospitals, govt. offices. These are really distribution loads that are restored once the interconnection is restored and the transmission system is rebuilt.

(C) restoring off-site power to key transmission facilities.

We believe the intention of the phase is related to prioritization of load restoration at the local distribution level, and as such should be the very last item in any list of restoration planning and procedure.

With regard to the Phase III/IV comments on EOP-005 Restoration Plans:

1) Locking the restoration to single, contractual cranking path.

Flexibility is an essential element of a robust restoration plan. It impossible to define in advance what equipment will be available for service in the aftermath of a system collapse.

The concept of an explicitly defined cranking path, locked into a restoration plan by contractual requirements, precludes flexibility. Identifying and communicating the coordination necessary to provide the intended cranking path is a valid aspect of restoration. This is included in the second bullet of the Phase III/IV comments. The fourth bullet of the Phase III/IV comments should be removed from the SAR.

2) R3- Placing emphasis on restoring local transmission.

There is no need for the bullet regarding placing emphasis on restoring local transmission in R3. The recommendation as noted encourages the restoration of local transmission and load at a higher priority than reestablishing the interconnection. Restoring the interconnection is the highest priority. In the process of achieving that end, some, minimal restoration of local transmission will be involved.

This is in direct conflict with the industry comments on V0 Standards which requires modifications to assign priority to the integrity of the interconnection.

The need for changing the emphasis of R3 should be removed from the SAR.

3) R11.5- Placing local load restoration above re-establishing the interconnection.

This follows the same argument addressed above. Restoration of the interconnection is a higher priority that the restoration of local load.

R11.5 should be retained in the SAR.

Comments on EOP-006 & EOP-007 Standards:

EOP 006-1 R3 sates "The Reliability Coordinator shall have a Reliability Coordinator Area restoration plan that provides coordination between individual Transmission Operator restoration plans and that ensures reliability is maintained during system restoration events."

EOP 007 R1 states "Each Regional Reliability Organization shall establish and maintain a system BCP, as part of an overall coordinated Regional SRP...."

Is it an acceptable practice for a Reliability Coordinator, in approving its Transmission Operator restoration plans per appropriate assessment criteria and ensuring they enable coordinated restoration with the interconnections, be deemed as an alternative to creating and maintaining regional plans? Otherwise the scope of such regional plans

should be specified to limit their scale. Consider the large number of Transmission Operators (and restoration plans) in those Reliability Coordinator Areas with large footprints such as PJM, MISO and California ISO.

The same consideration applies to a Regional Black Start Capability Plan as assessed by the Regional Reliability Organization. Given that black start is integral to system restoration how it is proposed to be handled in instances where the Reliability Coordinator Area differs from the RRO boundary?

Additionally, EOP 006-1 should capture Reliability Coordinator to other Reliability Coordinator 'coordination'. Specifically, "Reliability Coordinators shall coordinate their system restoration plans and efforts together including joint participation in drills and exercises."

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| Individual Commenter Information | | |
|---|-------------------------------------|--|
| (Complete this page for comments from one organization or individual.) | | |
| Name: | Mike Gentry | |
| Organization: | Salt River Project | |
| Telephone: | 602-236-6408 | |
| E-mail: | mlgentry@srpnet.com | |
| NERC Region | <input type="checkbox"/> | Registered Ballot Body Segment |
| <input type="checkbox"/> ERCOT | <input checked="" type="checkbox"/> | 1 — Transmission Owners |
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EOP-007 and EOP-009 have some 'fill-in-the-blank' components to eliminate.

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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. Do you believe that there is a reliability-related need to upgrade the requirements in this set of standards?

Yes

No

Comments: Admittedly, there are some "holes" in the current version.

2. Do you agree with the scope of the proposed project? (The scope includes all the items noted on the 'Standard Review Forms' attached to the SAR as well as other improvements to the standards that meet the consensus of stakeholders, consistent with establishing high quality, enforceable, and technically sufficient bulk power system reliability standards.)

Yes

No

Comments: The scope appears reasonable in order to provide measurable requirements.

3. Please identify any additional revisions that should be incorporated into this set of standards, beyond those that have already been identified in the SAR.

Yes

No

Comments:

Consideration of Comments on 1st Draft of System Restoration and Blackstart SAR

The System Restoration and Blackstart SAR Drafting Team thanks all commenters who submitted comments on Draft 1 of the System Restoration and Blackstart SAR. This SAR was posted for a 30-day public comment period from November 6 through December 5, 2006. The System Restoration and Blackstart SAR Drafting Team asked stakeholders to provide feedback on the standard through a special standard Comment Form. There were 26 sets of comments, including comments from more than 65 different people from more than 40 companies representing 8 of the 10 Industry Segments as shown in the table on the following pages.

Based on the comments received, the drafting team is recommending that the SAR be re-posted for an additional comment period. The drafting team made the following significant revisions to the SAR:

- Updated the SAR form to reflect the terms used in the Functional Model V3 as directed by the Standards Committee
- Added more specificity to the 'Industry Need' and 'Brief Description' sections of the SAR
- Added language to clarify that the 'To Do' list (renamed as an 'Issues to be Addressed' list is a list of issues to consider in the refinement of the standards, not a list of modifications that must be made to the standards
- Modified the headings in 'Standard Review Forms' to more clearly identify the source of the comments listed on those forms
- Added a copy of the 'Standard Review Guidelines' to clarify the scope of modifications required to upgrade this set of standards and to identify the reference used by NERC staff in evaluating the quality of existing standards
- Added a new attachment to the SAR that includes additional issues that should be addressed during the refinement of the standards – these are issues raised by stakeholders during the first comment period for the System Restoration and Blackstart SAR.

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 SAR can be viewed in their original format at:

http://www.nerc.com/~filez/standards/System_Restoration_Blackstart.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>.

Consideration of Comments on 1st Draft of System Restoration and Blackstart SAR

| | Commenter | Organization | Industry Segment | | | | | | | | | | | |
|-----|--------------------------|---|------------------|---|---|---|---|---|---|---|---|----|--|--|
| | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | | |
| 1. | Anita Lee | Alberta Electric System Operator | | ✓ | | | | | | | | | | |
| 2. | John Sullivan | Ameren | ✓ | | | | | | | | | | | |
| 3. | James Sorrels | American Electric Power | ✓ | | | | | ✓ | ✓ | | | | | |
| 4. | Jason Shaver | American Transmission Company | ✓ | | | | | | | | | | | |
| 5. | Jack Kerr | Dominion Virginia Power | ✓ | | | | | | | | | | | |
| 6. | Ed Davis | Entergy Services, Inc. | ✓ | | | | | | | | | | | |
| 7. | Will Franklin | Entergy Services, Inc. | | | | | | | ✓ | | | | | |
| 8. | Dave Kiguel | Hydro One Networks Inc. | ✓ | | | | | | | | | | | |
| 9. | Ron Falsetti | Independent Electricity System Operator | | ✓ | | | | | | | | | | |
| 10. | Roderick Conwell | IPL (MISO) | ✓ | | | | | | | | | | | |
| 11. | Charles Yeung (SPP) | IRS Standards Review Committee | | ✓ | | | | | | | | | | |
| 12. | Tom Bowe (PJM) | IRS Standards Review Committee | | ✓ | | | | | | | | | | |
| 13. | Mike Calimano (NYISO) | IRS Standards Review Committee | | ✓ | | | | | | | | | | |
| 14. | Ron Falsetti (IESO) | IRS Standards Review Committee | | ✓ | | | | | | | | | | |
| 15. | Matt Goldberg (ISONE) | IRS Standards Review Committee | | ✓ | | | | | | | | | | |
| 16. | Brent Kingsford (CAISO) | IRS Standards Review Committee | | ✓ | | | | | | | | | | |
| 17. | Anita Lee (AESO) | IRS Standards Review Committee | | ✓ | | | | | | | | | | |
| 18. | Steve Myers (ERCOT) | IRS Standards Review Committee | | ✓ | | | | | | | | | | |
| 19. | Bill Phillips (MISO) | IRS Standards Review Committee | | ✓ | | | | | | | | | | |
| 20. | Kathleen Goodman | ISO New England | | ✓ | | | | | | | | | | |
| 21. | Brian Thumm | ITC Transmission | ✓ | | | | | | | | | | | |
| 22. | Jim Cyrulewski | JDRJC Associates (MISO) | | | | | | | | | | ✓ | | |
| 23. | Jim Useldinger | Kansas City Power & Light Company | ✓ | | | | | | | | | | | |
| 24. | Robert Coish | Manitoba Hydro | ✓ | | ✓ | | | ✓ | ✓ | | | | | |
| 25. | Dede Subakti | Midwest ISO Emergency Preparedness and System Restoration Working Group | | ✓ | | | | | | | | | | |
| 26. | Terry Bilke | Midwest ISO, Inc. | | ✓ | | | | | | | | | | |
| 27. | Guy Zito (NPCC) | NPCC CP9 Reliability Standards Working Group | | ✓ | | | | | | | | | | |
| 28. | Ralph Rufrano (NYPA) | NPCC CP9 Reliability Standards Working Group | ✓ | | | | | | | | | | | |
| 29. | Kathleen Goodman (ISONE) | NPCC CP9 Reliability Standards Working Group | | ✓ | | | | | | | | | | |
| 30. | Bill Shemley (ISONE) | NPCC CP9 Reliability Standards Working Group | | ✓ | | | | | | | | | | |
| 31. | Greg Campoli (NYISO) | NPCC CP9 Reliability Standards Working Group | | ✓ | | | | | | | | | | |
| 32. | Roger Champagne (TEHQ) | NPCC CP9 Reliability Standards Working Group | ✓ | | | | | | | | | | | |
| 33. | David Kiguel (Hydro One) | NPCC CP9 Reliability Standards Working Group | ✓ | | | | | | | | | | | |

Consideration of Comments on 1st Draft of System Restoration and Blackstart SAR

| | Commenter | Organization | Industry Segment | | | | | | | | | | | |
|-----|---|---|------------------|---|---|---|---|---|---|---|---|----|---|---|
| | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | | |
| 34. | Herbert Schrayshuen (NGrid) | NPCC CP9 Reliability Standards Working Group | ✓ | | | | | | | | | | | |
| 35. | Donald Nelson (MA Dept. of Tele and Energy) | NPCC CP9 Reliability Standards Working Group | | | | | | | | | | | ✓ | |
| 36. | Ed Thompson (ConEd) | NPCC CP9 Reliability Standards Working Group | ✓ | | | | | | | | | | | |
| 37. | Ron Falsetti (IESO) | NPCC CP9 Reliability Standards Working Group | | ✓ | | | | | | | | | | |
| 38. | Alan Adamson (NYSRC) | NPCC CP9 Reliability Standards Working Group | | | | | | | | | | | | ✓ |
| 39. | Jerad Barnhart | NSTAR Electric | ✓ | | | | | | | | | | | |
| 40. | Mike Anthony | Progress Energy Carolinas | ✓ | | | | | | | | | | | |
| 41. | Phil Riley | Public Service Commission of SC | | | | | | | | | | | ✓ | |
| 42. | Mignon L. Clyburn | Public Service Commission of SC | | | | | | | | | | | ✓ | |
| 43. | Elizabeth B. Fleming | Public Service Commission of SC | | | | | | | | | | | ✓ | |
| 44. | G. O'Neal Hamilton | Public Service Commission of SC | | | | | | | | | | | ✓ | |
| 45. | John E. Howard | Public Service Commission of SC | | | | | | | | | | | ✓ | |
| 46. | Randy Mitchell | Public Service Commission of SC | | | | | | | | | | | ✓ | |
| 47. | C. Robert Moseley | Public Service Commission of SC | | | | | | | | | | | ✓ | |
| 48. | David A. Wright | Public Service Commission of SC | | | | | | | | | | | ✓ | |
| 49. | Mike Gentry | Salt River Project | ✓ | | | | | | | | | | | |
| 50. | J.T. Wood | Southern Company Services, Inc. | ✓ | | | | | | | | | | | |
| 51. | Marc Butts | Southern Company Services, Inc. | ✓ | | | | | | | | | | | |
| 52. | Roman Carter | Southern Company Services, Inc. | ✓ | | | | | | | | | | | |
| 53. | Robert Jones | Southern Company Services, Inc. | ✓ | | | | | | | | | | | |
| 54. | Kathy Davis | Tennessee Valley Authority | ✓ | | | | | | | | | | | |
| 55. | Sue Mangum Goins | Tennessee Valley Authority | ✓ | | | | | | | | | | | |
| 56. | Earl Shockley | Tennessee Valley Authority | ✓ | | | | | | | | | | | |
| 57. | Jerry Landers | Tennessee Valley Authority | ✓ | | | | | | | | | | | |
| 58. | Mark Creech | Tennessee Valley Authority | ✓ | | | | | | | | | | | |
| 59. | Ellis Rankin | TXU Electric Delivery Company | ✓ | | | | | | | | | | | |
| 60. | Travis Besler | TXU Electric Delivery Company | ✓ | | | | | | | | | | | |
| 61. | Nancy Bellows (WACM) | WECC Reliability Coordination Comments Work Group | | ✓ | | | | | | | | | | |
| 62. | Terry Baker (PRPA) | WECC Reliability Coordination Comments Work Group | | ✓ | | | | | | | | | | |
| 63. | Tom Botello (SCE) | WECC Reliability Coordination Comments Work Group | | ✓ | | | | | | | | | | |
| 64. | Richard Ellison (BPA) | WECC Reliability Coordination Comments Work Group | | ✓ | | | | | | | | | | |
| 65. | Mike Gentry (SRP) | WECC Reliability Coordination Comments Work Group | | ✓ | | | | | | | | | | |
| 66. | Robert Johnson (PSC) | WECC Reliability Coordination | | ✓ | | | | | | | | | | |

Consideration of Comments on 1st Draft of System Restoration and Blackstart SAR

| | Commenter | Organization | Industry Segment | | | | | | | | | | |
|-----|-----------------------|--|------------------|---|---|---|---|---|---|---|---|----|--|
| | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | |
| | | Comments Work Group | | | | | | | | | | | |
| 67. | Greg Tillitson (CMRC) | WECC Reliability Coordination Comments Work Group | | ✓ | | | | | | | | | |
| 68. | Martin Trence | Xcel Energy – NSP | ✓ | | | | | | | | | | |

Index to Questions, Comments, and Responses

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3. Please identify any additional revisions that should be incorporated into this set of standards, beyond those that have already been identified in the SAR. 1715

Consideration of Comments on 1st Draft of System Restoration and Blackstart SAR

1. Do you believe that there is a reliability-related need to upgrade the requirements in this set of standards?

Summary Consideration: Most commenters indicated they do believe there is a reliability-related need to upgrade the requirements in this set of standards.

| Question #1 | | | |
|--|-------------------------------------|-------------------------------------|--|
| Commenter | Yes | No | Comment |
| ITC Transmission | | <input checked="" type="checkbox"/> | Many of the items in the "To Do" lists appear administrative in nature, and not necessarily rooted in a reliability need. The requirements could use some upgrading, yes, but the need does not appear to be purely reliability-related. |
| Response: NERC has developed the Reliability Standards Development Work Plan and this SAR is in support of that effort. While some of the work is administrative in nature, it is believed that it will improve the standards and make them clearer, measurable and more consistent. As we move forward through the standards development effort itself, we believe that the true reliability benefits will come forward. | | | |
| Entergy Services, Inc. | | <input checked="" type="checkbox"/> | We believe there is not a reliability-related need to upgrade the requirements in this set of standards. We do agree these standards need to be reviewed and revised to make them better standards. |
| Response: NERC has developed the Reliability Standards Development Work Plan and this SAR is in support of that effort. While some of the work is administrative in nature, it is believed that it will improve the standards and make them clearer, measurable and more consistent. As we move forward through the standards development effort itself, we believe that the true reliability benefits will come forward. | | | |
| Ameren | | <input checked="" type="checkbox"/> | No additional comments. |
| Salt River Project | <input checked="" type="checkbox"/> | | Admittedly, there are some "holes" in the current version. |
| Response: The SAR DT thanks the commenters and as shown in the previous response, we believe that there is a reliability-related need to continue the work. | | | |
| WECC Reliability Coordination Comments Work Group | <input checked="" type="checkbox"/> | | There are gaps in the current version. |
| Response: The SAR DT thanks the commenters and as shown in the previous response, we believe that there is a reliability-related need to continue the work. | | | |
| Kansas City Power & Light Company | <input checked="" type="checkbox"/> | | There are reliability-related reasons to upgrade the requirements in these standards. |
| Response: The SAR DT thanks the commenters and as shown in the previous response, we believe that there is a reliability-related need to continue the work. | | | |
| American Transmission Company | <input checked="" type="checkbox"/> | | TC agrees that an upgrade is needed on this set of standards. |
| Response: The SAR DT thanks the commenters and as shown in the previous response, we believe that there is a reliability-related need to continue the work. | | | |

Consideration of Comments on 1st Draft of System Restoration and Blackstart SAR

| Question #1 | | | |
|---|-------------------------------------|-----------|---|
| Commenter | Yes | No | Comment |
| Midwest ISO, Inc. | <input checked="" type="checkbox"/> | | We agree that the restoration-related standards need improvement. |
| Response: The SAR DT thanks the commenters and as shown in the previous response, we believe that there is a reliability-related need to continue the work. | | | |
| Tennessee Valley Authority | <input checked="" type="checkbox"/> | | <p>We do not agree that there should be a requirement for an RC Restoration Plan in EOP-005. It may be appropriate to add a requirement in 005 that says the RC is aware of the TO and BA Plans but is not bound to it as they are looking at the bigger picture. The requirements in EOP-006, for the RC's role in System Restoration, are sufficient and as long as the Functional Model separates entities then it is appropriate for their requirements to be in separate standards as we see it.</p> <p>There is a "mix of requirements" between Advance Planning and Real-Time activities and we think they need to be separated with section headings for the two.</p> <p>We don't understand what the "fill-in-the-blank" components are.</p> <p>We don't agree that Attachment 1 from EOP-005 should be moved into the requirements of the Standard. Instead, the industry should be asked to submit what they think should be included.</p> |
| <p>Response: This comment is pertinent to the actual standards development and we will pass this comment on to the eventual Standards Drafting Team (SDT) for consideration when applicability is reviewed. We do believe that the RC does have a role in restoration planning.</p> <p>This SAR covers four different existing standards that do move between planning and real-time and the distinctions will be made clear as the standards are revised.</p> <p>"Fill-in-the-blank" refers to NERC standards that delegated requirements to regional entities. The NERC Regional Reliability Standards Working Group identified these standards as having 'fill-in-the-blank' requirements that need to be modified. The actual revision of Attachment I and its move to requirements is an action for the SDT to consider after hearing comments from the industry.</p> | | | |
| Manitoba Hydro | <input checked="" type="checkbox"/> | | There is too much ambiguity in the requirements and measures, plus some requirements may allow too much leeway which may affect reliability of restoring the system. It is also not clear which standard is being reviewed; ie. the SAR form lists the first standard as EOP-005-0 but the comments are based on EOP-005-1. |
| Response: The SAR DT agrees with the comments. The SAR will be amended to state that EOP-005-1 is the standard to be reviewed. | | | |
| Xcel Energy – NSP | <input checked="" type="checkbox"/> | | The structure of these and a few additional standards need to be revised to reflect a more realistic approach to planning, real-time execution, and measurable compliance to system restoration standards. |

Consideration of Comments on 1st Draft of System Restoration and Blackstart SAR

| Question #1 | | | |
|--|-------------------------------------|-----------|----------------|
| Commenter | Yes | No | Comment |
| Response: The SAR DT agrees with the comments. | | | |
| Entergy Services, Inc. | <input checked="" type="checkbox"/> | | |
| Alberta Electric System Operator | <input checked="" type="checkbox"/> | | |
| IRC Standards Review Committee | <input checked="" type="checkbox"/> | | |
| Hydro One Networks Inc. | <input checked="" type="checkbox"/> | | |
| MISO Emergency Preparedness and System Restoration Working Group | <input checked="" type="checkbox"/> | | |
| NPCC CP9 Reliability Standards Working Group | <input checked="" type="checkbox"/> | | |
| Dominion Virginia Power | <input checked="" type="checkbox"/> | | |
| Southern Company Services, Inc. | <input checked="" type="checkbox"/> | | |
| NSTAR Electric | <input checked="" type="checkbox"/> | | |
| American Electric Power | <input checked="" type="checkbox"/> | | |
| ISO New England | <input checked="" type="checkbox"/> | | |
| Progress Energy Carolinas | <input checked="" type="checkbox"/> | | |
| Public Service Commission of SC | <input checked="" type="checkbox"/> | | |
| Independent Electricity System Operator | <input checked="" type="checkbox"/> | | |
| TXU Electric Delivery Company | <input checked="" type="checkbox"/> | | |

Consideration of Comments on 1st Draft of System Restoration and Blackstart SAR

2. Do you agree with the scope of the proposed project? (The scope includes all the items noted on the 'Standard Review Forms' attached to the SAR as well as other improvements to the standards that meet the consensus of stakeholders, consistent with establishing high quality, enforceable, and technically sufficient bulk power system reliability standards.)

Summary Consideration: While most commenters agreed with the scope of the proposed project, there were several commenters who indicated the scope needs more clarity and the drafting team made the following modifications to the SAR:

- Replaced references to EOP-005-0 with EOP-005-1
- Replaced references to EOP-006-0 with EOP-006-1

Added a paragraph to the 'Brief Description' to clarify that work will not be limited to the issues already identified on what was called the 'to do list'.

Modified the headings in 'Standard Review Forms' to more clearly identify the source of the comments listed on those forms

Added a copy of the 'Standard Review Guidelines' to clarify the scope of modifications required to upgrade this set of standards and to identify the reference used by staff in evaluating the quality of existing standards.

| Question #2 | | | |
|--|-------------------------------------|-------------------------------------|---|
| Commenter | Yes | No | Comment |
| Tennessee Valley Authority | | <input checked="" type="checkbox"/> | All of the "Standard Review Forms" refer to the Version 0 documents...why not include the Version 1 that is due to go into affect in '07 for EOP-005 and EOP-006? |
| Response: This was an error and the SAR will be amended to handle the -1 versions. | | | |
| ITC Transmission | | <input checked="" type="checkbox"/> | The scope of the SAR for EOP-006, 007, and 009 are overly vague. The scope of the SAR is indiscernable. The scope of the SAR for EOP-005 appears to desire industry debate on several topics more than it desires to actually upgrade a standard. |
| Response: The SAR DT appreciates these comments and we have considered them in our revision of the SAR. NERC has developed the Reliability Standards Development Work Plan and this SAR is in support of that effort. It is believed that it will improve the standards and make them clearer, measurable and more consistent. The scope of the SAR is designed to provide the SDT with sufficient flexibility to address all necessary revisions. Work is not to be limited to the 'To Do List', nor are the items identified there mandatory revisions. | | | |
| IRC Standards Review Committee | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | The SRC would suggest that the SAR be clear that it will be a complete review of the subject requirements: to include the addition, deletion and modification of requirements as agreed to by public consensus and not be limited to the "TO DO LIST" identified in this draft. |
| Response: The SAR DT appreciates these comments and we have considered them in our revision of the SAR. NERC has developed the Reliability Standards Development Work Plan and this SAR is in support of that effort. It is believed | | | |

Consideration of Comments on 1st Draft of System Restoration and Blackstart SAR

| Question #2 | | | |
|---|-------------------------------------|-------------------------------------|--|
| Commenter | Yes | No | Comment |
| <p>that it will improve the standards and make them clearer, measurable and more consistent. The scope of the SAR is designed to provide the SDT with sufficient flexibility to address all necessary revisions. Work is not to be limited to the 'To Do List', nor are the items identified there mandatory revisions.</p> | | | |
| MISO Emergency Preparedness and System Restoration Working Group | | <input checked="" type="checkbox"/> | The scope of this project should not be limited to just revising four Standards due to directives from regulatory bodies, but should be flexible to meet industry needs, whether additional or fewer Standards are required to address System Restoration and Blackstart needs. Review and modification of other existing Standards may be required (e.g.EOP-001). |
| <p>Response: The SAR DT appreciates these comments and we have considered them in our revision of the SAR. NERC has developed the Reliability Standards Development Work Plan and this SAR is in support of that effort. It is believed that it will improve the standards and make them clearer, measurable and more consistent. The scope of the SAR is designed to provide the SDT with sufficient flexibility to address all necessary revisions. Work is not to be limited to the 'To Do List', nor are the items identified there mandatory revisions. Changes to other standards such as EOP-001 can be identified and passed on to the appropriate drafting team(s).</p> | | | |
| Southern Company Services, Inc. | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | There is a concern that the SAR process is being skipped over (due to the granular nature of the recommendation changes) and the changes being recommended are more inclined to be addressed by the Standard (not SAR) drafting team. The SAR is not "clearly defining the scope". For example, they have started attaching some documents with the title "Standard Review Form". Those documents contain comments generated by FERC, NERC, and the industry. However, the SAR does not say whether these comments must be accomodated or whether they just need to be considered. |
| <p>Response: The SAR DT appreciates these comments and we have considered them in our revision of the SAR. NERC has developed the Reliability Standards Development Work Plan and this SAR is in support of that effort. It is believed that it will improve the standards and make them clearer, measurable and more consistent. The scope of the SAR is designed to provide the SDT with sufficient flexibility to address all necessary revisions. Work is not to be limited to the 'To Do List', nor are the items identified there mandatory revisions.</p> | | | |
| Manitoba Hydro | | <input checked="" type="checkbox"/> | Manitoba Hydro believes these standards need to be as high quality as possible, as consistent as possible and have the measurements in place to ensure reliability. This SAR should require that Violation Risk Factors (VRF's) be assigned to all the requirements in the revised standards and that the VRF's be included in the revised standards. This can be coordinated with the current activity on. |

Consideration of Comments on 1st Draft of System Restoration and Blackstart SAR

| Question #2 | | | |
|--|-----|-------------------------------------|--|
| Commenter | Yes | No | Comment |
| <p>Response: The SAR DT appreciates these comments and we have considered them in our revision of the SAR. NERC has developed the Reliability Standards Development Work Plan and this SAR is in support of that effort. It is believed that it will improve the standards and make them clearer, measurable and more consistent. The scope of the SAR is designed to provide the SDT with sufficient flexibility to address all necessary revisions. Work is not to be limited to the 'To Do List', nor are the items identified there mandatory revisions. The development of Violation Risk Factors are required as part of the Standards Development Process and will be included by the SDT.</p> | | | |
| Midwest ISO, Inc. | | <input checked="" type="checkbox"/> | The scope should be more focused. Right now it looks like a laundry-list. |
| <p>Response: The SAR DT appreciates these comments and we have considered them in our revision of the SAR. NERC has developed the Reliability Standards Development Work Plan and this SAR is in support of that effort. It is believed that it will improve the standards and make them clearer, measurable and more consistent. The scope of the SAR is designed to provide the SDT with sufficient flexibility to address all necessary revisions. Work is not to be limited to the 'To Do List', nor are the items identified there mandatory revisions.</p> | | | |
| Kansas City Power & Light Company | | <input checked="" type="checkbox"/> | <p>The scope needs to be more focused.</p> <p>EOP-5 All comments under the various groups identified are not specific enough to respond to except the comments under "FERC NOPR", "FERC Staff", 4th bulleted item under "VO Industry Comments" and all bullets under "Phase III/IV Comments". Agree with all bulleted items under "FERC NOPR" and "FERC Staff". Do not agree with bulleted items 1-7 or 10-12 and agree with bulleted items 8 & 9 under "Phase III/IV Comments". Regarding bulleted items 8 & 9 under "Phase III/IV Comments", would recommend the testing and training periodicity for R5 and R6 be on an annual basis.</p> <p>Do not agree that Load Serving Entities or Generation Owners should have restoration plans. The proposed EOP-5 version 1 does not include any requirement or applicability for the LSE and GO and this is the way it should be.</p> <p>EOP-6 Agree with comments regarding the measures and the measures proposed in EOP-6 version 1. Do not agree with any of the other comments under "FERC NOPR" or "FERC Staff". The comments under "Regional Fill-in-the-Blank Team Comments" are not specific enough to respond to.</p> |

Consideration of Comments on 1st Draft of System Restoration and Blackstart SAR

| Question #2 | | | |
|---|-----|-------------------------------------|---|
| Commenter | Yes | No | Comment |
| <p>Response: The SAR DT appreciates these comments and we have considered them in our revision of the SAR. NERC has developed the Reliability Standards Development Work Plan and this SAR is in support of that effort. It is believed that it will improve the standards and make them clearer, measurable and more consistent. The scope of the SAR is designed to provide the SDT with sufficient flexibility to address all necessary revisions. Work is not to be limited to the 'To Do List', nor are the items identified there mandatory revisions.</p> | | | |
| Entergy Services, Inc. | | <input checked="" type="checkbox"/> | <p>There are several issues within the proposed SAR that concern scope, timing and sequence.</p> <p>Attachment 1 of EOP-005 contains elements that should be reviewed in the development of a restoration plan. However, we disagree with the SAR authors that - the conditions under which an entity is exempt from including an element in its system restoration plan need to be specified - should be deleted. All the reasons that a developer may need for not including an element can not be specified nor included in the requirements of a standard or a plan.</p> <p>The second paragraph of the Brief Description contains a statement that in EOP-005 the RC does not have any requirement to have a system restoration plan. We are not sure what the authors mean by this vague statement. However, we think it is appropriate and correct that the RC does not have a system restoration plan. We agree with the existing standards that the TOP and BA have restoration plans as required in EOP-005 and the RC assists with coordinating the implementation of those plans as required in EOP-006. Therefore, please delete the second paragraph of the Brief Description.</p> <p>The second sentence of the third paragraph of the Brief Description contains a statement about ensuring the lines of authority clarified under the RC (Project 2006-03) and Real-time Transmission Operations and Balancing of Load and Generation (Project 2007-03) are fully supported in the refinement of this set of standards. This sentence should be deleted. The SAR contains something identified as Project 2006-03 System Restoration and Blackstart which does not seem to address the lines of authority of the RC. In addition, there is no Project 2007-03 in the SAR so we can not agree to making the EOP standards conform to requirements that are not available. In addition, the lines of authority of the RC should be contained in EOP-006.</p> |

Consideration of Comments on 1st Draft of System Restoration and Blackstart SAR

| Question #2 | | | |
|---|------------|-------------------------------------|---|
| Commenter | Yes | No | Comment |
| | | | <p>We agree with the idea that the fill-in-the-blank components of EOP-007 and EOP-009 should be filled in, which is what we think is meant by the term "eliminate". We do not agree with the elimination of the fill-in-the-blanks if the authors really meant.</p> <p>We are concerned about the open-ended statements in the SAR. The statement that - development may include other improvements to the standards deemed appropriate - should contain a statement that those other improvements will be limited to the standards and requirements identified in this SAR, and approval of this SAR is not an open-ended approval to change standards and requirements other than the standards identified in this SAR in other standards that directly concern system restoration and are directly applicable to this approved SAR.</p> |
| <p>Response: We agree that that the brief description needs to be revised for clarity and have addressed that in the revised SAR. The scope of the SAR is designed to provide the SDT with sufficient flexibility to address all necessary revisions.</p> | | | |
| Dominion Virginia Power | | <input checked="" type="checkbox"/> | <p>Contrary to what the SAR says, there is indeed a requirement for Reliability Coordinators to have System Restoration Plans. In fact, requirement R3 of EOP-006 states, "The Reliability Coordinator shall have a Reliability Coordinator Area restoration plan that provides coordination between individual Transmission Operator restoration plans and that ensures reliability is maintained during system restoration events." With this requirement, it is not necessary for RCs to have restoration plans that are equivalent to the TO and BA plans. However, RCs must be involved in the development and approval of the TO and BA plans in order to ensure that the RC's over-arching plan is viable and actually maintains reliability during system restoration events.</p> |
| <p>Response: We do believe that the Reliability Coordinator does have a role in restoration planning. The SAR DT believes that at a minimum there should be coordination between the various parties.</p> | | | |
| Xcel Energy – NSP | | <input checked="" type="checkbox"/> | <p>It is questionable if the concept of a "Regional Restoration Plan" should remain in existence as the responsibility of implementing restoration plans lie with the Transmission Operator, Balancing Authority, Generator Operator (where applicable), and Reliability Coordinator. A Regional Reliability Organization is not structured to implement system restoration plans, their function has evolved for the most part to set standards and perform in conjunction with the ERO compliance monitoring. There are also critical utility infrastructure issues that need to be addressed in the sharing of restoration plans.</p> |

Consideration of Comments on 1st Draft of System Restoration and Blackstart SAR

| Question #2 | | | |
|--|-------------------------------------|----|---|
| Commenter | Yes | No | Comment |
| <p>Response: The SAR DT appreciates these comments and we have considered them in our revision of the SAR. We do believe that the Reliability Coordinator does have a role in restoration planning. The SAR DT believes that at a minimum there should be coordination between the various parties.</p> | | | |
| American Transmission Company | <input checked="" type="checkbox"/> | | <p>The SAR DT needs to provide a more detailed explanation as to the role of each entity that is checked under the "Reliability Functions" section, particularly those roles that have not been identified under the Applicability section for these Standards in the past, such as Planning Authority, Distribution Provider and Load Serving Entity.</p> <p>The SAR should task the SDT with developing a comprehensive set of standards that address blackstart planning, testing and coordination. In order to perform this task the team should be given wide latitude in developing a new set of standards and requirements. Therefore the SAR should not limit the team to organize its work within a predefined number of standards as more standards may be required to address the roles of new entities not subject to these standards in the past.</p> <p>Does the SDT envision any major changes to the roles currently performed by the Transmission Operator, Balancing Authority, Reliability Authority, Generator Owner, Generator Operator? If so, what are they?</p> <p>Finally, ATC believes that any proposed requirements for parties to execute contractual agreements, as described under "Phase III/IV comments," are outside the scope and purview of the SDT.</p> <p>EOP-007-0</p> <p>ATC agrees that this standard should not apply to the RRO. ATC suggests that the SDT review Standard EOP-007-0 in terms of having the Reliability Coordinator perform those tasks currently performed by the RRO.</p> <p>EOP-005-1 (Attachment 1)</p> <p>Lastly, ATC would like to see a change to one of the sentences in the Brief Discription section of the SAR.</p> |

Consideration of Comments on 1st Draft of System Restoration and Blackstart SAR

| Question #2 | | | |
|--|-------------------------------------|----|---|
| Commenter | Yes | No | Comment |
| | | | <p>Third Sentence of the First Paragraph:</p> <p>"The Elements in the attachment need to be reviewed and the condition under which an entity is exempt...."</p> <p>Suggested Change:</p> <p>The elements in the attachment need to specify which entities are responsible for each element listed.</p> |
| <p>Response: The SAR DT appreciates these comments and we have considered them in our revision of the SAR. We do believe that the Reliability Coordinator does have a role in restoration planning. The SAR DT believes that at a minimum there should be coordination between the various parties.</p> <p>The scope of the SAR is designed to provide the SDT with sufficient flexibility to address all necessary revisions. Work is not to be limited to the 'To Do List', nor are the items identified there mandatory revisions.</p> | | | |
| Ameren | <input checked="" type="checkbox"/> | | <p>Does this SAR apply to Reliability Standards EOP-005-0 and EOP-006-0, or to EOP-005-1 and EOP-006-1?</p> <p>We do not see a benefit to adding LSE's to the Applicability section of EOP-005-1, and we do not believe adding LSE's to R4 of EOP-005-1 would contribute to the effectiveness of the restoration plan, and would make implementation of the plan more onerous.</p> <p>We do not agree with deleting R11.5.4 of EOP-005-1. However, this item should be retained as a consideration, not a requirement.</p> |
| <p>Response: The SAR will be amended to state that the current standards will be reviewed. The SAR DT appreciates these comments and we have considered them in our revision of the SAR.</p> | | | |
| WECC Reliability Coordination Comments Work Group | <input checked="" type="checkbox"/> | | <p>The group agrees with the scope of the proposed project, but feels that clarification of the portion of blackstart and restoration plans that the reliability coordinator approves needs to be restricted to a reasonable expectation. The Reliability Coordinator should review and approve only those portions of individual restoration plans that establish the backbone power system. There is no need for the Reliability Coordinator to be responsible for detailed plans of the BA, TO, GOP, LSE, etc. Specify the portions of the individual plans that need Reliability Coordinator review and approval.</p> |
| <p>Response: The SAR DT appreciates these comments and we have considered them in our revision of the SAR. We do believe that the Reliability Coordinator does have a role in restoration planning. The SAR DT believes that at a minimum there</p> | | | |

Consideration of Comments on 1st Draft of System Restoration and Blackstart SAR

| Question #2 | | | |
|---|-------------------------------------|-----------|---|
| Commenter | Yes | No | Comment |
| should be coordination between the various parties. | | | |
| Salt River Project | <input checked="" type="checkbox"/> | | The scope appears reasonable in order to provide measurable requirements. |
| Entergy Services, Inc. | <input checked="" type="checkbox"/> | | |
| Alberta Electric System Operator | <input checked="" type="checkbox"/> | | |
| Hydro One Networks Inc. | <input checked="" type="checkbox"/> | | |
| NPCC CP9 Reliability Standards Working Group | <input checked="" type="checkbox"/> | | |
| ISO New England | <input checked="" type="checkbox"/> | | |
| Progress Energy Carolinas | <input checked="" type="checkbox"/> | | |
| Independent Electricity System Operator | <input checked="" type="checkbox"/> | | |
| NSTAR Electric | <input checked="" type="checkbox"/> | | |
| American Electric Power | <input checked="" type="checkbox"/> | | |
| Public Service Commission of SC | <input checked="" type="checkbox"/> | | |
| TXU Electric Delivery Company | <input checked="" type="checkbox"/> | | |

Consideration of Comments on 1st Draft of System Restoration and Blackstart SAR

3. Please identify any additional revisions that should be incorporated into this set of standards, beyond those that have already been identified in the SAR.

Summary Consideration: Commenters provided several addition suggestions for items that should be addressed by the standard drafting team and the SAR was modified to reflect these additions.

| Question #3 | | | |
|--|-------------------------------------|-------------------------------------|---|
| Commenter | Yes | No | Comment |
| American Transmission Company | | <input checked="" type="checkbox"/> | References to Standard EOP-005-0 (Version 0) should be replaced with EOP-005-1 (Version 1) which will be effective on January 1, 2007. References to Standard EOP-006-0 (Version 0) should be replaced with EOP-006-1 (Version 1) which will be effective on January 1, 2007. |
| Response: The SAR will be amended to state that the current standards will be reviewed. The SAR DT appreciates these comments and we have considered them in our revision of the SAR. | | | |
| IRC Standards Review Committee | | | The SRC agrees that there is a need to review, upgrade and revise the Restoration and Blackstart set of standards. However, the SRC would also recommend the SAR be rewritten to clearly describe the scope of process being proposed. At a minimum, the SAR should identify which standards will be under review: the version 0 or version 1 standards. It is unclear if and why EOP-005-0 and EOP-006-0 would be reviewed rather than EOP-005-1 and EOP-006-1. |
| Response: The SAR will be amended to state that the current standards will be reviewed. The SAR DT appreciates these comments and we have considered them in our revision of the SAR. | | | |
| Tennessee Valley Authority | | <input checked="" type="checkbox"/> | |
| WECC Reliability Coordination Comments Work Group | | <input checked="" type="checkbox"/> | |
| Salt River Project | | <input checked="" type="checkbox"/> | |
| Alberta Electric System Operator | <input checked="" type="checkbox"/> | | The AESO recommends the following revisions to be incorporated: 1. The SAR should refer to the most updated and current standards. Let's say EOP-005-1 and EOP-006-1 and not EOP-005-0 and EOP-006-0 2. Considering adding definitions to EOP-005-1 for: - Partial or total shut down; |

Consideration of Comments on 1st Draft of System Restoration and Blackstart SAR

| Question #3 | | | |
|--|-------------------------------------|----|--|
| Commenter | Yes | No | Comment |
| | | | <ul style="list-style-type: none"> - Vital telecommunications channels; - System restoration; - Blackstart capability plan; and - System restoration plan. <p>3. Consider adding a requirement for Generator Operators to have generating facilities blackstart procedures. Those procedures shall be coordinated with the Transmission Operator's System Restoration plan</p> <p>4. Consider revising training in R6. Training requirements should be quoted as stated and required in a different standard, let's say PRC. And with regards to training, it shall be state "what" should be the minimum training required for TO, BA and Generating facilities. And also, clarification as "what" is expected as "simulated exercises". What are those? It is DTS what is required? Or is it a table top adequate?</p> <p>5. Consider defining what is as a minimum required criteria for "simulated exercises" in the understanding that it will not be practical to perform "an actual test" to the entire restoration plan. Further more, What is the meaning for simulation? DTS? Power flows? EMTP? Other?</p> <p>6. Consider revising EOP-005-1 R9 "switching requirements" and trying not to be prescriptive in telling the "hows" instead of the "what" is required to comply with. The requirement should no be a "cook book". If considering keeping this requirement, then consider defining "switching requirements".</p> <p>7. Consider revising EOP-005-1 R10 in order to clarify "simulation testing"</p> |
| <p>Response: The SAR will be amended to state that the current standards will be reviewed. Consideration of definitions is left to the SDT and this comment will be added to the lists of issues passed on to that team. We have added the role of the GO and generating facilities procedures to the revised SAR. We feel that restoration training is a function of the PER standards and that standards should describe 'what' and not 'how'. We feel that there is sufficient flexibility in the SAR to handle the comments made in points 5 through 7 when the actual standard revision work starts.</p> | | | |
| <p>Hydro One Networks Inc.</p> <p>Independent Electricity System Operator</p> <p>ISO New England</p> | <input checked="" type="checkbox"/> | | <p>In EOP-5, Compliance, Section 1.4.1 -Hydro One requests clarification of the phrase "critical load requirements".</p> <p>The phase can be interpreted as:</p> <ul style="list-style-type: none"> (i) available and easily accessible loads to be restored for voltage control in network restoration on the bulk power system level. These are loads employed to expedite the restoration of the interconnection. (ii) loads of importance to health/safety/national security - police, hospitals, govt. |

Consideration of Comments on 1st Draft of System Restoration and Blackstart SAR

| Question #3 | | | |
|--|------------|-----------|---|
| Commenter | Yes | No | Comment |
| NSTAR Electric NPCC CP9 Reliability Standards Working Group | | | <p>offices. These are really distribution loads that are restored once the interconnection is restored and the transmission system is rebuilt. (iii) restoring off-site power to key transmission facilities.</p> <p>We suggest that mention of critical loads should be replaced by the restoration of critical transmission and generation facilities necessary to restore load.</p> <p>With regard to the Phase III/IV comments on EOP-005 Restoration Plans:</p> <p>(1) Locking the restoration to single, contractual cranking path.</p> <p>A robust restoration plan must be flexible. It is impossible to define in advance what equipment will be available for service in the aftermath of a system collapse.</p> <p>The concept of an explicitly defined cranking path, locked into a restoration plan by contractual requirements, precludes flexibility and is restrictive-further complicating what may be an intricate process. Identifying and communicating and coordinating the intended cranking path is a valid aspect of restoration. This is included in the second bullet of the Phase III/IV comments. The fourth bullet of the Phase III/IV comments should be removed from the SAR.</p> <p>2) R3- Placing emphasis on restoring local transmission.</p> <p>There is no need for the bullet on R3. The recommendation as noted encourages the restoration of local transmission and load at a higher priority than reestablishing the interconnection. Restoring the interconnection is the highest priority. In the process of achieving that end, some, minimal restoration of local transmission will be involved.</p> <p>This is in direct conflict with the industry comments on V0 Standards which requires modifications to assign priority to the integrity of the interconnection.</p> <p>Changing the emphasis of R3 should be removed from the SAR.</p> <p>3) R11.5- Placing local load restoration above re-establishing the interconnection.</p> |

Consideration of Comments on 1st Draft of System Restoration and Blackstart SAR

| Question #3 | | | |
|---|-------------------------------------|----|--|
| Commenter | Yes | No | Comment |
| | | | <p>This follows the same argument addressed above. Restoration of the interconnection is a higher priority than the restoration of local load.</p> <p>R11.5 should be retained in the SAR.</p> <p>R6 mentions providing training requirements however this training requirement is already in PER-002-R3.1. There is also a training requirement in PER-004 R4 for the RC requirement.</p> |
| <p>Response: We feel that the comments made are applicable to the standards effort and have added new issues to the lists to be passed on to the standard drafting team. The SAR contains sufficient flexibility to allow the SDT to address these issues at the appropriate time.</p> | | | |
| Independent Electricity System Operator | <input checked="" type="checkbox"/> | | <p>Comments on EOP-006 & EOP-007 Standards:</p> <p>EOP 006-1 R3 states "The Reliability Coordinator shall have a Reliability Coordinator Area restoration plan that provides coordination between individual Transmission Operator restoration plans and that ensures reliability is maintained during system restoration events."</p> <p>EOP 007 R1 states "Each Regional Reliability Organization shall establish and maintain a system BCP, as part of an overall coordinated Regional SRP...."</p> <p>Is it an acceptable practice for a Reliability Coordinator, in approving its Transmission Operator restoration plans per appropriate assessment criteria and ensuring they enable coordinated restoration with the interconnections, be deemed as an alternative to creating and maintaining regional plans? Otherwise the scope of such regional plans should be specified to limit their scale. Consider the large number of Transmission Operators (and restoration plans) in those Reliability Coordinator Areas with large footprints such as PJM, MISO and California ISO.</p> <p>The same consideration applies to a Regional Black Start Capability Plan as assessed by the Regional Reliability Organization. Given that black start is integral to system restoration how it is proposed to be handled in instances where the Reliability Coordinator Area differs from the RRO boundary?</p> <p>Additionally, EOP 006-1 should capture Reliability Coordinator to other Reliability</p> |

Consideration of Comments on 1st Draft of System Restoration and Blackstart SAR

| Question #3 | | | |
|--|-------------------------------------|-----------|---|
| Commenter | Yes | No | Comment |
| | | | Coordinator 'coordination'. Specifically, "Reliability Coordinators shall coordinate their system restoration plans and efforts together including joint participation in drills and exercises." |
| Response: We feel that the comments made are applicable to the standards effort and have added new issues to the lists to be passed on to the standard drafting team. The SAR contains sufficient flexibility to allow the SDT to address these issues at the appropriate time. | | | |
| MISO Emergency Preparedness and System Restoration Working Group | <input checked="" type="checkbox"/> | | Regional Reliability Organizations (RRO's) do not have an active role in Emergency Operations, the applicability of EOP - 007 for RRO's is questionable. The requirements in EOP-007 should be applicable to the Reliability Coordinator function as it has the responsibility of maintaining integrity of the Bulk Electric System over a wide area and must coordinate its activities with its neighboring Reliability Coordinators. |
| Response: We agree with the comment and the revised SAR reflects this. | | | |
| Dominion Virginia Power | <input checked="" type="checkbox"/> | | The existing standards (and the Functional Model) do not address the role of the Transmission Owner in system restoration. For example, assessment of the extent of isolation of a storm-ravaged system usually requires "boots on the ground" if normal data/voice communications are disrupted. Also, assessments of transmission asset damage requires visual inspections. Typically, it is Transmission Owner personnel who perform these assessments and inspections. Also, the repair of damaged transmission facilities and the determination of the readiness of those facilities to be re-energized is the responsibility of the asset owner. A determination of readiness for re-energization usually involves a re-examination of facility limits, calculation of short-circuit current availability, and an evaluation of protective relaying viability given the abnormal system topologies that can result from a major storm. These are typically Transmission Owner responsibilities. Transmission Owners have restoration plans to ensure that they are ready and able to perform these vital restoration tasks. |
| Response: We do not believe that the Transmission Owner has an obligation for system restoration. Repair of facilities is beyond the scope of system restoration in these standards. It is a business obligation for the asset owner. We believe that the responsible entity for system restoration as defined here is the Transmission Operator and that the Transmission Operator will coordinate with whatever parties it needs to in order to accomplish its assigned responsibilities. | | | |
| Southern Company Services, Inc. | <input checked="" type="checkbox"/> | | Some items that need to be considered is that in some of the comments it recommends "Add a requirement for..". Does this mean the standards drafting team must add a requirement or just have to consider adding the requirement and only do so if they think it is the right thing to do? Another example can be found in |

Consideration of Comments on 1st Draft of System Restoration and Blackstart SAR

| Question #3 | | | |
|---|-------------------------------------|-----------|---|
| Commenter | Yes | No | Comment |
| | | | the scope section. The following statement is made: "EOP-005 only requires the Transmission Operator and the Balancing Authority to have a system restoration plan - the Reliability Coordinator does not have any requirement to have a system restoration plan." That is all that is said about it. Does this compel the standards drafting team to add a requirement for the Reliability Coordinator? Or does it merely mean that the SDT should consider adding a requirement? These examples need to be clear to the drafting team. |
| <p>Response: The scope of the SAR is designed to provide the SDT with sufficient flexibility to address all necessary revisions. Work is not to be limited to the 'To Do List', nor are the items identified there mandatory revisions. We do believe that the Reliability Coordinator does have a role in restoration planning. The SAR DT believes that at a minimum there should be coordination between the various parties.</p> | | | |
| Progress Energy Carolinas | <input checked="" type="checkbox"/> | | <p>EOP-005:</p> <ol style="list-style-type: none"> 1. Requirements in EOP-005 should include a definition of "periodically." We would recommend a periodicity of annually to coincide with annual requirement to review and update the restoration plan at least annually. 2. R3 could be rolled into R1. <p>EOP-006: The SAR indicates actions should be defined for R6. The actions taken to restore normal operations would depend on the operating emergency. Prescriptive actions should be avoided.</p> |
| <p>Response: We feel that the comments made are applicable to the standards effort and have added these issues to the lists to be passed on to the standard drafting team. The SAR contains sufficient flexibility to allow the SDT to address these issues at the appropriate time.</p> | | | |
| Xcel Energy – NSP | <input checked="" type="checkbox"/> | | Additional Standards that make reference to System Restoration Plans (e.g. EOP-001) should be reviewed and such references be removed from those standards as they are redundant, distracting, and provide no additional support to these standards being addressed in this SAR. |
| <p>Response: Changes to other standards such as EOP-001 can be identified and passed on to the appropriate drafting team(s).</p> | | | |
| Manitoba Hydro | | | <p>EOP-005-0 and -1 Applicability - This should apply to Reliability Coordinators as well as TOs and BAs. R1 (-0 + -1) - As part of integrating the appendix items into the requirements section the last sentence of R1 could be eliminated. R5 (-0 + -1) - I think the testing period of the telecommunications systems should</p> |

Consideration of Comments on 1st Draft of System Restoration and Blackstart SAR

| Question #3 | | | |
|--------------------|------------|-----------|---|
| Commenter | Yes | No | Comment |
| | | | <p>be defined as well as the type of testing that needs to be done. If auditors start asking questions about tests that are not defined or required its not fair to the entity being audited if they haven't performed that particular test. It should also be identified if main or backup systems need to be tested or if there should be backup systems.</p> <p>R6 (-0 + -1) - Reliability Coordinator needs to be included in the training of personnel as part of this standard. Also the type of training needs to be defined (simulations, table top exercises), and the base topics to be trained on (philosophy, building of islands, blackstart) should be defined.</p> <p>R7 (-0 + -1) - The type of testing or simulations should be defined; should dynamic stability studies, as well as voltage and frequency studies be done on the restoration plans or is running a simulation sufficient, unfortunately a simulation doesn't give you a complete enough evaluation.</p> <p>R8 (-0) - availability and location aren't enough to ensure the blackstart units can do the job, you also have to ensure the capability of the units and the number of units are sufficient to blackstart. Testing and studies need to be done to ensure the units can accomplish the task.</p> <p>R8 (-1) - Verification should be done by dynamic, voltage and frequency studies. Verification that the blackstart units are capable should be included with the "number, size, and location". The RRO isn't included in the Applicability section yet is looks like its their plan that the TO should be meeting instead of meeting the TO plan.</p> <p>R9 (-1) - Its not clear as to which units this requirement is refering to, is it refering to a remote blackstart unit or other units on the system that need to be started as part of restoring the system?</p> <p>R9.4 (-0) and R11.4 (-1) - For systems that have nuclear stations it should be made a part of their plans to give restoration of off-site power to the plants a high priority.</p> <p>R9.5.1 (-0) and R11.5.1 (-1) - When tying two islands together the emphasis should be on minimizing the flow through the tie point once synched and closed rather than when voltage, frequency and phase angle permit. The resultant flow could be greater than expected if the system operator simply relies on the relaying to allow closing. Special attention should be paid to frequency and voltage when tying islands and bringing them as close as possible together prior to closing.</p> <p>R9.5.4 (-0) and R11.5.4 (-1) - Typically is not the surrounding areas that require shedding of load to reconnect. The surrounding areas usually means the stable or</p> |

Consideration of Comments on 1st Draft of System Restoration and Blackstart SAR

| Question #3 | | | |
|--------------------|------------|-----------|--|
| Commenter | Yes | No | Comment |
| | | | <p>larger of areas meaning frequency in the surrounding areas should be good to start with. It's the area that want to synch that should be adding generation or shedding load to be able to synch with the surrounding areas.</p> <p>R10 (-1) - The word simulation comes up again, it should be defined what simulation is or whether its really referring to studies as done by system performance such as dynamic stability studies.</p> <p>C. Measures (-1) M1. - Should read studies instead of simulations.</p> <p>D. Compliance, 1.1.1 (-0) and 1.4.1 (-1) - its not clear what is meant by "identification of critical requirements", is it just identifying where critical loads exist so they can be brought on as part of the restoration process or do the voltage and frequency requirements of each critical load have to be identified as part of the restoration plan.</p> <p>1.4.6 (-1) - the units to be started should be clarified.</p> <p>1.4.7 (-1) - should refer to the TO restoration plan. If the regional plan is included there needs to be a requirement to share the regional plan with the TOs.</p> <p>Attachment 1-EOP-005-0 and attachment EOP-005 - 3. - It would be impractical to have a plan for every possibility.</p> <p>6. - Should this not fall under the dynamic type studies done by engineering studies personnel. To what extent should plans be simulated or tested?</p> <p>EOP-006-0 and -1</p> <p>R1 (-0) and (-1) - The RC should be more than just aware, the Reliability Coordinator's system restoration plan should coordinate with the TO's plan so the RC should thoroughly knowledgeable with the TO plans.</p> <p>R5 (-0) and (-1) - "major system islands" needs to be defined, at what point the RC gets involved needs to be clear. They don't necessarily need to be involved with the location of the synchronization point (the TOs should be aware of where they can synchronize).</p> <p>EOP-007-0</p> <p>R1.2 - Simulation doesn't give the dynamic response the proper studies can give (ie; dynamic stability studies, voltage and frequency studies).</p> <p>R1.3.1 - What if it's the same one third that gets tested each year, the remaining two thirds may not be usable when the time comes to do a real restoration. You can't assume that each year a different one third will be tested. Also in order to</p> |

Consideration of Comments on 1st Draft of System Restoration and Blackstart SAR

| Question #3 | | | |
|---|------------|-----------|---|
| Commenter | Yes | No | Comment |
| | | | <p>provide training to plant personnel testing all blackstart units each year will ensure more plant operators are trained in the procedure. R1.3.2 - this needs to be more specific as to the type of testing required. Footer 1 - this should be included in the requirements section.</p> <p>EOP-009-0 R1 - Besides the RRO the TO has blackstart requirements that need to be met.</p> |
| <p>Response: We feel that the comments made are applicable to the standards effort and have added these issues to the lists to be passed on to the standard drafting team. The SAR contains sufficient flexibility to allow the SDT to address these issues at the appropriate time. We do believe that the Reliability Coordinator does have a role in restoration planning. The SAR DT believes that at a minimum there should be coordination between the various parties.</p> | | | |
| Ameren | | | The VRF comments to EOP-005-1 are confusing. It is not certain to what these comments refer. |
| <p>Response: We feel that the comments made are applicable to the standards effort and have added these issues to the lists to be passed on to the standard drafting team. The SAR contains sufficient flexibility to allow the SDT to address these issues at the appropriate time.</p> | | | |
| Midwest ISO, Inc. | | | <p>This does not appear to be a yes-no question and may be an indication of the haste in putting this together. There are some good things mentioned in the SAR (better training, involvement of LSEs and Generators, etc.), but it appears this may well get out of control. The intent is to prepare for restoration, not to add scores of administrative requirements. We are concerned about the suggestion to have "blackstart agreements " and "cranking path agreements". Since we don't know how an event will evolve or propogate, restoration plans should be heavy on philosophy, simple to manage once implemented, and not overly prescriptive in detail. It appears this is going down a path to create a reference that will be used to second-guess operators after the fact when conditions require deviation from their plan.</p> |
| <p>Response: The SAR DT thanks you for your comment and agrees that these are legitimate concerns.</p> | | | |
| Entergy Services, Inc. | | | <p>EOP-005 -? Should version 1 be the version subject to review and update? R1 - is the "loss of vital communications" necessary? This seems redundant to COM-001 R2 - the comment about correcting deficiencies during simulation exercises seems out of place. R3 - how is "coordination" defined?</p> |

Consideration of Comments on 1st Draft of System Restoration and Blackstart SAR

| Question #3 | | | |
|---|------------|-----------|--|
| Commenter | Yes | No | Comment |
| | | | <p>R10 & 10.1 - does this include testing of the generators as specified in EOP-009? Is it the same? Need clarification on this. VRFs need to be revisited. The proposed VRFs on the current ballot for the Standards have administrative tasks rated as HIGH.</p> <p>EOP-007-0 This standard contains requirements for a BCP that outlines blackstart unit testing requirements. Blackstart unit testing requirements should not be spread across several EOPs. Consolidate, Consider merging EOP-007 and 009, and the blackstart unit testing portions of EOP-005.</p> <p>EOP-009-0 See comments above.</p> |
| <p>Response: The SAR will be amended to state that the current standards will be reviewed. We feel that the comments made are applicable to the standards effort and have added these issues to the lists to be passed on to the standard drafting team. The SAR contains sufficient flexibility to allow the SDT to address these issues at the appropriate time.</p> | | | |
| ITC Transmission | | | No comment. |
| TXU Electric Delivery Company | | | No comment. |
| Public Service Commission of SC | | | None identified. |
| Entergy Services, Inc. | | | No additional revisions at this time. |
| American Electric Power | | | None identified at this time. |
| Kansas City Power & Light Company | | | No comment. |

February 8, 2007

TO: REGISTERED BALLOT BODY

Ladies and Gentlemen:

Announcement: Comment Periods Open for three SARs

System Restoration and Blackstart SAR (February 8–March 9, 2007)

The second draft of the [System Restoration and Blackstart SAR](#) has been posted for a 30-day comment period from February 8 through March 9, 2007. The SAR calls for the modification of the following standards:

- EOP-005 — System Restoration Plans
- EOP-006 — Reliability Coordination – System Restoration
- EOP-007 — Establish, Maintain, and Document a Regional Blackstart Capability Plan
- EOP-009 — Documentation of Blackstart Generating Unit Test Results

This project involves upgrading the overall quality of the four standards; eliminating some gaps in the requirements, ambiguity, and “fill-in-the-blank” components.

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high-quality, enforceable, and technically sufficient bulk power system reliability standards.

Please use the [comment form](#) to provide comments on this SAR.

Underfrequency Load Shedding SAR (February 8–March 9, 2007)

The second draft of the [Underfrequency Load Shedding SAR](#) has been posted for a 30-day comment period from February 8 through March 9, 2007. The SAR calls for the modification of the following standards:

- PRC-006 — Development and Documentation of Regional Reliability Organizations’ Underfrequency Load Shedding Programs
- PRC-007 — Assuring Consistency with Regional UFLS Programs
- PRC-009 — UFLS Performance Following an Underfrequency Event

This project involves upgrading the overall quality of the four standards; eliminating some gaps in the requirements, ambiguity, and “fill-in-the-blank” components.

The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high-quality, enforceable, and technically sufficient bulk power system reliability standards.

Please use the [comment form](#) to provide comments on this SAR.

REGISTERED BALLOT BODY

February 8, 2007

Page Two

Frequency Response SAR (February 8–March 9, 2007)

The third draft of the [Frequency Response SAR](#) has been posted for a 30-day comment period from February 8 through March 9, 2007. The SAR calls for the collection of data needed to model each interconnection's frequency response.

Please use the [comment form](#) to provide comments on this SAR.

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 Authorization Request Form

| | |
|--|------------------|
| Title of Proposed Standard Revisions to System Restoration and Blackstart Standards Project 2006-03 | |
| Revised: | January 18, 2007 |

| SAR Requestor Information | SAR Type (<i>Check a box for each one that applies.</i>) |
|--|--|
| Name Richard J Kafka | <input type="checkbox"/> New Standard |
| Primary Contact Richard J Kafka | <input checked="" type="checkbox"/> Revision to existing Standards EOP-005, EOP-006, EOP-007, EOP-009 |
| Telephone (301) 469-5274 Fax (301) 469-5235 | <input checked="" type="checkbox"/> Withdrawal of existing Standard |
| E-mail rjkafka@pepcoholdings.com | <input type="checkbox"/> Urgent Action |

Standards Authorization Request Form

Purpose (Describe the purpose of the standard — what the standard will achieve in support of reliability.)

EOP-005-1 — System Restoration Plans

EOP-006-1 — Reliability Coordination - System Restoration

EOP-007-0 — Establish, Maintain, and Document a Regional Blackstart Capability Plan

EOP-009-0 — Documentation of Blackstart Generating Unit Test Results

The purpose of revising the above four standards is to:

1. Provide an adequate level of reliability for the North American bulk power systems - the standards are complete and the requirements are set at an appropriate level to ensure reliability.
2. Ensure they are enforceable as mandatory reliability standards with financial penalties - the applicability to bulk power system owners, operators, and users, and as appropriate particular classes of facilities, are clearly defined; the purpose, requirements, and measures are results-focused and unambiguous; the consequences of violating the requirements are clear.
3. Consider stakeholder comments received during the initial development of the standards and other comments received from Electric Reliability Organization (ERO) regulatory authorities, as noted in the attached review sheets (Attachment A).
4. Consider other general improvements described in the standards development work plan. (See Attachment B)
5. Consider stakeholder comments with suggested revisions to this set of standards that were during the first posting of this SAR (Attachment C).
6. Satisfy the standards procedure requirement for five-year review of the standards.

Standards Authorization Request Form

Industry Need (Provide a detailed statement justifying the need for the proposed standard, along with any supporting documentation.)

When all else fails, the bulk power system requires a clearly defined and comprehensive set of standards to ensure the ability to successfully restore the integrity of the system. The existing standards lack specificity and measures to guide the industry in a consistent and reliable manner for system restoration.

EOP-005 was a Version 0 standard that was modified to add some requirements that were translated from the Phase III & IV measures thus creating a 'version 1' standard; EOP-006 is a 'version 1' standard as of January 1, 2007; EOP-007, and EOP-009 are Version 0 standards. As the Electric Reliability Organization begins enforcing compliance with reliability standards under Section 215 of the Federal Power Act in the United States and applicable statutes and regulations in Canada, the industry needs a set of clear, measurable, and enforceable reliability standards. The current standards, while a good foundation, were translated from historical operating and planning policies and guides that were appropriate in an era of voluntary compliance. The Version 0 standards, Phase III & IV standards, and recent updates were put in place as a temporary starting point to start up the Electric Reliability Organization and begin enforcement of mandatory standards. However, it is important to update the standards in a timely manner, incorporating improvements to make the standards more suitable for enforcement and to capture prior recommendations that were deferred during the Version 0 and Phase III & IV translations.

In addition, FERC indicated it will not propose to accept or remand EOP-007-0, as it applies only to regional reliability organizations.

Standards Authorization Request Form

Brief Description (Describe the proposed standard in sufficient detail to clearly define the scope in a manner that can be easily understood by others.)

This project involves reviewing and revising the four referenced standards including:

- Resolving the issue of associating compliance measures with Attachment 1-EOP-005 elements,
- EOP-005 only requires the Transmission Operator and the Balancing Authority to have a system restoration plan. The role of these and other entities, especially the Reliability Coordinator, needs to be defined.
- Both EOP-005 and EOP-006 contain a mix of requirements that address advance planning and real-time operations. The Standards Drafting Team (SDT) should consider the need to clearly delineate the two processes within the standards requirements.
- The elimination of 'fill-in-the-blank' components in EOP-007-0 and EOP-009.
- Other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable standards and consistent with establishing technically sufficient bulk power system blackstart and restoration standards.

Work is not to be limited to the 'Issues to Address'. Those items shall be considered but are not mandatory revisions.

Throughout the process, the SDT should identify any conflicts that are found with other existing standards and bring them to the attention of the Director of Standards and Standards Committee for resolution.

Standards Authorization Request Form

Reliability Functions

| The Standard will Apply to the Following Functions <i>(Check box for each one that applies.)</i> | | |
|---|-------------------------------|---|
| <input checked="" type="checkbox"/> | Reliability Coordinator | Responsible for the real-time operating reliability of its Reliability Coordinator Area in coordination with its neighboring Reliability Coordinator's wide area view. |
| <input checked="" type="checkbox"/> | 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. |
| <input type="checkbox"/> | Interchange Authority | Ensures communication of interchange transactions for reliability evaluation purposes and coordinates implementation of valid and balanced interchange schedules between Balancing Authority Areas. |
| <input checked="" type="checkbox"/> | Planning Coordinator | Assesses the longer-term reliability of its Planning Coordinator Area. |
| <input type="checkbox"/> | Resource Planner | Develops a (>one year) plan for the resource adequacy of its specific loads within its portion of a Planning Coordinator area. |
| <input type="checkbox"/> | Transmission Planner | Develops a (>one year) plan for the reliability of the interconnected Bulk Electric System within its portion of the Planning Coordinator area. |
| <input checked="" type="checkbox"/> | Transmission Service Provider | Administers the transmission tariff and provides transmission services under applicable transmission service agreements (e.g., the pro forma tariff). |
| <input checked="" type="checkbox"/> | Transmission Owner | Owns and maintains transmission facilities. |
| <input checked="" type="checkbox"/> | Transmission Operator | Ensures the real-time operating reliability of the transmission assets within a Transmission Operator Area. |
| <input checked="" type="checkbox"/> | Distribution Provider | Delivers electrical energy to the End-use customer. |
| <input checked="" type="checkbox"/> | Generator Owner | Owns and maintains generating facilities. |
| <input checked="" type="checkbox"/> | Generator Operator | Operates generation unit(s) to provide real and reactive power. |
| <input type="checkbox"/> | Purchasing-Selling Entity | Purchases or sells energy, capacity, and necessary reliability-related services as required. |
| <input type="checkbox"/> | Market Operator | Interface point for reliability functions with commercial functions. |

Standards Authorization Request Form

| | | |
|-------------------------------------|---------------------|---|
| <input checked="" type="checkbox"/> | Load-Serving Entity | Secures energy and transmission service (and related reliability-related services) to serve the End-use Customer. |
|-------------------------------------|---------------------|---|

Reliability and Market Interface Principles

| | |
|--|--|
| Applicable Reliability Principles <i>(Check box for all that apply.)</i> | |
| <input checked="" type="checkbox"/> | 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. |
| <input type="checkbox"/> | 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. |
| <input type="checkbox"/> | 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. |
| <input checked="" type="checkbox"/> | 4. Plans for emergency operation and system restoration of interconnected bulk electric systems shall be developed, coordinated, maintained and implemented. |
| <input type="checkbox"/> | 5. Facilities for communication, monitoring and control shall be provided, used and maintained for the reliability of interconnected bulk electric systems. |
| <input type="checkbox"/> | 6. Personnel responsible for planning and operating interconnected bulk electric systems shall be trained, qualified, and have the responsibility and authority to implement actions. |
| <input type="checkbox"/> | 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? <i>(Select 'yes' or 'no' from the drop-down box.)</i> | |
| 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 | |

Related Standards

| Standard No. | Explanation |
|---------------------|--|
| PER-002 | Applicable personnel must be trained in restoration and blackstart procedures. |
| EOP-001 | R3.4 may be redundant after this project is completed. |
| | |
| | |

Related SARs

| SAR ID | Explanation |
|---------------|--------------------|
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |

Regional Differences

| Region | Explanation |
|---------------|--------------------|
| ERCOT | |
| FRCC | |
| MRO | |
| NPCC | |
| SERC | |
| RFC | |
| SPP | |
| WECC | |

Excerpted from NERC's Reliability Standards Development Plan: 2007 - 2009

| Standard Review Form Project 2006-03 System Restoration and Blackstart | | |
|---|--|--|
| Standard # | EOP-005-0 | Comments from NERC Staff Review of Standard Against Standard Review Guidelines |
| Title | System Restoration Plans | Okay |
| Purpose | | Okay |
| Applicability | | Okay |
| Requirements | <i>Conditions</i> | Interconnection is capitalized. |
| | <i>Who?</i> | Okay |
| | <i>Shall do what?</i> | R2 mentions simulated exercises – where did that come from? R3 – isn't this a function of the extent of the outage? R5 – define periodically R6 – provide training requirements R8 – how do you verify? R115.2 – what does considered mean R11.5.3 – depends on extent |
| | <i>Result or Outcome</i> | Missing |
| Measures | | 2 M for 11 R |
| Issues to Address | Source and Comments: FERC NOPR o Include Measures; and o Identify time frames for training and review of restoration plan requirements to simulate contingencies and prepare operators for anticipated and unforeseen events. FERC staff report o Periodicity of training o Lack of Measures Regional Fill-in-the-Blank Team Comments o Drafting team should address EOP-005, EOP-006 EOP-007 and EOP-009 concurrently. Primarily, references in EOP-005, EOP-006, and EOP-009 to meet RRO/Regional requirements need to be modified and EOP-007 needs to be more specific. o See notes for EOP-007 VO Industry Comments o Priority to integrity of interconnection o BA does not have all required information o Interdependency of planning and implementation missing as well as between functional entities o LSE & GO should have plans o Additional element consideration o Can't really test plan Phase III/IV comments o Add LSEs to Applicability o Add a requirement for a blackstart agreement between the transmission operator and the generator owner - include items such as identification of generator owner/operator facilities required to participate in the blackstart plan; when and how quickly a blackstart unit must respond; and what cranking path requires energization o Add a requirement for a cranking path agreement between the | |

Appendix A: Standard Review Forms

| | |
|--|--|
| | <p>transmission operator and the generator owner/operator</p> <ul style="list-style-type: none">o Condense the requirements and measures - R1 the requirement to develop the restoration plan and all the components required of that plan; and R2 the requirement to prove and document that the plan works. Then, two measurements would follow: one to assess the contents of the plan and one to assess the simulation or testing of the plan.o Need to resolve the issue of the elements on the Attachment – are these mandatory or not – there is a mismatch between R1 and levels of non-complianceo R3 – revise to place emphasis for TOP on restoring local transmission system as preparation for restoring the integrity of the Interconnection.o R4 – Add LSEso R5 – replace ‘periodic’ with a specific periodicity for testingo R6 – add specificity to frequency and scope of required trainingo R11.5 - replace the word, ‘may’ with: The affected Transmission Operators shall not resynchronize the isolated area(s) with the surrounding area(s) until the following conditions are met: the voltage, frequency, and phase angle permit, the affected reliability coordinator(s) and the adjacent areas are notified, and reliability coordinator approval is given.o Delete R11.5.4. It does not seem reasonable or logical for a control area to be required to shed 5,000 MWs of load, for example, in order for their neighbor to reconnect 1,000 MWs of their own load.o R11.5. Should exclude islands within a system that do not affect surrounding areas <p>VRF comments</p> <ul style="list-style-type: none">o R1, 5 & 8 – Does not just apply to local restorationo R2 – Could be broken up into 2 requirementso R11.4 – Ambiguouso R11.5 - This needs to be looked at for 30 days - should be done prior to access being granted. |
|--|--|

Appendix A: Standard Review Forms

| Standard Review Form Project 2006-03 System Restoration and Blackstart | | |
|---|--|--|
| Standard # | EOP-006-0 | Comments from NERC Staff Review of Standard Against Standard Review Guidelines |
| Title | Reliability Coordination – System Restoration | Okay |
| Purpose | | Don't need names. Interconnection is capitalized. |
| Applicability | | Okay |
| Requirements | <i>Conditions</i> | Okay |
| | <i>Who?</i> | Okay |
| | <i>Shall do what?</i> | R5 – burden is capitalized R6 – define actions |
| | <i>Result or Outcome</i> | Missing |
| Measures | | Addressed by CESDT. |
| Issues to Address | Source and Comments: | |
| | FERC NOPR <ul style="list-style-type: none"> o Require that the reliability coordinator be involved in the development and approval of restoration plans; and o Include Measures and Levels of Non-Compliance FERC staff report <ul style="list-style-type: none"> o RC should be involved in approving TO & BA plans o Expect new standard in November Regional Fill-in-the-Blank Team Comments <ul style="list-style-type: none"> o Drafting team should address EOP-005, EOP-006 EOP-007 and EOP-009 concurrently. Primarily, references in EOP-005, EOP-006, and EOP-009 to meet RRO/Regional requirements need to be modified and EOP-007 needs to be more specific. o See notes for EOP-007 | |
| Misc. Items | | Compliance not specified but appears in CESDT version |

Appendix A: Standard Review Forms

| Standard Review Form Project 2006-03 System Restoration and Blackstart | | |
|---|---|---|
| Standard # | EOP-007-0 | Comments from NERC Staff Review of Standard Against Standard Review Guidelines |
| Title | Establish, Maintain, and Document a Regional Blackstart Capability Plan | Too long |
| Purpose | | Need benefit or value proposition. |
| Applicability | | Need to check applicability for RRO as per SAR. |
| Requirements | <i>Conditions</i> | Okay |
| | <i>Who?</i> | Okay |
| | <i>Shall do what?</i> | R1.1 – quicker if unit status changes |
| | <i>Result or Outcome</i> | Missing |
| Measures | | M1 – need to spell out measures M2 – define evidence |
| Issues to Address | Source and Comments: | |
| | FERC NOPR ○ Commission will not propose to accept or remand EOP-007-0, as it applies only to regional reliability organizations. FERC staff report ○ Appropriateness of RRO questioned Regional Fill-in-the-Blank Team Comments ○ R1 & R2 considerations VO Industry Comments ○ Clarify testing requirements | |
| Misc. Items | | Question reasonability of simulation as proof of capability. |

Appendix A: Standard Review Forms

| Standard Review Form Project 2006-03 System Restoration and Blackstart | | |
|---|--|---|
| Standard # | EOP-009-0 | Comments from NERC Staff Review of Standard Against Standard Review Guidelines |
| Title | Documentation of Blackstart Generating Unit Test Results | 'Documentation of' could probably be dropped. |
| Purpose | | Title and purpose do not align. Same purpose as EOP-008. |
| Applicability | | Need to check applicability for GO & GOP as per SAR. |
| Requirements | <i>Conditions</i> | Okay |
| | <i>Who?</i> | Okay |
| | <i>Shall do what?</i> | R1 – do we need MW values? R2 – within how many days? |
| | <i>Result or Outcome</i> | Missing |
| Measures | | M1 only applies to R2 and needs to define evidence. |
| Issues to Address | Source and Comments: FERC NOPR o No changes identified. FERC staff report o Lack of periodicity for testing Regional Fill-in-the-Blank Team Comments o Region mentioned in Requirements VO Industry Comments o Distinction between RA & TO vs. RRO for test results | |

Applicability

Does this reliability standard clearly identify the functional classes of entities responsible for complying with the reliability standard, with any specific additions or exceptions noted? Where multiple functional classes are identified is there a clear line of responsibility for each requirement identifying the functional class and entity to be held accountable for compliance? Does the requirement allow overlapping responsibilities between Registered Entities possibly creating confusion for who is ultimately accountable for compliance?

Does this reliability standard identify the geographic applicability of the standard, such as the entire North American bulk power system, an interconnection, or within a regional entity area? If no geographic limitations are identified, the default is that the standard applies throughout North America.

Does this reliability standard identify any limitations on the applicability of the standard based on electric facility characteristics, such as generators with a nameplate rating of 20 MW or greater, or transmission facilities energized at 200 kV or greater or some other criteria? If no functional entity limitations are identified, the default is that the standard applies to all identified functional entities.

Purpose

Does this reliability standard have a clear statement of purpose that describes how the standard contributes to the reliability of the bulk power system? Each purpose statement should include a value statement.

Performance Requirements

Does this reliability standard state one or more performance requirements, which if achieved by the applicable entities, will provide for a reliable bulk power system, consistent with good utility practices and the public interest?

Does each requirement identify who shall do what under what conditions and to what outcome?

Measurability

Is each performance requirement stated so as to be objectively measurable by a third party with knowledge or expertise in the area addressed by that requirement?

Does each performance requirement have one or more associated measures used to objectively evaluate compliance with the requirement?

If performance results can be practically measured quantitatively, are metrics provided within the requirement to indicate satisfactory performance?

Technical Basis in Engineering and Operations

Is this reliability standard based upon sound engineering and operating judgment, analysis, or experience, as determined by expert practitioners in that particular field?

Completeness

Is this reliability standard complete and self-contained? Does the standard depend on external information to determine the required level of performance?

Consequences for Noncompliance

In combination with guidelines for penalties and sanctions, as well as other ERO and regional entity compliance documents, are the consequences of violating a standard clearly known to the responsible entities?

Appendix B: Reliability Standard Review Guidelines

Clear Language

Is the reliability standard stated using clear and unambiguous language? Can responsible entities, using reasonable judgment and in keeping with good utility practices, arrive at a consistent interpretation of the required performance?

Practicality

Does this reliability standard establish requirements that can be practically implemented by the assigned responsible entities within the specified effective date and thereafter?

Capability Requirements versus Performance Requirements

In general, requirements for entities to have ‘capabilities’ (this would include facilities for communication, agreements with other entities, etc.), should be located in the standards for certification. The certification requirements should indicate that entities have a responsibility to ‘maintain’ their capabilities.

Consistent Terminology

To the extent possible, does this reliability standard use a set of standard terms and definitions that are approved through the NERC reliability standards development process?

If the standard uses terms that are included in the NERC Glossary of Terms Used in Reliability Standards, then the term must be capitalized when it is used in the standard. New terms should not be added unless they have a ‘unique’ definition when used in a NERC reliability standard. Common terms that could be found in a college dictionary should not be defined and added to the NERC Glossary.

Are the verbs on the ‘verb list’ from the DT Guidelines? If not – do new verbs need to be added to the guidelines or could you use one of the verbs from the verb list?

Violation Risk Factors (Risk Factor)

High Risk Requirement

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;

or 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.

Medium Risk Requirement

This is 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;

or a requirement in a planning time frame that, if violated, could, under emergency, abnormal, or restorative conditions anticipated by the preparations, directly and adversely affect the electrical state or capability of the bulk electric system, or the ability to effectively monitor, control, or restore the bulk electric system. However, violation of a medium risk requirement is unlikely, under emergency, abnormal, or restoration conditions anticipated by the preparations, to lead to bulk electric system instability, separation, or cascading failures, nor to hinder restoration to a normal condition.

Lower Risk Requirement

Appendix B: Reliability Standard Review Guidelines

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;

Or a requirement in a planning time frame that, if violated, would not, under the emergency, abnormal, or restorative conditions anticipated by the preparations, be expected to adversely affect the electrical state or capability of the bulk electric system, or the ability to effectively monitor, control, or restore the bulk electric system. A planning requirement that is administrative in nature.

Mitigation Time Horizon

The drafting team should also indicate the time horizon available for mitigating a violation to the requirement using the following definitions:

- **Long-term Planning** — a planning horizon of one year or longer.
- **Operations Planning** — operating and resource plans from day-ahead up to and including seasonal.
- **Same-day Operations** — routine actions required within the timeframe of a day, but not real-time.
- **Real-time Operations** — actions required within one hour or less to preserve the reliability of the bulk electric system.
- **Operations Assessment** — follow-up evaluations and reporting of real time operations.

Violation Severity Levels

The drafting team should indicate a set of violation severity levels that can be applied for the requirements within a standard. ('Violation severity levels' replaces the existing 'levels of non-compliance.')

The violation severity levels may be applied for each requirement or combined to cover multiple requirements, as long as it is clear which requirements are included.

The violation severity levels should be based on the following definitions:

- **Lower: mostly compliant with minor exceptions** — the responsible entity is mostly compliant with and meets the intent of the requirement but is deficient with respect to one or more minor details. Equivalent score: 95% to 99% compliant.
- **Moderate: mostly compliant with significant exceptions** — the responsible entity is mostly compliant with and meets the intent of the requirement but is deficient with respect to one or more significant elements. Equivalent score: 85% to 94% compliant.
- **High: marginal performance or results** — the responsible entity has only partially achieved the reliability objective of the requirement and is missing one or more significant elements. Equivalent score: 70% to 84% compliant.
- **Severe: poor performance or results** — the responsible entity has failed to meet the reliability objective of the requirement. Equivalent score: less than 70% compliant.

Compliance Monitor

Replace, 'Regional Reliability Organization' with 'Regional Entity'

Fill-in-the-blank Requirements

Do not include any 'fill-in-the-blank' requirements. These are requirements that assign one entity responsibility for developing some performance measures without requiring that the performance measures be included in the body of a standard – then require another entity to comply with those requirements.

Appendix B: Reliability Standard Review Guidelines

Every reliability objective can be met, at least at a threshold level, by a North American standard. If we need regions to develop regional standards, such as in under-frequency load shedding, we can always write a uniform North American standard for the applicable functional entities as a means of encouraging development of the regional standards.

Requirements for Regional Reliability Organization

Do not write any requirements for the Regional Reliability Organization. Any requirements currently assigned to the RRO should be re-assigned to the applicable functional entity.

Effective Dates

Must be 1st day of 1st quarter after entities are expected to be compliant – must include time to file with regulatory authorities and provide notice to responsible entities of the obligation to comply. If the standard is to be actively monitored, time for the Compliance Monitoring and Enforcement Program to develop reporting instructions and modify the Compliance Data Management System(s) both at NERC and Regional Entities must be provided in the implementation plan.

Associated Documents

If there are standards that are referenced within a standard, list the full name and number of the standard under the section called, ‘Associated Documents’.

Appendix C: Issues Identified by Stakeholders during 1st Posting of SAR for System Restoration and Blackstart

WECC Reliability Coordination Comments Work Group

Clarification of the portion of blackstart and restoration plans that the reliability coordinator approves needs to be restricted to a reasonable expectation. The Reliability Coordinator should review and approve only those portions of individual restoration plans that establish the backbone power system. There is no need for the Reliability Coordinator to be responsible for detailed plans of the BA, TO, GOP, LSE, etc. Specify the portions of the individual plans that need Reliability Coordinator review and approval.

Alberta Electric System Operator

Consider adding definitions to EOP-005-1 for:

- Partial or total shut down;
- Vital telecommunications channels;
- System restoration;
- Blackstart capability plan; and
- System restoration plan.

Consider adding a requirement for Generator Operators to have generating facilities blackstart procedures. Those procedures shall be coordinated with the Transmission Operator's System Restoration plan

Consider revising training in R6. Training requirements should be quoted as stated and required in a different standard, let's say PRC. And with regards to training, it shall be state "what" should be the minimum training required for TO, BA and Generating facilities. And also, clarification as "what" is expected as "simulated exercises". What are those? It is DTS what is required? Or is it a table top adequate?

Consider defining what is as a minimum required criteria for "simulated exercises" in the understanding that it will not be practical to perform "an actual test" to the entire restoration plan. Further more, What is the meaning for simulation? DTS? Power flows? EMTP? Other?

Consider revising EOP-005-1 R9 "switching requirements" and trying not to be prescriptive in telling the "hows" instead of the "what" is required to comply with. The requirement should not be a "cook book". If considering keeping this requirement, then consider defining "switching requirements".

Consider revising EOP-005-1 R10 in order to clarify "simulation testing"

NPC CP9

EOP-05 - Clarify the phrase "critical load requirements". The phrase can be interpreted as:
(i) available and easily accessible loads to be restored for voltage control in network restoration on the bulk power system level. These are loads employed to expedite the restoration of the interconnection.
(ii) loads of importance to health/safety/national security - police, hospitals, govt. offices. These are really distribution loads that are restored once the interconnection is restored and the transmission system is rebuilt.
(iii) restoring off-site power to key transmission facilities.

We suggest that mention of critical loads should be replaced by the restoration of critical transmission and generation facilities necessary to restore load.

With regard to the Phase III/IV comments on EOP-005 Restoration Plans:

- (1) Locking the restoration to single, contractual cranking path.

A robust restoration plan must be flexible. It is impossible to define in advance what equipment will be available for service in the aftermath of a system collapse.

The concept of an explicitly defined cranking path, locked into a restoration plan by contractual requirements, precludes flexibility and is restrictive-further complicating what may be an intricate process. Identifying and communicating and coordinating the intended cranking path is a valid aspect of restoration. This is included in the

Appendix C: Issues Identified by Stakeholders during 1st Posting of SAR for System Restoration and Blackstart

second bullet of the Phase III/IV comments. The fourth bullet of the Phase III/IV comments should be removed from the SAR.

2) R3- Placing emphasis on restoring local transmission.

There is no need for the bullet on R3. The recommendation as noted encourages the restoration of local transmission and load at a higher priority than reestablishing the interconnection. Restoring the interconnection is the highest priority. In the process of achieving that end, some, minimal restoration of local transmission will be involved.

This is in direct conflict with the industry comments on V0 Standards which requires modifications to assign priority to the integrity of the interconnection.

Changing the emphasis of R3 should be removed from the SAR.

3) R11.5- Placing local load restoration above re-establishing the interconnection.

This follows the same argument addressed above. Restoration of the interconnection is a higher priority than the restoration of local load.

R11.5 should be retained in the SAR.

R6 mentions providing training requirements however this training requirement is already in PER-002-R3.1. There is also a training requirement in PER-004 R4 for the RC requirement.

IESO

Comments on EOP-006 & EOP-007 Standards:

EOP 006-1 R3 states "The Reliability Coordinator shall have a Reliability Coordinator Area restoration plan that provides coordination between individual Transmission Operator restoration plans and that ensures reliability is maintained during system restoration events."

EOP 007 R1 states "Each Regional Reliability Organization shall establish and maintain a system BCP, as part of an overall coordinated Regional SRP...."

Is it an acceptable practice for a Reliability Coordinator, in approving its Transmission Operator restoration plans per appropriate assessment criteria and ensuring they enable coordinated restoration with the interconnections, be deemed as an alternative to creating and maintaining regional plans? Otherwise the scope of such regional plans should be specified to limit their scale. Consider the large number of Transmission Operators (and restoration plans) in those Reliability Coordinator Areas with large footprints such as PJM, MISO and California ISO.

The same consideration applies to a Regional Black Start Capability Plan as assessed by the Regional Reliability Organization. Given that black start is integral to system restoration how it is proposed to be handled in instances where the Reliability Coordinator Area differs from the RRO boundary?

Additionally, EOP 006-1 should capture Reliability Coordinator to other Reliability Coordinator 'coordination'. Specifically, "Reliability Coordinators shall coordinate their system restoration plans and efforts together including joint participation in drills and exercises."

Progress Energy Carolinas

EOP-005:

Requirements in EOP-005 should include a definition of "periodically." We would recommend a periodicity of annually to coincide with annual requirement to review and update the restoration plan at least annually.

R3 could be rolled into R1.

EOP-005:

Appendix C: Issues Identified by Stakeholders during 1st Posting of SAR for System Restoration and Blackstart

R6. The actions taken to restore normal operations would depend on the operating emergency. Prescriptive actions should be avoided.

Manitoba Hydro

EOP-005-0 and -1

Applicability - This should apply to Reliability Coordinators as well as TOs and BAs.

R1 (-0 + -1) - As part of integrating the appendix items into the requirements section the last sentence of R1 could be eliminated.

R5 (-0 + -1) - I think the testing period of the telecommunications systems should be defined as well as the type of testing that needs to be done. If auditors start asking questions about tests that are not defined or required it's not fair to the entity being audited if they haven't performed that particular test. It should also be identified if main or backup systems need to be tested or if there should be backup systems.

R6 (-0 + -1) - Reliability Coordinator needs to be included in the training of personnel as part of this standard. Also the type of training needs to be defined (simulations, table top exercises), and the base topics to be trained on (philosophy, building of islands, blackstart) should be defined.

R7 (-0 + -1) - The type of testing or simulations should be defined; should dynamic stability studies, as well as voltage and frequency studies be done on the restoration plans or is running a simulation sufficient, unfortunately a simulation doesn't give you a complete enough evaluation.

R8 (-0) - availability and location aren't enough to ensure the blackstart units can do the job, you also have to ensure the capability of the units and the number of units are sufficient to blackstart. Testing and studies need to be done to ensure the units can accomplish the task.

R8 (-1) - Verification should be done by dynamic, voltage and frequency studies. Verification that the blackstart units are capable should be included with the "number, size, and location". The RRO isn't included in the Applicability section yet it looks like it's their plan that the TO should be meeting instead of meeting the TO plan.

R9 (-1) - Its not clear as to which units this requirement is referring to, is it referring to a remote blackstart unit or other units on the system that need to be started as part of restoring the system?

R9.4 (-0) and R11.4 (-1) - For systems that have nuclear stations it should be made a part of their plans to give restoration of off-site power to the plants a high priority.

R9.5.1 (-0) and R11.5.1 (-1) - When tying two islands together the emphasis should be on minimizing the flow through the tie point once synched and closed rather than when voltage, frequency and phase angle permit. The resultant flow could be greater than expected if the system operator simply relies on the relaying to allow closing. Special attention should be paid to frequency and voltage when tying islands and bringing them as close as possible together prior to closing.

R9.5.4 (-0) and R11.5.4 (-1) - Typically is not the surrounding areas that require shedding of load to reconnect. The surrounding areas usually means the stable or larger of areas meaning frequency in the surrounding areas should be good to start with. It's the area that want to synch that should be adding generation or shedding load to be able to synch with the surrounding areas.

R10 (-1) - The word simulation comes up again, it should be defined what simulation is or whether it's really referring to studies as done by system performance such as dynamic stability studies.

C. Measures (-1) M1. - Should read studies instead of simulations.

D. Compliance, 1.1.1 (-0) and 1.4.1 (-1) - its not clear what is meant by "identification of critical requirements", is it just identifying where critical loads exist so they can be brought on as part of the restoration process or do the voltage and frequency requirements of each critical load have to be identified as part of the restoration plan.

1.4.6 (-1) - the units to be started should be clarified.

1.4.7 (-1) - should refer to the TO restoration plan. If the regional plan is included there needs to be a requirement to share the regional plan with the TOs.

Attachment 1-EOP-005-0 and attachment EOP-005 - 3. - It would be impractical to have a plan for every possibility.

6. - Should this not fall under the dynamic type studies done by engineering studies personnel. To what extent should plans be simulated or tested?

Appendix C: Issues Identified by Stakeholders during 1st Posting of SAR for System Restoration and Blackstart

EOP-006-0 and -1

R1 (-0) and (-1) - The RC should be more than just aware, the Reliability Coordinator's system restoration plan should coordinate with the TO's plan so the RC should thoroughly knowledgeable with the TO plans.

R5 (-0) and (-1) - "major system islands" needs to be defined, at what point the RC gets involved needs to be clear. They don't necessarily need to be involved with the location of the synchronization point (the TOs should be aware of where they can synchronize).

EOP-007-0

R1.2 - Simulation doesn't give the dynamic response the proper studies can give (i.e.; dynamic stability studies, voltage and frequency studies).

R1.3.1 - What if it's the same one third that gets tested each year, the remaining two thirds may not be usable when the time comes to do a real restoration. You can't assume that each year a different one third will be tested. Also in order to provide training to plant personnel testing all blackstart units each year will ensure more plant operators are trained in the procedure.

R1.3.2 - this needs to be more specific as to the type of testing required.

Footer 1 - this should be included in the requirements section.

EOP-009-0

R1 - Besides the RRO the TO has blackstart requirements that need to be met.

Midwest ISO, Inc.

We are concerned about the suggestion to have "blackstart agreements " and "cranking path agreements". Since we don't know how an event will evolve or propogate, restoration plans should be heavy on philosophy, simple to manage once implemented, and not overly prescriptive in detail.

Entergy Services, Inc.

EOP-005

- R1 - is the "loss of vital communications" necessary? This seems redundant to COM-001
- R2 - the comment about correcting deficiencies during simulation exercises seems out of place.
- R3 - how is "coordination" defined?
- R10 & 10.1 - does this include testing of the generators as specified in EOP-009? Is it the same? Need clarification on this.
- VRFs need to be revisited. The proposed VRFs on the current ballot for thie Standards have administrative tasks rated as HIGH.

EOP-007 and EOP-009

EOP-007 contains requirements for a BCP that outlines blackstart unit testing requirements. Blackstart unit testing requirements should not be spread across several EOPs. Consolidate, Consider merging EOP-007 and 009, and the blackstart unit testing portions of EOP-005.

Standard Authorization Request Form

| |
|---|
| Title of Proposed Standard Revisions to System Restoration and Blackstart Standards Project 2006-03 |
| Request Revised: Date October 26, 2006 <u>January 18, 2007</u> |

| SAR Requestor Information | SAR Type <i>(Check a box for each one that applies.)</i> |
|--|--|
| Name Richard J Kafka | <input type="checkbox"/> New Standard |
| Primary Contact Richard J Kafka | <input checked="" type="checkbox"/> Revision to existing Standards EOP-005, EOP-006, EOP-007, EOP-009 |
| Telephone (301) 469-5274 Fax (301) 469-5235 | <input checked="" type="checkbox"/> Withdrawal of existing Standard |
| E-mail rjkafka@pepcoholdings.com | <input type="checkbox"/> Urgent Action |

Standards Authorization Request Form

Purpose (Describe the purpose of the standard — what the standard will achieve in support of reliability.)

EOP-005-1 — System Restoration Plans

EOP-006-1 — Reliability Coordination - System Restoration

EOP-007-0 — Establish, Maintain, and Document a Regional Blackstart Capability Plan

EOP-009-0 — Documentation of Blackstart Generating Unit Test Results

The purpose of revising the above four standards is to:

1. Provide an adequate level of reliability for the North American bulk power systems - the standards are complete and the requirements are set at an appropriate level to ensure reliability.
2. Ensure they are enforceable as mandatory reliability standards with financial penalties - the applicability to bulk power system owners, operators, and users, and as appropriate particular classes of facilities, are clearly defined; the purpose, requirements, and measures are results-focused and unambiguous; the consequences of violating the requirements are clear.
- ~~3. Incorporate~~~~Consider other general improvements described in the standards development work plan.~~ (See attachments)
- ~~4.3.~~ Consider stakeholder comments received during the initial development of the standards and other comments received from [Electric Reliability Organization \(ERO\)](#) regulatory authorities, as noted in the attached review sheets [\(Attachment A\)](#).
- ~~4.~~ [Consider other general improvements described in the standards development work plan. \(See Attachment B\)](#)
- ~~5.~~ [Consider stakeholder comments with suggested revisions to this set of standards that were during the first posting of this SAR \(Attachment C\).](#)
- ~~5.6.~~ Satisfy the standards procedure requirement for five-year review of the standards.

Standards Authorization Request Form

Industry Need (Provide a detailed statement justifying the need for the proposed standard, along with any supporting documentation.)

When all else fails, the bulk power system requires a clearly defined and comprehensive set of standards to ensure the ability to successfully restore the integrity of the system. The existing standards lack specificity and measures to guide the industry in a consistent and reliable manner for system restoration.

EOP-005 ~~is~~was a Version 0 standard that was modified to add some requirements that were translated from the Phase III & IV measures thus creating a '-1-version 1' standard; EOP-006 is a 'version -1' standard as of January 1, 2007; EOP-007, and EOP-009 are Version 0 standards. As the ~~e~~Electric ~~r~~Reliability ~~e~~Organization begins enforcing compliance with reliability standards under Section 215 of the Federal Power Act in the United States and applicable statutes and regulations in Canada, the industry needs a set of clear, measurable, and enforceable reliability standards. The ~~Version 0-current standards-and the translation of Phase III & IV planning measures~~, while a good foundation, were translated from historical operating and planning policies and guides that were appropriate in an era of voluntary compliance. The ~~Version 0-Version 0~~ standards, Phase III & IV standards, and recent updates were put in place as a temporary starting point to start up the ~~e~~Electric ~~r~~Reliability ~~e~~Organization and begin enforcement of mandatory standards. However, it is important to update the standards in a timely manner, incorporating improvements to make the standards more suitable for enforcement and to capture prior recommendations that were deferred during the Version 0 and Phase III & IV translations.

In addition, FERC indicated it will not propose to accept or remand EOP-007-0, as it applies only to regional reliability organizations.

Standards Authorization Request Form

Brief Description (Describe the proposed standard in sufficient detail to clearly define the scope in a manner that can be easily understood by others.)

This project involves reviewing and revising upgrading the requirements in the four referenced standards including:

- Resolving the issue of associating compliance measures with Attachment 1-EOP-005 elements. Industry debate is needed over the contents of Attachment 1 in EOP-005. The attachment includes a list of elements that must be contained in a system restoration plan, 'if applicable'. The elements in the attachment need to be reviewed and the conditions under which an entity is exempt from including an element in its system restoration plan need to be specified. If possible, the required elements should be removed from the attachment and included in the body of the requirements.
- EOP-005 only requires the Transmission Operator **TOP** and the Balancing Authority **BA** to have a system restoration plan. The role of these and other entities, especially the Reliability Coordinator, needs to be defined. — the Reliability Coordinator does not have any requirement to have a system restoration plan.
- Both EOP-005 and EOP-006 contain a mix of requirements that address advance planning and real-time operations. The Standards Drafting Team (SDT) should consider the need to clearly delineate the two processes within the standards requirements.
- ~~These need to be carefully reviewed to ensure that the lines of authority clarified under the Reliability Coordination (Project 2006-03) and Real Time Transmission Operations and Balancing of Load and Generation (Project 2007-03) are fully supported in the refinement of this set of standards.~~
- The elimination of EOP-007 and EOP-009 have some 'fill-in-the-blank' components to eliminate in EOP-007-0 and EOP-009.
- The development may include other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable standards, and consistent with establishing technically sufficient bulk power system blackstart and reliability restoration standards.

Work is not to be limited to the 'To-Do Lists/Issues to Address'. Those items shall be considered but are not mandatory revisions.

Throughout the process, the SDT should identify any conflicts that are found with other existing standards and bring them to the attention of the Standards Committee Director of Standards and Standards Committee for resolution.

Standards Authorization Request Form

Reliability Functions

| The Standard will Apply to the Following Functions <i>(Check box for each one that applies.)</i> | | |
|---|-----------------------------------|---|
| <input checked="" type="checkbox"/> | Reliability Authority Coordinator | Ensures the reliability of the bulk transmission system within its Reliability Authority area. This is the highest Reliability Authority. Responsible for the real-time operating reliability of its Reliability Coordinator Area in coordination with its neighboring Reliability Coordinator's wide area view. |
| <input checked="" type="checkbox"/> | 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. |
| <input type="checkbox"/> | Interchange Authority | Authorizes valid and balanced Interchange Schedules. Ensures communication of interchange transactions for reliability evaluation purposes and coordinates implementation of valid and balanced interchange schedules between Balancing Authority Areas. |
| <input checked="" type="checkbox"/> | Planning Authority Coordinator | Plans the Bulk Electric System. Assesses the longer-term reliability of its Planning Coordinator Area. |
| <input type="checkbox"/> | Resource Planner | Develops a long-term (>one year) plan for the resource adequacy of its specific loads within its portion of a Planning Authority Coordinator area. |
| <input type="checkbox"/> | Transmission Planner | Develops a long-term (>one year) plan for the reliability of transmission systems within its portion of the Planning Authority area. Develops a (>one year) plan for the reliability of the interconnected Bulk Electric System within its portion of the Planning Coordinator area. |
| <input checked="" type="checkbox"/> | Transmission Service Provider | Provides transmission services to qualified market participants under applicable transmission service agreements. Administers the transmission tariff and provides transmission services under applicable transmission service agreements (e.g., the pro forma tariff). |
| <input checked="" type="checkbox"/> | Transmission Owner | Owns <u>and maintains</u> transmission facilities. |
| <input checked="" type="checkbox"/> | Transmission Operator | Operates and maintains the transmission facilities, and executes switching orders. Ensures the real-time operating reliability of the transmission assets within a Transmission Operator Area. |
| <input checked="" type="checkbox"/> | Distribution Provider | Provides and operates the "wires" between the transmission system and the customer. Delivers electrical energy to the End-use customer. |
| <input checked="" type="checkbox"/> | Generator Owner | Owns and maintains generation unit(s) <u>generating facilities.</u> |
| <input checked="" type="checkbox"/> | Generator Operator | Operates generation unit(s) to provide real and reactive power. Operates generation unit(s) and performs the functions of supplying energy and Interconnected Operations Services. |

Standards Authorization Request Form

| | | |
|-------------------------------------|---------------------------|---|
| <input type="checkbox"/> | Purchasing-Selling Entity | The function of purchasing or selling energy, capacity, and all necessary Interconnected Operations Services as required. Purchases or sells energy, capacity, and necessary reliability-related services as required. |
| <input type="checkbox"/> | Market Operator | Integrates energy, capacity, balancing, and transmission resources to achieve an economic, reliability-constrained dispatch. Interface point for reliability functions with commercial functions. |
| <input checked="" type="checkbox"/> | Load-Serving Entity | Secures energy and transmission <u>service</u> (and related <u>generation reliability-related</u> services) to serve the end-user <u>End-use Customer</u> . |

Reliability and Market Interface Principles

| | |
|--|--|
| Applicable Reliability Principles <i>(Check box for all that apply.)</i> | |
| <input checked="" type="checkbox"/> | 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. |
| <input type="checkbox"/> | 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. |
| <input type="checkbox"/> | 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. |
| <input checked="" type="checkbox"/> | 4. Plans for emergency operation and system restoration of interconnected bulk electric systems shall be developed, coordinated, maintained and implemented. |
| <input type="checkbox"/> | 5. Facilities for communication, monitoring and control shall be provided, used and maintained for the reliability of interconnected bulk electric systems. |
| <input type="checkbox"/> | 6. Personnel responsible for planning and operating interconnected bulk electric systems shall be trained, qualified, and have the responsibility and authority to implement actions. |
| <input type="checkbox"/> | 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? <i>(Select 'yes' or 'no' from the drop-down box.)</i> | |
| 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 | |

Related Standards

| Standard No. | Explanation |
|--------------------|---|
| PER-002 | Applicable personnel must be trained in restoration and blackstart procedures. |
| EOP-001 | R3.4 may be redundant after this project is completed. |
| | |
| | |

Related SARs

| SAR ID | Explanation |
|--------|-------------|
| | |
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| | |
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| | |
| | |

Regional Differences

| Region | Explanation |
|--------|-------------|
| ERCOT | |
| FRCC | |
| MRO | |
| NPCC | |
| SERC | |
| RFC | |
| SPP | |
| WECC | |

Excerpted from NERC's Reliability Standards Development Plan: 2007 - 2009

| Standard Review Form Project 2006-03 System Restoration and Blackstart | | |
|---|--|--|
| Standard # | EOP-005-0 | Comments <u>from NERC Staff Review of Standard Against Standard Review Guidelines</u> |
| Title | System Restoration Plans | Okay |
| Purpose | | Okay |
| Applicability | | Okay |
| Requirements | <i>Conditions</i> | Interconnection is capitalized. |
| | <i>Who?</i> | Okay |
| | <i>Shall do what?</i> | R2 mentions simulated exercises – where did that come from? R3 – isn't this a function of the extent of the outage? R5 – define periodically R6 – provide training requirements R8 – how do you verify? R115.2 – what does considered mean R11.5.3 – depends on extent |
| | <i>Result or Outcome</i> | Missing |
| Measures | | 2 M for 11 R |
| To Do List Issues to Address | <u>Source and Comments:</u> FERC NOPR <ul style="list-style-type: none"> o Include Measures; and o Identify time frames for training and review of restoration plan requirements to simulate contingencies and prepare operators for anticipated and unforeseen events. FERC staff report <ul style="list-style-type: none"> o Periodicity of training o Lack of Measures Regional Fill-in-the-Blank Team Comments <ul style="list-style-type: none"> o Drafting team should address EOP-005, EOP-006 EOP-007 and EOP-009 concurrently. Primarily, references in EOP-005, EOP-006, and EOP-009 to meet RRO/Regional requirements need to be modified and EOP-007 needs to be more specific. o See notes for EOP-007 VO Industry Comments <ul style="list-style-type: none"> o Priority to integrity of interconnection o BA does not have all required information o Interdependency of planning and implementation missing as well as between functional entities o LSE & GO should have plans o Additional element consideration o Can't really test plan Phase III/IV comments <ul style="list-style-type: none"> o Add LSEs to Applicability o Add a requirement for a blackstart agreement between the transmission operator and the generator owner - include items such as identification of generator owner/operator facilities required to participate in the blackstart plan; when and how quickly a blackstart unit must respond; and what cranking path requires energization o Add a requirement for a cranking path agreement between the transmission operator and the generator owner/operator o Condense the requirements and measures - R1 the requirement to | |

| | |
|--|--|
| | <p>develop the restoration plan and all the components required of that plan; and R2 the requirement to prove and document that the plan works. Then, two measurements would follow: one to assess the contents of the plan and one to assess the simulation or testing of the plan.</p> <ul style="list-style-type: none">o Need to resolve the issue of the elements on the Attachment – are these mandatory or not – there is a mismatch between R1 and levels of non-complianceo R3 – revise to place emphasis for TOP on restoring local transmission system as preparation for restoring the integrity of the Interconnection.o R4 – Add LSEso R5 – replace ‘periodic’ with a specific periodicity for testingo R6 – add specificity to frequency and scope of required trainingo R11.5 - replace the word, ‘may’ with: The affected Transmission Operators shall not resynchronize the isolated area(s) with the surrounding area(s) until the following conditions are met: the voltage, frequency, and phase angle permit, the affected reliability coordinator(s) and the adjacent areas are notified, and reliability coordinator approval is given.o Delete R11.5.4. It does not seem reasonable or logical for a control area to be required to shed 5,000 MWs of load, for example, in order for their neighbor to reconnect 1,000 MWs of their own load.o R11.5. Should exclude islands within a system that do not affect surrounding areas <p>VRF comments</p> <ul style="list-style-type: none">o R1, 5 & 8 – Does not just apply to local restorationo R2 – Could be broken up into 2 requirementso R11.4 – Ambiguouso R11.5 - This needs to be looked at for 30 days - should be done prior to access being granted. |
|--|--|

| Standard Review Form | | |
|--|--|--|
| Project 2006-03 System Restoration and Blackstart | | |
| Standard # | EOP-006-0 | Comments <u>from NERC Staff Review of Standard Against Standard Review Guidelines</u> |
| Title | Reliability Coordination – System Restoration | Okay |
| Purpose | | Don't need names. Interconnection is capitalized. |
| Applicability | | Okay |
| Requirements | <i>Conditions</i> | Okay |
| | <i>Who?</i> | Okay |
| | <i>Shall do what?</i> | R5 – burden is capitalized R6 – define actions |
| | <i>Result or Outcome</i> | Missing |
| Measures | | Addressed by CESDT. |
| <u>Issues to Address To-Do List</u> | Source and Comments: | |
| | FERC NOPR ○ Require that the reliability coordinator be involved in the development and approval of restoration plans; and ○ Include Measures and Levels of Non-Compliance FERC staff report ○ RC should be involved in approving TO & BA plans ○ Expect new standard in November Regional Fill-in-the-Blank Team Comments ○ Drafting team should address EOP-005, EOP-006 EOP-007 and EOP-009 concurrently. Primarily, references in EOP-005, EOP-006, and EOP-009 to meet RRO/Regional requirements need to be modified and EOP-007 needs to be more specific. ○ See notes for EOP-007 | |
| Misc. Items | | Compliance not specified but appears in CESDT version |

| Standard Review Form | | |
|--|---|--|
| Project 2006-03 System Restoration and Blackstart | | |
| Standard # | EOP-007-0 | Comments <u>from NERC Staff Review of Standard Against Standard Review Guidelines</u> |
| Title | Establish, Maintain, and Document a Regional Blackstart Capability Plan | Too long |
| Purpose | | Need benefit or value proposition. |
| Applicability | | Need to check applicability for RRO as per SAR. |
| Requirements | <i>Conditions</i> | Okay |
| | <i>Who?</i> | Okay |
| | <i>Shall do what?</i> | R1.1 – quicker if unit status changes |
| | <i>Result or Outcome</i> | Missing |
| Measures | | M1 – need to spell out measures M2 – define evidence |
| Comments Issues to Address To-Do List | Source and Comments: | |
| | FERC NOPR o Commission will not propose to accept or remand EOP-007-0, as it applies only to regional reliability organizations. FERC staff report o Appropriateness of RRO questioned Regional Fill-in-the-Blank Team Comments o R1 & R2 considerations V0 Industry Comments o Clarify testing requirements | |
| Misc. Items | | Question reasonability of simulation as proof of capability. |

| Standard Review Form Project 2006-03 System Restoration and Blackstart | | |
|---|--|--|
| Standard # | EOP-009-0 | Comments <u>from NERC Staff Review of Standard Against Standard Review Guidelines</u> |
| Title | Documentation of Blackstart Generating Unit Test Results | 'Documentation of' could probably be dropped. |
| Purpose | | Title and purpose do not align. Same purpose as EOP-008. |
| Applicability | | Need to check applicability for GO & GOP as per SAR. |
| Requirements | <i>Conditions</i> | Okay |
| | <i>Who?</i> | Okay |
| | <i>Shall do what?</i> | R1 – do we need MW values? R2 – within how many days? |
| | <i>Result or Outcome</i> | Missing |
| Measures | | M1 only applies to R2 and needs to define evidence. |
| <u>Issues to Address To-Do List</u> | <u>Source and Comments:</u> FERC NOPR <ul style="list-style-type: none"> o No changes identified. FERC staff report <ul style="list-style-type: none"> o Lack of periodicity for testing Regional Fill-in-the-Blank Team Comments <ul style="list-style-type: none"> o Region mentioned in Requirements VO Industry Comments <ul style="list-style-type: none"> o Distinction between RA & TO vs. RRO for test results | |

Applicability

Does this reliability standard clearly identify the functional classes of entities responsible for complying with the reliability standard, with any specific additions or exceptions noted? Where multiple functional classes are identified is there a clear line of responsibility for each requirement identifying the functional class and entity to be held accountable for compliance? Does the requirement allow overlapping responsibilities between Registered Entities possibly creating confusion for who is ultimately accountable for compliance?

Does this reliability standard identify the geographic applicability of the standard, such as the entire North American bulk power system, an interconnection, or within a regional entity area? If no geographic limitations are identified, the default is that the standard applies throughout North America.

Does this reliability standard identify any limitations on the applicability of the standard based on electric facility characteristics, such as generators with a nameplate rating of 20 MW or greater, or transmission facilities energized at 200 kV or greater or some other criteria? If no functional entity limitations are identified, the default is that the standard applies to all identified functional entities.

Purpose

Does this reliability standard have a clear statement of purpose that describes how the standard contributes to the reliability of the bulk power system? Each purpose statement should include a value statement.

Performance Requirements

Does this reliability standard state one or more performance requirements, which if achieved by the applicable entities, will provide for a reliable bulk power system, consistent with good utility practices and the public interest?

Does each requirement identify who shall do what under what conditions and to what outcome?

Measurability

Is each performance requirement stated so as to be objectively measurable by a third party with knowledge or expertise in the area addressed by that requirement?

Does each performance requirement have one or more associated measures used to objectively evaluate compliance with the requirement?

If performance results can be practically measured quantitatively, are metrics provided within the requirement to indicate satisfactory performance?

Technical Basis in Engineering and Operations

Is this reliability standard based upon sound engineering and operating judgment, analysis, or experience, as determined by expert practitioners in that particular field?

Completeness

Is this reliability standard complete and self-contained? Does the standard depend on external information to determine the required level of performance?

Consequences for Noncompliance

In combination with guidelines for penalties and sanctions, as well as other ERO and regional entity compliance documents, are the consequences of violating a standard clearly known to the responsible entities?

Clear Language

Is the reliability standard stated using clear and unambiguous language? Can responsible entities, using reasonable judgment and in keeping with good utility practices, arrive at a consistent interpretation of the required performance?

Practicality

Does this reliability standard establish requirements that can be practically implemented by the assigned responsible entities within the specified effective date and thereafter?

Capability Requirements versus Performance Requirements

In general, requirements for entities to have ‘capabilities’ (this would include facilities for communication, agreements with other entities, etc.), should be located in the standards for certification. The certification requirements should indicate that entities have a responsibility to ‘maintain’ their capabilities.

Consistent Terminology

To the extent possible, does this reliability standard use a set of standard terms and definitions that are approved through the NERC reliability standards development process?

If the standard uses terms that are included in the NERC Glossary of Terms Used in Reliability Standards, then the term must be capitalized when it is used in the standard. New terms should not be added unless they have a ‘unique’ definition when used in a NERC reliability standard. Common terms that could be found in a college dictionary should not be defined and added to the NERC Glossary.

Are the verbs on the ‘verb list’ from the DT Guidelines? If not – do new verbs need to be added to the guidelines or could you use one of the verbs from the verb list?

Violation Risk Factors (Risk Factor)

High Risk Requirement

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;

or 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.

Medium Risk Requirement

This is 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;

or a requirement in a planning time frame that, if violated, could, under emergency, abnormal, or restorative conditions anticipated by the preparations, directly and adversely affect the electrical state or capability of the bulk electric system, or the ability to effectively monitor, control, or restore the bulk electric system. However, violation of a medium risk requirement is unlikely, under emergency, abnormal, or restoration conditions anticipated by the preparations, to lead to bulk electric system instability, separation, or cascading failures, nor to hinder restoration to a normal condition.

Lower Risk Requirement

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;

Or a requirement in a planning time frame that, if violated, would not, under the emergency, abnormal, or restorative conditions anticipated by the preparations, be expected to adversely affect the electrical state or capability of the bulk electric system, or the ability to effectively monitor, control, or restore the bulk electric system. A planning requirement that is administrative in nature.

Mitigation Time Horizon

The drafting team should also indicate the time horizon available for mitigating a violation to the requirement using the following definitions:

- **Long-term Planning** — a planning horizon of one year or longer.
- **Operations Planning** — operating and resource plans from day-ahead up to and including seasonal.
- **Same-day Operations** — routine actions required within the timeframe of a day, but not real-time.
- **Real-time Operations** — actions required within one hour or less to preserve the reliability of the bulk electric system.
- **Operations Assessment** — follow-up evaluations and reporting of real time operations.

Violation Severity Levels

The drafting team should indicate a set of violation severity levels that can be applied for the requirements within a standard. ('Violation severity levels' replaces the existing 'levels of non-compliance.') The violation severity levels may be applied for each requirement or combined to cover multiple requirements, as long as it is clear which requirements are included.

The violation severity levels should be based on the following definitions:

- **Lower: mostly compliant with minor exceptions** — the responsible entity is mostly compliant with and meets the intent of the requirement but is deficient with respect to one or more minor details. Equivalent score: 95% to 99% compliant.
- **Moderate: mostly compliant with significant exceptions** — the responsible entity is mostly compliant with and meets the intent of the requirement but is deficient with respect to one or more significant elements. Equivalent score: 85% to 94% compliant.
- **High: marginal performance or results** — the responsible entity has only partially achieved the reliability objective of the requirement and is missing one or more significant elements. Equivalent score: 70% to 84% compliant.
- **Severe: poor performance or results** — the responsible entity has failed to meet the reliability objective of the requirement. Equivalent score: less than 70% compliant.

Compliance Monitor

Replace, 'Regional Reliability Organization' with 'Regional Entity'

Fill-in-the-blank Requirements

Do not include any 'fill-in-the-blank' requirements. These are requirements that assign one entity responsibility for developing some performance measures without requiring that the performance measures be included in the body of a standard – then require another entity to comply with those requirements.

Every reliability objective can be met, at least at a threshold level, by a North American standard. If we need regions to develop regional standards, such as in under-frequency load shedding, we can always write a uniform North American standard for the applicable functional entities as a means of encouraging development of the regional standards.

Requirements for Regional Reliability Organization

Do not write any requirements for the Regional Reliability Organization. Any requirements currently assigned to the RRO should be re-assigned to the applicable functional entity.

Effective Dates

Must be 1st day of 1st quarter after entities are expected to be compliant – must include time to file with regulatory authorities and provide notice to responsible entities of the obligation to comply. If the standard is to be actively monitored, time for the Compliance Monitoring and Enforcement Program to develop reporting instructions and modify the Compliance Data Management System(s) both at NERC and Regional Entities must be provided in the implementation plan.

Associated Documents

If there are standards that are referenced within a standard, list the full name and number of the standard under the section called, ‘Associated Documents’.

2006-03 System Restoration and Blackstart Appendix C: Issues Identified by Stakeholders during 1st Posting of SAR for System Restoration and Blackstart

WECC Reliability Coordination Comments Work Group

Clarification of the portion of blackstart and restoration plans that the reliability coordinator approves needs to be restricted to a reasonable expectation. The Reliability Coordinator should review and approve only those portions of individual restoration plans that establish the backbone power system. There is no need for the Reliability Coordinator to be responsible for detailed plans of the BA, TO, GOP, LSE, etc. Specify the portions of the individual plans that need Reliability Coordinator review and approval.

Alberta Electric System Operator

Consider adding definitions to EOP-005-1 for:

- Partial or total shut down;
- Vital telecommunications channels;
- System restoration;
- Blackstart capability plan; and
- System restoration plan.

Consider adding a requirement for Generator Operators to have generating facilities blackstart procedures. Those procedures shall be coordinated with the Transmission Operator's System Restoration plan

Consider revising training in R6. Training requirements should be quoted as stated and required in a different standard, let's say PRC. And with regards to training, it shall be state "what" should be the minimum training required for TO, BA and Generating facilities. And also, clarification as "what" is expected as "simulated exercises". What are those? It is DTS what is required? Or is it a table top adequate?

Consider defining what is as a minimum required criteria for "simulated exercises" in the understanding that it will not be practical to perform "an actual test" to the entire restoration plan. Further more, What is the meaning for simulation? DTS? Power flows? EMTP? Other?

Consider revising EOP-005-1 R9 "switching requirements" and trying not to be prescriptive in telling the "hows" instead of the "what" is required to comply with. The requirement should not be a "cook book". If considering keeping this requirement, then consider defining "switching requirements".

Consider revising EOP-005-1 R10 in order to clarify "simulation testing"

NPC CP9

EOP-05 - Clarify the phrase "critical load requirements". The phrase can be interpreted as:
(i) available and easily accessible loads to be restored for voltage control in network restoration on the bulk power system level. These are loads employed to expedite the restoration of the interconnection.
(ii) loads of importance to health/safety/national security - police, hospitals, govt. offices. These are really distribution loads that are restored once the interconnection is restored and the transmission system is rebuilt.
(iii) restoring off-site power to key transmission facilities.

We suggest that mention of critical loads should be replaced by the restoration of critical transmission and generation facilities necessary to restore load.

With regard to the Phase III/IV comments on EOP-005 Restoration Plans:

- (1) Locking the restoration to single, contractual cranking path.

A robust restoration plan must be flexible. It is impossible to define in advance what equipment will be available for service in the aftermath of a system collapse.

The concept of an explicitly defined cranking path, locked into a restoration plan by contractual requirements, precludes flexibility and is restrictive-further complicating what may be an intricate process. Identifying and communicating and coordinating the intended cranking path is a valid aspect of restoration. This is included in the

2006-03 System Restoration and Blackstart Appendix C: Issues Identified by Stakeholders during 1st Posting of SAR for System Restoration and Blackstart

second bullet of the Phase III/IV comments. The fourth bullet of the Phase III/IV comments should be removed from the SAR.

2) R3- Placing emphasis on restoring local transmission.

There is no need for the bullet on R3. The recommendation as noted encourages the restoration of local transmission and load at a higher priority than reestablishing the interconnection. Restoring the interconnection is the highest priority. In the process of achieving that end, some, minimal restoration of local transmission will be involved.

This is in direct conflict with the industry comments on V0 Standards which requires modifications to assign priority to the integrity of the interconnection.

Changing the emphasis of R3 should be removed from the SAR.

3) R11.5- Placing local load restoration above re-establishing the interconnection.

This follows the same argument addressed above. Restoration of the interconnection is a higher priority than the restoration of local load.

R11.5 should be retained in the SAR.

R6 mentions providing training requirements however this training requirement is already in PER-002-R3.1. There is also a training requirement in PER-004 R4 for the RC requirement.

IESO

Comments on EOP-006 & EOP-007 Standards:

EOP 006-1 R3 states "The Reliability Coordinator shall have a Reliability Coordinator Area restoration plan that provides coordination between individual Transmission Operator restoration plans and that ensures reliability is maintained during system restoration events."

EOP 007 R1 states "Each Regional Reliability Organization shall establish and maintain a system BCP, as part of an overall coordinated Regional SRP...."

Is it an acceptable practice for a Reliability Coordinator, in approving its Transmission Operator restoration plans per appropriate assessment criteria and ensuring they enable coordinated restoration with the interconnections, be deemed as an alternative to creating and maintaining regional plans? Otherwise the scope of such regional plans should be specified to limit their scale. Consider the large number of Transmission Operators (and restoration plans) in those Reliability Coordinator Areas with large footprints such as PJM, MISO and California ISO.

The same consideration applies to a Regional Black Start Capability Plan as assessed by the Regional Reliability Organization. Given that black start is integral to system restoration how it is proposed to be handled in instances where the Reliability Coordinator Area differs from the RRO boundary?

Additionally, EOP 006-1 should capture Reliability Coordinator to other Reliability Coordinator 'coordination'. Specifically, "Reliability Coordinators shall coordinate their system restoration plans and efforts together including joint participation in drills and exercises."

Progress Energy Carolinas

EOP-005:

Requirements in EOP-005 should include a definition of "periodically." We would recommend a periodicity of annually to coincide with annual requirement to review and update the restoration plan at least annually.

R3 could be rolled into R1.

EOP-005:

2006-03 System Restoration and Blackstart Appendix C: Issues Identified by Stakeholders during 1st Posting of SAR for System Restoration and Blackstart

R6. The actions taken to restore normal operations would depend on the operating emergency. Prescriptive actions should be avoided.

Manitoba Hydro

EOP-005-0 and -1

Applicability - This should apply to Reliability Coordinators as well as TOs and BAs.

R1 (-0 + -1) - As part of integrating the appendix items into the requirements section the last sentence of R1 could be eliminated.

R5 (-0 + -1) - I think the testing period of the telecommunications systems should be defined as well as the type of testing that needs to be done. If auditors start asking questions about tests that are not defined or required its not fair to the entity being audited if they haven't performed that particular test. It should also be identified if main or backup systems need to be tested or if there should be backup systems.

R6 (-0 + -1) - Reliability Coordinator needs to be included in the training of personnel as part of this standard. Also the type of training needs to be defined (simulations, table top exercises), and the base topics to be trained on (philosophy, building of islands, blackstart) should be defined.

R7 (-0 + -1) - The type of testing or simulations should be defined; should dynamic stability studies, as well as voltage and frequency studies be done on the restoration plans or is running a simulation sufficient, unfortunately a simulation doesn't give you a complete enough evaluation.

R8 (-0) - availability and location aren't enough to ensure the blackstart units can do the job, you also have to ensure the capability of the units and the number of units are sufficient to blackstart. Testing and studies need to be done to ensure the units can accomplish the task.

R8 (-1) - Verification should be done by dynamic, voltage and frequency studies. Verification that the blackstart units are capable should be included with the "number, size, and location". The RRO isn't included in the Applicability section yet is looks like its their plan that the TO should be meeting instead of meeting the TO plan.

R9 (-1) - Its not clear as to which units this requirement is referring to, is it referring to a remote blackstart unit or other units on the system that need to be started as part of restoring the system?

R9.4 (-0) and R11.4 (-1) - For systems that have nuclear stations it should be made a part of their plans to give restoration of off-site power to the plants a high priority.

R9.5.1 (-0) and R11.5.1 (-1) - When tying two islands together the emphasis should be on minimizing the flow through the tie point once synched and closed rather than when voltage, frequency and phase angle permit. The resultant flow could be greater than expected if the system operator simply relies on the relaying to allow closing. Special attention should be paid to frequency and voltage when tying islands and bringing them as close as possible together prior to closing.

R9.5.4 (-0) and R11.5.4 (-1) - Typically is not the surrounding areas that require shedding of load to reconnect. The surrounding areas usually means the stable or larger of areas meaning frequency in the surrounding areas should be good to start with. It's the area that want to synch that should be adding generation or shedding load to be able to synch with the surrounding areas.

R10 (-1) - The word simulation comes up again, it should be defined what simulation is or whether its really referring to studies as done by system performance such as dynamic stability studies.

C. Measures (-1) M1. - Should read studies instead of simulations.

D. Compliance, 1.1.1 (-0) and 1.4.1 (-1) - its not clear what is meant by "identification of critical requirements", is it just identifying where critical loads exist so they can be brought on as part of the restoration process or do the voltage and frequency requirements of each critical load have to be identified as part of the restoration plan.

1.4.6 (-1) - the units to be started should be clarified.

1.4.7 (-1) - should refer to the TO restoration plan. If the regional plan is included there needs to be a requirement to share the regional plan with the TOs.

Attachment 1-EOP-005-0 and attachment EOP-005 - 3. - It would be impractical to have a plan for every possibility.

6. - Should this not fall under the dynamic type studies done by engineering studies personnel. To what extent should plans be simulated or tested?

2006-03 System Restoration and Blackstart Appendix C: Issues Identified by Stakeholders during 1st Posting of SAR for System Restoration and Blackstart

EOP-006-0 and -1

R1 (-0) and (-1) - The RC should be more than just aware, the Reliability Coordinator's system restoration plan should coordinate with the TO's plan so the RC should thoroughly knowledgable with the TO plans.

R5 (-0) and (-1) - "major system islands" needs to be defined, at what point the RC gets involved needs to be clear. They don't necessarily need to be involved with the location of the synchronization point (the TOs should be aware of where they can synchronize).

EOP-007-0

R1.2 - Simulation doesn't give the dynamic response the proper studies can give (ie: dynamic stability studies, voltage and frequency studies).

R1.3.1 - What if it's the same one third that gets tested each year, the remaining two thirds may not be usable when the time comes to do a real restoration. You can't assume that each year a different one third will be tested. Also in order to provide training to plant personnel testing all blackstart units each year will ensure more plant operators are trained in the procedure.

R1.3.2 - this needs to be more specific as to the type of testing required.

Footer 1 - this should be included in the requirements section.

EOP-009-0

R1 - Besides the RRO the TO has blackstart requirements that need to be met.

Midwest ISO, Inc.

We are concerned about the suggestion to have "blackstart agreements " and "cranking path agreements". Since we don't know how an event will evolve or propogate, restoration plans should be heavy on philosophy, simple to manage once implemented, and not overly prescriptive in detail.

Entergy Services, Inc.

EOP-005

- R1 - is the "loss of vital communications" necessary? This seems redundant to COM-001

- R2 - the comment about correcting deficiencies during simulation exercises seems out of place.

- R3 - how is "coordination" defined?

- R10 & 10.1 - does this include testing of the generators as specified in EOP-009? Is it the same? Need clarification on this.

- VRFs need to be revisited. The proposed VRFs on the current ballot for thie Standards have administrative tasks rated as HIGH.

EOP-007 and EOP-009

EOP-007 contains requirements for a BCP that outlines blackstart unit testing requirements.

Blackstart unit testing requirements should not be spread across several EOPs. Consolidate. Consider merging EOP-007 and 009, and the blackstart unit testing portions of EOP-005.

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| (Complete this page for comments from one organization or individual.) | | |
| Name: | | |
| Organization: | | |
| Telephone: | | |
| E-mail: | | |
| NERC Region | | Registered Ballot Body Segment |
| <input type="checkbox"/> ERCOT | <input type="checkbox"/> | 1 — Transmission Owners |
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Background Information:

This project involves upgrading the requirements in these four standards:

- EOP-005 — System Restoration Plans
- EOP-006 — Reliability Coordination – System Restoration
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- EOP-009 — Documentation of Blackstart Generating Unit Test Results

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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. Do you agree with the revised scope of the proposed SAR?

Yes

No

Comments:

2. The SAR drafting team has checked off a large number of responsible entities as being applicable entities. We have done this in order to provide sufficient flexibility to the eventual standard drafting team and due to the fact that system restoration and blackstart can potentially touch so many different functional areas of operations.

Do you agree that the TOP should be responsible for securing blackstart services?

Yes

No

Comments:

3. The SAR DT has checked off a large number of responsible entities as being applicable entities. We have done this in order to provide sufficient flexibility to the eventual SDT and due to the fact that system restoration and blackstart can potentially touch so many different functional areas of operations.

Do you agree that a Generator Owner and/or Generator Operator should have a documented plan for non-blackstart units to be restarted after a blackout?

Yes

No

Comments:

4. Do you agree that the SAR is ready to move forward to the standards drafting stage?

Yes

No

Comments:

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| Individual Commenter Information | | |
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| NERC Region | | Registered Ballot Body Segment |
| <input type="checkbox"/> ERCOT | <input checked="" type="checkbox"/> | 1 — Transmission Owners |
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Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

1. Do you agree with the revised scope of the proposed SAR?

Yes

No

Comments: The SAR must describe, at a high level, the projected role each of the selected entities will play. This information will provide the industry with a greater understanding of the SAR's impact and work direction.

2. The SAR drafting team has checked off a large number of responsible entities as being applicable entities. We have done this in order to provide sufficient flexibility to the eventual standard drafting team and due to the fact that system restoration and blackstart can potentially touch so many different functional areas of operations.

Do you agree that the TOP should be responsible for securing blackstart services?

Yes

No

Comments:

Depends:

The TOP is currently responsible for transporting energy supplied from the Black Start generator interconnection point to restore the transmission grid as a whole under the restoration services portion of the Transmission Tariff. The costs of planning for, and implementing this responsibility are currently reimbursed under the network transmission tariff.

If by "securing blackstart services" it is intended that the TOP must contract with generators or otherwise arrange with "Black Start Generators" to provide this capability, ATC cannot support this approach unless a mechanism is also provided that will allow the TOP to include any costs that might be incurred in transmission rates.

ATC, is willing to be responsible as the TOP to enter into agreements for Black Start Services with generators that are interconnected to ATC's transmission facilities, and anticipate making the necessary tariff filings or otherwise arrange for reimbursement for any costs incurred through the regional transmission organization.

If the Standard is eventually written that the TOP is responsible for "procuring" or "arranging" for the service, an adequate timeframe prior to implementation of the requirement must be allowed to pursue the necessary rate and other tariff approval together with the required agreements prior to this standard becoming enforceable.

Comment Form — 2nd Draft of SAR for System Restoration and Blackstart

3. The SAR DT has checked off a large number of responsible entities as being applicable entities. We have done this in order to provide sufficient flexibility to the eventual SDT and due to the fact that system restoration and blackstart can potentially touch so many different functional areas of operations.

Do you agree that a Generator Owner and/or Generator Operator should have a documented plan for non-blackstart units to be restarted after a blackout?

Yes

No

Comments:

4. Do you agree that the SAR is ready to move forward to the standards drafting stage?

Yes

No

Comments: See our comments in questions 1 and 2.

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| Individual Commenter Information | | |
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| NERC Region | | Registered Ballot Body Segment |
| <input type="checkbox"/> ERCOT | <input checked="" type="checkbox"/> | 1 — Transmission Owners |
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Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

1. Do you agree with the revised scope of the proposed SAR?

Yes

No

Comments:

2. The SAR drafting team has checked off a large number of responsible entities as being applicable entities. We have done this in order to provide sufficient flexibility to the eventual standard drafting team and due to the fact that system restoration and blackstart can potentially touch so many different functional areas of operations.

Do you agree that the TOP should be responsible for securing blackstart services?

Yes

No

Comments: It is important to consider the issue of security when documenting a cranking path. The TOP should never be required to disclose the entire cranking path to other entities, like the Gen Operator. The Gen Operator does not need to know the entire cranking path in order to ensure blackstart services.

3. The SAR DT has checked off a large number of responsible entities as being applicable entities. We have done this in order to provide sufficient flexibility to the eventual SDT and due to the fact that system restoration and blackstart can potentially touch so many different functional areas of operations.

Do you agree that a Generator Owner and/or Generator Operator should have a documented plan for non-blackstart units to be restarted after a blackout?

Yes

No

Comments: While a documented plan for the restarting of non-blackstart units is not necessary, it is important that testing of blackstart units proves that the unit is capable of starting the non-blackstart units.

4. Do you agree that the SAR is ready to move forward to the standards drafting stage?

Yes

No

Comments:

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| Individual Commenter Information | | |
|---|-------------------------------------|--|
| (Complete this page for comments from one organization or individual.) | | |
| Name: | Steve Myers | |
| Organization: | ERCOT | |
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| E-mail: | smyers@ercot.com | |
| NERC Region | | Registered Ballot Body Segment |
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Do you agree that a Generator Owner and/or Generator Operator should have a documented plan for non-blackstart units to be restarted after a blackout?

Yes

No

Comments: All generators should know what their role is in a system restoration or blackstart effort. If they are on the blackstart initiation, such as serving as a black start resource or as a "next start" unit, they should have a documented plan included in the applicable regional or operational area black start plan. If they are not in the initiation stage of the effort, they should have a documented procedure of how and when they would be started and re-synchronized as the restoration effort progresses.

4. Do you agree that the SAR is ready to move forward to the standards drafting stage?

Yes

No

Comments:

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| NERC Region | | Registered Ballot Body Segment |
| <input type="checkbox"/> ERCOT | <input checked="" type="checkbox"/> | 1 — Transmission Owners |
| <input type="checkbox"/> FRCC | <input type="checkbox"/> | 2 — RTOs, ISOs, |
| <input type="checkbox"/> MRO | <input type="checkbox"/> | 3 — Load-serving Entities |
| <input checked="" type="checkbox"/> NPCC | <input type="checkbox"/> | 4 — Transmission-dependent Utilities |
| <input type="checkbox"/> RFC | <input type="checkbox"/> | 5 — Electric Generators |
| <input type="checkbox"/> SERC | <input type="checkbox"/> | 6 — Electricity Brokers, Aggregators, and Marketers |
| <input type="checkbox"/> SPP | <input type="checkbox"/> | 7 — Large Electricity End Users |
| <input type="checkbox"/> WECC | <input type="checkbox"/> | 8 — Small Electricity End Users |
| <input type="checkbox"/> NA – Not Applicable | <input type="checkbox"/> | 9 — Federal, State, Provincial Regulatory or other Government Entities |
| | <input type="checkbox"/> | 10 — Regional Reliability Organizations and Regional Entities |

Background Information:

This project involves upgrading the requirements in these four standards:

- EOP-005 — System Restoration Plans
- EOP-006 — Reliability Coordination – System Restoration
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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. Do you agree with the revised scope of the proposed SAR?

Yes

No

Comments:

2. The SAR drafting team has checked off a large number of responsible entities as being applicable entities. We have done this in order to provide sufficient flexibility to the eventual standard drafting team and due to the fact that system restoration and blackstart can potentially touch so many different functional areas of operations.

Do you agree that the TOP should be responsible for securing blackstart services?

Yes

No

Comments:

3. The SAR DT has checked off a large number of responsible entities as being applicable entities. We have done this in order to provide sufficient flexibility to the eventual SDT and due to the fact that system restoration and blackstart can potentially touch so many different functional areas of operations.

Do you agree that a Generator Owner and/or Generator Operator should have a documented plan for non-blackstart units to be restarted after a blackout?

Yes

No

Comments: HQT agrees that a Generator Owner and/or Generator Operator should have a plan to be ready to re-start non-blackstart units after a blackout. This readiness for energization should also apply to all distributors and loads connected to the bulk electrical system (BES) as well.

However, a NERC standard requirement(s) to have a documented plan for generating units to be restarted after a blackout should be limited to the 'restoration plan participants' on the cranking path only. The cranking path to be developed in the restoration plan would include those units that must be started or resynchronized to support the integrity of the path.

4. Do you agree that the SAR is ready to move forward to the standards drafting stage?

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 | <input type="checkbox"/> | Registered Ballot Body Segment |
| <input type="checkbox"/> ERCOT | <input type="checkbox"/> | 1 — Transmission Owners |
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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. Do you agree with the revised scope of the proposed SAR?

Yes

No

Comments:

2. The SAR drafting team has checked off a large number of responsible entities as being applicable entities. We have done this in order to provide sufficient flexibility to the eventual standard drafting team and due to the fact that system restoration and blackstart can potentially touch so many different functional areas of operations.

Do you agree that the TOP should be responsible for securing blackstart services?

Yes

No

Comments:

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Yes

No

Comments: Each generator owner and/or generator operator should typically have a plan to be ready to re-start after a trip or blackout, when the power system is reenergized and conditions warrant. This readiness for energization should also apply to all distributors and loads connected to the bulk electrical system (BES) as well.

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4. Do you agree that the SAR is ready to move forward to the standards drafting stage?

Yes

No

Comment Form — 2nd Draft of SAR for System Restoration and Blackstart

Comments: Provided our comment in Q3 can be addressed in the final SAR that will be used by the SDT

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| Individual Commenter Information | | |
|--|--------------------------|--|
| (Complete this page for comments from one organization or individual.) | | |
| Name: | | |
| Organization: | | |
| Telephone: | | |
| E-mail: | | |
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Comment Form — 2nd Draft of SAR for System Restoration and Blackstart

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

Group Name: IRC Standards Review Committee
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* |
|------------------------|--------------------------------|---------|----------|
| Alicia Daugherty | PJM | RHC | 2 |
| Mike Calimano | NYISO | NPNN | 2 |
| Ron Falsetti | IESO | NPCC | 2 |
| Matt Goldberg | ISO-NE | NPCC | 2 |
| Brent Kingsford | CAISO | WECC | 2 |
| Anita Lee | AESO | WECC | 2 |
| Steve Myers | ERCOT | ERCOT | 2 |
| Bill Phillips | MISO | RFC | 2 |
| | | +MRO | |
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*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.

1. Do you agree with the revised scope of the proposed SAR?

Yes

No

Comments:

2. The SAR drafting team has checked off a large number of responsible entities as being applicable entities. We have done this in order to provide sufficient flexibility to the eventual standard drafting team and due to the fact that system restoration and blackstart can potentially touch so many different functional areas of operations.

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| Individual Commenter Information | | |
|---|--------------------------|--|
| (Complete this page for comments from one organization or individual.) | | |
| Name: | Mike Adibi | |
| Organization: | IRD Corporation | |
| Telephone: | 3012998397 | |
| E-mail: | madibird@aol.com | |
| NERC Region | <input type="checkbox"/> | Registered Ballot Body Segment |
| <input type="checkbox"/> ERCOT | <input type="checkbox"/> | 1 — Transmission Owners |
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Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

1. Do you agree with the revised scope of the proposed SAR?

Yes

No

Comments: Blackstart can be divided into Local Blackstart (LB) and Remote Blackstart (RB). In LB the blackstart unit(s) and the non-blackstart unit(s) are adjacent to each other (not necessarily in the same plant), with simple interconnecting links. In RB (which is more prevalent), the blackstart unit(s) are located remote from the non-blackstart unit(s), and the path in between includes several levels of overhead and/or underground transmission lines, distribution system and the required and necessary related loads.

Whereas LB can readily be studied, planned, simulated, scheduled, tested, timed and measured, the RB (or remote cranking) has a number of concerns and constraints requiring close coordination and agreements between a single blackstart owner (e.g., combustion turbine operator), transmission provider (for the path), distribution provider (for the necessary load), and a single (or at most two, see EdeF procedure), non-blackstart units (e.g., steam units). Experience has shown that in general remote blackstart are difficult and costly to schedule and test. The RB feasibility study requires analytical tools such as generator reactive capability program, optimal transformer tap setting program, optimal power flow program, that are needed and not readily available to optimize generator voltage set-points and the various transformer tap positions on no-load tap changers.

Testing RB is very difficult and expensive. To illustrate the difficulties, two RB cases that apparently were feasible are briefly described:

1. In one RB trial, it took the entire morning shift operators for bulk power, electrical system, CT and SES to isolate and clear the path, start the CT, and energize the path. The test had to be abandoned at the end of the shift without having completed the RB. One positive lesson learned was that during an actual power system restoration, the hot restart (blackstart) of the steam unit should not be attempted.

2. In a second RB case, analysis and simulation showed that in spite of using several programs on an iterative basis, to optimize the CTS and SES transformer taps and generator voltage set-points, CTS could not supply nor absorb the necessary reactive power for the start up of the large induction motors in the SES. It was concluded that additional shunt reactors need to be installed to reduce the lines charging currents and thus narrow the span between over- and under-excitations demands from the CTS.

It should be recognized that RB is one of the basic and early restoration requirements. Generally, combustion turbines, low-head short-conduit hydro or low-head pumped storage is used to remotely blackstart the drum-type steam units. The drum-type units are usually base-loaded, are located remote from the load centers to which they are connected by HV and EHV lines, supply large portion of demand, with maximum elapsed time for hot re-start of 30-45 minutes and minimum elapsed time for hot restart of 3 to 4 hours, and they need cranking power for start-up.

The combustion turbines are peaking units, supply daily peak loads, are located within the load centers, with cold start-up of within 5 to 10 minutes, and hot-restart of within 2 to 3 hours. They typically need no cranking power for start up, however the probability of successful cold start-up is about 30%, i.e., one in three combustion turbines. The required RB path typically includes HV and EHV transmission lines.

RB's REACTIVE POWER PROBLEMS:

In the course of a blackstart operation, two limiting conditions place severe demands on the reactive power capability of the blackstart source. One extreme operating condition occurs during the initial energization of the transmission path when the combustion turbine station (CTS) is called upon to absorb the charging currents of the cables, the high- and extra-high voltage connecting lines. The other extreme operating condition is when the combustion turbine generators supply the large amount of reactive power required during startup of the largest auxiliary motor in the steam electric station (SES). These under-and over-excitation demands may be met by optimum selections of the CTS step-up transformer and SES step-down auxiliary transformer tap positions, and by control of the generator voltage set points. The blackstart operation is complicated by the fact that the CTS generator step up and the SES auxiliary transformers are typically equipped with no-load (fixed) taps, and they are set for normal operation. Therefore, in the planning phase and prior to the blackstart tests or during restoration, the optimum tap positions for these transformers and the correct terminal voltage set point(s) for the generator need to be determined to satisfy the two conditions. It should also be noted that not all the no-load tap changers can remotely be repositioned.

Here are the three lists of the RB concerns and constraints:

A. Concerns with the Blackstart Units:

- * Start-up probability; one CT in two or one in three.
- * Governor speed-droop, automatic or manual (if manual, it must be adjusted to less than 2% for the first unit and returned to 5% for the second unit).
- * Frequency Response to Sudden Increase in Load (in route loads are required to stabilize the CTS)
- * Power reversal relays
- * Cross compensation of dual CTs (load Hogging)
- * Under-excitation limit when energizing the path, over-excitation limit when starting the large induction motors in SES.
- * GSU Xfmr differential relays
- * GSU and Aux Xfmr tap positions

B. Concerns with Non-Blackstart (steam) Units:

- * Start-up sequence of auxiliary induction motors (BFP, IDF, etc.)
- * Starting overcurrents of auxiliary motors (five times the running current)
- * Starting voltage dips of auxiliary motors (down to 80%)
- * Startup reactive power requirements of motors (max over-excitation)
- * Path's charging currents (max under-excitation)
- * Excessive negative sequence voltage and currents (not more than 4%)
- * Service transformer, tap position.

C. Concern the Interconnecting Path:

- * Frequency Transients when energizing EHV lines

- * Frequency Transients when starting motors
- * Minimum source operation of distance relays
- * Reclosing schemes when energizing lines
- * Synchro-check relays and standing phase angle.

Conclusions:

Implementation of each RB operation requires:

- * the use of related Generation, Transmission and Distribution facilities
- * planning (feasibility study), analyzes, simulation, field tests, training and exercise
- * each blackstart source has to be matched uniquely with a non-blackstart unit(s)
- * long-term contracts are required between the related G, T & D ownerships

It can also be concluded that many apparently available RBs, are not feasible. The NERC records show that they have caused considerable delays in the restoration procedure.

2. The SAR drafting team has checked off a large number of responsible entities as being applicable entities. We have done this in order to provide sufficient flexibility to the eventual standard drafting team and due to the fact that system restoration and blackstart can potentially touch so many different functional areas of operations.

Do you agree that the TOP should be responsible for securing blackstart services?

Yes

No

Comments: The three "Questions for 2nd Posting" - Volunteers

1. Do you agree with the revised scope of the proposed SAR?
2. The SAR DT has checked off a large number of responsible entities as being applicable entities. We have done this in order to provide sufficient flexibility to the eventual SDT and due to the fact that system restoration and black-start can potentially touch so many different functional areas of operations.
 - a. Do you agree that the TOP should be responsible for securing black-start services?
 - b. Do you agree that a Generator Owner and/or Generator Operator should have a documented plan for non-black-start units to be restarted after a blackout?
3. Do you agree that the SAR is ready to move forward to the standards drafting stage?

Response:

2-b. Agreed that a Generator Owner and/or Generator Operator should have a documented plan for starting their non-black-start units following a blackout. However, such a plan should be supported by simulation otherwise it will be meaningless.

3. The SAR in its present form is abstract. Both the non-black-start and black-start units need to be defined. The non-black-start units should cover types (e.g., no nuclear) and sizes (e.g., small and DG) of prime movers. And the black-start sources should include:

1. Combustion Turbine (local and remote)
2. Run-of-the-River Hydro (remote)
3. Pump-Storage Hydro (remote)

- 4. Low Frequency Isolation Scheme (LFIS)
- 5. Full Load Rejection (FLR)

It is a matter of records that in the aftermath of New York's 1977 blackout, FERC required that all utilities develop restoration plans. In the process of developing such a plan, one mid-Atlantic utility tried to provide black-start source for one of its large coal-fired plants. The choices were between (1) installing combustion turbines, (2) providing a low frequency isolation scheme, or (3) equipping the base-loaded unit with full-load rejection capability. The full-load rejection alternative was selected as providing the best balance between cost and reliability. Subsequently, following a major power disturbance, the FLR successfully tripped to house load. It can be concluded that the LFIS and FLR should also be considered as the black-start source.

It should be recognized that testing of remote black-start, LFIS or FLR is extremely difficult and expensive.

- 3. The SAR DT has checked off a large number of responsible entities as being applicable entities. We have done this in order to provide sufficient flexibility to the eventual SDT and due to the fact that system restoration and blackstart can potentially touch so many different functional areas of operations.

Do you agree that a Generator Owner and/or Generator Operator should have a documented plan for non-blackstart units to be restarted after a blackout?

- Yes
- No

Comments: With some reservations.

- 4. Do you agree that the SAR is ready to move forward to the standards drafting stage?

- Yes
- No

Comments: By and Large

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| Individual Commenter Information | | |
|---|-------------------------------------|--|
| (Complete this page for comments from one organization or individual.) | | |
| Name: | Kathleen Goodman | |
| Organization: | ISO New England Inc. | |
| Telephone: | (413) 535-4111 | |
| E-mail: | kgoodman@iso-ne.com | |
| NERC Region | | Registered Ballot Body Segment |
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| <input type="checkbox"/> SPP | <input type="checkbox"/> | 7 — Large Electricity End Users |
| <input type="checkbox"/> WECC | <input type="checkbox"/> | 8 — Small Electricity End Users |
| <input type="checkbox"/> NA – Not Applicable | <input type="checkbox"/> | 9 — Federal, State, Provincial Regulatory or other Government Entities |
| | <input type="checkbox"/> | 10 — Regional Reliability Organizations and Regional Entities |

Background Information:

This project involves upgrading the requirements in these four standards:

- EOP-005 — System Restoration Plans
- EOP-006 — Reliability Coordination – System Restoration
- EOP-007 — Establish, Maintain, and Document a Regional Blackstart Capability Plan
- EOP-009 — Documentation of Blackstart Generating Unit Test Results

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The System Restoration and Blackout SAR Drafting Team would like to receive industry comments on Draft 2 of the SAR. Accordingly, we request that you include review the revised SAR, answer the questions on this form, and e-mail the form to sarcomm@nerc.com with the words "System Restoration SAR" in the subject line by **March 9, 2007**.

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. Do you agree with the revised scope of the proposed SAR?

Yes

No

Comments:

2. The SAR drafting team has checked off a large number of responsible entities as being applicable entities. We have done this in order to provide sufficient flexibility to the eventual standard drafting team and due to the fact that system restoration and blackstart can potentially touch so many different functional areas of operations.

Do you agree that the TOP should be responsible for securing blackstart services?

Yes

No

Comments:

3. The SAR DT has checked off a large number of responsible entities as being applicable entities. We have done this in order to provide sufficient flexibility to the eventual SDT and due to the fact that system restoration and blackstart can potentially touch so many different functional areas of operations.

Do you agree that a Generator Owner and/or Generator Operator should have a documented plan for non-blackstart units to be restarted after a blackout?

Yes

No

Comments: As a general matter, ISO-NE agrees that a Generator Owner and/or Generator Operator should have a documented plan for non-blackstart units to be restarted after a blackout. However, ISO-NE is concerned about the possibility that the Standard could end up requiring an RC, TOP, etc. to become directly involved with the Generator Owner and/or Generator Operator in the development of such a plan. The SAR should be clear that an RC, TOP, etc. shall not be designated as a responsible entity with respect to the development of such a plan and it will remain the requirement of the Owner/Operator.

4. Do you agree that the SAR is ready to move forward to the standards drafting stage?

Yes

No

Comments: ISO-NE agrees that the SAR is ready to move forward to the standards drafting stage if the concern expressed in our response to Question 3 above is addressed.

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| 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 |
| <input type="checkbox"/> ERCOT | <input checked="" type="checkbox"/> | 1 — Transmission Owners |
| <input type="checkbox"/> FRCC | <input type="checkbox"/> | 2 — RTOs, ISOs, |
| <input type="checkbox"/> MRO | <input type="checkbox"/> | 3 — Load-serving Entities |
| <input type="checkbox"/> NPCC | <input type="checkbox"/> | 4 — Transmission-dependent Utilities |
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Background Information:

This project involves upgrading the requirements in these four standards:

- EOP-005 — System Restoration Plans
- EOP-006 — Reliability Coordination – System Restoration
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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. Do you agree with the revised scope of the proposed SAR?

Yes

No

Comments: During a system restoration (i.e. the August 2003 Blackout), the code of conduct was suspended so that orderly system restoration may occur. In other words, the market ceases to exist. Generator operators, transmission operators, market operators and load serving entities had to communicate and work together so that system restoration, using system load and generation may be restored. Therefore, on page SAR-6 under "Reliability and Market Interface Principles - Applicable Reliability Principles boxes 5, 6, and 7 should also be checked. Box 5 should be checked since communication is critical in a system restoration event. Box 6 should be checked because you need to have qualified people operating the system so that the personnel know what to do during a major system event. Box 7 should be checked since the system is unstable during the early hours of system restoration.

Standard Number EOP-005-0 is currently not applicable to the load serving entities. Load Serving Entities should be applicable since they are critical in system restoration. To restore a system, generation must come on, then load is restored, then more generation comes on, then more load is restored etc. Picking up load is crucial in system restoration.

2. The SAR drafting team has checked off a large number of responsible entities as being applicable entities. We have done this in order to provide sufficient flexibility to the eventual standard drafting team and due to the fact that system restoration and blackstart can potentially touch so many different functional areas of operations.

Do you agree that the TOP should be responsible for securing blackstart services?

Yes

No

Comments:

3. The SAR DT has checked off a large number of responsible entities as being applicable entities. We have done this in order to provide sufficient flexibility to the eventual SDT and due to the fact that system restoration and blackstart can potentially touch so many different functional areas of operations.

Do you agree that a Generator Owner and/or Generator Operator should have a documented plan for non-blackstart units to be restarted after a blackout?

Yes

No

Comments:

4. Do you agree that the SAR is ready to move forward to the standards drafting stage?

Yes

No

Comments:

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| Individual Commenter Information | | |
|---|-------------------------------------|--|
| (Complete this page for comments from one organization or individual.) | | |
| Name: | Robert Coish | |
| Organization: | Manitoba Hydro | |
| Telephone: | 204-487-4579 | |
| E-mail: | rgcoish@hydro.mb.ca | |
| NERC Region | | Registered Ballot Body Segment |
| <input type="checkbox"/> ERCOT | <input checked="" type="checkbox"/> | 1 — Transmission Owners |
| <input type="checkbox"/> FRCC | <input type="checkbox"/> | 2 — RTOs, ISOs, |
| <input checked="" type="checkbox"/> MRO | <input checked="" type="checkbox"/> | 3 — Load-serving Entities |
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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. Do you agree with the revised scope of the proposed SAR?

Yes

No

Comments: A lot of good work has been put in to drafting this SAR to identify all the significant issues from the various sources for the SDT to address. This approach is an improvement over previous SARs. However, it doesn't seem clear how the SDT is to address the "fill-in-the-blanks" elements in the existing standards.

2. The SAR drafting team has checked off a large number of responsible entities as being applicable entities. We have done this in order to provide sufficient flexibility to the eventual standard drafting team and due to the fact that system restoration and blackstart can potentially touch so many different functional areas of operations.

Do you agree that the TOP should be responsible for securing blackstart services?

Yes

No

Comments:

3. The SAR DT has checked off a large number of responsible entities as being applicable entities. We have done this in order to provide sufficient flexibility to the eventual SDT and due to the fact that system restoration and blackstart can potentially touch so many different functional areas of operations.

Do you agree that a Generator Owner and/or Generator Operator should have a documented plan for non-blackstart units to be restarted after a blackout?

Yes

No

Comments: It was not clear where this was being proposed in the SAR. A good system restoration plan should outline options for how non-blackstart units will be started after a blackout. These aspects of the plan should be shared with the GO/GOP and coordinated with the GO/GOP plans.

4. Do you agree that the SAR is ready to move forward to the standards drafting stage?

Yes

No

Comments:

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| (Complete this page for comments from one organization or individual.) | | |
| Name: | | |
| Organization: | | |
| Telephone: | | |
| E-mail: | | |
| NERC Region | <input type="checkbox"/> | Registered Ballot Body Segment |
| <input type="checkbox"/> ERCOT | <input type="checkbox"/> | 1 — Transmission Owners |
| <input type="checkbox"/> FRCC | <input type="checkbox"/> | 2 — RTOs, ISOs, |
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Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

1. Do you agree with the revised scope of the proposed SAR?

Yes

No

Comments: While we agree with the need for some improvement in the existing standards, there are misstatements in the SAR. The RC has defined responsibilities in the present standards. The SAR implies this isn't the case. Also, a SAR should be setting a clear scope of the end product, such that a different knowledgeable people would draft similar standards. It's unclear where this will go.

2. The SAR drafting team has checked off a large number of responsible entities as being applicable entities. We have done this in order to provide sufficient flexibility to the eventual standard drafting team and due to the fact that system restoration and blackstart can potentially touch so many different functional areas of operations.

Do you agree that the TOP should be responsible for securing blackstart services?

Yes

No

Comments: We're not sure what this means. While the TOP must have a plan that will work, the question implies there must be contractual obligations that back up all plans, and perhaps all scenarios. While it's good to have cranking paths and a plan laid out, we're concerned that this standard will preclude flexibility when the real need arises.

3. The SAR DT has checked off a large number of responsible entities as being applicable entities. We have done this in order to provide sufficient flexibility to the eventual SDT and due to the fact that system restoration and blackstart can potentially touch so many different functional areas of operations.

Do you agree that a Generator Owner and/or Generator Operator should have a documented plan for non-blackstart units to be restarted after a blackout?

Yes

No

Comments: We agree that all generator operators should have an understanding of their role and possible scenarios they will face. The generator operators should also test or train on their plan/role periodically.

4. Do you agree that the SAR is ready to move forward to the standards drafting stage?

Yes

No

Comments: Again, we agree for some improvement, but we have difficulty in understanding where this is going.

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| (Complete this page for comments from one organization or individual.) | | |
| Name: | | |
| Organization: | | |
| Telephone: | | |
| E-mail: | | |
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| <input type="checkbox"/> ERCOT | <input type="checkbox"/> | 1 — Transmission Owners |
| <input type="checkbox"/> FRCC | <input type="checkbox"/> | 2 — RTOs, ISOs, |
| <input type="checkbox"/> MRO | <input type="checkbox"/> | 3 — Load-serving Entities |
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Comment Form — 2nd Draft of SAR for System Restoration and Blackstart

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: 10
Contact Telephone: 212-840-1070
Contact E-mail: gzito@npcc.org

| Additional Member Name | Additional Member Organization | Region* | Segment* |
|------------------------|-------------------------------------|---------|----------|
| Ralph Rufrano | New York Power Authority | NPCC | 1 |
| Ed Thompson | ConEd | NPCC | 1 |
| Herb Schrayshuen | National Grid US | NPCC | 1 |
| Kathleen Goodman | ISO-New England | NPCC | 2 |
| Bill Shemley | ISO-New England | NPCC | 2 |
| Greg Campoli | New York ISO | NPCC | 2 |
| Roger Champagne | TransEnergie HydroQuebec | NPCC | 1 |
| Bruno Jesus | Hydro One Networks | NPCC | 1 |
| Jerad Barnhart | NStar | NPCC | 1 |
| Murale Gopinathan | Northeast Utilities | NPCC | 1 |
| Al Adamson | New York State Reliability Council` | NPCC | 10 |
| Don Nelson | MA Dept. Of Tel. and Energy | NPCC | 9 |
| Randy Macdonald | New Brunswick System Operator | NPCC | 2 |
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Comment Form — 2nd Draft of SAR for System Restoration and Blackstart

*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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- EOP-005 — System Restoration Plans
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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. Do you agree with the revised scope of the proposed SAR?

Yes

No

Comments:

2. The SAR drafting team has checked off a large number of responsible entities as being applicable entities. We have done this in order to provide sufficient flexibility to the eventual standard drafting team and due to the fact that system restoration and blackstart can potentially touch so many different functional areas of operations.

Do you agree that the TOP should be responsible for securing blackstart services?

Yes

No

Comments:

3. The SAR DT has checked off a large number of responsible entities as being applicable entities. We have done this in order to provide sufficient flexibility to the eventual SDT and due to the fact that system restoration and blackstart can potentially touch so many different functional areas of operations.

Do you agree that a Generator Owner and/or Generator Operator should have a documented plan for non-blackstart units to be restarted after a blackout?

Yes

No

Comments: NPCC participating members agree that a Generator Owner and/or Generator Operator should have a plan to be ready to re-start non-blackstart units after a blackout.

However, a NERC standard requirement(s) to have a documented plan for generating units to be restarted after a blackout should be limited to the 'restoration plan participants' on the cranking path only. The cranking path to be developed in the restoration plan would include those units that must be started or resynchronized to support the integrity of the path.

4. Do you agree that the SAR is ready to move forward to the standards drafting stage?

Yes

No

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 | <input type="checkbox"/> | Registered Ballot Body Segment |
| <input type="checkbox"/> ERCOT | <input type="checkbox"/> | 1 — Transmission Owners |
| <input type="checkbox"/> FRCC | <input checked="" type="checkbox"/> | 2 — RTOs, ISOs, |
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The System Restoration and Blackout SAR Drafting Team would like to receive industry comments on Draft 2 of the SAR. Accordingly, we request that you include review the revised SAR, answer the questions on this form, and e-mail the form to sarcomm@nerc.com with the words "System Restoration SAR" in the subject line by **March 9, 2007**.

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. Do you agree with the revised scope of the proposed SAR?

Yes

No

Comments:

2. The SAR drafting team has checked off a large number of responsible entities as being applicable entities. We have done this in order to provide sufficient flexibility to the eventual standard drafting team and due to the fact that system restoration and blackstart can potentially touch so many different functional areas of operations.

Do you agree that the TOP should be responsible for securing blackstart services?

Yes

No

Comments:

3. The SAR DT has checked off a large number of responsible entities as being applicable entities. We have done this in order to provide sufficient flexibility to the eventual SDT and due to the fact that system restoration and blackstart can potentially touch so many different functional areas of operations.

Do you agree that a Generator Owner and/or Generator Operator should have a documented plan for non-blackstart units to be restarted after a blackout?

Yes

No

Comments: Each generator owner and/or generator operator should typically have a plan to be ready to re-start after a trip or blackout, when the power system is reenergized and conditions warrant. This readiness for energization should also apply to all distributors and loads connected to the bulk electrical system (BES) as well.

However, a NERC standard requirement(s) to have a documented plan for generating units to be restarted after a blackout should be limited to the 'restoration plan participants' on the cranking path only. The cranking path to be developed in the restoration plan would include those units that must be started or resynchronized to support the integrity of the path.

4. Do you agree that the SAR is ready to move forward to the standards drafting stage?

Yes

No

Comments:

Comment Form — 2nd Draft of SAR for System Restoration and Blackstart

Please use this form to submit comments on the proposed SAR for System Restoration and Blackstart. Comments must be submitted by **March 9, 2007**. You may submit the completed form by e-mail to sarcomm@nerc.com with the words "System Restoration SAR" in the subject line. If you have questions please contact Ed Dobrowolski at Ed.Dobrowolski@nerc.net or by telephone at 609-452-8060.

| Individual Commenter Information | | |
|---|-------------------------------------|--|
| (Complete this page for comments from one organization or individual.) | | |
| Name: | Brett Koelsch | |
| Organization: | PEC | |
| Telephone: | 919 546 3046 | |
| E-mail: | brett.koelsch@pgnmail.com | |
| NERC Region | | Registered Ballot Body Segment |
| <input type="checkbox"/> ERCOT | <input checked="" type="checkbox"/> | 1 — Transmission Owners |
| <input type="checkbox"/> FRCC | <input type="checkbox"/> | 2 — RTOs, ISOs, |
| <input type="checkbox"/> MRO | <input checked="" type="checkbox"/> | 3 — Load-serving Entities |
| <input type="checkbox"/> NPCC | <input type="checkbox"/> | 4 — Transmission-dependent Utilities |
| <input type="checkbox"/> RFC | <input checked="" type="checkbox"/> | 5 — Electric Generators |
| <input checked="" type="checkbox"/> SERC | <input checked="" type="checkbox"/> | 6 — Electricity Brokers, Aggregators, and Marketers |
| <input type="checkbox"/> SPP | <input type="checkbox"/> | 7 — Large Electricity End Users |
| <input type="checkbox"/> WECC | <input type="checkbox"/> | 8 — Small Electricity End Users |
| <input type="checkbox"/> NA – Not Applicable | <input type="checkbox"/> | 9 — Federal, State, Provincial Regulatory or other Government Entities |
| | <input type="checkbox"/> | 10 — Regional Reliability Organizations and Regional Entities |

Background Information:

This project involves upgrading the requirements in these four standards:

- EOP-005 — System Restoration Plans
- EOP-006 — Reliability Coordination – System Restoration
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Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

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Yes

No

Comments:

2. The SAR drafting team has checked off a large number of responsible entities as being applicable entities. We have done this in order to provide sufficient flexibility to the eventual standard drafting team and due to the fact that system restoration and blackstart can potentially touch so many different functional areas of operations.

Do you agree that the TOP should be responsible for securing blackstart services?

Yes

No

Comments:

3. The SAR DT has checked off a large number of responsible entities as being applicable entities. We have done this in order to provide sufficient flexibility to the eventual SDT and due to the fact that system restoration and blackstart can potentially touch so many different functional areas of operations.

Do you agree that a Generator Owner and/or Generator Operator should have a documented plan for non-blackstart units to be restarted after a blackout?

Yes

No

Comments:

4. Do you agree that the SAR is ready to move forward to the standards drafting stage?

Yes

No

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 |
| <input type="checkbox"/> ERCOT | <input checked="" type="checkbox"/> | 1 — Transmission Owners |
| <input type="checkbox"/> FRCC | <input type="checkbox"/> | 2 — RTOs, ISOs, |
| <input type="checkbox"/> MRO | <input type="checkbox"/> | 3 — Load-serving Entities |
| <input type="checkbox"/> NPCC | <input type="checkbox"/> | 4 — Transmission-dependent Utilities |
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Yes

No

Comments:

2. The SAR drafting team has checked off a large number of responsible entities as being applicable entities. We have done this in order to provide sufficient flexibility to the eventual standard drafting team and due to the fact that system restoration and blackstart can potentially touch so many different functional areas of operations.

Do you agree that the TOP should be responsible for securing blackstart services?

Yes

No

Comments:

3. The SAR DT has checked off a large number of responsible entities as being applicable entities. We have done this in order to provide sufficient flexibility to the eventual SDT and due to the fact that system restoration and blackstart can potentially touch so many different functional areas of operations.

Do you agree that a Generator Owner and/or Generator Operator should have a documented plan for non-blackstart units to be restarted after a blackout?

Yes

No

Comments: Black start of non-blackstart units should basically be the same as a normal start-up.

4. Do you agree that the SAR is ready to move forward to the standards drafting stage?

Yes

No

Comments:

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| Individual Commenter Information | | |
|---|-------------------------------------|--|
| (Complete this page for comments from one organization or individual.) | | |
| Name: | Mike Pfeister | |
| Organization: | Salt River Project | |
| Telephone: | 602-236-3970 | |
| E-mail: | Mike.Pfeister@srpnet.com | |
| NERC Region | | Registered Ballot Body Segment |
| <input type="checkbox"/> ERCOT | <input checked="" type="checkbox"/> | 1 — Transmission Owners |
| <input type="checkbox"/> FRCC | <input type="checkbox"/> | 2 — RTOs, ISOs, |
| <input type="checkbox"/> MRO | <input type="checkbox"/> | 3 — Load-serving Entities |
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Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

1. Do you agree with the revised scope of the proposed SAR?

Yes

No

Comments:

2. The SAR drafting team has checked off a large number of responsible entities as being applicable entities. We have done this in order to provide sufficient flexibility to the eventual standard drafting team and due to the fact that system restoration and blackstart can potentially touch so many different functional areas of operations.

Do you agree that the TOP should be responsible for securing blackstart services?

Yes

No

Comments:

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Yes

No

Comments:

4. Do you agree that the SAR is ready to move forward to the standards drafting stage?

Yes

No

Comments:

Comment Form — 2nd Draft of SAR for System Restoration and Blackstart

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| Individual Commenter Information | | |
|---|-------------------------------------|--|
| (Complete this page for comments from one organization or individual.) | | |
| Name: | Jim Sorrels | |
| Organization: | American Electric Power | |
| Telephone: | 614-716-2370 | |
| E-mail: | jhsorrels@aep.com | |
| NERC Region | | Registered Ballot Body Segment |
| <input checked="" type="checkbox"/> ERCOT | <input checked="" type="checkbox"/> | 1 — Transmission Owners |
| <input type="checkbox"/> FRCC | <input type="checkbox"/> | 2 — RTOs, ISOs, |
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1. Do you agree with the revised scope of the proposed SAR?

Yes

No

Comments: Concerning Phase III/IV comments, bullets 2 & 3 require the designation of a cranking path as part of a blackstart agreement between the transmission operator and generator owner. As it is unknown a priori how the electric system may break apart during a system collapse, the designation of a cranking path as part of a blackstart agreement unduly restricts the options available during restoration and may even make restoration impossible due to a contractually imposed constraint(s).

No 'market' based or artificially imposed constraints should be placed on the system during restoration. System restoration operations, other than providing blackstart resources, should be not be 'market' based.

2. The SAR drafting team has checked off a large number of responsible entities as being applicable entities. We have done this in order to provide sufficient flexibility to the eventual standard drafting team and due to the fact that system restoration and blackstart can potentially touch so many different functional areas of operations.

Do you agree that the TOP should be responsible for securing blackstart services?

Yes

No

Comments:

3. The SAR DT has checked off a large number of responsible entities as being applicable entities. We have done this in order to provide sufficient flexibility to the eventual SDT and due to the fact that system restoration and blackstart can potentially touch so many different functional areas of operations.

Do you agree that a Generator Owner and/or Generator Operator should have a documented plan for non-blackstart units to be restarted after a blackout?

Yes

No

Comments: This is not needed. The system restoration plan provides the necessary steps to provide cranking power to non-blackstart units. Once these units have had cranking power restored, the start up procedures are the same as if these units were returning from a scheduled/unscheduled outage during normal system operation. Is there really any need to have this documented?

4. Do you agree that the SAR is ready to move forward to the standards drafting stage?

Comment Form — 2nd Draft of SAR for System Restoration and Blackstart

Yes

No

Comments: See items 1 & 3 above.

Comment Form — 2nd Draft of SAR for System Restoration and Blackstart

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| Individual Commenter Information | | |
|---|-------------------------------------|--|
| (Complete this page for comments from one organization or individual.) | | |
| Name: | Brian Thumm | |
| Organization: | ITC Holdings | |
| Telephone: | 248.374.7846 | |
| E-mail: | bthumm@itctransco.com | |
| NERC Region | | Registered Ballot Body Segment |
| <input type="checkbox"/> ERCOT | <input checked="" type="checkbox"/> | 1 — Transmission Owners |
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Yes

No

Comments:

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Do you agree that the TOP should be responsible for securing blackstart services?

Yes

No

Comments: We are not sure what "securing" means. We also feel that generator owners/operators should be compelled by the Standards to provide blackstart services, and that the cost recovery for providing such services should not fall back on the Transmission Operator.

3. The SAR DT has checked off a large number of responsible entities as being applicable entities. We have done this in order to provide sufficient flexibility to the eventual SDT and due to the fact that system restoration and blackstart can potentially touch so many different functional areas of operations.

Do you agree that a Generator Owner and/or Generator Operator should have a documented plan for non-blackstart units to be restarted after a blackout?

Yes

No

Comments: In addition, the Generator Operator should demonstrate, through testing or simulation, that the non-blackstart unit can in fact be restarted using the blackout generator.

4. Do you agree that the SAR is ready to move forward to the standards drafting stage?

Yes

No

Comments:

Consideration of Comments on 2nd Posting of System Restoration and Blackstart SAR

The System Restoration and Blackstart SAR Drafting Team thanks all commenters who submitted comments on Draft 2 of the System Restoration and Blackstart SAR. This SAR was posted for a 30-day public comment period from February 8 through March 9, 2007. The requesters asked stakeholders to provide feedback on the standard through a special standard Comment Form. There were 13 sets of comments, including comments from 38 different people from more than 31 companies and organizations representing 8 of the 10 Industry Segments as shown in the table on the following pages.

Based on the comments received, the drafting team is recommending that the Standards Committee authorize moving this SAR forward to the standards drafting stage of the process.

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_Restoration_Blackstart.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 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

There was one change made to the SAR as a result of the comments received — additional reliability principles were checked off as suggested. In addition, words were added to the SAR to include the recent FERC Order 693 as it referred to the standards in question. No minority opinions were received.

¹ The appeals process is in the Reliability Standards Development Procedures: <http://www.nerc.com/standards/newstandardsprocess.html>.

Consideration of Comments on 2nd Posting of System Restoration and Blackstart SAR

| Commenter | Organization | Industry Segment | | | | | | | | | | |
|---------------------------|---------------------------|------------------|---|---|---|---|---|---|---|---|----|---|
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | |
| 25. Guy Zito (G2) | NPCC | | | | | | | | | | | x |
| 26. Jerad Barnhart (G2) | NStar | x | | | | | | | | | | |
| 27. Greg Campoli (G2) | NYISO | | x | | | | | | | | | |
| 28. Mike Calimano (G1) | NYISO | | x | | | | | | | | | |
| 29. Ralph Rufrano (G2) | NYPA | x | | | | | | | | | | |
| 30. Al Adamson (G2) | NYSRC | | x | | | | | | | | | |
| 31. Alicia Daugherty (G1) | PJM | | x | | | | | | | | | |
| 32. Brett Koelsch | Progress Energy Carolinas | x | | x | | x | x | | | | | |
| 33. Mike Pfeister | Salt River Project | x | | | | | | | | | | |
| 34. Jim Busbin (G4) | Southern Co. Transmission | x | | | | | | | | | | |
| 35. Tom Higgins (G4) | Southern Co. Transmission | x | | | | | | | | | | |
| 36. JT Wood (G4) | Southern Co. Transmission | x | | | | | | | | | | |
| 37. Marc Butts (G4) | Southern Co. Transmission | x | | | | | | | | | | |
| 38. Charles Yeung | Southwest Power Pool | | | | | | | | | | | x |

I – Indicates that individual comments were submitted in addition to comments submitted as part of a group

G1 - IRC Standards Review Committee

G2 – NPCC CP9 Reliability Standards Working Group (NPCC CP9)

G3 – Midwest ISO Stakeholders Standards Collaboration Participants (MISO SSC)

G4 – Southern Company Transmission (Southern Co)

Index to Questions, Comments and Responses:

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Consideration of Comments on 2nd Posting of System Restoration and Blackstart SAR

1. Do you agree with the revised scope of the proposed SAR?

Summary Consideration: The majority of the comments received had to do with the inclusion of certain entities in the SAR. The SAR DT included all entities that might be included in the eventual standard in order to provide the eventual SDT with sufficient flexibility to do their job without worrying about scope changes. It was explained that the SDT will still have the capability to pick the specific entities that are truly applicable once they have drafted the standard itself. Other comments received were on procedural matters or were items for the SDT to decide. The SAR DT believes that we have responded to all comments.

| Question #1 | | | |
|--|-----|-------------------------------------|---|
| Commenter | Yes | No | Comment |
| ATC LLC | | <input checked="" type="checkbox"/> | The SAR must describe, at a high level, the projected role each of the selected entities will play. This information will provide the industry with a greater understanding of the SAR's impact and work direction. |
| <p>Response: The SAR drafting team has checked off a large number of responsible entities as being applicable entities. We have done this in order to provide sufficient flexibility to the eventual standard drafting team and due to the fact that system restoration and blackstart can potentially touch so many different functional areas of operations. The Standard Drafting Team will define the responsibilities of the functional areas.</p> | | | |
| AEP | | <input checked="" type="checkbox"/> | <p>Concerning Phase III/IV comments, bullets 2 & 3 require the designation of a cranking path as part of a blackstart agreement between the transmission operator and generator owner. As it is unknown a priori how the electric system may break apart during a system collapse, the designation of a cranking path as part of a blackstart agreement unduly restricts the options available during restoration and may even make restoration impossible due to a contractually imposed constraint(s).</p> <p>No 'market' based or artificially imposed constraints should be placed on the system during restoration. System restoration operations, other than providing blackstart resources, should be not be 'market' based.</p> |
| <p>Response: The comments in the SAR are only meant to guide the eventual Standard Drafting Team. Comments included in the SAR are issues to be addressed and not mandatory requirements. The revised standards will state what needs to be done and not how.</p> | | | |
| KCPL | | <input checked="" type="checkbox"/> | During a system restoration (i.e. the August 2003 Blackout), the code of conduct was suspended so that orderly system restoration may occur. In other words, the market ceases to exist. Generator operators, transmission operators, market operators and load serving entities had to communicate and work together so that system restoration, using system load and generation may be restored. Therefore, on page SAR-6 under "Reliability and Market Interface Principles - Applicable Reliability Principles boxes 5, 6, and 7 should also be checked. Box 5 should be checked since communication is critical in a system restoration event. Box 6 should be checked because you need to have |

Consideration of Comments on 2nd Posting of System Restoration and Blackstart SAR

| Question #1 | | | |
|---|-------------------------------------|-------------------------------------|---|
| Commenter | Yes | No | Comment |
| | | | <p>qualified people operating the system so that the personnel know what to do during a major system event. Box 7 should be checked since the system is unstable during the early hours of system restoration.</p> <p>Standard Number EOP-005-0 is currently not applicable to the load serving entities. Load Serving Entities should be applicable since they are critical in system restoration. To restore a system, generation must come on, then load is restored, then more generation comes on, then more load is restored, etc. Picking up load is crucial in system restoration.</p> |
| <p>Response: While a wide area view is critical for assessing reliability, the early stages of system restoration and blackstart are local phenomena. The SAR Drafting Team has included the LSE Function, but recognizes that the issues may be adequately addressed by the DP Function. The comments in the SAR are only meant to guide the eventual Standard Drafting Team. Comments included in the SAR are issues to be addressed and not requirements. Boxes 5, 6 & 7 have been checked off.</p> | | | |
| MISO | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <p>While we agree with the need for some improvement in the existing standards, there are misstatements in the SAR. The RC has defined responsibilities in the present standards. The SAR implies this isn't the case. Also, a SAR should be setting a clear scope of the end product, such that a different knowledgeable people would draft similar standards. It's unclear where this will go.</p> |
| <p>Response: The SAR DT and the eventual standard drafting team must have the scope and flexibility to bring the standards to the level required by the ERO rules. The SAR drafting team has checked off a large number of responsible entities as being applicable entities, including the RC. We have done this in order to provide sufficient flexibility to the eventual standard drafting team and due to the fact that system restoration and blackstart can potentially touch so many different functional areas of operations.</p> | | | |
| IRD Corp. | <input checked="" type="checkbox"/> | | <p>Blackstart can be divided into Local Blackstart (LB) and Remote Blackstart (RB). In LB the blackstart unit(s) and the non-blackstart unit(s) are adjacent to each other (not necessarily in the same plant), with simple interconnecting links. In RB (which is more prevalent), the blackstart unit(s) are located remote from the non-blackstart unit(s), and the path in between includes several levels of overhead and/or underground transmission lines, distribution system and the required and necessary related loads.</p> <p>Whereas LB can readily be studied, planned, simulated, scheduled, tested, timed and measured, the RB (or remote cranking) has a number of concerns and constraints requiring close coordination and agreements between a single blackstart owner (e.g., combustion turbine operator), transmission provider (for the path), distribution provider (for the necessary load), and a single (or at most two, see EdeF procedure), non-blackstart units (e.g., steam units). Experience has shown that in general remote blackstart are difficult and costly to schedule and test. The RB feasibility study requires</p> |

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| Question #1 | | | |
|-------------|-----|----|--|
| Commenter | Yes | No | Comment |
| | | | <p>analytical tools such as generator reactive capability program, optimal transformer tap setting program, optimal power flow program, that are needed and not readily available to optimize generator voltage set-points and the various transformer tap positions on no-load tap changers.</p> <p>Testing RB is very difficult and expensive. To illustrate the difficulties, two RB cases that apparently were feasible are briefly described:</p> <ol style="list-style-type: none"> 1. In one RB trial, it took the entire morning shift operators for bulk power, electrical system, CT and SES to isolate and clear the path, start the CT, and energize the path. The test had to be abandoned at the end of the shift without having completed the RB. One positive lesson learned was that during an actual power system restoration, the hot restart (blackstart) of the steam unit should not be attempted. 2. In a second RB case, analysis and simulation showed that in spite of using several programs on an iterative basis, to optimize the CTS and SES transformer taps and generator voltage set-points, CTS could not supply nor absorb the necessary reactive power for the start up of the large induction motors in the SES. It was concluded that additional shunt reactors need to be installed to reduce the lines charging currents and thus narrow the span between over- and under-excitations demands from the CTS. <p>It should be recognized that RB is one of the basic and early restoration requirements. Generally, combustion turbines, low-head short-conduit hydro or low-head pumped storage is used to remotely blackstart the drum-type steam units. The drum-type units are usually base-loaded, are located remote from the load centers to which they are connected by HV and EHV lines, supply large portion of demand, with maximum elapsed time for hot re-start of 30-45 minutes and minimum elapsed time for hot restart of 3 to 4 hours, and they need cranking power for start-up.</p> <p>The combustion turbines are peaking units, supply daily peak loads, are located within the load centers, with cold start-up of within 5 to 10 minutes, and hot-restart of within 2 to 3 hours. They typically need no cranking power for start up, however the probability of successful cold start-up is about 30%, i.e., one in three combustion turbines. The required RB path typically includes HV and EHV transmission lines.</p> <p>RB's REACTIVE POWER PROBLEMS:</p> |

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| Question #1 | | | |
|-------------|-----|----|--|
| Commenter | Yes | No | Comment |
| | | | <p>In the course of a blackstart operation, two limiting conditions place severe demands on the reactive power capability of the blackstart source. One extreme operating condition occurs during the initial energization of the transmission path when the combustion turbine station (CTS) is called upon to absorb the charging currents of the cables, the high- and extra-high voltage connecting lines. The other extreme operating condition is when the combustion turbine generators supply the large amount of reactive power required during startup of the largest auxiliary motor in the steam electric station (SES). These under-and over-excitation demands may be met by optimum selections of the CTS step-up transformer and SES step-down auxiliary transformer tap positions, and by control of the generator voltage set points. The blackstart operation is complicated by the fact that the CTS generator step up and the SES auxiliary transformers are typically equipped with no-load (fixed) taps, and they are set for normal operation. Therefore, in the planning phase and prior to the blackstart tests or during restoration, the optimum tap positions for these transformers and the correct terminal voltage set point(s) for the generator need to be determined to satisfy the two conditions. It should also be noted that not all the no-load tap changers can remotely be repositioned.</p> <p>Here are the three lists of the RB concerns and constraints:</p> <p>A. Concerns with the Blackstart Units:</p> <ul style="list-style-type: none"> * Start-up probability; one CT in two or one in three. * Governor speed-droop, automatic or manual (if manual, it must be adjusted to less than 2% for the first unit and returned to 5% for the second unit). * Frequency Response to Sudden Increase in Load (in route loads are required to stabilize the CTS) * Power reversal relays * Cross compensation of dual CTs (load Hogging) * Under-excitation limit when energizing the path, over-excitation limit when starting the large induction motors in SES. * GSU Xfmr differential relays * GSU and Aux Xfmr tap positions <p>B. Concerns with Non-Blackstart (steam) Units:</p> <ul style="list-style-type: none"> * Start-up sequence of auxiliary induction motors (BFP, IDF, etc.) * Starting overcurrents of auxiliary motors (five times the running current) |

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| Question #1 | | | |
|--|-------------------------------------|----|---|
| Commenter | Yes | No | Comment |
| | | | <ul style="list-style-type: none"> * Starting voltage dips of auxiliary motors (down to 80%) * Startup reactive power requirements of motors (max over-excitation) * Path's charging currents (max under-excitation) * Excessive negative sequence voltage and currents (not more than 4%) * Service transformer, tap position. <p>C. Concern the Interconnecting Path:</p> <ul style="list-style-type: none"> * Frequency Transients when energizing EHV lines * Frequency Transients when starting motors * Minimum source operation of distance relays * Reclosing schemes when energizing lines * Synchro-check relays and standing phase angle. <p>Conclusions: Implementation of each RB operation requires:</p> <ul style="list-style-type: none"> * the use of related Generation, Transmission and Distribution facilities * planning (feasibility study), analyzes, simulation, field tests, training and exercise * each blackstart source has to be matched uniquely with a non-blackstart unit(s) * long-term contracts are required between the related G, T & D ownerships <p>It can also be concluded that many apparently available RBs, are not feasible. The NERC records show that they have caused considerable delays in the restoration procedure.</p> |
| <p>Response: The SAR DT appreciates this input and will pass it on to the eventual standard drafting team. The comments more directly address the standards than the SAR.</p> | | | |
| Manitoba Hydro | <input checked="" type="checkbox"/> | | <p>A lot of good work has been put in to drafting this SAR to identify all the significant issues from the various sources for the SDT to address. This approach is an improvement over previous SARs. However, it doesn't seem clear how the SDT is to address the "fill-in-the-blanks" elements in the existing standards.</p> |
| <p>Response: The eventual standard drafting team will assign responsibilities to the users, owners and operators of the system in accordance with the Functional Model.</p> | | | |
| NPCC CP9 | <input checked="" type="checkbox"/> | | |
| NYISO | <input checked="" type="checkbox"/> | | |
| BPA | <input checked="" type="checkbox"/> | | |
| HQTE | <input checked="" type="checkbox"/> | | |

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| Question #1 | | | |
|--------------------|-------------------------------------|-----------|----------------|
| Commenter | Yes | No | Comment |
| ERCOT | <input checked="" type="checkbox"/> | | |
| IESO | <input checked="" type="checkbox"/> | | |
| IRC SRC | <input checked="" type="checkbox"/> | | |
| ISO New England | <input checked="" type="checkbox"/> | | |
| Progress Energy | <input checked="" type="checkbox"/> | | |
| SRP | <input checked="" type="checkbox"/> | | |
| ITC Holdings | <input checked="" type="checkbox"/> | | |
| SOCO Transmission | | | No comment. |

Consideration of Comments on 2nd Posting of System Restoration and Blackstart SAR

2. The SAR drafting team has checked off a large number of responsible entities as being applicable entities. We have done this in order to provide sufficient flexibility to the eventual standard drafting team and due to the fact that system restoration and blackstart can potentially touch so many different functional areas of operations. Do you agree that the TOP should be responsible for securing blackstart services?

Summary Consideration: All of the comments received had to do with the inclusion of certain entities in the SAR. The SAR DT included all entities that might be included in the eventual standard in order to provide the eventual SDT with sufficient flexibility to do their job without worrying about scope changes. It was explained that the SDT will still have the capability to pick the specific entities that are truly applicable once they have drafted the standard itself. The SAR DT believes that we have responded to all comments.

| Question #2 | | | |
|--|-----|-------------------------------------|--|
| Commenter | Yes | No | Comment |
| ATC LLC | | <input checked="" type="checkbox"/> | <p>Depends: The TOP is currently responsible for transporting energy supplied from the Black Start generator interconnection point to restore the transmission grid as a whole under the restoration services portion of the Transmission Tariff. The costs of planning for and implementing this responsibility are currently reimbursed under the network transmission tariff.</p> <p>If by "securing blackstart services" it is intended that the TOP must contract with generators or otherwise arrange with "Black Start Generators" to provide this capability, ATC cannot support this approach unless a mechanism is also provided that will allow the TOP to include any costs that might be incurred in transmission rates.</p> <p>ATC, is willing to be responsible as the TOP to enter into agreements for Black Start Services with generators that are interconnected to ATC's transmission facilities, and anticipate making the necessary tariff filings or otherwise arrange for reimbursement for any costs incurred through the regional transmission organization.</p> <p>If the Standard is eventually written that the TOP is responsible for "procuring" or "arranging" for the service, an adequate timeframe prior to implementation of the requirement must be allowed to pursue the necessary rate and other tariff approval together with the required agreements prior to this standard becoming enforceable.</p> |
| <p>Response: The system cannot be restarted from complete blackout without blackstart units. Since the TOP is responsible for preparing a system restoration plan (EOP-005-1), the SAR DT believes that the TOP must be assured that blackstart capability is available. This question is meant to guide the eventual standard drafting team. The SAR DT has no authority to determine cost recovery for meeting the standards. Further, the SAR DT recognizes that there are differences in market and non-market areas on how this might be achieved, but</p> | | | |

Consideration of Comments on 2nd Posting of System Restoration and Blackstart SAR

| Question #2 | | | |
|--|-------------------------------------|-------------------------------------|--|
| Commenter | Yes | No | Comment |
| such determination is not part of the standards. | | | |
| ITC Holdings | | <input checked="" type="checkbox"/> | We are not sure what "securing" means. We also feel that generator owners/operators should be compelled by the Standards to provide blackstart services, and that the cost recovery for providing such services should not fall back on the Transmission Operator. |
| Response: The system cannot be restarted from complete blackout without blackstart units. Since the TOP is responsible for preparing a system restoration plan (EOP-005-1), the SAR DT believes that the TOP must be assured that blackstart capability is available. This question is meant to guide the eventual standard drafting team. The SAR DT has no authority to determine cost recovery for meeting the standards. Further, the SAR DT recognizes that there are differences in market and non-market areas on how this might be achieved, but such determination is not part of the standards. | | | |
| MISO | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | We're not sure what this means. While the TOP must have a plan that will work, the question implies there must be contractual obligations that back up all plans, and perhaps all scenarios. While it's good to have cranking paths and a plan laid out, we're concerned that this standard will preclude flexibility when the real need arises. |
| Response: The comments included in the SAR identify issues to be addressed by the eventual standard drafting team. The industry will have opportunities to comment on the proposals that address cranking paths. | | | |
| BPA | <input checked="" type="checkbox"/> | | It is important to consider the issue of security when documenting a cranking path. The TOP should never be required to disclose the entire cranking path to other entities, like the Gen Operator. The Gen Operator does not need to know the entire cranking path in order to ensure blackstart services. |
| Response: The comments included in the SAR identify issues to be addressed by the eventual standard drafting team. The industry will have opportunities to comment on the proposals that address cranking paths. | | | |
| ERCOT | <input checked="" type="checkbox"/> | | |
| HQTE | <input checked="" type="checkbox"/> | | |
| IESO | <input checked="" type="checkbox"/> | | |
| IRC | <input checked="" type="checkbox"/> | | |
| IRD Corp. | <input checked="" type="checkbox"/> | | |
| ISO New England | <input checked="" type="checkbox"/> | | |
| KCPL | <input checked="" type="checkbox"/> | | |
| Manitoba Hydro | <input checked="" type="checkbox"/> | | |
| NPCC CP9 | <input checked="" type="checkbox"/> | | |
| NYISO | <input checked="" type="checkbox"/> | | |

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| Question #2 | | | |
|--------------------|-------------------------------------|-----------|----------------|
| Commenter | Yes | No | Comment |
| Progress Energy | <input checked="" type="checkbox"/> | | |
| SOCO Transmission | <input checked="" type="checkbox"/> | | |
| SRP | <input checked="" type="checkbox"/> | | |
| AEP | <input checked="" type="checkbox"/> | | |

Consideration of Comments on 2nd Posting of System Restoration and Blackstart SAR

3. The SAR DT has checked off a large number of responsible entities as being applicable entities. We have done this in order to provide sufficient flexibility to the eventual SDT and due to the fact that system restoration and blackstart can potentially touch so many different functional areas of operations. Do you agree that a Generator Owner and/or Generator Operator should have a documented plan for non-blackstart units to be restarted after a blackout?

Summary Consideration: The SAR DT included all entities that might be included in the eventual standard in order to provide the eventual SDT with sufficient flexibility to do their job without worrying about scope changes. It was explained that the SDT will still have the capability to pick the specific entities that are truly applicable once they have drafted the standard itself. The SAR DT believes that we have responded to all comments.

| Question #3 | | | |
|--|-----|-------------------------------------|--|
| Commenter | Yes | No | Comment |
| BPA | | <input checked="" type="checkbox"/> | While a documented plan for the restarting of non-blackstart units is not necessary, it is important that testing of blackstart units proves that the unit is capable of starting the non-blackstart units. |
| <p>Response: The SAR is designed to allow the eventual standards drafting team to debate the need to go beyond the cranking path and consider the restoration of the entire Interconnection. The SAR DT agrees that the start sequence for a non-blackstart unit should be substantially the same whether the unit is using normal station service supply or energy from a blackstart unit, but there are issues in system restoration, such as system frequency variations and load availability in increments such that the units can stay in their stable range, that may need to be addressed. The eventual SDT will consider capability tests for blackstart units. The industry will have opportunities to comment on such proposals.</p> | | | |
| SOCO Transmission | | <input checked="" type="checkbox"/> | Black start of non-blackstart units should basically be the same as a normal start-up. |
| <p>Response: The SAR is designed to allow the eventual standards drafting team to debate the need to go beyond the cranking path and consider the restoration of the entire Interconnection. The SAR DT agrees that the start sequence for a non-blackstart unit should be substantially the same whether the unit is using normal station service supply or energy from a blackstart unit, but there are issues in system restoration, such as system frequency variations and load availability in increments such that the units can stay in their stable range, that may need to be addressed. The eventual SDT will consider capability tests for blackstart units. The industry will have opportunities to comment on such proposals.</p> | | | |
| AEP | | <input checked="" type="checkbox"/> | This is not needed. The system restoration plan provides the necessary steps to provide cranking power to non-blackstart units. Once these units have had cranking power restored, the start-up procedures are the same as if these units were returning from a scheduled/unscheduled outage during normal system operation. Is there really any need to have this documented? |
| <p>Response: The SAR is designed to allow the eventual standards drafting team to debate the need to go beyond the cranking path and consider the restoration of the entire Interconnection. The SAR DT agrees that the start sequence for a non-blackstart unit should be substantially the same whether the unit is using normal station service supply or energy from a blackstart unit, but there are issues in system restoration, such as system frequency variations and load availability in increments such that the units can stay in their stable range, that may need to be addressed. The eventual SDT will consider capability tests for blackstart units. The industry will have opportunities to comment on such proposals.</p> | | | |

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| Question #3 | | | |
|---|-------------------------------------|-------------------------------------|---|
| Commenter | Yes | No | Comment |
| HQTE | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <p>HQT agrees that a Generator Owner and/or Generator Operator should have a plan to be ready to re-start non-blackstart units after a blackout. This readiness for energization should also apply to all distributors and loads connected to the bulk electrical system (BES) as well.</p> <p>However, a NERC standard requirement(s) to have a documented plan for generating units to be restarted after a blackout should be limited to the ‘restoration plan participants’ on the cranking path only. The cranking path to be developed in the restoration plan would include those units that must be started or resynchronized to support the integrity of the path.</p> |
| <p>Response: THE SAR DT agrees that the TOP plans must address the ability to have load available in steps or increments to match generation response capability as it is brought online. Draft 2 of the SAR lists DPs and LSEs as responsible entities.</p> | | | |
| NPCC CP9 | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <p>NPCC participating members agree that a Generator Owner and/or Generator Operator should have a plan to be ready to re-start non-blackstart units after a blackout.</p> <p>However, a NERC standard requirement(s) to have a documented plan for generating units to be restarted after a blackout should be limited to the ‘restoration plan participants’ on the cranking path only. The cranking path to be developed in the restoration plan would include those units that must be started or resynchronized to support the integrity of the path.</p> |
| <p>Response: THE SAR DT agrees that the start sequence for a non-blackstart unit should be substantially the same whether the unit is using normal station service supply or energy from a blackstart unit, but there are issues in system restoration, such as system frequency variations and load availability in increments such that the units can stay in their stable range, that may need to be addressed. As the system is rebuilt, it becomes more and more equivalent to the normal system. The TOP’s plan should address the capability of units relied upon in the initial stages of system restoration, that is, until the system has reached a point approximating conditions for normal generator start and synchronization. THE SAR DT agrees that the TOP plans must address the ability to have load available in steps or increments to match generation response capability as it is brought online. Draft 2 of the SAR lists DPs and LSEs as responsible entities. These comments will be passed to the eventual SDT. The industry will have opportunities to comment on proposals during the standard drafting process.</p> | | | |
| IESO | <input checked="" type="checkbox"/> | | <p>Each generator owner and/or generator operator should typically have a plan to be ready to re-start after a trip or blackout, when the power system is reenergized and conditions warrant. This readiness for energization should also apply to all distributors and loads connected to the bulk electrical system (BES) as well.</p> <p>However, a NERC standard requirement(s) to have a documented plan for generating units to be restarted after a blackout should be limited to the ‘restoration plan participants’ on the cranking path only. The cranking path to be developed in the</p> |

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| Question #3 | | | |
|---|-------------------------------------|-------------------------------------|--|
| Commenter | Yes | No | Comment |
| | | | restoration plan would include those units that must be started or resynchronized to support the integrity of the path. |
| <p>Response: THE SAR DT agrees that the start sequence for a non-blackstart unit should be substantially the same whether the unit is using normal station service supply or energy from a blackstart unit, but there are issues in system restoration, such as system frequency variations and load availability in increments such that the units can stay in their stable range, that may need to be addressed. As the system is rebuilt, it becomes more and more equivalent to the normal system. The TOP's plan should address the capability of units relied upon in the initial stages of system restoration, that is, until the system has reached a point approximating conditions for normal generator start and synchronization. THE SAR DT agrees that the TOP plans must address the ability to have load available in steps or increments to match generation response capability as it is brought online. Draft 2 of the SAR lists DPs and LSEs as responsible entities. These comments will be passed to the eventual SDT. The industry will have opportunities to comment on proposals during the standard drafting process.</p> | | | |
| IRC SRC | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <p>Each generator owner and/or generator operator should typically have a plan to be ready to re-start after a trip or blackout, when the power system is reenergized and conditions warrant. This readiness for energization should also apply to all distributors and loads connected to the bulk electrical system (BES) as well.</p> <p>However, a NERC standard requirement(s) to have a documented plan for generating units to be restarted after a blackout should be limited to the 'restoration plan participants" on the cranking path only. The cranking path to be developed in the restoration plan would include those units that must be started or resynchronized to support the integrity of the path.</p> |
| <p>Response: THE SAR DT agrees that the start sequence for a non-blackstart unit should be substantially the same whether the unit is using normal station service supply or energy from a blackstart unit, but there are issues in system restoration, such as system frequency variations and load availability in increments such that the units can stay in their stable range, that may need to be addressed. As the system is rebuilt, it becomes more and more equivalent to the normal system. The TOP's plan should address the capability of units relied upon in the initial stages of system restoration, that is, until the system has reached a point approximating conditions for normal generator start and synchronization. THE SAR DT agrees that the TOP plans must address the ability to have load available in steps or increments to match generation response capability as it is brought online. Draft 2 of the SAR lists DPs and LSEs as responsible entities. These comments will be passed to the eventual SDT. The industry will have opportunities to comment on proposals during the standard drafting process.</p> | | | |
| NYISO | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <p>Each generator owner and/or generator operator should typically have a plan to be ready to re-start after a trip or blackout, when the power system is reenergized and conditions warrant. This readiness for energization should also apply to all distributors and loads connected to the bulk electrical system (BES) as well.</p> <p>However, a NERC standard requirement(s) to have a documented plan for generating units to be restarted after a blackout should be limited to the 'restoration plan participants" on the cranking path only. The cranking path to be developed in the restoration plan would include those units that must be started or resynchronized to</p> |

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| Question #3 | | | |
|---|-------------------------------------|-------------------------------------|--|
| Commenter | Yes | No | Comment |
| | | | support the integrity of the path. |
| <p>Response: THE SAR DT agrees that the start sequence for a non-blackstart unit should be substantially the same whether the unit is using normal station service supply or energy from a blackstart unit, but there are issues in system restoration, such as system frequency variations and load availability in increments such that the units can stay in their stable range, that may need to be addressed. As the system is rebuilt, it becomes more and more equivalent to the normal system. The TOP's plan should address the capability of units relied upon in the initial stages of system restoration, that is, until the system has reached a point approximating conditions for normal generator start and synchronization. THE SAR DT agrees that the TOP plans must address the ability to have load available in steps or increments to match generation response capability as it is brought online. Draft 2 of the SAR lists DPs and LSEs as responsible entities. These comments will be passed to the eventual SDT. The industry will have opportunities to comment on proposals during the standard drafting process.</p> | | | |
| ISO New England | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | As a general matter, ISO-NE agrees that a Generator Owner and/or Generator Operator should have a documented plan for non-blackstart units to be restarted after a blackout. However, ISO-NE is concerned about the possibility that the Standard could end up requiring an RC, TOP, etc. to become directly involved with the Generator Owner and/or Generator Operator in the development of such a plan. The SAR should be clear that an RC, TOP, etc. shall not be designated as a responsible entity with respect to the development of such a plan and it will remain the requirement of the Owner/Operator. |
| <p>Response: Just as the current standard EOP-009-0 has requirements strictly for the GO and GOP, the eventual standard drafting team will consider requirements that apply only to the GO and GOP. This issue is included in the SAR as one to be considered by the eventual SDT.</p> | | | |
| ERCOT | <input checked="" type="checkbox"/> | | All generators should know what their role is in a system restoration or blackstart effort. If they are on the blackstart initiation, such as serving as a black start resource or as a "next start" unit, they should have a documented plan included in the applicable regional or operational area black start plan. If they are not in the initiation stage of the effort, they should have a documented procedure of how and when they would be started and re-synchronized as the restoration effort progresses. |
| <p>Response: THE SAR DT agrees that the start sequence for a non-blackstart unit should be substantially the same whether the unit is using normal station service supply or energy from a blackstart unit, but there are issues in system restoration, such as system frequency variations and load availability in increments such that the units can stay in their stable range, that may need to be addressed. As the system is rebuilt, it becomes more and more equivalent to the normal system. The TOP's plan should address the capability of units relied upon in the initial stages of system restoration, that is, until the system has reached a point approximating conditions for normal generator start and synchronization. These comments will be passed to the eventual SDT. The industry will have opportunities to comment on proposals during the standard drafting process.</p> | | | |
| IRD Corp. | <input checked="" type="checkbox"/> | | With some reservations. |
| <p>Response: These comments will be passed to the eventual SDT. The industry will have opportunities to comment on proposals during the standard drafting process.</p> | | | |
| Manitoba Hydro | <input checked="" type="checkbox"/> | | It was not clear where this was being proposed in the SAR. A good system restoration |

Consideration of Comments on 2nd Posting of System Restoration and Blackstart SAR

| Question #3 | | | |
|---|-------------------------------------|-----------|--|
| Commenter | Yes | No | Comment |
| | | | plan should outline options for how non-blackstart units will be started after a blackout. These aspects of the plan should be shared with the GO/GOP and coordinated with the GO/GOP plans. |
| Response: The SAR DT agrees that the TOP's plan should address the capability of units relied upon in the initial stages of system restoration, that is, until the system has reached a point approximating conditions for normal generator start and synchronization. We agree that GOs and GOPs of units identified in the TOP's plan should be notified and have an opportunity to coordinate. These comments will be passed to the eventual SDT. | | | |
| MISO | <input checked="" type="checkbox"/> | | We agree that all generator operators should have an understanding of their role and possible scenarios they will face. The generator operators should also test or train on their plan/role periodically. |
| Response: We agree that GOs and GOPs of units identified in the TOP's plan should be notified and have an opportunity to coordinate. The eventual SDT will consider capability tests for blackstart units and whether the GO should be required to participate in TOP drills and tests. The industry will have opportunities to comment on such proposals. | | | |
| ITC Holdings | <input checked="" type="checkbox"/> | | In addition, the Generator Operator should demonstrate, through testing or simulation, that the non-blackstart unit can in fact be restarted using the blackout generator. |
| Response: The eventual SDT will consider capability tests or simulations for blackstart units. The industry will have opportunities to comment on such proposals. | | | |
| Progress Energy | <input checked="" type="checkbox"/> | | |
| ATC LLC | <input checked="" type="checkbox"/> | | |
| KCPL | <input checked="" type="checkbox"/> | | |
| SRP | <input checked="" type="checkbox"/> | | |

Consideration of Comments on 2nd Posting of System Restoration and Blackstart SAR

4. Do you agree that the SAR is ready to move forward to the standards drafting stage?

Summary Consideration: All of the comments received basically agree that the SAR is ready to move forward. There were some references to previous comments that were answered above. The SAR DT believes that we have responded to all comments.

| Question #4 | | | |
|--|-------------------------------------|-------------------------------------|--|
| Commenter | Yes | No | Comment |
| AEP | | <input checked="" type="checkbox"/> | See items 1 & 3 above. |
| ATC LLC | | <input checked="" type="checkbox"/> | See our comments in questions 1 and 2. |
| IRC SRC | <input checked="" type="checkbox"/> | | Provided our comment in Q3 can be addressed in the final SAR that will be used by the SDT. |
| Response: The SAR DT believes it has addressed your issues. | | | |
| ISO New England | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | ISO-NE agrees that the SAR is ready to move forward to the standards drafting stage if the concern expressed in our response to Question 3 above is addressed. |
| Response: The SAR DT believes it has addressed your issues. | | | |
| MISO | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | Again, we agree for some improvement, but we have difficulty in understanding where this is going. |
| Response: The SAR DT believes it has addressed your issues. | | | |
| IRD Corp. | <input checked="" type="checkbox"/> | | <p>By and large.</p> <p>The SAR in its present form is abstract. Both the non-black-start and black-start units need to be defined. The non-black-start units should cover types (e.g., no nuclear) and sizes (e.g., small and DG) of prime movers. And the black-start sources should include:</p> <ol style="list-style-type: none"> 1. Combustion Turbine (local and remote) 2. Run-of-the-River Hydro (remote) 3. Pump-Storage Hydro (remote) 4. Low Frequency Isolation Scheme (LFIS) 5. Full Load Rejection (FLR) <p>It is a matter of records that in the aftermath of New York's 1977 blackout, FERC required that all utilities develop restoration plans. In the process of developing such a plan, one mid-Atlantic utility tried to provide black-start source for one of its large coal-fired plants. The choices were between (1) installing combustion turbines, (2) providing a low frequency isolation scheme, or (3) equipping the base-loaded unit with full-load rejection capability. The full-load rejection alternative was selected as providing the best balance between cost and reliability. Subsequently, following a major power</p> |

Consideration of Comments on 2nd Posting of System Restoration and Blackstart SAR

| Question #4 | | | |
|--|-------------------------------------|-----------|---|
| Commenter | Yes | No | Comment |
| | | | disturbance, the FLR successfully tripped to house load. It can be concluded that the LFIS and FLR should also be considered as the black-start source. It should be recognized that testing of remote black-start, LFIS or FLR is extremely difficult and expensive. |
| <p>Response: The SAR DT agrees that the TOP's plan should address the capability of units relied upon in the initial stages of system restoration, that is, until the system has reached a point approximating conditions for normal generator start and synchronization. We agree that GOs and GOPs of units identified in the TOP's plan should be notified and have an opportunity to coordinate. The SAR has sufficient flexibility to permit the eventual SDT to consider a range of restoration resources. These comments will be passed to the eventual SDT.</p> | | | |
| BPA | <input checked="" type="checkbox"/> | | |
| ERCOT | <input checked="" type="checkbox"/> | | |
| HQTE | <input checked="" type="checkbox"/> | | |
| IESO | <input checked="" type="checkbox"/> | | |
| KCPL | <input checked="" type="checkbox"/> | | |
| Manitoba Hydro | <input checked="" type="checkbox"/> | | |
| NPCC CP9 | <input checked="" type="checkbox"/> | | |
| NYISO | <input checked="" type="checkbox"/> | | |
| Progress Energy | <input checked="" type="checkbox"/> | | |
| SRP | <input checked="" type="checkbox"/> | | |
| ITC Holdings | <input checked="" type="checkbox"/> | | |
| SOCO Transmission | | | No comment. |

April 18, 2007

TO: REGISTERED BALLOT BODY

Ladies and Gentlemen:

Announcement
Nomination Periods Open for Three Drafting Teams

The Standards Committee (SC) announces the following standards actions:

Nominations for Project 2007-09 Generator Verifications SAR Drafting Team (April 18–May 2, 2007)

The Standards Committee is seeking industry experts to serve on the [Generator Verification](#) SAR Drafting Team. This project calls for completing the final four Phase III & IV standards (PRC-019, PRC-024, MOD-026, and MOD-027) and for refinement of two standards that were approved in 2005 (MOD-024 and MOD-025).

- PRC-019 — Coordination of Generator Voltage Regulator Controls with Unit Capabilities and Protection
- PRC-024 — Generator Performance During Frequency and Voltage Excursions
- MOD-024 — Verification of Generator Gross and Net Real Power Capability
- MOD-025 — Verification of Generator Gross and Net Reactive Power Capability
- MOD-026 — Verification of Models and Data for Generator Excitation System Functions
- MOD-027 — Verification of Generator Unit Frequency Response

The set of six standards all require generator verifications — either to ensure that generators will not trip off line during specified voltage and frequency excursions or as a result of improper coordination between generator protective relays and generator voltage regulator controls and limit functions or to ensure that generator models accurately reflect the generator’s capabilities and operating characteristics.

If you are interested in serving on this team, please complete this [nomination form](#) and return it to sarcomm@nerc.net with “GEN VER SARDT Nomination” in the subject line, no later than **May 2, 2007**.

Nominations for Project 2006-03 System Restoration and Blackstart Standard Drafting Team (April 18–May 2, 2007)

The Standards Committee is seeking additional industry experts to serve on the [System Restoration and Blackstart](#) Standard Drafting Team. This project calls for the modification of the following standards:

- EOP-005 — System Restoration Plans
- EOP-006 — Reliability Coordination — System Restoration
- EOP-007 — Establish, Maintain, and Document a Regional Blackstart Capability Plan
- EOP-009 — Documentation of Blackstart Generating Unit Test Results

REGISTERED BALLOT BODY

April 18, 2007

Page Two

This project involves upgrading the overall quality of the four standards; eliminating some gaps in the requirements; eliminating some ambiguity; and eliminating some “fill-in-the-blank” components. The Standards Committee has appointed the initial standard drafting team, but is seeking additional members, particularly from within the SPP and WECC regions.

If you are interested in serving on this team, please complete this [nomination form](#) and return it to sarcomm@nerc.net with “SRBS SDT Nomination” in the subject line, no later than **May 2, 2007**.

Nominations for Project 2007-02 Operating Personnel Communications Protocols SAR Drafting Team (April 18–May 2, 2007)

The Standards Committee is seeking additional industry experts to serve on the [Operating Personnel Communications Protocols](#) SAR Drafting Team. This SAR calls for the development of communications protocols for use by real-time system operators to improve situational awareness and shorten response time. The Standards Committee has appointed an initial SAR Drafting Team but is seeking additional nominations, particularly from the FRCC, NPCC, and SPP regions, from Canada, and from the generation and load-serving entity segments that will be affected by the proposed standard.

If you are interested in serving on this team, please complete this [nomination form](#) and return it to sarcomm@nerc.net with “OPS COM SARDT Nomination” in the subject line, no later than **May 2, 2007**.

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

Nomination Form — System Restoration and Blackstart Standard Drafting Team (Project 2006-03)

Please return this form to sarcomm@nerc.net by **May 2, 2007** with "SRBS SDT Nomination" in the subject line. For questions about the drafting team, please contact Ed Dobrowolski at 609-947-3673 or ed.dobrowolski@nerc.net.

| | | | | | | | | | | | | | | | | | | | | | |
|---|---|--------------------------|-------------------------|--------------------------|----------------|--------------------------|---------------------------|--------------------------|--------------------------------------|--------------------------|-------------------------|--------------------------|---|--------------------------|---------------------------------|--------------------------|---------------------------------|--------------------------|--|--------------------------|---|
| Name: Organization: Address: Office Telephone: E-mail: | | | | | | | | | | | | | | | | | | | | | |
| <p>Please briefly describe your experience and qualifications to serve on the System Restoration and Blackstart Standard Drafting Team. Prefer experience in developing system restoration plans, in developing blackstart capability plans or in specifying or conducting blackstart testing. Previous experience working on or applying NERC or IEEE standards is beneficial, but not a requirement. The Standards Committee is particularly seeking candidates from the WECC and SPP Regions.</p> | | | | | | | | | | | | | | | | | | | | | |
| <p>I represent the following NERC Reliability Region(s) (check all that apply):</p> | <p>I represent the following Industry Segment (check one):</p> | | | | | | | | | | | | | | | | | | | | |
| <input type="checkbox"/> ERCOT <input type="checkbox"/> FRCC <input type="checkbox"/> MRO <input type="checkbox"/> NPCC <input type="checkbox"/> RFC <input type="checkbox"/> SERC <input type="checkbox"/> SPP <input type="checkbox"/> WECC <input type="checkbox"/> NA – Not Applicable | <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 20px; text-align: center;"><input type="checkbox"/></td> <td>1 — Transmission Owners</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td>2 — RTOs, ISOs</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td>3 — Load-serving Entities</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td>4 — Transmission-dependent Utilities</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td>5 — Electric Generators</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td>6 — Electricity Brokers, Aggregators, and Marketers</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td>7 — Large Electricity End Users</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td>8 — Small Electricity End Users</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td>9 — Federal, State, and Provincial Regulatory or other Government Entities</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td>10 — Regional Reliability Organizations and Regional Entities</td> </tr> </table> | <input type="checkbox"/> | 1 — Transmission Owners | <input type="checkbox"/> | 2 — RTOs, ISOs | <input type="checkbox"/> | 3 — Load-serving Entities | <input type="checkbox"/> | 4 — Transmission-dependent Utilities | <input type="checkbox"/> | 5 — Electric Generators | <input type="checkbox"/> | 6 — Electricity Brokers, Aggregators, and Marketers | <input type="checkbox"/> | 7 — Large Electricity End Users | <input type="checkbox"/> | 8 — Small Electricity End Users | <input type="checkbox"/> | 9 — Federal, State, and Provincial Regulatory or other Government Entities | <input type="checkbox"/> | 10 — Regional Reliability Organizations and Regional Entities |
| <input type="checkbox"/> | 1 — Transmission Owners | | | | | | | | | | | | | | | | | | | | |
| <input type="checkbox"/> | 2 — RTOs, ISOs | | | | | | | | | | | | | | | | | | | | |
| <input type="checkbox"/> | 3 — Load-serving Entities | | | | | | | | | | | | | | | | | | | | |
| <input type="checkbox"/> | 4 — Transmission-dependent Utilities | | | | | | | | | | | | | | | | | | | | |
| <input type="checkbox"/> | 5 — Electric Generators | | | | | | | | | | | | | | | | | | | | |
| <input type="checkbox"/> | 6 — Electricity Brokers, Aggregators, and Marketers | | | | | | | | | | | | | | | | | | | | |
| <input type="checkbox"/> | 7 — Large Electricity End Users | | | | | | | | | | | | | | | | | | | | |
| <input type="checkbox"/> | 8 — Small Electricity End Users | | | | | | | | | | | | | | | | | | | | |
| <input type="checkbox"/> | 9 — Federal, State, and Provincial Regulatory or other Government Entities | | | | | | | | | | | | | | | | | | | | |
| <input type="checkbox"/> | 10 — Regional Reliability Organizations and Regional Entities | | | | | | | | | | | | | | | | | | | | |

Nomination Form — System Restoration and Blackstart Standard Drafting Team (Project 2006-03)

Which of the following Function(s)¹ do you have expertise or responsibilities:

- | | |
|--|--|
| <input type="checkbox"/> Reliability Coordinator | <input type="checkbox"/> Transmission Service Provider |
| <input type="checkbox"/> Balancing Authority | <input type="checkbox"/> Transmission Owner |
| <input type="checkbox"/> Interchange Authority | <input type="checkbox"/> Load Serving Entity |
| <input type="checkbox"/> Planning Coordinator | <input type="checkbox"/> Distribution Provider |
| <input type="checkbox"/> Transmission Operator | <input type="checkbox"/> Purchasing-selling Entity |
| <input type="checkbox"/> Generator Operator | <input type="checkbox"/> Generator Owner |
| <input type="checkbox"/> Transmission Planner | <input type="checkbox"/> Resource Planner |
| | <input type="checkbox"/> 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 Functional Model, which is downloadable from the following Web site:
<http://www.nerc.com/~filez/functionalmodel.html>

Standard Authorization Request Form

| | |
|----------------------------|--|
| Title of Proposed Standard | Revisions to System Restoration and Blackstart Standards Project 2006-03 |
| Request Date | January 18, 2007 |
| Revised | March 23, 2007 |

| SAR Requestor Information | SAR Type (<i>Check a box for each one that applies.</i>) |
|--|--|
| Name Richard J Kafka | <input type="checkbox"/> New Standard |
| Primary Contact Richard J Kafka | <input checked="" type="checkbox"/> Revision to existing Standards EOP-005, EOP-006, EOP-007, EOP-009 |
| Telephone (301) 469-5274 Fax (301) 469-5235 | <input checked="" type="checkbox"/> Withdrawal of existing Standard |
| E-mail rjkafka@pepcoholdings.com | <input type="checkbox"/> Urgent Action |

Standards Authorization Request Form

Purpose (Describe the purpose of the standard — what the standard will achieve in support of reliability.)

EOP-005-1 — System Restoration Plans

EOP-006-1 — Reliability Coordination - System Restoration

EOP-007-0 — Establish, Maintain, and Document a Regional Blackstart Capability Plan

EOP-009-0 — Documentation of Blackstart Generating Unit Test Results

The purpose of revising the above four standards is to:

1. Provide an adequate level of reliability for the North American bulk power systems - the standards are complete and the requirements are set at an appropriate level to ensure reliability.
2. Ensure they are enforceable as mandatory reliability standards with financial penalties - the applicability to bulk power system owners, operators, and users, and as appropriate particular classes of facilities, are clearly defined; the purpose, requirements, and measures are results-focused and unambiguous; the consequences of violating the requirements are clear.
3. Consider other general improvements described in the standards development work plan. (See attachments)
4. Consider stakeholder comments received during the initial development of the standards and other comments received from Electric Reliability Organization (ERO) regulatory authorities, as noted in the attached review sheets.
5. Satisfy the standards procedure requirement for five-year review of the standards.

Industry Need (Provide a detailed statement justifying the need for the proposed standard, along with any supporting documentation.)

When all else fails, the bulk power system requires a clearly defined and comprehensive set of standards to ensure the ability to successfully restore the integrity of the system. The existing standards lack specificity and measures to guide the industry in a consistent and reliable manner for system restoration.

EOP-005 was a Version 0 standard that was modified to add some requirements that were translated from the Phase III & IV measures thus creating a -1 version standard; EOP-006 is a -1 standard as of January 1, 2007; EOP-007, and EOP-009 are Version 0 standards. As the Electric Reliability Organization begins enforcing compliance with reliability standards under Section 215 of the Federal Power Act in the United States and applicable statutes and regulations in Canada, the industry needs a set of clear, measurable, and enforceable reliability standards. The current standards, while a good foundation, were translated from historical operating and planning policies and guides that were appropriate in an era of voluntary compliance. The Version 0 standards, Phase III & IV standards, and recent updates were put in place as a temporary starting point to start up the Electric Reliability Organization and begin enforcement of mandatory standards. However, it is important to update the standards in a timely manner, incorporating improvements to make the standards more suitable for enforcement and to capture prior recommendations that were deferred during the Version 0 and Phase III & IV translations.

In addition, FERC indicated it will not propose to accept or remand EOP-007-0, as it applies only to regional reliability organizations.

Brief Description (Describe the proposed standard in sufficient detail to clearly define the scope in a manner that can be easily understood by others.)

This project involves reviewing and revising the four referenced standards including:

- Resolving the issue of associating compliance measures with Attachment 1-EOP-005 elements,
- EOP-005 only requires the TOP and the BA to have a system restoration plan. The role of these and other entities, especially the Reliability Coordinator, needs to be defined.
- Both EOP-005 and EOP-006 contain a mix of requirements that address advance planning and real-time operations. The Standards Drafting Team (SDT) should consider the need to clearly delineate the two processes within the standards requirements.
- The elimination of 'fill-in-the-blank' components in EOP-007-0 and EOP-009.
- Other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable standards and consistent with establishing technically sufficient bulk power system blackstart and restoration standards.

Work is not to be limited to the 'To Do Lists'. Those items shall be considered but are not mandatory revisions. Consideration will also be given to the comments on the appropriate EOP standards in FERC Order #693, issued March 16, 2007.

Throughout the process, the SDT should identify any conflicts that are found with other existing standards and bring them to the attention of the Standards Committee for resolution.

Standards Authorization Request Form

Reliability Functions

| The Standard will Apply to the Following Functions <i>(Check box for each one that applies.)</i> | | |
|---|-------------------------------|---|
| <input checked="" type="checkbox"/> | Reliability Coordinator | Responsible for the real-time operating reliability of its Reliability Coordinator Area in coordination with its neighboring Reliability Coordinator's wide area view. |
| <input checked="" type="checkbox"/> | 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. |
| <input type="checkbox"/> | Interchange Authority | Ensures communication of interchange transactions for reliability evaluation purposes and coordinates implementation of valid and balanced interchange schedules between Balancing Authority Areas. |
| <input checked="" type="checkbox"/> | Planning Coordinator | Assesses the longer-term reliability of its Planning Coordinator Area. |
| <input type="checkbox"/> | Resource Planner | Develops a (>one year) plan for the resource adequacy of its specific loads within its portion of a Planning Coordinator area. |
| <input type="checkbox"/> | Transmission Planner | Develops a (>one year) plan for the reliability of the interconnected Bulk Electric System within its portion of the Planning Coordinator area. |
| <input checked="" type="checkbox"/> | Transmission Service Provider | Administers the transmission tariff and provides transmission services under applicable transmission service agreements (e.g., the pro forma tariff). |
| <input checked="" type="checkbox"/> | Transmission Owner | Owns and maintains transmission facilities. |
| <input checked="" type="checkbox"/> | Transmission Operator | Ensures the real-time operating reliability of the transmission assets within a Transmission Operator Area. |
| <input checked="" type="checkbox"/> | Distribution Provider | Delivers electrical energy to the End-use customer. |
| <input checked="" type="checkbox"/> | Generator Owner | Owns and maintains generating facilities. |
| <input checked="" type="checkbox"/> | Generator Operator | Operates generation unit(s) to provide real and reactive power. |
| <input type="checkbox"/> | Purchasing-Selling Entity | Purchases or sells energy, capacity, and necessary reliability-related services as required. |
| <input type="checkbox"/> | Market Operator | Interface point for reliability functions with commercial functions. |

Standards Authorization Request Form

| | | |
|-------------------------------------|---------------------|---|
| <input checked="" type="checkbox"/> | Load-Serving Entity | Secures energy and transmission service (and related reliability-related services) to serve the End-use Customer. |
|-------------------------------------|---------------------|---|

Standards Authorization Request Form

Reliability and Market Interface Principles

| | |
|--|--|
| Applicable Reliability Principles <i>(Check box for all that apply.)</i> | |
| <input checked="" type="checkbox"/> | 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. |
| <input type="checkbox"/> | 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. |
| <input type="checkbox"/> | 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. |
| <input checked="" type="checkbox"/> | 4. Plans for emergency operation and system restoration of interconnected bulk electric systems shall be developed, coordinated, maintained and implemented. |
| <input checked="" type="checkbox"/> | 5. Facilities for communication, monitoring and control shall be provided, used and maintained for the reliability of interconnected bulk electric systems. |
| <input checked="" type="checkbox"/> | 6. Personnel responsible for planning and operating interconnected bulk electric systems shall be trained, qualified, and have the responsibility and authority to implement actions. |
| <input checked="" type="checkbox"/> | 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? <i>(Select 'yes' or 'no' from the drop-down box.)</i> | |
| 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 | |

Related Standards

| Standard No. | Explanation |
|---------------------|--|
| PER-002 | Applicable personnel must be trained in restoration and blackstart procedures. |
| EOP-001 | R3.4 may be redundant after this project is completed. |
| | |
| | |

Related SARs

| SAR ID | Explanation |
|---------------|--------------------|
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |

Regional Differences

| Region | Explanation |
|---------------|--------------------|
| ERCOT | |
| FRCC | |
| MRO | |
| NPCC | |
| SERC | |
| RFC | |
| SPP | |
| WECC | |

| Standard Review Form | | |
|--|--|--|
| Project 2006-03 System Restoration and Blackstart | | |
| Standard # | EOP-005-0 | Comments |
| Title | System Restoration Plans | Okay |
| Purpose | | Okay |
| Applicability | | Okay |
| Requirements | <i>Conditions</i> | Interconnection is capitalized. |
| | <i>Who?</i> | Okay |
| | <i>Shall do what?</i> | R2 mentions simulated exercises – where did that come from? R3 – isn't this a function of the extent of the outage? R5 – define periodically R6 – provide training requirements R8 – how do you verify? R115.2 – what does considered mean R11.5.3 – depends on extent |
| | <i>Result or Outcome</i> | Missing |
| Measures | | 2 M for 11 R |
| To Do List | <p>FERC NOPR</p> <ul style="list-style-type: none"> o Include Measures; and o Identify time frames for training and review of restoration plan requirements to simulate contingencies and prepare operators for anticipated and unforeseen events. <p>FERC staff report</p> <ul style="list-style-type: none"> o Periodicity of training o Lack of Measures <p>Regional Fill-in-the-Blank Team Comments</p> <ul style="list-style-type: none"> o Drafting team should address EOP-005, EOP-006 EOP-007 and EOP-009 concurrently. Primarily, references in EOP-005, EOP-006, and EOP-009 to meet RRO/Regional requirements need to be modified and EOP-007 needs to be more specific. o See notes for EOP-007 <p>V0 Industry Comments</p> <ul style="list-style-type: none"> o Priority to integrity of interconnection o BA does not have all required information o Interdependency of planning and implementation missing as well as between functional entities o LSE & GO should have plans o Additional element consideration o Can't really test plan <p>Phase III/IV comments</p> <ul style="list-style-type: none"> o Add LSEs to Applicability o Add a requirement for a blackstart agreement between the transmission operator and the generator owner - include items such as identification of generator owner/operator facilities required to participate in the blackstart plan; when and how quickly a blackstart unit must respond; and what cranking path requires energization o Add a requirement for a cranking path agreement between the transmission operator and the generator owner/operator o Condense the requirements and measures - R1 the requirement to develop the restoration plan and all the components required of that plan; and R2 the requirement to prove and document that the plan | |

2006-03 System Restoration and Blackstart

| | |
|--|--|
| | <p>works. Then, two measurements would follow: one to assess the contents of the plan and one to assess the simulation or testing of the plan.</p> <ul style="list-style-type: none">○ Need to resolve the issue of the elements on the Attachment – are these mandatory or not – there is a mismatch between R1 and levels of non-compliance○ R3 – revise to place emphasis for TOP on restoring local transmission system as preparation for restoring the integrity of the Interconnection.○ R4 – Add LSEs○ R5 – replace ‘periodic’ with a specific periodicity for testing○ R6 – add specificity to frequency and scope of required training○ R11.5 - replace the word, ‘may’ with: The affected Transmission Operators shall not resynchronize the isolated area(s) with the surrounding area(s) until the following conditions are met: the voltage, frequency, and phase angle permit, the affected reliability coordinator(s) and the adjacent areas are notified, and reliability coordinator approval is given.○ Delete R11.5.4. It does not seem reasonable or logical for a control area to be required to shed 5,000 MWs of load, for example, in order for their neighbor to reconnect 1,000 MWs of their own load.○ R11.5. Should exclude islands within a system that do not affect surrounding areas <p>VRF comments</p> <ul style="list-style-type: none">○ R1, 5 & 8 – Does not just apply to local restoration○ R2 – Could be broken up into 2 requirements○ R11.4 – Ambiguous○ R11.5 - This needs to be looked at for 30 days - should be done prior to access being granted. |
|--|--|

| Standard Review Form | | |
|--|---|---|
| Project 2006-03 System Restoration and Blackstart | | |
| Standard # | EOP-006-0 | Comments |
| Title | Reliability Coordination – System Restoration | Okay |
| Purpose | | Don't need names. Interconnection is capitalized. |
| Applicability | | Okay |
| Requirements | <i>Conditions</i> | Okay |
| | <i>Who?</i> | Okay |
| | <i>Shall do what?</i> | R5 – burden is capitalized R6 – define actions |
| | <i>Result or Outcome</i> | Missing |
| Measures | | Addressed by CESDT. |
| To Do List | FERC NOPR <ul style="list-style-type: none"> o Require that the reliability coordinator be involved in the development and approval of restoration plans; and o Include Measures and Levels of Non-Compliance FERC staff report <ul style="list-style-type: none"> o RC should be involved in approving TO & BA plans o Expect new standard in November Regional Fill-in-the-Blank Team Comments <ul style="list-style-type: none"> o Drafting team should address EOP-005, EOP-006 EOP-007 and EOP-009 concurrently. Primarily, references in EOP-005, EOP-006, and EOP-009 to meet RRO/Regional requirements need to be modified and EOP-007 needs to be more specific. o See notes for EOP-007 | |
| Misc. Items | | Compliance not specified but appears in CESDT version |

| Standard Review Form Project 2006-03 System Restoration and Blackstart | | |
|---|--|--|
| Standard # | EOP-007-0 | Comments |
| Title | Establish, Maintain, and Document a Regional Blackstart Capability Plan | Too long |
| Purpose | | Need benefit or value proposition. |
| Applicability | | Need to check applicability for RRO as per SAR. |
| Requirements | <i>Conditions</i> | Okay |
| | <i>Who?</i> | Okay |
| | <i>Shall do what?</i> | R1.1 – quicker if unit status changes |
| | <i>Result or Outcome</i> | Missing |
| Measures | | M1 – need to spell out measures M2 – define evidence |
| To Do List | FERC NOPR <ul style="list-style-type: none"> o Commission will not propose to accept or remand EOP-007-0, as it applies only to regional reliability organizations. FERC staff report <ul style="list-style-type: none"> o Appropriateness of RRO questioned Regional Fill-in-the-Blank Team Comments <ul style="list-style-type: none"> o R1 & R2 considerations VO Industry Comments <ul style="list-style-type: none"> o Clarify testing requirements | |
| Misc. Items | | Question reasonability of simulation as proof of capability. |

| Standard Review Form | | |
|--|---|--|
| Project 2006-03 System Restoration and Blackstart | | |
| Standard # | EOP-009-0 | Comments |
| Title | Documentation of Blackstart Generating Unit Test Results | 'Documentation of' could probably be dropped. |
| Purpose | | Title and purpose do not align. Same purpose as EOP-008. |
| Applicability | | Need to check applicability for GO & GOP as per SAR. |
| Requirements | <i>Conditions</i> | Okay |
| | <i>Who?</i> | Okay |
| | <i>Shall do what?</i> | R1 – do we need MW values? R2 – within how many days? |
| | <i>Result or Outcome</i> | Missing |
| Measures | | M1 only applies to R2 and needs to define evidence. |
| To Do List | FERC NOPR o No changes identified. FERC staff report o Lack of periodicity for testing Regional Fill-in-the-Blank Team Comments o Region mentioned in Requirements VO Industry Comments o Distinction between RA & TO vs. RRO for test results | |

System Restoration Standards

EOP-005-1

630. ...the Commission directs the ERO to develop a modification to EOP-005-1 through the Reliability Standards development process that identifies time frames for training and review of restoration plan requirements to simulate contingencies and prepare operators for anticipated and unforeseen events

EOP-006-1

638. ...the Commission directs the ERO to develop a modification to EOP-006-1 through the Reliability Standards development process that ensures that the reliability coordinator, which is the highest level of authority responsible for reliability of the Bulk-Power System, is involved in the development and approval of system restoration plans.

EOP-007-0

647. EEI, FirstEnergy and MRO offer suggestions for improving the Reliability Standard. The Commission directs the ERO to consider these suggestions in future revisions to improve EOP-007-0, through the Reliability Standards development process.

648. Accordingly, the Commission will not approve or remand EOP-007-0 at this time.

642. EEI suggests that EOP-007-0 be rewritten so that compliance obligations are assigned directly to those entities that provide the data and other information.

643. FirstEnergy and MRO state that the reliability coordinator, not the Regional Entity, should be responsible for the regional blackstart plan for its area of responsibility. Further, FirstEnergy states that the blackstart plan developed for a region should be consistent with NRC requirements, should recognize that nuclear units have no blackstart capability and should recognize that nuclear units must have priority access to off-site power for safety reasons. FirstEnergy requests that the Commission direct NERC to revise the definition of a blackstart unit to mean a “diesel, hydro, pump storage, or the combustion turbine generating unit that is used to provide cranking power to a larger steam generating unit designed to restore load” or to mean a “larger steam generating unit designed to restore load.” MRO states that arrangements for coordination of blackstart capability should be addressed in a contract between appropriate entities.

EOP-009-0

674. ...Xcel states that the Reliability Standard should provide details on what constitutes a blackstart test and FirstEnergy states that EOP-009-0 should be consolidated with EOP-007-0 because the Requirements of EOP-009-0 already exist in EOP-007-0.

676. ...The Commission directs the ERO to take these suggestions into consideration when revising the Reliability Standard through the Reliability Standards development process.

Standard Authorization Request Form

| | |
|---|-----------------------|
| Title of Proposed Standard Revisions to System Restoration and Blackstart Standards Project 2006-03 | |
| Request Date | January 18, 2007 |
| Revised _____ | March 23, 2007 |

| SAR Requestor Information | SAR Type (<i>Check a box for each one that applies.</i>) |
|--|--|
| Name Richard J Kafka | <input type="checkbox"/> New Standard |
| Primary Contact Richard J Kafka | <input checked="" type="checkbox"/> Revision to existing Standards EOP-005, EOP-006, EOP-007, EOP-009 |
| Telephone (301) 469-5274 Fax (301) 469-5235 | <input checked="" type="checkbox"/> Withdrawal of existing Standard |
| E-mail rjkafka@pepcoholdings.com | <input type="checkbox"/> Urgent Action |

Standards Authorization Request Form

Purpose (Describe the purpose of the standard — what the standard will achieve in support of reliability.)

EOP-005-1 — System Restoration Plans

EOP-006-1 — Reliability Coordination - System Restoration

EOP-007-0 — Establish, Maintain, and Document a Regional Blackstart Capability Plan

EOP-009-0 — Documentation of Blackstart Generating Unit Test Results

The purpose of revising the above four standards is to:

1. Provide an adequate level of reliability for the North American bulk power systems - the standards are complete and the requirements are set at an appropriate level to ensure reliability.
2. Ensure they are enforceable as mandatory reliability standards with financial penalties - the applicability to bulk power system owners, operators, and users, and as appropriate particular classes of facilities, are clearly defined; the purpose, requirements, and measures are results-focused and unambiguous; the consequences of violating the requirements are clear.
3. Consider other general improvements described in the standards development work plan. (See attachments)
4. Consider stakeholder comments received during the initial development of the standards and other comments received from Electric Reliability Organization (ERO) regulatory authorities, as noted in the attached review sheets.
5. Satisfy the standards procedure requirement for five-year review of the standards.

Industry Need (Provide a detailed statement justifying the need for the proposed standard, along with any supporting documentation.)

When all else fails, the bulk power system requires a clearly defined and comprehensive set of standards to ensure the ability to successfully restore the integrity of the system. The existing standards lack specificity and measures to guide the industry in a consistent and reliable manner for system restoration.

EOP-005 was a Version 0 standard that was modified to add some requirements that were translated from the Phase III & IV measures thus creating a -1 version standard; EOP-006 is a -1 standard as of January 1, 2007; EOP-007, and EOP-009 are Version 0 standards. As the Electric Reliability Organization begins enforcing compliance with reliability standards under Section 215 of the Federal Power Act in the United States and applicable statutes and regulations in Canada, the industry needs a set of clear, measurable, and enforceable reliability standards. The current standards, while a good foundation, were translated from historical operating and planning policies and guides that were appropriate in an era of voluntary compliance. The Version 0 standards, Phase III & IV standards, and recent updates were put in place as a temporary starting point to start up the Electric Reliability Organization and begin enforcement of mandatory standards. However, it is important to update the standards in a timely manner, incorporating improvements to make the standards more suitable for enforcement and to capture prior recommendations that were deferred during the Version 0 and Phase III & IV translations.

In addition, FERC indicated it will not propose to accept or remand EOP-007-0, as it applies only to regional reliability organizations.

Brief Description (Describe the proposed standard in sufficient detail to clearly define the scope in a manner that can be easily understood by others.)

This project involves reviewing and revising the four referenced standards including:

- Resolving the issue of associating compliance measures with Attachment 1-EOP-005 elements,
- EOP-005 only requires the TOP and the BA to have a system restoration plan. The role of these and other entities, especially the Reliability Coordinator, needs to be defined.
- Both EOP-005 and EOP-006 contain a mix of requirements that address advance planning and real-time operations. The Standards Drafting Team (SDT) should consider the need to clearly delineate the two processes within the standards requirements.
- The elimination of 'fill-in-the-blank' components in EOP-007-0 and EOP-009.
- Other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable standards and consistent with establishing technically sufficient bulk power system blackstart and restoration standards.

Work is not to be limited to the 'To Do Lists'. Those items shall be considered but are not mandatory revisions. [Consideration will also be given to the comments on the appropriate EOP standards in FERC Order #693, issued March 16, 2007.](#)

Throughout the process, the SDT should identify any conflicts that are found with other existing standards and bring them to the attention of the Standards Committee for resolution.

Standards Authorization Request Form

Reliability Functions

| The Standard will Apply to the Following Functions <i>(Check box for each one that applies.)</i> | | |
|---|-------------------------------|---|
| <input checked="" type="checkbox"/> | Reliability Coordinator | Responsible for the real-time operating reliability of its Reliability Coordinator Area in coordination with its neighboring Reliability Coordinator's wide area view. |
| <input checked="" type="checkbox"/> | 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. |
| <input type="checkbox"/> | Interchange Authority | Ensures communication of interchange transactions for reliability evaluation purposes and coordinates implementation of valid and balanced interchange schedules between Balancing Authority Areas. |
| <input checked="" type="checkbox"/> | Planning Coordinator | Assesses the longer-term reliability of its Planning Coordinator Area. |
| <input type="checkbox"/> | Resource Planner | Develops a (>one year) plan for the resource adequacy of its specific loads within its portion of a Planning Coordinator area. |
| <input type="checkbox"/> | Transmission Planner | Develops a (>one year) plan for the reliability of the interconnected Bulk Electric System within its portion of the Planning Coordinator area. |
| <input checked="" type="checkbox"/> | Transmission Service Provider | Administers the transmission tariff and provides transmission services under applicable transmission service agreements (e.g., the pro forma tariff). |
| <input checked="" type="checkbox"/> | Transmission Owner | Owns and maintains transmission facilities. |
| <input checked="" type="checkbox"/> | Transmission Operator | Ensures the real-time operating reliability of the transmission assets within a Transmission Operator Area. |
| <input checked="" type="checkbox"/> | Distribution Provider | Delivers electrical energy to the End-use customer. |
| <input checked="" type="checkbox"/> | Generator Owner | Owns and maintains generating facilities. |
| <input checked="" type="checkbox"/> | Generator Operator | Operates generation unit(s) to provide real and reactive power. |
| <input type="checkbox"/> | Purchasing-Selling Entity | Purchases or sells energy, capacity, and necessary reliability-related services as required. |
| <input type="checkbox"/> | Market Operator | Interface point for reliability functions with commercial functions. |

Standards Authorization Request Form

| | | |
|-------------------------------------|---------------------|---|
| <input checked="" type="checkbox"/> | Load-Serving Entity | Secures energy and transmission service (and related reliability-related services) to serve the End-use Customer. |
|-------------------------------------|---------------------|---|

Standards Authorization Request Form

Reliability and Market Interface Principles

| | |
|--|--|
| Applicable Reliability Principles <i>(Check box for all that apply.)</i> | |
| <input checked="" type="checkbox"/> | 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. |
| <input type="checkbox"/> | 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. |
| <input type="checkbox"/> | 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. |
| <input checked="" type="checkbox"/> | 4. Plans for emergency operation and system restoration of interconnected bulk electric systems shall be developed, coordinated, maintained and implemented. |
| <input checked="" type="checkbox"/> E | 5. Facilities for communication, monitoring and control shall be provided, used and maintained for the reliability of interconnected bulk electric systems. |
| <input checked="" type="checkbox"/> E | 6. Personnel responsible for planning and operating interconnected bulk electric systems shall be trained, qualified, and have the responsibility and authority to implement actions. |
| <input checked="" type="checkbox"/> E | 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? <i>(Select 'yes' or 'no' from the drop-down box.)</i> | |
| 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 | |

Related Standards

| Standard No. | Explanation |
|---------------------|--|
| PER-002 | Applicable personnel must be trained in restoration and blackstart procedures. |
| EOP-001 | R3.4 may be redundant after this project is completed. |
| | |
| | |

Related SARs

| SAR ID | Explanation |
|---------------|--------------------|
| | |
| | |
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Regional Differences

| Region | Explanation |
|---------------|--------------------|
| ERCOT | |
| FRCC | |
| MRO | |
| NPCC | |
| SERC | |
| RFC | |
| SPP | |
| WECC | |

| Standard Review Form | | |
|--|--|--|
| Project 2006-03 System Restoration and Blackstart | | |
| Standard # | EOP-005-0 | Comments |
| Title | System Restoration Plans | Okay |
| Purpose | | Okay |
| Applicability | | Okay |
| Requirements | <i>Conditions</i> | Interconnection is capitalized. |
| | <i>Who?</i> | Okay |
| | <i>Shall do what?</i> | R2 mentions simulated exercises – where did that come from? R3 – isn't this a function of the extent of the outage? R5 – define periodically R6 – provide training requirements R8 – how do you verify? R115.2 – what does considered mean R11.5.3 – depends on extent |
| | <i>Result or Outcome</i> | Missing |
| Measures | | 2 M for 11 R |
| To Do List | <p>FERC NOPR</p> <ul style="list-style-type: none"> o Include Measures; and o Identify time frames for training and review of restoration plan requirements to simulate contingencies and prepare operators for anticipated and unforeseen events. <p>FERC staff report</p> <ul style="list-style-type: none"> o Periodicity of training o Lack of Measures <p>Regional Fill-in-the-Blank Team Comments</p> <ul style="list-style-type: none"> o Drafting team should address EOP-005, EOP-006 EOP-007 and EOP-009 concurrently. Primarily, references in EOP-005, EOP-006, and EOP-009 to meet RRO/Regional requirements need to be modified and EOP-007 needs to be more specific. o See notes for EOP-007 <p>V0 Industry Comments</p> <ul style="list-style-type: none"> o Priority to integrity of interconnection o BA does not have all required information o Interdependency of planning and implementation missing as well as between functional entities o LSE & GO should have plans o Additional element consideration o Can't really test plan <p>Phase III/IV comments</p> <ul style="list-style-type: none"> o Add LSEs to Applicability o Add a requirement for a blackstart agreement between the transmission operator and the generator owner - include items such as identification of generator owner/operator facilities required to participate in the blackstart plan; when and how quickly a blackstart unit must respond; and what cranking path requires energization o Add a requirement for a cranking path agreement between the transmission operator and the generator owner/operator o Condense the requirements and measures - R1 the requirement to develop the restoration plan and all the components required of that plan; and R2 the requirement to prove and document that the plan | |

2006-03 System Restoration and Blackstart

| | |
|--|--|
| | <p>works. Then, two measurements would follow: one to assess the contents of the plan and one to assess the simulation or testing of the plan.</p> <ul style="list-style-type: none">○ Need to resolve the issue of the elements on the Attachment – are these mandatory or not – there is a mismatch between R1 and levels of non-compliance○ R3 – revise to place emphasis for TOP on restoring local transmission system as preparation for restoring the integrity of the Interconnection.○ R4 – Add LSEs○ R5 – replace ‘periodic’ with a specific periodicity for testing○ R6 – add specificity to frequency and scope of required training○ R11.5 - replace the word, ‘may’ with: The affected Transmission Operators shall not resynchronize the isolated area(s) with the surrounding area(s) until the following conditions are met: the voltage, frequency, and phase angle permit, the affected reliability coordinator(s) and the adjacent areas are notified, and reliability coordinator approval is given.○ Delete R11.5.4. It does not seem reasonable or logical for a control area to be required to shed 5,000 MWs of load, for example, in order for their neighbor to reconnect 1,000 MWs of their own load.○ R11.5. Should exclude islands within a system that do not affect surrounding areas <p>VRF comments</p> <ul style="list-style-type: none">○ R1, 5 & 8 – Does not just apply to local restoration○ R2 – Could be broken up into 2 requirements○ R11.4 – Ambiguous○ R11.5 - This needs to be looked at for 30 days - should be done prior to access being granted. |
|--|--|

| Standard Review Form Project 2006-03 System Restoration and Blackstart | | |
|---|---|---|
| Standard # | EOP-006-0 | Comments |
| Title | Reliability Coordination – System Restoration | Okay |
| Purpose | | Don't need names. Interconnection is capitalized. |
| Applicability | | Okay |
| Requirements | <i>Conditions</i> | Okay |
| | <i>Who?</i> | Okay |
| | <i>Shall do what?</i> | R5 – burden is capitalized R6 – define actions |
| | <i>Result or Outcome</i> | Missing |
| Measures | | Addressed by CESDT. |
| To Do List | FERC NOPR <ul style="list-style-type: none"> o Require that the reliability coordinator be involved in the development and approval of restoration plans; and o Include Measures and Levels of Non-Compliance FERC staff report <ul style="list-style-type: none"> o RC should be involved in approving TO & BA plans o Expect new standard in November Regional Fill-in-the-Blank Team Comments <ul style="list-style-type: none"> o Drafting team should address EOP-005, EOP-006 EOP-007 and EOP-009 concurrently. Primarily, references in EOP-005, EOP-006, and EOP-009 to meet RRO/Regional requirements need to be modified and EOP-007 needs to be more specific. o See notes for EOP-007 | |
| Misc. Items | | Compliance not specified but appears in CESDT version |

| Standard Review Form | | |
|--|--|--|
| Project 2006-03 System Restoration and Blackstart | | |
| Standard # | EOP-007-0 | Comments |
| Title | Establish, Maintain, and Document a Regional Blackstart Capability Plan | Too long |
| Purpose | | Need benefit or value proposition. |
| Applicability | | Need to check applicability for RRO as per SAR. |
| Requirements | <i>Conditions</i> | Okay |
| | <i>Who?</i> | Okay |
| | <i>Shall do what?</i> | R1.1 – quicker if unit status changes |
| | <i>Result or Outcome</i> | Missing |
| Measures | | M1 – need to spell out measures M2 – define evidence |
| To Do List | FERC NOPR <ul style="list-style-type: none"> o Commission will not propose to accept or remand EOP-007-0, as it applies only to regional reliability organizations. FERC staff report <ul style="list-style-type: none"> o Appropriateness of RRO questioned Regional Fill-in-the-Blank Team Comments <ul style="list-style-type: none"> o R1 & R2 considerations VO Industry Comments <ul style="list-style-type: none"> o Clarify testing requirements | |
| Misc. Items | | Question reasonability of simulation as proof of capability. |

| Standard Review Form Project 2006-03 System Restoration and Blackstart | | |
|---|---|--|
| Standard # | EOP-009-0 | Comments |
| Title | Documentation of Blackstart Generating Unit Test Results | 'Documentation of' could probably be dropped. |
| Purpose | | Title and purpose do not align. Same purpose as EOP-008. |
| Applicability | | Need to check applicability for GO & GOP as per SAR. |
| Requirements | <i>Conditions</i> | Okay |
| | <i>Who?</i> | Okay |
| | <i>Shall do what?</i> | R1 – do we need MW values? R2 – within how many days? |
| | <i>Result or Outcome</i> | Missing |
| Measures | | M1 only applies to R2 and needs to define evidence. |
| To Do List | FERC NOPR o No changes identified. FERC staff report o Lack of periodicity for testing Regional Fill-in-the-Blank Team Comments o Region mentioned in Requirements VO Industry Comments o Distinction between RA & TO vs. RRO for test results | |

Excerpts from FERC Final Order 693

System Restoration Standards

EOP-005-1

630. ...the Commission directs the ERO to develop a modification to EOP-005-1 through the Reliability Standards development process that identifies time frames for training and review of restoration plan requirements to simulate contingencies and prepare operators for anticipated and unforeseen events

EOP-006-1

638. ...the Commission directs the ERO to develop a modification to EOP-006-1 through the Reliability Standards development process that ensures that the reliability coordinator, which is the highest level of authority responsible for reliability of the Bulk-Power System, is involved in the development and approval of system restoration plans.

EOP-007-0

647. EEI, FirstEnergy and MRO offer suggestions for improving the Reliability Standard. The Commission directs the ERO to consider these suggestions in future revisions to improve EOP-007-0, through the Reliability Standards development process.

648. Accordingly, the Commission will not approve or remand EOP-007-0 at this time.

642. EEI suggests that EOP-007-0 be rewritten so that compliance obligations are assigned directly to those entities that provide the data and other information.

643. FirstEnergy and MRO state that the reliability coordinator, not the Regional Entity, should be responsible for the regional blackstart plan for its area of responsibility. Further, FirstEnergy states that the blackstart plan developed for a region should be consistent with NRC requirements, should recognize that nuclear units have no blackstart capability and should recognize that nuclear units must have priority access to off-site power for safety reasons. FirstEnergy requests that the Commission direct NERC to revise the definition of a blackstart unit to mean a “diesel, hydro, pump storage, or the combustion turbine generating unit that is used to provide cranking power to a larger steam generating unit designed to restore load” or to mean a “larger steam generating unit designed to restore load.” MRO states that arrangements for coordination of blackstart capability should be addressed in a contract between appropriate entities.

EOP-009-0

674. ...Xcel states that the Reliability Standard should provide details on what constitutes a blackstart test and FirstEnergy states that EOP-009-0 should be consolidated with EOP-007-0 because the Requirements of EOP-009-0 already exist in EOP-007-0.

676. ...The Commission directs the ERO to take these suggestions into consideration when revising the Reliability Standard through the Reliability Standards development process.

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

REGISTERED BALLOT BODY

August 15, 2007

Page Two

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. SAR version 1 posted on November 6, 2006.
2. SAR version 1 comment period closed on December 5, 2006.
3. SAR version 2 and comment responses for SAR version 1 posted on February 8, 2007.
4. SAR version 2 comment period closed on March 9, 2007.
5. SAR version 3 and comment responses for SAR version 2 accepted by SC and SDT appointed on April 9, 2007.

Proposed Action Plan and Description of Current Draft:

The SDT began meeting in mid-April 2007 immediately following the approval of the SAR by the SC with the goal of completing work in approximately one year's time. The current draft is the first posting of the proposed standards. Only the requirements and measures have been completed at this time. Violation risk factors, time horizons, and all compliance elements will be completed after the requirements have been reviewed. Requirements in EOP-007 and EOP-009 have been incorporated into the revised EOP-005 and EOP-006. Therefore, EOP-007 and EOP-009 will be retired when this project is approved and EOP-005-2 and EOP-006-2 go into effect.

Future Development Plan:

| Anticipated Actions | Anticipated Date |
|--|-------------------------|
| 1. Second posting of draft standards. | December 10, 2007 |
| 2. Standards posted for first ballot. | February 18, 2008 |
| 3. Standards posted for second ballot. | March 17, 2008 |
| 4. Standards sent to BOT for approval. | April 1, 2008 |

Definitions of Terms Used in Standard

This section includes all newly defined or revised terms used in the proposed standard. Terms already defined in the Reliability Standards Glossary of Terms are not repeated here. New or revised definitions listed below become approved when the proposed standard is approved. When the standard becomes effective, these defined terms will be removed from the individual standard and added to the Glossary.

Blackstart Capability Plan: Existing definition is retired.

Blackstart Resource: A generation Facility and set of equipment under the control of the Generator Operator with the basic ability to start itself without support from the System or to automatically remain energized without connection to the remainder of the System, with the ability to energize a dead bus, and meeting the Transmission Operator's restoration plan needs for real and reactive power capability.

A. Introduction

1. **Title:** System Restoration and Blackstart — Operations
2. **Number:** EOP-005-2
3. **Purpose:** Ensure plans, Facilities, and personnel are available to restore the Bulk Electric System (BES) to its normal state following an event that requires the utilization of Blackstart Resources.
4. **Applicability:**
 - 4.1. Transmission Operators
 - 4.2. Generator Operators with Blackstart Resources
5. **Proposed Effective Date:** TBD

B. Requirements

- R1. Each Transmission Operator shall have a restoration plan approved by its Reliability Coordinator to restore its System to its normal state following an event that requires the utilization of Blackstart Resources. The restoration plan shall have a priority of restoring the integrity of the Interconnection under the direction of the Reliability Coordinator. The restoration plan shall include the following: [Violation Risk Factor = xxx] [Time Horizon = xxx]
 - R1.1. Identification of the authority and tasks of the Transmission Operator’s control room and field switching personnel assigned to participate in restoration activities including the responsibility of the Transmission Operator to work with its Reliability Coordinator and with other Transmission Operators and the responsibility of the Transmission Operator to coordinate its restoration activities with the entities operating within its area.
 - R1.2. Documented coordination with applicable Blackstart Resource Facility Plans (BRFP) to ensure the ability of the Blackstart Resource to control and maintain voltage and frequency within acceptable limits.
 - R1.2.1. Identification of each Blackstart Resource and its characteristics including the following: the name of the Blackstart Resource, location, megawatt and megavar capacity, type of unit, latest date of test, test results and starting method.
 - R1.3. Cranking Paths diagrams, including initial switching requirements, between each Blackstart Resource and the unit(s) to be started.
 - R1.4. Identification of acceptable operating voltage and frequency limits during restoration.
 - R1.5. A statement indicating that in situations where the actual conditions do not match the studied conditions, the System Operator shall use professional judgment to modify the System restoration plan.
 - R1.6. Operating Procedures to re-establish connections within the Transmission Operator’s System for areas that have become separated.

- R1.7.** Operating Procedures to restore Loads, including identification of any critical Load requirements that require high priority including off-site power for nuclear Facilities, and Facilities required to restore the BES.
- R1.8.** Procedures to coordinate its restoration plan with the applicable Generator Owners, Generator Operators, Load-Serving Entities, Distribution Providers, and Balancing Authorities within its area, its Reliability Coordinator, and neighboring Transmission Operators and Balancing Authorities.
- R2.** Each Transmission Operator shall review its restoration plan at least annually and update it within ninety calendar days after completing permanent modifications that would change the planned Cranking Paths or after detecting deficiencies in the restoration plan. [Violation Risk Factor = xxx] [Time Horizon = xxx]
 - R2.1.** The Transmission Operator shall submit its revised restoration plan to the Reliability Coordinator within the same ninety day period.
 - R2.2.** Each Transmission Operator shall confirm annually to its Reliability Coordinator that it has reviewed its restoration plan.
- R3.** Each Transmission Operator shall verify every five years at a minimum through a combination of analysis of actual events, steady state and dynamic simulations or testing that its documented restoration plan accomplishes its intended function. Such simulations or testing shall include: [Violation Risk Factor = xxx] [Time Horizon = xxx]
 - R3.1.** Ability of Blackstart Resources to meet the Reactive Power requirements of the Cranking Paths and to supply initial Loads.
 - R3.2.** Loads required to stabilize the Blackstart Resources.
 - R3.3.** Loads and generating resources required to control voltages and frequency within acceptable steady-state and dynamic limits (documented in Requirement R1.4) as the BES is restored.
- R4.** Following a Disturbance in which one or more areas of the BES shuts down and the use of Blackstart Resources is required to restore the shut down area to service, each affected Transmission Operators shall implement its restoration plan. [Violation Risk Factor = xxx] [Time Horizon = xxx]
 - R4.1.** Each affected Transmission Operator shall work in conjunction with its Reliability Coordinator(s) to determine the extent and condition of the isolated area(s).
 - R4.2.** Each affected Transmission Operator shall give high priority to restoration of off-site power to nuclear stations.
 - R4.3.** Each affected Transmission Operator must notify its Reliability Coordinator of restoration progress as required in the Reliability Coordinator's restoration plan.
- R5.** Each affected Transmission Operator shall resynchronize islanded area(s) with neighboring area(s) only with the authorization of the Reliability Coordinator and in

accordance with the established procedures of the Reliability Coordinator. [Violation Risk Factor = xxx] [Time Horizon = xxx]

- R6.** Each Transmission Operator shall have Blackstart Resource testing requirements to verify that each Blackstart Resource is capable of meeting the requirements of its restoration plan. These Blackstart Resource testing requirements shall include, but are not limited to: [Violation Risk Factor = xxx] [Time Horizon = xxx]
 - R6.1.** Frequency of testing with every Blackstart Resource tested at least once every three years.
 - R6.2.** Type of test required, including but not limited to:
 - R6.2.1.** Ability to start the unit when isolated with no support from the BES.
 - R6.2.2.** Ability to energize a dead bus. If it is not possible to energize a dead bus during the test, the testing entity must affirm that the unit has the capability to energize a dead bus.
 - R6.2.3.** Ability to remain stable and control voltage as indicated by the restoration plan while isolated from the BES and supplying minimum Load level as defined in the restoration plan.
 - R6.2.4.** Ability to maintain acceptable frequency during the test as indicated in the restoration plan.
 - R6.3.** Minimum duration of tests.
- R7.** Each Transmission Operator shall only include, in its restoration plan, those Blackstart Resources that have met the Transmission Operator's Blackstart Resource testing requirements.
- R8.** Each Transmission Operator shall distribute its Blackstart Resource testing requirements to each Generator Operator in its area that operates a Blackstart Resource.
- R9.** Each Transmission Operator shall provide training within its existing emergency operations topics training program to its control room personnel identified in its restoration plan to ensure the proper execution of its restoration plan. This training program shall include the following: [Violation Risk Factor = xxx] [Time Horizon = xxx]
 - R9.1.** System restoration philosophy.
 - R9.2.** Restoration priorities.
 - R9.3.** Building of cranking paths.
 - R9.4.** Synchronizing.
 - R9.5.** Review of the restoration plan.
- R10.** Each Transmission Operator shall provide a minimum of two hours of System restoration training per year for each of its authorized transmission field switching personnel for the tasks identified in its restoration plan.

- R11.** Each Transmission Operator shall participate in its Reliability Coordinator's restoration drills, exercises, or simulations as requested by its Reliability Coordinator. [Violation Risk Factor = xxx] [Time Horizon = xxx]
- R12.** Each Transmission Operator and Generator Operator with a Blackstart Resource shall have a documented Blackstart Resource agreement specifying the terms and conditions of their arrangement. Within ninety days of a Blackstart Resource's acceptance as such into a Transmission Operator's restoration plan, the Generator Operator with the Blackstart Resource must provide its BRFP to the Transmission Operator. The BRFP shall include at a minimum: the name of the Blackstart Resource, location, megawatt and megavar capacity, type of unit, fuel type, latest date of test, test results, starting method and procedures for the startup of the Blackstart Resource. [Violation Risk Factor = xxx] [Time Horizon = xxx]
- R13.** Each Generator Operator with a Blackstart Resource included in a Transmission Operator's restoration plan shall review its BRFP at least annually and update, if necessary, within ninety calendar days after completing modifications that would change the BRFP or after detecting deficiencies in the BRFP. [Violation Risk Factor = xxx] [Time Horizon = xxx]
- R14.** Each Generator Operator of a Blackstart Resource included in the Transmission Operator's restoration plan shall perform Blackstart Resource tests in accordance with the requirements set by the Transmission Operator to verify that that Blackstart Resource can perform as specified in the restoration plan. [Violation Risk Factor = xxx] [Time Horizon = xxx]
- R14.1.** The Generator Operator shall provide documentation of its Blackstart Resource test results to its Reliability Coordinator and Transmission Operator. Testing records shall include at a minimum: name of the Blackstart Resource, unit tested, date of the test, duration of the test, time required to start the unit, an indication of any testing requirements not met under Requirement R6, the voltage profile during the test including time correlation to Loads applied (if any), and the unit frequency profile during the test including time correlation to Loads applied (if any).
- R15.** Each Generator Operator shall provide a minimum of four hours of training per year to its operating personnel responsible for the startup and synchronization of its Blackstart Resource generation units identified in the BRFP. The training program shall include the following: [Violation Risk Factor = xxx] [Time Horizon = xxx]
- R15.1.** System restoration philosophy including coordination with the Transmission Operator.
- R15.2.** Special actions required to enable blackstart and synchronization to the System.
- R15.3.** Restoration priorities.
- R16.** Each Generator Operator shall participate in the Reliability Coordinator's restoration drills, exercises, or simulations as requested by the Reliability Coordinator.

C. Measures

- M1.** Each Transmission Operator shall have a documented System restoration plan developed in accordance with Requirement R1 that has been approved by its Reliability Coordinator as shown with evidence such as a written approval letter from its Reliability Coordinator.
- M2.** Each Transmission Operator shall have documentation that it has annually reviewed and updated its restoration plan in accordance with Requirement R2.
- M3.** Each Transmission Operator shall have documentation, such as load flow outputs or similar programmatic printouts, that it has verified that its restoration plan accomplishes its intended function in accordance with Requirement R3.
- M4.** If there has been a Disturbance in which Blackstart Resources have been utilized in restoring the shut down area of the System to service, each Transmission Operator involved shall have evidence, that could include, but is not limited to, operator logs, voice recordings or transcripts of voice recordings, electronic communications, or computer printouts, that it implemented its restoration plan in accordance with Requirement R4.
- M5.** If there has been a Disturbance in which Blackstart Resources have been utilized in restoring the shut down area of the System to service, each Transmission Operator involved in such an event shall have evidence, that could include, but is not limited to, operator logs, voice recordings or transcripts of voice recordings, electronic communications, or computer printouts, that it resynchronized isolated areas in accordance with Requirement R5.
- M6.** Each Transmission Operator shall have documented Blackstart Resource testing requirements in accordance with Requirement R6.
- M7.** Each Transmission Operator shall have documentation such as test results showing that all Blackstart Resources included in its restoration plan have met its Blackstart Resource testing requirements in accordance with Requirement R7.
- M8.** Each Transmission Operator shall have evidence such as e-mail logs that it has distributed its Blackstart Resource testing requirements to each Generator Operator in its area that operates a Blackstart Resource in accordance with Requirement R8.
- M9.** Each Transmission Operator shall have a copy of its training records available showing that they have provided training in accordance with Requirements R9 and R10.
- M10.** Each Transmission Operator shall have evidence that it participated in the Reliability Coordinator's restoration drills, exercises, or simulations as requested in accordance with Requirement R11.
- M11.** Each Transmission Operator shall have available its Blackstart Resource agreements with all Generator Operator's with Blackstart Resources included in its restoration plan in accordance with Requirement R12.
- M12.** Each Generator Operator with a BRFP included in a Transmission Operator's restoration plan shall have documentation that it has reviewed and updated, if necessary, its BRFP in accordance with Requirement R13.

M13. Each Generator Operator with a BRFP included in the Transmission Operator’s restoration plan shall have evidence that it has tested its Blackstart Resources in accordance with Requirement R14.

M14. Each Generator Operator shall have a copy of its training records available showing that it has provided training in accordance with Requirement R15.

M15. Each Generator Operator shall have evidence that it participated in the Reliability Coordinator’s restoration drills, exercises, or simulations if requested to do so in accordance with Requirement R16.

D. Compliance

1. Compliance Monitoring Process

1.1. Compliance Monitoring Responsibility

1.2. Compliance Monitoring Period and Reset

1.3. Data Retention

1.4. Additional Compliance Information

2. Violation Severity Levels

2.1. Lower:

2.2. Moderate:

2.3. High:

2.4. Severe:

E. Regional Variances

None.

F. Associated Documents

None.

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 | May 2, 2007 | Approved by Board of Trustees | Revised |
| 2 | April 18, 2007 | Revisions pursuant to Project 2006-03 | Updated testing requirements Incorporated Attachment 1 into the requirements Updated Measures and |

Standard EOP-005-2 — System Restoration and Blackstart — Operations

| | | | |
|--|--|--|--|
| | | | Compliance to match new Requirements Added Associated Standards |
|--|--|--|--|

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. SAR version 1 posted on November 6, 2006.
2. SAR version 1 comment period closed on December 5, 2006.
3. SAR version 2 and comment responses for SAR version 1 posted on February 8, 2007.
4. SAR version 2 comment period closed on March 9, 2007.
5. SAR version 3 and comment responses for SAR version 2 accepted by SC and SDT appointed on April 9, 2007.

Proposed Action Plan and Description of Current Draft:

The SDT began meeting in mid-April 2007 immediately following the approval of the SAR by the SC with the goal of completing work in approximately one year's time. The current draft is the first posting of the proposed standards. Only the requirements and measures have been completed at this time. Violation risk factors, time horizons, and all compliance elements will be completed after the requirements have been reviewed. Requirements in EOP-007 and EOP-009 have been incorporated into the revised EOP-005 and EOP-006. Therefore, EOP-007 and EOP-009 will be retired when this project is approved and EOP-005-2 and EOP-006-2 go into effect.

Future Development Plan:

| Anticipated Actions | Anticipated Date |
|--|-------------------------|
| 1. Second posting of draft standard. | December 10, 2007 |
| 2. Standards posted for first ballot. | February 18, 2008 |
| 3. Standards posted for second ballot. | March 17, 2008 |
| 4. Standards sent to BOT for approval. | April 1, 2008 |

Definitions of Terms Used in Standard

This section includes all newly defined or revised terms used in the proposed standard. Terms already defined in the Reliability Standards Glossary of Terms are not repeated here. New or revised definitions listed below become approved when the proposed standard is approved. When the standard becomes effective, these defined terms will be removed from the individual standard and added to the Glossary.

None.

A. Introduction

1. **Title:** System Restoration and Blackstart – Coordination
2. **Number:** EOP-006-2
3. **Purpose:** Ensure plans, facilities, and personnel are available for effective coordination of the System restoration process to ensure reliability is maintained during restoration and priority is placed on restoring the Interconnection.
4. **Applicability:**
 - 4.1. Reliability Coordinator.
5. **Proposed Effective Date:** TBD

B. Requirements

- R1. The Reliability Coordinator shall have a Reliability Coordinator Area restoration plan that has been made available to its Transmission Operators, Balancing Authorities, and neighboring Reliability Coordinators to restore its area to its normal state following an event that requires the utilization of Blackstart Resources. The restoration plan shall have a priority of restoring the integrity of the Interconnection. The restoration plan shall include the following: [Violation Risk Factor = xxx] [Time Horizon = xxx]
 - R1.1. Identification of the authority and tasks of the Reliability Coordinator’s control room personnel assigned to participate in restoration activities including the responsibility of the Reliability Coordinator to work with its neighboring Reliability Coordinator and with the Transmission Operators and generation Operators with Blackstart Resources within its area.
 - R1.2. Documented coordination between individual Transmission Operator restoration plans.
 - R1.3. Documented coordination of restoration plans with neighboring Reliability Coordinators.
 - R1.4. Criteria and conditions for re-establishing interconnections between neighboring Transmission Operators and Reliability Coordinator Areas.
 - R1.5. Identification of acceptable voltage and frequency limits during restoration.
 - R1.6. A statement indicating that in situations where the actual conditions do not match the studied conditions, the System Operator shall use professional judgment to modify the System restoration plan.
 - R1.7. Documentation of reporting requirements to the Reliability Coordinator during a restoration event.
- R2. Each Reliability Coordinator shall review and approve, if acceptable, the Transmission Operator restoration plans within its Reliability Coordinator Area. [Violation Risk Factor = xxx] [Time Horizon = xxx]
 - R2.1. The Reliability Coordinator shall determine whether the Transmission Operator’s restoration plan is compatible with the Reliability Coordinator’s

restoration plan as well as being compatible with other Transmission Operator restoration plans within its Reliability Coordinator Area.

- R2.2.** The Reliability Coordinator shall respond to the Transmission Operator's submitted restoration plan within thirty days.
- R2.3.** The Reliability Coordinator shall provide written reasons for disapproving a Transmission Operator's restoration plan.
- R3.** Each Reliability Coordinator shall have a copy of the approved restoration plan of each Transmission Operator in its Reliability Coordinator Area within each of its control centers. [Violation Risk Factor = xxx] [Time Horizon = xxx]
- R4.** Each Reliability Coordinator shall work in conjunction with affected Balancing Authorities, Generator Operators, and Transmission Operators as well as neighboring Reliability Coordinators to monitor restoration progress, coordinate restoration, and take actions to restore the Bulk Electric System frequency to normal. Such actions would consider but not be limited to: adjusting generation, placing additional generators on line, or shedding Load. [Violation Risk Factor = xxx] [Time Horizon = xxx]
- R5.** The Reliability Coordinator shall authorize and coordinate re-synchronizing isolated areas. [Violation Risk Factor = xxx] [Time Horizon = xxx]
- R6.** The Reliability Coordinator shall serve as the primary contact for disseminating information regarding restoration to neighboring Reliability Coordinators and Transmission Operators or Balancing Authorities within its Reliability Coordinator Area. [Violation Risk Factor = xxx] [Time Horizon = xxx]
- R7.** Each Reliability Coordinator shall provide training within its existing emergency operations training program to its control room personnel identified in its restoration plan to ensure the proper execution of its restoration plan. This training program shall include the following: [Violation Risk Factor = xxx] [Time Horizon = xxx]
 - R7.1.** System restoration philosophy including the coordination role of the Reliability Coordinator.
 - R7.2.** Re-establishing the Interconnection.
- R8.** Each Reliability Coordinator shall conduct two System restoration drills, exercises, or simulations per year which include the Transmission Operators and Generator Operators with Blackstart Resources in their area of responsibility as dictated by the particular scope of the drill, exercise, or simulation that is being conducted. Each Transmission Operator and Generator Operator with Blackstart Resources shall be included in a drill, exercise, or simulation at least every two years. [Violation Risk Factor = xxx] [Time Horizon = xxx]

C. Measures

- M1.** Each Reliability Coordinator shall have available a copy of its restoration plan in accordance with Requirement R1.
- M2.** Each Reliability Coordinator shall provide evidence that its restoration plan has been distributed in accordance with R1.

- M3.** Each Reliability Coordinator shall provide evidence that it has reviewed its Transmission Operator's submitted restoration plan(s) in accordance with Requirement R2.
- M4.** Each Reliability Coordinator shall have present in its control centers, a current copy of the approved restoration plan of each Transmission Operator in its Reliability Coordinator Area in accordance with Requirement R3.
- M5.** If there has been a Disturbance, each Reliability Coordinator involved shall have evidence, that could include, but is not limited to, operator logs, voice recordings or transcripts of voice recordings, electronic communications, or computer printouts, that will be used to determine if the Reliability Coordinator monitored and coordinated restoration progress in accordance with Requirement R4.
- M6.** If there has been a re-synchronizing of an isolated area, each Reliability Coordinator involved shall have evidence, that could include, but is not limited to, operator logs, voice recordings or transcripts of voice recordings, electronic communications, or computer printouts, that will be used to determine if it authorized re-synchronizing in accordance with Requirement R5.
- M7.** If there has been a Disturbance, each Reliability Coordinator involved shall have evidence, that could include, but is not limited to, operator logs, voice recordings or transcripts of voice recordings, electronic communications, or computer printouts, that will be used to determine if it served as the primary contact to disseminate information to neighboring Reliability Coordinators and Transmission Operators and Balancing Authorities within its Reliability Coordinator Area in accordance with Requirement R6.
- M8.** Each Reliability Coordinator shall have a copy of its training records available showing that it provided training in accordance with Requirement R7.
- M9.** Each Reliability Coordinator shall have evidence that it conducted two System restoration drills, exercises, or simulations per year that included Transmission Operators and Generator Operators with Blackstart Resources in accordance with Requirement R8.

D. Compliance

- 1. Compliance Monitoring Process**
 - 1.1. Compliance Monitoring Responsibility**
 - 1.2. Compliance Monitoring Period and Reset**
 - 1.3. Data Retention**
 - 1.4. Additional Compliance Information**
- 2. Violation Severity Levels**
 - 2.1. Lower:**
 - 2.2. Moderate:**
 - 2.3. High:**

2.4. Severe:

E. Regional Variances

None.

F. Associated Documents

None.

| 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 | TBD | Revisions pursuant to Project 2006-03 | Updated Measures and Compliance to match new Requirements Added Associated Standards |

Comment Form for 1st Draft of Standards for System Restoration and Blackstart (Project 2006-03)

Please use this form to submit comments on the 1st draft of the standards for System Restoration and Blackstart (Project 2006-03). Comments must be submitted by **September 28, 2007**. Please submit the completed form by e-mail to sarcomm@nerc.net with the words "SRB Standards" in the subject line. If you have questions please contact Ed Dobrowolski at Ed.Dobrowolski@nerc.net or by telephone at 609-947-3673.

| 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) |
| <input type="checkbox"/> ERCOT | <input type="checkbox"/> | 1 – Transmission Owners |
| <input type="checkbox"/> FRCC | <input type="checkbox"/> | 2 – RTOs and ISOs |
| <input type="checkbox"/> MRO | <input type="checkbox"/> | 3 – Load-serving Entities |
| <input type="checkbox"/> NPCC | <input type="checkbox"/> | 4 – Transmission-dependent Utilities |
| <input type="checkbox"/> RFC | <input type="checkbox"/> | 5 – Electric Generators |
| <input type="checkbox"/> SERC | <input type="checkbox"/> | 6 – Electricity Brokers, Aggregators, and Marketers |
| <input type="checkbox"/> SPP | <input type="checkbox"/> | 7 – Large Electricity End Users |
| <input type="checkbox"/> WECC | <input type="checkbox"/> | 8 – Small Electricity End Users |
| <input type="checkbox"/> NA – Not Applicable | <input type="checkbox"/> | 9 – Federal, State, Provincial Regulatory or other Government Entities |
| | <input type="checkbox"/> | 10 – Regional Reliability Organizations and Regional Entities |

Comment Form for 1st Draft of Standards for System Restoration and Blackstart (Project 2006-03)

Background Information

The System Restoration and Blackstart Standard Drafting Team (SRB SDT) has made significant changes from the currently approved standards related to System Restoration and Blackstart. While the SRB SDT has considered the comments submitted in prior review periods during NERC's transition to the ERO and those from the SAR stage, particular attention has been given to the recommendations made in FERC Order 693.

The Elements for Consideration of Attachment 1 of EOP-005 have been transformed into sub-requirements of R1 in the standard itself. Attachment 1 is eliminated. Requirements regarding telecommunications systems have been eliminated as duplicative of requirements in COM standards. The requirements of EOP-009 – Blackstart testing – have been moved to EOP-005 and EOP-009 is eliminated. Training requirements are added for Transmission Operator field switching personnel and for operating personnel of Generator Operators with a Blackstart Resource Facility Plan (a newly defined term).

The SRB SDT has eliminated EOP-007 which delegates duties to the Regional Reliability Organization and put new requirements into ERO-006 for the Reliability Coordinator that functionally replace the Regional Reliability Organization requirements. The RRO Blackstart Capability Plan has been eliminated and the Reliability Coordinator has a requirement for a restoration plan to coordinate the Transmission Operator plans for its Reliability Coordinator Area. The Reliability Coordinator approves or makes recommendations for improvement of Transmission Operator restoration plans in its Reliability Coordinator Area.

The draft standards EOP-005-2 and EOP-006-2 should be reviewed as a set when providing comments.

Please review the standards, provide your comments on this form, and then e-mail the form to sarcomm@nerc.net by **September 28, 2007** with the words, "SRB Standards" in the subject line.

**Comment Form for 1st Draft of Standards for System Restoration and Blackstart
(Project 2006-03)**

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. Attachment 1 of EOP-005-1 has been eliminated and the elements for consideration moved directly into Requirement R1 and the sub-requirements of R1 in EOP-005-2. Do you agree or have other suggestions as to how to incorporate the elements into the standards?

Yes

No

Comments:

2. The SRB SDT has removed the language for partial shutdown as part of restoration as we consider recovery from partial shutdown as normal operations. We believe that this requirement is covered in other standards and this standard only applies to those situations where you need to apply Blackstart Resources. Do you agree or have other suggestions as to how to handle partial shutdowns?

Yes

No

Comments:

3. The SRB SDT has included training for generator operators and field switching personnel associated with restoration in EOP-005 in accordance with FERC Order 693. Do you agree or have other suggestions for how to supply such training?

Yes

No

Comments:

4. The SRB SDT defined a new term, Blackstart Resource, which allows for greater flexibility in providing resources for blackstart operations. Do you agree with this definition?

Comments:

5. The SRB SDT has merged the RRO requirements in EOP-007 into EOP-006 and assigned them to the Reliability Coordinator. Do you agree with this change?

Yes

No

Comments:

**Comment Form for 1st Draft of Standards for System Restoration and Blackstart
(Project 2006-03)**

6. The SRB SDT has replaced the existing Blackstart Capability Plan (and retired the definition) with the Reliability Coordinator's requirement for a coordination element in their restoration plan. Do you agree with this approach or do you have other suggestions for how to handle this?

Yes

No

Comments:

7. If you are aware of any regional variances that would be required as a result of these standards, please identify them here.

8. If you are aware of any conflicts between the proposed standards and any regulatory function, rule order, tariff, rate schedule, legislative requirement or agreement, please identify them here.

9. If you have any other comments on the proposed standards that you haven't already provided in response to the questions above, please provide them here.

Comments:

Comment Form for 1st Draft of Standards for System Restoration and Blackstart (Project 2006-03)

Please use this form to submit comments on the 1st draft of the standards for System Restoration and Blackstart (Project 2006-03). Comments must be submitted by **September 28, 2007**. Please submit the completed form by e-mail to sarcomm@nerc.net with the words "SRB Standards" in the subject line. If you have questions please contact Ed Dobrowolski at Ed.Dobrowolski@nerc.net or by telephone at 609-947-3673.

| Individual Commenter Information | | |
|--|-------------------------------------|---|
| (Complete this page for comments from one organization or individual.) | | |
| Name: | Jeff Hackman | |
| Organization: | Ameren Services | |
| 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) |
| <input type="checkbox"/> ERCOT | <input checked="" type="checkbox"/> | 1 – Transmission Owners |
| <input type="checkbox"/> FRCC | <input type="checkbox"/> | 2 – RTOs and ISOs |
| <input type="checkbox"/> MRO | <input checked="" type="checkbox"/> | 3 – Load-serving Entities |
| <input type="checkbox"/> NPCC | <input type="checkbox"/> | 4 – Transmission-dependent Utilities |
| <input type="checkbox"/> RFC | <input checked="" type="checkbox"/> | 5 – Electric Generators |
| <input checked="" type="checkbox"/> SERC | <input checked="" type="checkbox"/> | 6 – Electricity Brokers, Aggregators, and Marketers |
| <input type="checkbox"/> SPP | <input type="checkbox"/> | 7 – Large Electricity End Users |
| <input type="checkbox"/> WECC | <input type="checkbox"/> | 8 – Small Electricity End Users |
| <input type="checkbox"/> NA – Not Applicable | <input type="checkbox"/> | 9 – Federal, State, Provincial Regulatory or other Government Entities |
| | <input type="checkbox"/> | 10 – Regional Reliability Organizations and Regional Entities |

Comment Form for 1st Draft of Standards for System Restoration and Blackstart (Project 2006-03)

Background Information

The System Restoration and Blackstart Standard Drafting Team (SRB SDT) has made significant changes from the currently approved standards related to System Restoration and Blackstart. While the SRB SDT has considered the comments submitted in prior review periods during NERC's transition to the ERO and those from the SAR stage, particular attention has been given to the recommendations made in FERC Order 693.

The Elements for Consideration of Attachment 1 of EOP-005 have been transformed into sub-requirements of R1 in the standard itself. Attachment 1 is eliminated. Requirements regarding telecommunications systems have been eliminated as duplicative of requirements in COM standards. The requirements of EOP-009 – Blackstart testing – have been moved to EOP-005 and EOP-009 is eliminated. Training requirements are added for Transmission Operator field switching personnel and for operating personnel of Generator Operators with a Blackstart Resource Facility Plan (a newly defined term).

The SRB SDT has eliminated EOP-007 which delegates duties to the Regional Reliability Organization and put new requirements into ERO-006 for the Reliability Coordinator that functionally replace the Regional Reliability Organization requirements. The RRO Blackstart Capability Plan has been eliminated and the Reliability Coordinator has a requirement for a restoration plan to coordinate the Transmission Operator plans for its Reliability Coordinator Area. The Reliability Coordinator approves or makes recommendations for improvement of Transmission Operator restoration plans in its Reliability Coordinator Area.

The draft standards EOP-005-2 and EOP-006-2 should be reviewed as a set when providing comments.

Please review the standards, provide your comments on this form, and then e-mail the form to sarcomm@nerc.net by **September 28, 2007** with the words, "SRB Standards" in the subject line.

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. Attachment 1 of EOP-005-1 has been eliminated and the elements for consideration moved directly into Requirement R1 and the sub-requirements of R1 in EOP-005-2. Do you agree or have other suggestions as to how to incorporate the elements into the standards?

Yes

No

Comments: Agree with the idea. However, we believe that phrases such as "identification of the authority" do not speak to a uniform requirement. The standard would be well served to tighten this language to exactly define the requirement and to include as an appendix an "example of excellence" as a guide, or some other similar means, to demonstrate explicitly what is desired.

2. The SRB SDT has removed the language for partial shutdown as part of restoration as we consider recovery from partial shutdown as normal operations. We believe that this requirement is covered in other standards and this standard only applies to those situations where you need to apply Blackstart Resources. Do you agree or have other suggestions as to how to handle partial shutdowns?

Yes

No

Comments:

3. The SRB SDT has included training for generator operators and field switching personnel associated with restoration in EOP-005 in accordance with FERC Order 693. Do you agree or have other suggestions for how to supply such training?

Yes

No

Comments: While a case could be made that the only generator operators that would participate in a Blackstart plan are able to be defined and thus easy to target for training, it is not the case with field switching personnel. For blackouts resulting from sabotage or natural disaster, it is highly likely that many field switching personnel will be called into duty to aid in restoration that can not be pre-determined or would not be logical choices for yearly training. For example, many utilities rely on contractors, other utilities, and even staff employees during storm or disaster events. These people may be trained to various work, e.g operation of a switch or operation of switches in a control room that may be necessary depending on the extent of the blackout, the duration, and the extent of other damage. Even those people who routinely perform switching may be called to a more important purpose during a restoration event if a replacement employee from one of the "emergency responder" categories could be used. The switching training will be nothing but a feel good which does not contribute to reliability. It would be far better for the requirement to be that following an event a TOP showed it utilized appropriate levels to support the restoration.

**Comment Form for 1st Draft of Standards for System Restoration and Blackstart
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4. The SRB SDT defined a new term, Blackstart Resource, which allows for greater flexibility in providing resources for blackstart operations. Do you agree with this definition?

Comments: Again, the nuance that is supposed to be derived from this wording is not clear. again, please state what you mean and if necessary use an example to define.

5. The SRB SDT has merged the RRO requirements in EOP-007 into EOP-006 and assigned them to the Reliability Coordinator. Do you agree with this change?

Yes

No

Comments:

**Comment Form for 1st Draft of Standards for System Restoration and Blackstart
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6. The SRB SDT has replaced the existing Blackstart Capability Plan (and retired the definition) with the Reliability Coordinator's requirement for a coordination element in their restoration plan. Do you agree with this approach or do you have other suggestions for how to handle this?

Yes

No

Comments: This is a very worthwhile change.

7. If you are aware of any regional variances that would be required as a result of these standards, please identify them here.

8. If you are aware of any conflicts between the proposed standards and any regulatory function, rule order, tariff, rate schedule, legislative requirement or agreement, please identify them here.

9. If you have any other comments on the proposed standards that you haven't already provided in response to the questions above, please provide them here.

Comments:

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| Individual Commenter Information (Complete this page for comments from one organization or individual.) | | |
|---|-------------------------------------|--|
| Name: Thad K. Ness | | |
| Organization: AEP | | |
| Telephone: 614-716-2053 | | |
| E-mail: tkness@aep.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) |
| <input checked="" type="checkbox"/> ERCOT | <input checked="" type="checkbox"/> | 1 – Transmission Owners |
| <input type="checkbox"/> FRCC | <input type="checkbox"/> | 2 – RTOs and ISOs |
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Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

1. Attachment 1 of EOP-005-1 has been eliminated and the elements for consideration moved directly into Requirement R1 and the sub-requirements of R1 in EOP-005-2. Do you agree or have other suggestions as to how to incorporate the elements into the standards?

Yes

No

Comments: EOP-005, R1& EOP-006, R1– The first sentence of EOP-005, R1 needs revised to reflect its intent. It presently says the Transmission Operator shall have a restoration plan approved by its Reliability Coordinator "following" an event that requires the utilization of Black-start recourses. As written, the requirement could be misinterpreted to mean you need to have an approved plan only after using the plan to restore your system. The verbiage should be clear that you need an approved plan. The same is true with the wording of EOP-006, R1.

EOP-005, R1.1 & EOP-006, R1.1 – The proposed training standard PER-005 requires system operator position/control center tasks for reliability and emergency be identified, by each operating entity for their system operator positions, from the PER-005 Attachment A Generic Task List. This PER-005 requirement has a 36 month time frame of implementation. If these tasks are identified under the PER-005 standard, we do not see the benefit or necessity of documentation in the EOP. The black-start plan is implemented via system operators. Identification of plan parameters will by default fall to the assigned reliability tasks of the system operator personnel as identified in PER-005. Also, the time implementation would be an issue with the EOP, as the tasks identified in the EOP must match the tasks identified for the PER-005 standard.

EOP-005, R1.1 – We do not agree with naming the tasks of field switching personnel. The transmission sub-station field switching personnel are already trained for operation and switching of the sub-station equipment and know their associated tasks. They do it on a daily bases. Tasks performed on any equipment with operating, control power, or other problems are dealt with during maintenance and repair by the field personnel on a routine bases, much of which are under emergency situations which often include reliability situations. Any tasks they perform for restoration are under the authority and direction of system operators in the control center. Since field switch-person tasks are performed under the authority of the System Operator, they are directed as functions of the System Operator Emergency Operations Tasks to implement emergency procedures and direct restoration.

EOP-005, R1.2 - The Blackstart Resource Facility Plans (BRFP) first appears in R1.2. but it is not defined until R12. Suggest adding the definition in R1.21.since the wording is similar to the wording appearing in R12. Adding the definition sooner would lead to a more understandable requirement.

2. The SRB SDT has removed the language for partial shutdown as part of restoration as we consider recovery from partial shutdown as normal operations. We believe that this requirement is covered in other standards and this standard only applies to those

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situations where you need to apply Blackstart Resources. Do you agree or have other suggestions as to how to handle partial shutdowns?

Yes

No

Comments:

3. The SRB SDT has included training for generator operators and field switching personnel associated with restoration in EOP-005 in accordance with FERC Order 693. Do you agree or have other suggestions for how to supply such training?

Yes

No

Comments: EOP-005, R10 – We do not agree with mandating 2 hours of annual training for field switching personnel. Their initial training gives them the required training to qualify and certify them to perform switching. Their daily job is switching, operating, and maintaining the sub-station and line equipment. All field-switching by field switching personnel is done under the authority and direction of the NERC certified system operators in the operating/dispatch centers. The System Operators give detailed step by step switching instructions to field-switching personnel, whether emergency or routine maintenance switching, related to the isolation and restoration of equipment. Instructions are not given to unqualified personnel. Instructions are given to qualified personnel only. Our Company policy requires a switchperson to take a refresher course if a switchperson has not switched within a twelve month period. Consequently we find little value in mandating an annual two hour training session for every switchperson on the AEP system. Field switching personnel will follow the switching instructions given by the System Operators/Dispatchers during black-start the same as they do in other situations of maintenance, emergencies following storms, and emergencies of other unplanned outages. In most cases, these are step-by-step instructions. However, we could support a requirement mandating 2 hrs of annual training for field switching personnel that have not performed switching in the past 12 months.

4. The SRB SDT defined a new term, Blackstart Resource, which allows for greater flexibility in providing resources for blackstart operations. Do you agree with this definition?

Comments: Yes

5. The SRB SDT has merged the RRO requirements in EOP-007 into EOP-006 and assigned them to the Reliability Coordinator. Do you agree with this change?

Yes

No

Comments:

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6. The SRB SDT has replaced the existing Blackstart Capability Plan (and retired the definition) with the Reliability Coordinator's requirement for a coordination element in their restoration plan. Do you agree with this approach or do you have other suggestions for how to handle this?

Yes

No

Comments:

7. If you are aware of any regional variances that would be required as a result of these standards, please identify them here.

8. If you are aware of any conflicts between the proposed standards and any regulatory function, rule order, tariff, rate schedule, legislative requirement or agreement, please identify them here.

9. If you have any other comments on the proposed standards that you haven't already provided in response to the questions above, please provide them here.

Comments: EOP-005, R5 – As the neighboring Transmission Operator area to be resynchronized may be under a different Reliability Coordinator, we propose the following wording change for R5:

Each affected Transmission Operator shall resynchronize islanded area(s) with neighboring Transmission Operator area(s) only with the authorization of the Reliability Coordinator(s) and in accordance with the established procedures of the Reliability Coordinator(s).

EOP-005-2, R9 & EOP-006-2, R7 – The subject R9 and R7 requirements mandate training for "control room personnel". Why change the accepted and more common term of "operating personnel"? The NERC term for certification of personnel is "System Operator Certification Program" (TO, BI, BT, & RC). We recommend keeping the identification name consistent with certification program terminology (System Operators) and PER-003 (Operating Personnel Credentials). OSHA also uses the term "system operator" for personnel in charge of the power system lines or equipment.

EOP-005-2, R9 & EOP-006-2, R7 – In the existing approved EOP-005-1, the Compliance Monitoring Process requires "annual training of operating personnel" in the implementation of the Transmission Operator's System Restoration Plans and restoration exercises. EOP-005-2, R9 & EOP-006-2, R7, draft 1, does not identify how often personnel must be trained in the emergency operations topics training program. Is the intent annual? Will this be revealed in draft 2 of these standards with the compliance requirements? There is no compliance monitoring processes in draft 1.

EOP-005, R11 & R16 – We do not agree with the verbiage of R11 & R16.... "as requested by its Reliability Coordinator"..... related to drills, exercises and simulations. We feel the verbiage should put a minimum number as to the number of Reliability Coordinator drills, exercises and simulations in which the Transmission Operator must participate, and the number should be in agreement with Reliability Coordinator requirements of

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EOP-006, R8. The present wording would require the Transmission Operator to participate in all drills, regardless of number, if the Reliability Coordinator provided and requested such. The Transmission Operator is required to train all its system operating personnel on their restoration plan, so participation in the Reliability Coordinator's restoration drills and exercises are in addition to the Transmission Operators training drills, exercises, and simulations. We recommend the wording of R11, R16 and M10 be changed to correspond with the wording of the EOP-006-2, R8 requiring Transmission Operator inclusion in a RC black-start restoration drill, exercise, or simulation once every two years. The following wording is suggested for EOP-005, R11 & R16, which specifies the minimum number of participations:

"Each Transmission Operator (or Generator Operator for R16) shall participate in its Reliability Coordinator's restoration drills, exercises, or simulations as provided and requested by its Reliability Coordinator at least once every two years".

EOP-006-2: Add a new requirement as R 2.4: The Reliability Coordinator shall provide to the Transmission Operator written documentation of approval of the Transmission Operator's restoration plan.



NORTH AMERICAN ELECTRIC
RELIABILITY CORPORATION

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| Individual Commenter Information (Complete this page for comments from one organization or individual.) | | |
|---|-------------------------------------|---|
| Name: | Jason Shaver | |
| Organization: | American Transmission Co. | |
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| E-mail: | jshaver@atcllc.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) |
| <input type="checkbox"/> ERCOT | <input checked="" type="checkbox"/> | 1 – Transmission Owners |
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Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

1. Attachment 1 of EOP-005-1 has been eliminated and the elements for consideration moved directly into Requirement R1 and the sub-requirements of R1 in EOP-005-2. Do you agree or have other suggestions as to how to incorporate the elements into the standards?

Yes

No

Comments: We agree with the Standard Drafting Team's decision to incorporated the "elements of consideration" into the standards.

2. The SRB SDT has removed the language for partial shutdown as part of restoration as we consider recovery from partial shutdown as normal operations. We believe that this requirement is covered in other standards and this standard only applies to those situations where you need to apply Blackstart Resources. Do you agree or have other suggestions as to how to handle partial shutdowns?

Yes

No

Comments: ATC agrees that this standard should apply in those situations that require Blackstart Resource.

3. The SRB SDT has included training for generator operators and field switching personnel associated with restoration in EOP-005 in accordance with FERC Order 693. Do you agree or have other suggestions for how to supply such training?

Yes

No

Comments: ATC does not agree with the requirement to train field switching personnel and request that it be deleted. ATC believes that emergency field switching done during a blackout is no different than field switching performed during planned events or other emergencies. In addition, the field switching personnel work under the direction of a NERC certified system operator.

If the SDT determines its necessary to address this issue, then we recommend that the SDT request NERC to have a personnel specific committee explore the idea.

4. The SRB SDT defined a new term, Blackstart Resource, which allows for greater flexibility in providing resources for blackstart operations. Do you agree with this definition?

Comments: We do not agree with the proposed definition for "Blackstart Resources". The proposed language would allow an entity to claim it has a "Blackstart Resource" even if the unit's availability is directly dependent on its pre-disturbance activity. In other words if the unit was on prior to the blackout then it may be available following

**Comment Form for 1st Draft of Standards for System Restoration and Blackstart
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the event, but if the unit was offline prior to the blackout then it will not be available post disturbance.

A "Blackstart Resource" should be limited to a generator that has the ability to start without system support.

An adequate level of reliability is dependent on the ability to restore the BPS following a blackout. That concept should not be dependent on the pre-disturbance status of the Blackstart Resource.

5. The SRB SDT has merged the RRO requirements in EOP-007 into EOP-006 and assigned them to the Reliability Coordinator. Do you agree with this change?

Yes

No

Comments:

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6. The SRB SDT has replaced the existing Blackstart Capability Plan (and retired the definition) with the Reliability Coordinator's requirement for a coordination element in their restoration plan. Do you agree with this approach or do you have other suggestions for how to handle this?

Yes

No

Comments:

7. If you are aware of any regional variances that would be required as a result of these standards, please identify them here.

ATC believes that this standard may require Regulatory support in terms of locating a "Blackstart Resources" and testing. The standard requires testing of these resources which may use up some unit's emission constraints.

At a minimum NERC should ask the question about emission constraints surrounding "Blackstart Resources".

8. If you are aware of any conflicts between the proposed standards and any regulatory function, rule order, tariff, rate schedule, legislative requirement or agreement, please identify them here.

– The TOP is currently responsible for transporting energy supplied from the Black Start generator interconnection point to restore the transmission grid as a whole under the restoration services portion of the Transmission Tariff. The costs of planning for, and implementing this responsibility are currently reimbursed under the network transmission tariff.

– If by "securing blackstart services" it is intended that the TOP must contract with generators or otherwise arrange with "Black Start Generators" to provide this capability, ATC cannot support this approach unless a mechanism is also provided that will allow the TOP to include any costs that might be incurred in transmission rates.

– ATC, is willing to be responsible as the TOP to enter into agreements for Black Start Services with generators that are interconnected to ATC's transmission facilities, and anticipate making the necessary tariff filings or otherwise arrange for reimbursement for any costs incurred through the regional transmission organization.

– If the Standard is eventually written that the TOP is responsible for "procuring" or "arranging" for the service, an adequate timeframe prior to implementation of the requirement must be allowed to pursue the necessary rate and other tariff approval together with the required agreements prior to this standard becoming enforceable.

9. If you have any other comments on the proposed standards that you haven't already provided in response to the questions above, please provide them here.

Comments:

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The standards appear to be drafted from the perspective of a vertically integrated utility, not in terms of the NERC functional model entities. The conspicuous absence of the NERC functional entity "Balancing Authority" in both EOP-005-2 and EOP-006-2 produces doubt as to the value of the standards. The BA should be intimately involved in all aspects of the system restoration plan and the execution thereof.

The existing NERC Balancing Authority Standards BAL-001 through BAL-006 do not apply during system restoration efforts. Further, the proposed standards EOP-005-2 and EOP-006-2 do not address the operations of the Balancing Authority during system restoration events.

Comments specific to EOP-005

No training is specified for the BA system operators. The system restoration scenario is very unique and challenging in terms of balancing resources to load. Load behavior will be very dynamic – cold load pick up and loss of diversity will be significant factors during the restoration process. Since the BA is ultimately responsible for balancing under all conditions, it is imperative for the BA to be involved in the training for restoration and the implementation during an event.

Applicability EOP-005-2

ATC believes that the Applicability section be expanded to include the BA, LSE and DP. Requirement 1.8 should have a counter requirement that requires the BA, LSE and DP to follow the TOPs orders during the restoration effort.

The Term System Shut Down needs to be better defined. (EOP-005-2 Requirement 1)

EOP-005-2

Requirement 2 Suggested rewording:

Each Transmission Operator shall review its restoration plan at least annually and update, if necessary.

Question on Requirement 2:

The term deficiencies is not defined by the SDT so will each TOP be allowed to determine the severity of the deficiency that would trigger the update to the plan?

Requirement 6 and 9

ATC believes that Standard EOP-005-2 would be more readable if the Standard Drafting Team (SDT) split the standard into two standards. It's our suggestion that Requirements six and nine be moved to a new standard to address blackstart generator testing.

In addition to moving these requirements into a separate standard ATC believes that the SDT should write an industry standard for blackstart resources.

- Frequency of testing
- Demonstrate ability to start the unit when isolated
- Demonstrate ability to energize a dead bus
- Demonstrate ability to remain stable an control voltage
- Demonstrate ability to maintain acceptable frequency
- Determine a minimum testing duration

Lastly those results should be shared with the Transmission Operator.

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Failure to write specific industry standards will create fill-in-the-blank standards for the Transmission Operator.

Requirement 6.3 is a statement not a requirement. ATC recommends that this statement be deleted from the standards. What does a failure of Requirement 6.3 represent?

Requirement 9 should be rewritten to require the blackstart generator operator to supply the BRFP data to its TOP. ATC does not understand the need to require an agreement for this data.

Requirement 7 and 10

ATC strongly believes that any training requirement should be moved to the NERC PER standards. This standard should focus on blackstart efforts not training issues.

EOP-006-2

Requirement 5 (suggested rewrite)

The Reliability Coordinator will authorize and coordinate re-synchronizing neighboring TOPs.

Requirement 7

Should be removed from this Standard and be placed in a PER Standard.

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| Individual Commenter Information | | |
|--|-------------------------------------|---|
| (Complete this page for comments from one organization or individual.) | | |
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| Telephone: | (604) 699-7430 | |
| E-mail: | thomas.fung@bctc.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) |
| <input type="checkbox"/> ERCOT | <input type="checkbox"/> | 1 – Transmission Owners |
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The SRB SDT has eliminated EOP-007 which delegates duties to the Regional Reliability Organization and put new requirements into ERO-006 for the Reliability Coordinator that functionally replace the Regional Reliability Organization requirements. The RRO Blackstart Capability Plan has been eliminated and the Reliability Coordinator has a requirement for a restoration plan to coordinate the Transmission Operator plans for its Reliability Coordinator Area. The Reliability Coordinator approves or makes recommendations for improvement of Transmission Operator restoration plans in its Reliability Coordinator Area.

The draft standards EOP-005-2 and EOP-006-2 should be reviewed as a set when providing comments.

Please review the standards, provide your comments on this form, and then e-mail the form to sarcomm@nerc.net by **September 28, 2007** with the words, "SRB Standards" in the subject line.

**Comment Form for 1st Draft of Standards for System Restoration and Blackstart
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Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

1. Attachment 1 of EOP-005-1 has been eliminated and the elements for consideration moved directly into Requirement R1 and the sub-requirements of R1 in EOP-005-2. Do you agree or have other suggestions as to how to incorporate the elements into the standards?

Yes

No

Comments:

Suggest replace "normal" state in R1 with "stable" state. The end configuration might be normal state if the disturbance originated outside the Balancing Authority's Area.

Requirement R1.1 is the first time in this Standard that identifies field switching personnel. The Standard requires field switching personnel to have their authority identified. Field switching personnel would only be expected to have authority to complete operations where the Transmission Operator or System Operator did not have SCADA control of equipment as FERC 693 suggests. And this authority should only have to be identified clearly for restoration and only if communications were lost. The lack of SCADA control (as suggested by FERC in order 693) for restoration should be identified in the requirement as the trigger for identifying authority of field switching personnel.

Suggest adding "if applicable" to end of R1.3.

The statement in R1.5 that allows System Operators to use professional judgement to modify plans under the conditions listed is a good idea.

2. The SRB SDT has removed the language for partial shutdown as part of restoration as we consider recovery from partial shutdown as normal operations. We believe that this requirement is covered in other standards and this standard only applies to those situations where you need to apply Blackstart Resources. Do you agree or have other suggestions as to how to handle partial shutdowns?

Yes

No

Comments: We agree with removing language for partial shutdown as part of this restoration standard, but we disagree that restoring from a partial shutdown is normal operations. The concepts taught to System Operating personnel for restoration from a partial shutdown or a complete shutdown are the same.

3. The SRB SDT has included training for generator operators and field switching personnel associated with restoration in EOP-005 in accordance with FERC Order 693. Do you agree or have other suggestions for how to supply such training?

Yes

No

Comment Form for 1st Draft of Standards for System Restoration and Blackstart (Project 2006-03)

Comments: This training should be covered in the PER Standards that are being re-worked at the same time.

FERC Order 693 said in part "System restoration requires the participation of not only control room personnel but also those outside of the control room. These include blackstart unit operators and field switching operators in situations where SCADA capability is unavailable. As such, the Commission believes that inclusion of periodic system restoration drills and training and review of restoration plans in a system restoration Reliability Standard is the most effective way of achieving the desired goal of ensuring that all participants are trained in system restoration and that the restoration plans are up to date to deal with system changes." The training required in EOP-005-2 R10 and R15 are missing the words "where SCADA capability is unavailable". The wording in R10 and R15 are also not clear who exactly is required to be involved in this required training. Suggest adding the words "where SCADA capability is unavailable".

R15 says Generator Operators not Generator Operators of Blackstart Resources. Is this requirement meant to cover more than Generator Operators of Blackstart Resources? If yes, they should be clearly defined which Generator Operators must be trained.

Generator Operators of Blackstart Resources are required to test the plant once every three years to ensure the plant is capable of meeting the requirements of being a Blackstart Resource. A certain amount of training goes into meeting this test. Would 4 hours of training to test the Blackstart Resource meet this requirement or is the training that is being suggested as required annually be different? If it is different the Standard should say that as we believe the training program for Generator Operators in R15 is part of the blackstart testing we do every 3 years. Who would be required to maintain these training records for an audit, the Generator Operator or the Transmission Operator?

4. The SRB SDT defined a new term, Blackstart Resource, which allows for greater flexibility in providing resources for blackstart operations. Do you agree with this definition?

Comments: Yes

5. The SRB SDT has merged the RRO requirements in EOP-007 into EOP-006 and assigned them to the Reliability Coordinator. Do you agree with this change?

Yes

No

Comments: The time frame for training for RC's is not defined. Is this an annual requirement or is this left up to each RC how often they train each RC?

Comment Form for 1st Draft of Standards for System Restoration and Blackstart (Project 2006-03)

6. The SRB SDT has replaced the existing Blackstart Capability Plan (and retired the definition) with the Reliability Coordinator's requirement for a coordination element in their restoration plan. Do you agree with this approach or do you have other suggestions for how to handle this?

Yes

No

Comments: Agree with the concept but suggest the following revision to the 2nd sentence in R1. "The restoration plan shall have a priority of restoring the integrity of the Interconnection under the direction of the Reliability Coordinator as required." Alternately, suggest deleting the clause "under the direction of the Reliability Coordinator". During the time when the Transmission Operator is restoring its own System, doing this under the direction of the Reliability Coordinator would not make best use of the Reliability Coordinator's time and knowledge.

7. If you are aware of any regional variances that would be required as a result of these standards, please identify them here.

None

8. If you are aware of any conflicts between the proposed standards and any regulatory function, rule order, tariff, rate schedule, legislative requirement or agreement, please identify them here.

None

9. If you have any other comments on the proposed standards that you haven't already provided in response to the questions above, please provide them here.

Comments:

This Standard is not applicable to Balancing Authorities. Why are these operators not covered?

R6.2.3 and R6.2.4 should be moved to R3. Tests to ensure voltage and frequency stability while energized to a minimum Load level may only be possible via simulation since the TO would require the LSE to provide this Load and it is highly unlikely customers would to agree to this type of test.

The new training for personnel outside the Control Room has been identified as an annual requirement but the existing words in EOP-005 for TO Control Room personnel and EOP-007 for RC Control Room personnel does not detail the training requirement as an annual requirement. Was all the training requirements listed in the Standards meant to be an annual requirement?

EOP-005-1 had a requirement to periodically test telecommunication facilities that are required to implement a blackstart plan. Is this covered in another Standard or is this no longer required?

EOP-005-1 R16 requires each Generator Operator to participate in the RC's restoration drills as requested by the RC. Is this meant to be Generator Operator's with Blackstart Resources or all Generator Operators?



NORTH AMERICAN ELECTRIC
RELIABILITY CORPORATION

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| Individual Commenter Information | | |
|--|-------------------------------------|---|
| (Complete this page for comments from one organization or individual.) | | |
| Name: | John Jonte | |
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| E-mail: | john.jonte@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) |
| <input checked="" type="checkbox"/> ERCOT <input type="checkbox"/> FRCC <input type="checkbox"/> MRO <input type="checkbox"/> NPCC <input type="checkbox"/> RFC <input type="checkbox"/> SERC <input type="checkbox"/> SPP <input type="checkbox"/> WECC <input type="checkbox"/> NA – Not Applicable | <input checked="" type="checkbox"/> | 1 – Transmission Owners |
| | <input type="checkbox"/> | 2 – RTOs and ISOs |
| | <input type="checkbox"/> | 3 – Load-serving Entities |
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Yes

No

Comments: It is appropriate to incorporate the elements from Attachment 1 into R1. CenterPoint Energy agrees with FERC that more than just control room personnel would be involved in system restoration. However, CenterPoint Energy disagrees that field switching personnel should be specifically identified. Field switching personnel follow switching orders in any restoration situation, regardless of its cause, and therefore specific task identification specifically related to blackstart restoration is not warranted. In other words, field switching personnel would not perform any tasks during a blackstart system restoration that they would not perform as part of their normal, day to day duties. Specific training in blackstart restoration is therefore not required.

2. The SRB SDT has removed the language for partial shutdown as part of restoration as we consider recovery from partial shutdown as normal operations. We believe that this requirement is covered in other standards and this standard only applies to those situations where you need to apply Blackstart Resources. Do you agree or have other suggestions as to how to handle partial shutdowns?

Yes

No

Comments:

3. The SRB SDT has included training for generator operators and field switching personnel associated with restoration in EOP-005 in accordance with FERC Order 693. Do you agree or have other suggestions for how to supply such training?

Yes

No

Comments: Any training requirement should be contained within the appropriate PER standard. However, field switching personnel should not be included. The role of field switching personnel in a black start restoration situation would not differ significantly from storm restoration or other service restoration situations. Therefore, specific training requirements are not warranted. (See response to Q.1. above.)

4. The SRB SDT defined a new term, Blackstart Resource, which allows for greater flexibility in providing resources for blackstart operations. Do you agree with this definition?

Comments:

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5. The SRB SDT has merged the RRO requirements in EOP-007 into EOP-006 and assigned them to the Reliability Coordinator. Do you agree with this change?

Yes

No

Comments:

Comment Form for 1st Draft of Standards for System Restoration and Blackstart (Project 2006-03)

6. The SRB SDT has replaced the existing Blackstart Capability Plan (and retired the definition) with the Reliability Coordinator's requirement for a coordination element in their restoration plan. Do you agree with this approach or do you have other suggestions for how to handle this?

Yes

No

Comments:

7. If you are aware of any regional variances that would be required as a result of these standards, please identify them here.

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Comments:

EOP-005-2 R12 requires documented agreements specifying terms and conditions. CenterPoint Energy believes it is unnecessary and inappropriate to have such a requirement in a standard. Documented agreements are a business issue between two or more parties and can not be mandated by NERC standards. However, if such a requirement is ultimately established, consideration should be given to requiring such agreements to be for at least a three year term, with the same blackstart resources committed for at least a three year period. This will help ensure competent performance in a blackout event, with the blackstart resources remaining consistent for a reasonable period of time. A three year term would align with the three year testing of Blackstart Resources (R6.1), as well as meeting the five year (minimum) verification of the restoration procedure by actual simulations (R3).

Additionally, because changes in blackstart resources significantly impact the blackstart paths, changing the blackstart resources on an annual basis may negatively impact efforts to comply with other reliability standards. For example, CIP-002 requires that "critical assets" and subsequently "critical cyber assets" be identified and that these "critical assets" be identified along the blackstart paths. Changes to the blackstart paths on an annual basis could significantly alter an entity's critical asset list, and significantly impact an entity's ability to project its critical cyber assets associated with each critical asset. While an annual assessment of critical assets is required by CIP-002, CenterPoint Energy does not believe CIP-002 envisions that an entity's critical asset list would change dramatically from year to year. However, changing blackstart resources and ultimately blackstart paths could in fact have a dramatic impact on an entity's critical asset list.

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| Individual Commenter Information | |
|--|---|
| (Complete this page for comments from one organization or individual.) | |
| Name: | Charles A. Bunnell |
| Organization: | Consumers Energy Company |
| Telephone: | (517) 788-7211 |
| E-mail: | cbunnell@cmsenergy.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) |
| <input type="checkbox"/> ERCOT | <input type="checkbox"/> 1 – Transmission Owners |
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Yes

No

Comments: NA

2. The SRB SDT has removed the language for partial shutdown as part of restoration as we consider recovery from partial shutdown as normal operations. We believe that this requirement is covered in other standards and this standard only applies to those situations where you need to apply Blackstart Resources. Do you agree or have other suggestions as to how to handle partial shutdowns?

Yes

No

Comments: NA

3. The SRB SDT has included training for generator operators and field switching personnel associated with restoration in EOP-005 in accordance with FERC Order 693. Do you agree or have other suggestions for how to supply such training?

Yes

No

Comments: R15

Consumers agrees that it is appropriate for the Standard to require the generator operator to provide training to its operating personnel, however, the generator operator should be allowed flexibility in determining what training is necessary to ensure it meets its obligations set forth in the transmission operators BRFP.

4. The SRB SDT defined a new term, Blackstart Resource, which allows for greater flexibility in providing resources for blackstart operations. Do you agree with this definition?

Comments: NA

5. The SRB SDT has merged the RRO requirements in EOP-007 into EOP-006 and assigned them to the Reliability Coordinator. Do you agree with this change?

Yes

No

Comments: NA

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6. The SRB SDT has replaced the existing Blackstart Capability Plan (and retired the definition) with the Reliability Coordinator's requirement for a coordination element in their restoration plan. Do you agree with this approach or do you have other suggestions for how to handle this?

Yes

No

Comments:

7. If you are aware of any regional variances that would be required as a result of these standards, please identify them here.

NA

8. If you are aware of any conflicts between the proposed standards and any regulatory function, rule order, tariff, rate schedule, legislative requirement or agreement, please identify them here.

NA

9. If you have any other comments on the proposed standards that you haven't already provided in response to the questions above, please provide them here.

Comments: Comments on EOP-005-2 (System Restoration and Blackstart)

R1.4

The transmission operator needs to coordinate with the generator operators when identifying acceptable operating voltage and frequency limits during restoration. Generator underfrequency relaying and terminal bus voltage limits will affect the acceptable limits.

R9.4

The Standard should be more specific as to the applicability of R9.4. Is this related to synchronizing between transmission networks or between the transmission operator and the generator operator?

R12

Please clarify what is expected to be included in the generator operator's BRFP. Are we to assume that only those items mention in R12 (name of the resource, location, megawatt and megavar capacity, type of unit, fuel type, latest date of test, test results, starting method and procedures for the startup of the blackstart resource) are what is expected?

R14

MISO currently does not have an ancillary service market for blackstart services. The testing requirements being established by the transmission operator need to be mutually agreed upon by the generator operator to ensure that (a) the testing requirements are

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feasible and (b) the testing requirements do not create a significant financial burden on the generator operator.

R15

Consumers agrees that it is appropriate for the Standard to require the generator operator to provide training to its operating personnel, however, the generator operator should be allowed flexibility in determining what training is necessary to ensure it meets its obligations set forth in the transmission operators BRFP.

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| Individual Commenter Information | | |
|--|-------------------------------------|--|
| (Complete this page for comments from one organization or individual.) | | |
| Name: | Jack Kerr | |
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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) |
| <input type="checkbox"/> ERCOT | <input checked="" type="checkbox"/> | 1 – Transmission Owners |
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Yes

No

Comments:

2. The SRB SDT has removed the language for partial shutdown as part of restoration as we consider recovery from partial shutdown as normal operations. We believe that this requirement is covered in other standards and this standard only applies to those situations where you need to apply Blackstart Resources. Do you agree or have other suggestions as to how to handle partial shutdowns?

Yes

No

Comments:

3. The SRB SDT has included training for generator operators and field switching personnel associated with restoration in EOP-005 in accordance with FERC Order 693. Do you agree or have other suggestions for how to supply such training?

Yes

No

Comments: Dominion's position is that system restoration training should be provided to each of our approved transmission field switching personnel as part of their re-qualification training that is currently performed on a three year cycle. In fact we intend to integrate this training into the qualification program whether or not the proposed requirement for such training is approved or not. This training will cover all of the switching tasks identified in our system restoration plan. We do not agree that such training is necessary on an annual cycle, and an annual requirement would needlessly disrupt our established and proven training cycle. A three year cycle is the current requirement for blackstart resource testing, and we believe that a three year cycle is adequate for qualifying field switching personnel as long as the qualification training covers all components of switching tasks identified in the system restoration plan as it may change and become more complex over time.

Therefore, Dominion believes that requirement R10 of EOP-005 should read as follows:

R10. Each Transmission Operator shall provide System restoration training at least every three years for each of its authorized transmission field switching personnel for the tasks identified in its restoration plan.

Dominion's position is that the blackstart generator operator needs to know how to coordinate with the Transmission Operator, how to perform a black start-up, how to

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perform switching, and how to control the generator voltage and frequency as load is added during a system restart. The operator is familiar with most of these activities through experience gained while normally operating the generator and through the normally scheduled blackstart testing. Therefore, we do not agree that a minimum of four hours of training per year is necessary based on the day to day activities that the generator operators perform. If there is to be a training requirement, it should be based on the topics that should be covered rather than be time based.

4. The SRB SDT defined a new term, Blackstart Resource, which allows for greater flexibility in providing resources for blackstart operations. Do you agree with this definition?

Comments:

5. The SRB SDT has merged the RRO requirements in EOP-007 into EOP-006 and assigned them to the Reliability Coordinator. Do you agree with this change?

Yes

No

Comments:

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6. The SRB SDT has replaced the existing Blackstart Capability Plan (and retired the definition) with the Reliability Coordinator's requirement for a coordination element in their restoration plan. Do you agree with this approach or do you have other suggestions for how to handle this?

Yes

No

Comments:

7. If you are aware of any regional variances that would be required as a result of these standards, please identify them here.

8. If you are aware of any conflicts between the proposed standards and any regulatory function, rule order, tariff, rate schedule, legislative requirement or agreement, please identify them here.

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Comments:

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| Individual Commenter Information | | |
|--|-------------------------------------|---|
| (Complete this page for comments from one organization or individual.) | | |
| Name: | Greg Rowland | |
| Organization: | Duke Energy | |
| Telephone: | 704-382-5348 | |
| E-mail: | gdrowland@dukeenergy.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) |
| <input type="checkbox"/> ERCOT | <input checked="" type="checkbox"/> | 1 – Transmission Owners |
| <input type="checkbox"/> FRCC | <input type="checkbox"/> | 2 – RTOs and ISOs |
| <input type="checkbox"/> MRO | <input checked="" type="checkbox"/> | 3 – Load-serving Entities |
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The Elements for Consideration of Attachment 1 of EOP-005 have been transformed into sub-requirements of R1 in the standard itself. Attachment 1 is eliminated. Requirements regarding telecommunications systems have been eliminated as duplicative of requirements in COM standards. The requirements of EOP-009 – Blackstart testing – have been moved to EOP-005 and EOP-009 is eliminated. Training requirements are added for Transmission Operator field switching personnel and for operating personnel of Generator Operators with a Blackstart Resource Facility Plan (a newly defined term).

The SRB SDT has eliminated EOP-007 which delegates duties to the Regional Reliability Organization and put new requirements into ERO-006 for the Reliability Coordinator that functionally replace the Regional Reliability Organization requirements. The RRO Blackstart Capability Plan has been eliminated and the Reliability Coordinator has a requirement for a restoration plan to coordinate the Transmission Operator plans for its Reliability Coordinator Area. The Reliability Coordinator approves or makes recommendations for improvement of Transmission Operator restoration plans in its Reliability Coordinator Area.

The draft standards EOP-005-2 and EOP-006-2 should be reviewed as a set when providing comments.

Please review the standards, provide your comments on this form, and then e-mail the form to sarcomm@nerc.net by **September 28, 2007** with the words, "SRB Standards" in the subject line.

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. Attachment 1 of EOP-005-1 has been eliminated and the elements for consideration moved directly into Requirement R1 and the sub-requirements of R1 in EOP-005-2. Do you agree or have other suggestions as to how to incorporate the elements into the standards?

Yes

No

Comments: In moving the Attachment 1 to EOP-005, the SDT made it a requirement that all elements of the attachment be part of a restoration plan. The previous version did not require this and stated where applicable. The SDT should reword their statement in R1 to say "The restoration plan shall include the following where applicable:" Audit teams could review this requirement as it is currently written and find a company in non-compliance because they do not have a Requirement in their plan and the company could not have a need for that requirement. The SDT also changed the wording in R1 and placed priority of a restoration plan on the restoring of the integrity of the Interconnection. Why does this need to be stated when that is the purpose of all restoration plans? And by including this statement, is a conflict introduced with requirement R1.7 and the restoring of off-site power to a Nuclear Station. Some people could interpret that as saying that you need to establish the transmission network integrity before you restore power to a nuclear facility. While it may be understood by some that in restoring power to a nuclear facility is establishing the integrity of the transmission network, it may not be understood by all.

2. The SRB SDT has removed the language for partial shutdown as part of restoration as we consider recovery from partial shutdown as normal operations. We believe that this requirement is covered in other standards and this standard only applies to those situations where you need to apply Blackstart Resources. Do you agree or have other suggestions as to how to handle partial shutdowns?

Yes

No

Comments:

3. The SRB SDT has included training for generator operators and field switching personnel associated with restoration in EOP-005 in accordance with FERC Order 693. Do you agree or have other suggestions for how to supply such training?

Yes

No

Comments: At generator facilities, operators may be required to perform non-routine duties associated with blackstart, such as switchyard activities. It is appropriate to provide blackstart training for these individuals. However transmission field switching personnel would be performing familiar tasks under the direction of the Transmission Operator, and do not need specialized training. We have hundreds of field switching personnel, and providing two additional hours of training purely on blackstart restoration is unwarranted.

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4. The SRB SDT defined a new term, Blackstart Resource, which allows for greater flexibility in providing resources for blackstart operations. Do you agree with this definition?

Comments: Yes

5. The SRB SDT has merged the RRO requirements in EOP-007 into EOP-006 and assigned them to the Reliability Coordinator. Do you agree with this change?

Yes

No

Comments:

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6. The SRB SDT has replaced the existing Blackstart Capability Plan (and retired the definition) with the Reliability Coordinator's requirement for a coordination element in their restoration plan. Do you agree with this approach or do you have other suggestions for how to handle this?

Yes

No

Comments: We agree with this approach, with certain clarifications. The existing EOP-006-1 requires the Reliability Coordinator to be aware of the restoration plans of Transmission Operators within its RC Area (R1), and to have a current copy of each plan that it relies upon to confirm that it meets R1 (M1). The revised EOP-006-2 requires the Reliability Coordinator to review and approve the Transmission Operators' plans (R2). We do not see a need for the RC to approve each Transmission Operator's restoration plan, or to have a copy of the plans, since the RC is unlikely to have the level of detailed knowledge that the balancing authorities and transmission operators have for setting-up the stable islands required under restoration plans. Requiring the RC to approve those plans implies that the RC must have the requisite expertise to approve them, and within 30 days (R2.3). The revised EOP-006-2 also requires the RC to have a RC Area restoration plan with documented coordination between Transmission Operator plans and neighboring RC Area plans (R1). R1 is sufficient to address FERC's concern that the RC be involved in the development and approval of system restoration plans, and R2 is not needed.

7. If you are aware of any regional variances that would be required as a result of these standards, please identify them here.

None

8. If you are aware of any conflicts between the proposed standards and any regulatory function, rule order, tariff, rate schedule, legislative requirement or agreement, please identify them here.

None

9. If you have any other comments on the proposed standards that you haven't already provided in response to the questions above, please provide them here.

Comments: The existing EOP-005-1 includes Balancing Authorities, and requires them to work with the TOs and RC(s) to determine the extent and condition of the isolated area(s), coordinate with TOs and generators to adjust generation, place additional generators on line, or load shedding (R11.1 and R11.2). The BAs are also required to review Interchange Schedules and make adjustments as needed to facilitate restoration (R11.3). The revised EOP-005-2 and EOP-006-2 no longer have applicability to the BA, and we believe they should have applicability to the BA with these same requirements.

R8 of EOP-006-2 requires the RC to conduct two drills, exercises or simulations each year, and to include Transmission Operators and Generator Operators with Blackstart Resources at least every two years. We believe the RC should only be required to conduct one annual drill, and to include Transmission Operators and Generator Operators with Blackstart Resources at least every two years.

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R1.1 of EOP-005-2 requires that the Transmission Operator's restoration plan identify the authority and tasks of the Transmission Operator's control room and field switching personnel assigned to participate in restoration activities. We do not agree that restoration plans should identify authority and tasks of field switching personnel since these personnel are not NERC-certified and only act under the direction of the Transmission Operator's NERC-certified control room operators.

R2 of EOP-005-2 requires that the Transmission Operator's restoration plan be updated within 90 days after completing permanent modifications that would change the planned Cranking Paths or after detecting deficiencies in the restoration plan. We agree with making updates within 90 days for major changes in Cranking Paths, or to correct deficiencies in the plan. For example, changing the Cranking Path at the substation level (i.e. breaker or switch change) would not be considered a major change. However changing blackstart units or transmission line path would be a major change. We believe that an annual update is sufficient for any non-major changes.

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| Individual Commenter Information | |
|--|---|
| (Complete this page for comments from one organization or individual.) | |
| Name: | Will Franklin |
| Organization: | Entergy Services, Inc. System Planning & Operations (Generation & Marketing) |
| Telephone: | 281-297-3594 |
| E-mail: | wfrankl@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) |
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Yes

No

Comments:

2. The SRB SDT has removed the language for partial shutdown as part of restoration as we consider recovery from partial shutdown as normal operations. We believe that this requirement is covered in other standards and this standard only applies to those situations where you need to apply Blackstart Resources. Do you agree or have other suggestions as to how to handle partial shutdowns?

Yes

No

Comments: Please identify the "other standards" in which the drafting team believes is covering partial shutdown recovery.

3. The SRB SDT has included training for generator operators and field switching personnel associated with restoration in EOP-005 in accordance with FERC Order 693. Do you agree or have other suggestions for how to supply such training?

Yes

No

Comments:

4. The SRB SDT defined a new term, Blackstart Resource, which allows for greater flexibility in providing resources for blackstart operations. Do you agree with this definition?

Comments: Yes, we agree with the definition. Consider adding a frequency component to the definition (as mentioned in the testing criteria).

5. The SRB SDT has merged the RRO requirements in EOP-007 into EOP-006 and assigned them to the Reliability Coordinator. Do you agree with this change?

Yes

No

Comments:

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6. The SRB SDT has replaced the existing Blackstart Capability Plan (and retired the definition) with the Reliability Coordinator's requirement for a coordination element in their restoration plan. Do you agree with this approach or do you have other suggestions for how to handle this?

Yes

No

Comments:

7. If you are aware of any regional variances that would be required as a result of these standards, please identify them here.

8. If you are aware of any conflicts between the proposed standards and any regulatory function, rule order, tariff, rate schedule, legislative requirement or agreement, please identify them here.

9. If you have any other comments on the proposed standards that you haven't already provided in response to the questions above, please provide them here.

Comments:

EOP-005-2:

R1.5 : This authority is not appropriate in a NERC standard. Each entity's own procedure may choose to include such language however it should not be a requirement to allow an operator to deviate from a procedure.

R4: This requirement should be applicable whether or not Blackstart Resources are used to restore the system. Consider striking the phrase "and the use of Blackstart Resources is required to restore the shut down area to service." Consider rewording this requirement to state "work in conjunction with it's Reliability Coordinator to:" and then list items 4.1 through 4.3.

R6: Are there any fuel supply requirements for a Blackstart Resource? The test should indicate if the test must be performed on the fuel that would be used during a blackstart. Must the fuel supply be able to support a certain length of operation without support from the BES? Are pipelines acceptable sources, or are their certain requirements that would apply if a pipeline were the fuel supply?

M4, M5: As commented for R4, consider removing "in which Blackstart Resources have been utilized..." and phrase it such that it applies during any restoration of service to shut down areas. Also M4 & 5 are redundant, recommend consolidating as one Measure, unless the desire is to have a unique line item Measure for every Requirement.

EOP-006-2:

R1.6: This authority is not appropriate in a NERC standard. Each entity's own procedure may choose to include such language however it should not be a requirement to allow an operator to deviate from a procedure.



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| Individual Commenter Information | | |
|--|-------------------------------------|---|
| (Complete this page for comments from one organization or individual.) | | |
| Name: | Doug Hohlbaugh | |
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| Telephone: | 330-384-4698 | |
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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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1. Attachment 1 of EOP-005-1 has been eliminated and the elements for consideration moved directly into Requirement R1 and the sub-requirements of R1 in EOP-005-2. Do you agree or have other suggestions as to how to incorporate the elements into the standards?

Yes

No

Comments: FE Agrees - The information in the attachment of every standard should always be immediately included into the body of the requirements section.

2. The SRB SDT has removed the language for partial shutdown as part of restoration as we consider recovery from partial shutdown as normal operations. We believe that this requirement is covered in other standards and this standard only applies to those situations where you need to apply Blackstart Resources. Do you agree or have other suggestions as to how to handle partial shutdowns?

Yes

No

Comments: FE Agrees

3. The SRB SDT has included training for generator operators and field switching personnel associated with restoration in EOP-005 in accordance with FERC Order 693. Do you agree or have other suggestions for how to supply such training?

Yes

No

Comments: FE Disagrees.

We do not support the proposed R10 requirement of EOP-005-2. FE's field switching personnel do not independently perform transmission switching without taking direction from our transmission operations staff. It is FE's view that our field personnel do not need to be trained in the "big picture view" of system restoration and that the tasks required of them would not be significantly different than switching steps performed during normal operations.

With regard to proposed requirement R15 of EOP-005-2, we agree with the proposed training for the Generator Operator related to the system restoration plans. However, the SDT should further clarify the Generator Operator definition for this requirement; i.e. plant generator operator or control center generator operator with oversight of multiple units, or both.

Furthermore, we do not agree with including training requirements in the EOP standards. We recommend that all training requirements be included in the PER set of training standards. Also, there is a current NERC project (2006-01) that is creating new requirements for system personnel training. The new standard is PER-005 and it discusses training with regard to system restoration in requirement R3. The SDTs for

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this project and the 2006-01 project should coordinate the training requirements and keep them in the PER set of standards.

4. The SRB SDT defined a new term, Blackstart Resource, which allows for greater flexibility in providing resources for blackstart operations. Do you agree with this definition?

Comments: FE Agrees with the need for a revised "Blackstart" term. However, the definition seems longer than required with much of the verbiage repetitive and unnecessary.

Therefore we propose the following revised definition: "Blackstart Resource - A generation Facility under the control of the Generator Operator with the ability to start itself without support from the System and that meets the restoration plan of the Transmission Operator."

5. The SRB SDT has merged the RRO requirements in EOP-007 into EOP-006 and assigned them to the Reliability Coordinator. Do you agree with this change?

Yes

No

Comments: FE Agrees - But we would we recommend considering further consolidation of EOP-006 into the proposed EOP-005-2. Since the standards coordinate with each other, it would alleviate having to constantly look at both standards from both a compliance and standards development standpoint. These standards go "hand-in-hand" since the Transmission Operator and Generator Operator would need to have an understanding of what the Reliability Coordinator would be asking of them, and vice versa.

If the standards are kept separate, we need to point out that requirement R8 of EOP-006-2 ["Each Reliability Coordinator shall conduct two System restoration drills, exercises, or simulations per year which include the Transmission Operators and Generator Operators with Blackstart Resources in their area of responsibility as dictated by the particular scope of the drill, exercise, or simulation that is being conducted. Each Transmission Operator and Generator Operator with Blackstart Resources shall be included in a drill, exercise, or simulation at least every two years."] does not coordinate with its counterpart requirement, R11, in EOP-005-2 ["Each Transmission Operator shall participate in its Reliability Coordinator's restoration drills, exercises, or simulations as requested by its Reliability Coordinator."]. There should be an agreement between the RC and TOP/GOP functions as to when it would be feasible to conduct these drills with consideration for those times of the year when all TOP/GOP personnel resources are occupied with a busy work load. We suggest adding statements within these requirements with regard to such an agreement.

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Yes

No

Comments: FE Agrees

7. If you are aware of any regional variances that would be required as a result of these standards, please identify them here.

8. If you are aware of any conflicts between the proposed standards and any regulatory function, rule order, tariff, rate schedule, legislative requirement or agreement, please identify them here.

9. If you have any other comments on the proposed standards that you haven't already provided in response to the questions above, please provide them here.

Comments: FE has the following additional comments:

1. A good set of EOP requirements will achieve the goal of eliminating need for any existing regional standards, so we need to work towards a good set of blackstart standards.

2. In EOP-005-2, the "Agreement" between the Transmission Operator (TOP) and the Generator Operator per per requirement R12 needs to be coordinated with the Reliability Coordinator (RC), especially since in some instances RC acts as the TOP. Also, requirements regarding this "agreement" should be included in EOP-006-2. Plus this further points to the need for consolidation of EOP-006-2 into EOP-005-2 per our comments to Question #5 above. Additionally, it is not clear what would be considered an acceptable "agreement". We suggest that the SDT consider a similar approach to defining Agreement expectations as is currently done in the BOT approved NUC-001 standard.

3. FE does not agree that it is necessary to review the restoration plan each year. We believe it could be reviewed less frequently without compromising the reliability of the BES. We suggest "every 5 years", and then also a qualifying statement such as "or when changes in the System warrant a more frequent review."



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Yes

No

Comments: I do not believe that a restoration plan should be a step by step plan based on an assumed set of conditions for a particular event. A restoration plan needs to be developed in such a manner that it provides guidance and allows flexibility to address many different sets of conditions and events. In addition the restoration plan should be tailored for each particular system and therefore should not require approval of the Reliability Coordinator as long as all the requirements associated with the NERC Standards are satisfied. The Reliability Coordinator should not perform a compliance monitoring function if this is what is intended by the approval.

There is no need for A Black Start Reliability Plan independent of a System restoration Plan. The System Restoration plan requirements include, location of blackstart units, MW and Mvar capability, start time, and fuel requirements.

2. The SRB SDT has removed the language for partial shutdown as part of restoration as we consider recovery from partial shutdown as normal operations. We believe that this requirement is covered in other standards and this standard only applies to those situations where you need to apply Blackstart Resources. Do you agree or have other suggestions as to how to handle partial shutdowns?

Yes

No

Comments:

3. The SRB SDT has included training for generator operators and field switching personnel associated with restoration in EOP-005 in accordance with FERC Order 693. Do you agree or have other suggestions for how to supply such training?

Yes

No

Comments: Generator Operators and field switching personnel have no decision making role in the process of system restoration.

R-16 If the term Generation Operators must remain then it should be clear that these are the Generation Operators only responsible for Operation of the Black Start resources.

All training requirements should be covered under Per-005. Training requirements sprinkled throughout the Standards become confusing. Clarification needs to be given on the what type of training is required for authorized transmission field switching personnel.

**Comment Form for 1st Draft of Standards for System Restoration and Blackstart
(Project 2006-03)**

4. The SRB SDT defined a new term, Blackstart Resource, which allows for greater flexibility in providing resources for blackstart operations. Do you agree with this definition?

Comments: No. The terms "basic ability to start it self" and "under the control of the generation operator" need to be clearer.

5. The SRB SDT has merged the RRO requirements in EOP-007 into EOP-006 and assigned them to the Reliability Coordinator. Do you agree with this change?

Yes

No

Comments: R8 requires two restoration drills, exercises, or simulations per year. This is a new requirement and not one merged from EOP-007

The approval of sytem restoration plans by the Reliability Coordinator is also a new requirement. Prior wording used in the Standards was "shall be aware of the restoration plan of each TOP", I believe this was sufficient. Does this requirement hold the Reliability Coordinator accountable if the TOP's plan turns out to be insufficient when implemented? Does this place the RC in a compliance monitoring role?

Comment Form for 1st Draft of Standards for System Restoration and Blackstart (Project 2006-03)

6. The SRB SDT has replaced the existing Blackstart Capability Plan (and retired the definition) with the Reliability Coordinator's requirement for a coordination element in their restoration plan. Do you agree with this approach or do you have other suggestions for how to handle this?

Yes

No

Comments:

7. If you are aware of any regional variances that would be required as a result of these standards, please identify them here.

8. If you are aware of any conflicts between the proposed standards and any regulatory function, rule order, tariff, rate schedule, legislative requirement or agreement, please identify them here.

9. If you have any other comments on the proposed standards that you haven't already provided in response to the questions above, please provide them here.

Comments:

R1.3 To what level do cranking paths need to be identified?

R1.5 should be removed, PER-001 states that Operating personnel have the responsibility and authority to implement actions to ensure reliable operation of the BES up to and including shedding of firm load.

EOP-006-2 R2.2 The RC should not be responsible for approving or disapproving with a written response the TOP's system restoration plan, this should be the responsibility of the RRO for compliance monitoring.

EOP-006-2 R8 Conducting a System restoration drill twice a year with all Transmission operators and generation operators of the blackstart resources is an overkill. I would recommend that a drill be conducted once a year with only the TOP's and GOP's that play a major role in restoring the BES.

R4 and R5 should be removed, EOP-004 addresses reporting of disturbances.

R9, All Training requirements should be in the PER Standards.

R10 Should be removed. Field personnel do not have a decision making role in system restoration, they execute specific directions from the Transmission Operator.

R11 Should be removed. 1. The RC should not be responsible for all TOP's in the area to attend regional drills. 2. All TOP's should not be required twice a year to attend regional drills, Some TOP's have no effect on restoration of the BES.



NORTH AMERICAN ELECTRIC
RELIABILITY CORPORATION

Comment Form for 1st Draft of Standards for System Restoration and Blackstart (Project 2006-03)

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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) |
| <input type="checkbox"/> ERCOT | <input type="checkbox"/> | 1 – Transmission Owners |
| <input type="checkbox"/> FRCC | <input type="checkbox"/> | 2 – RTOs and ISOs |
| <input type="checkbox"/> MRO | <input type="checkbox"/> | 3 – Load-serving Entities |
| <input type="checkbox"/> NPCC | <input type="checkbox"/> | 4 – Transmission-dependent Utilities |
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| <input type="checkbox"/> SERC | <input type="checkbox"/> | 6 – Electricity Brokers, Aggregators, and Marketers |
| <input type="checkbox"/> SPP | <input type="checkbox"/> | 7 – Large Electricity End Users |
| <input type="checkbox"/> WECC | <input type="checkbox"/> | 8 – Small Electricity End Users |
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**Comment Form for 1st Draft of Standards for System Restoration and Blackstart
(Project 2006-03)**

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

Group Name: FRCC
Lead Contact: Eric Senkowicz
Contact Organization: FRCC
Contact Segment: 10
Contact Telephone: 813-207-7980
Contact E-mail: esenkowicz@frcc.com

| Additional Member Name | Additional Member Organization | Region * | Segment * |
|------------------------|--------------------------------|----------|-----------|
| Alan Gale | City of Tallahassee | FRCC | 5 |
| Richard Kinas | Orlando Utilities Commission | FRCC | 1 |
| Mark Bennett | Gainesville Regional Utilities | FRCC | 5 |
| Stephen Joseph | Tampa Electric Company | FRCC | 1 |
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*If more than one Region or Segment applies, please list all that apply. Regional acronyms and segment numbers are shown on prior page.

Comment Form for 1st Draft of Standards for System Restoration and Blackstart (Project 2006-03)

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The Elements for Consideration of Attachment 1 of EOP-005 have been transformed into sub-requirements of R1 in the standard itself. Attachment 1 is eliminated. Requirements regarding telecommunications systems have been eliminated as duplicative of requirements in COM standards. The requirements of EOP-009 – Blackstart testing – have been moved to EOP-005 and EOP-009 is eliminated. Training requirements are added for Transmission Operator field switching personnel and for operating personnel of Generator Operators with a Blackstart Resource Facility Plan (a newly defined term).

The SRB SDT has eliminated EOP-007 which delegates duties to the Regional Reliability Organization and put new requirements into ERO-006 for the Reliability Coordinator that functionally replace the Regional Reliability Organization requirements. The RRO Blackstart Capability Plan has been eliminated and the Reliability Coordinator has a requirement for a restoration plan to coordinate the Transmission Operator plans for its Reliability Coordinator Area. The Reliability Coordinator approves or makes recommendations for improvement of Transmission Operator restoration plans in its Reliability Coordinator Area.

The draft standards EOP-005-2 and EOP-006-2 should be reviewed as a set when providing comments.

Please review the standards, provide your comments on this form, and then e-mail the form to sarcomm@nerc.net by **September 28, 2007** with the words, "SRB Standards" in the subject line.

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. Attachment 1 of EOP-005-1 has been eliminated and the elements for consideration moved directly into Requirement R1 and the sub-requirements of R1 in EOP-005-2. Do you agree or have other suggestions as to how to incorporate the elements into the standards?

Yes

No

Comments: The DT has re-defined the intent of attachment 1. The "Elements for Consideration in Development of Restoration Plan" are now requirements that "shall be included" but the conversion retains subjective language of the original attachment. After the conversions and as written some of the requirements are still editorial, subjective and open to interpretation.

Comments on R1 language:

What is a "normal state"?

"Following an event that requires utilization of Blackstart Resources". This implies that this standard does not apply to restoration plans for systems that are re-connecting to an energized section of the Interconnection (recovery from "partial shutdown" as described below). If this is the DT intent, the title of the standard should be revised to "System Blackstart - Operations".

2. The SRB SDT has removed the language for partial shutdown as part of restoration as we consider recovery from partial shutdown as normal operations. We believe that this requirement is covered in other standards and this standard only applies to those situations where you need to apply Blackstart Resources. Do you agree or have other suggestions as to how to handle partial shutdowns?

Yes

No

Comments: Recovery from "partial shutdown" is a critical EOP and is much more likely to be encountered by areas of the Interconnections. Requirement R1.6 still addresses restoration of separated systems so the intent of this question as well as wording within R1 of both standards is not clear to us. Coordinated restoration of "partial shutdowns" has to be coordinated with neighboring TOPs and the RC to ensure that a system disturbance causing a local area shutdown does not propagate further, during restoration. Restoration from an energized section of the Interconnection, if available, will always be the preferred, most stable and quickest method for restoring the integrity of the affected BES transmission system. The stability of an energized system makes restoration much more efficient, but the energized system must be protected from an un-coordinated connection to the de-energized system. A Blackstart restoration will inherently transition to a restoration from "partial shutdown" state or configuration.

3. The SRB SDT has included training for generator operators and field switching personnel associated with restoration in EOP-005 in accordance with FERC Order 693. Do you agree or have other suggestions for how to supply such training?

Yes

**Comment Form for 1st Draft of Standards for System Restoration and Blackstart
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No

Comments: Training requirements for EOPs should be centrally located in the PER standards and not embedded within EOP-005 and EOP-006.

For companies with local Generation Control Centers, we agree that training is needed. For companies with Generation, Interchange, and Transmission in the same control center, this training is already required (EOP-005-0, R6 and R7). Field switching personnel are already trained on how to operate switches and devices. In a restoration situation field operating personnel need only to follow the instructions given to them by the System Operator, therefore specific training for field personnel in restoration is not needed.

4. The SRB SDT defined a new term, Blackstart Resource, which allows for greater flexibility in providing resources for blackstart operations. Do you agree with this definition?

Comments: Yes, although the wording "basic ability to start itself" is a bit awkward.

5. The SRB SDT has merged the RRO requirements in EOP-007 into EOP-006 and assigned them to the Reliability Coordinator. Do you agree with this change?

Yes

No

Comments: We caution the DT that Reliability Coordinators should not be put in a position as Compliance Monitors. This is not the intention or the design of the NERC Standards program nor the Compliance programs. The Reliability Coordinators should review and be aware of restoration plans but the "approval" step is shifting the responsibility for determining the effectiveness or "acceptability" of a plan back on the RC and effectively puts responsibility on the RC without organizational authority over the various entities within their footprint. This could add significant administrative burden on the RCs while diluting the restoration reliability responsibilities of individual entities.

Comment Form for 1st Draft of Standards for System Restoration and Blackstart (Project 2006-03)

6. The SRB SDT has replaced the existing Blackstart Capability Plan (and retired the definition) with the Reliability Coordinator's requirement for a coordination element in their restoration plan. Do you agree with this approach or do you have other suggestions for how to handle this?

Yes

No

Comments:

7. If you are aware of any regional variances that would be required as a result of these standards, please identify them here.

8. If you are aware of any conflicts between the proposed standards and any regulatory function, rule order, tariff, rate schedule, legislative requirement or agreement, please identify them here.

9. If you have any other comments on the proposed standards that you haven't already provided in response to the questions above, please provide them here.

Comments: A requirement for a Blackstart plan or procedure should include a sub-requirement that specifies that the procedure or plan include a step that the TOP and /or GO shall isolate itself electrically from all other systems prior to initiating restoration activities.

EOP-005, R1 and EOP-006, R1 clearly exempt activities that restore from energized systems from having to comply with these standards. If this is the intent of the current draft we would caution that this approach actually reduces reliability by removing "partial shutdown" restoration coordination requirements from the current standards in place. Blackstart and "partial shutdown" restoration - are extremely inter-related and are part of an optimal de-energized system response plan and an integrated approach to restoring Interconnection integrity by whatever means are available. If this is the intent of the DT then this standard should only address "islanded operations" and should clearly transition to another standard that addresses synchronization of islanded systems or restoration of "partially shutdown" systems.

We would encourage the DT to more clearly define the following terms: "normal state", "priority of restoring the integrity of the Interconnection", "acceptable TOP restoration plan" and "documented coordination". These terms are ambiguous and make demonstrating compliance very subjective. We would also suggest removing all wording using "but not be limited to". This is unnecessary and does not add value to the requirements (ie EOP-005 R6, EOP-006 R4). Standard requirements should focus on requirements and limit the amount of editorial language.

General comments:

In a few requirements / sub-requirements there are multiple requirements embedded within a single requirement. For clarity, we would encourage the drafting team to further breakout individual requirements and sub-requirements where appropriate. ie.

**Comment Form for 1st Draft of Standards for System Restoration and Blackstart
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R1 both standards includes multiple requirements - EOP-005, R1.7 and R12 includes multiple requirements)

A few of the requirements would not be enforceable as drafted. EOP-006 R4 includes words such as "work in conjunction", "monitor restoration progress". Measurement for this type of requirements is subjective at best and would be difficult to measure in a consistent manner. EOP-005, R1.1, "identification of the authority and tasks" is also a subjectively measured requirement and would be difficult to enforce consistently. Requirements that cannot be measured consistently should be re-drafted or deleted. - ex. EOP-005, R1, R1.1

Purpose should be revised to clearly state the intent of this draft, ie, System Blackstart Operations as stated in R1 of both standards.

We appreciate the Drafting Team's efforts on these important standards and hope our comments provide value to the process.

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| Individual Commenter Information | | |
|--|-------------------------------------|---|
| (Complete this page for comments from one organization or individual.) | | |
| Name: | Roger Champagne | |
| Organization: | Hydro-Québec TransÉnergie | |
| Telephone: | 514 289-2211, X 2766 | |
| E-mail: | champagne.roger.2@hydro.qc.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) |
| <input type="checkbox"/> ERCOT | <input checked="" type="checkbox"/> | 1 – Transmission Owners |
| <input type="checkbox"/> FRCC | <input type="checkbox"/> | 2 – RTOs and ISOs |
| <input type="checkbox"/> MRO | <input type="checkbox"/> | 3 – Load-serving Entities |
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| <input type="checkbox"/> SERC | <input type="checkbox"/> | 6 – Electricity Brokers, Aggregators, and Marketers |
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The Elements for Consideration of Attachment 1 of EOP-005 have been transformed into sub-requirements of R1 in the standard itself. Attachment 1 is eliminated. Requirements regarding telecommunications systems have been eliminated as duplicative of requirements in COM standards. The requirements of EOP-009 – Blackstart testing – have been moved to EOP-005 and EOP-009 is eliminated. Training requirements are added for Transmission Operator field switching personnel and for operating personnel of Generator Operators with a Blackstart Resource Facility Plan (a newly defined term).

The SRB SDT has eliminated EOP-007 which delegates duties to the Regional Reliability Organization and put new requirements into ERO-006 for the Reliability Coordinator that functionally replace the Regional Reliability Organization requirements. The RRO Blackstart Capability Plan has been eliminated and the Reliability Coordinator has a requirement for a restoration plan to coordinate the Transmission Operator plans for its Reliability Coordinator Area. The Reliability Coordinator approves or makes recommendations for improvement of Transmission Operator restoration plans in its Reliability Coordinator Area.

The draft standards EOP-005-2 and EOP-006-2 should be reviewed as a set when providing comments.

Please review the standards, provide your comments on this form, and then e-mail the form to sarcomm@nerc.net by **September 28, 2007** with the words, "SRB Standards" in the subject line.

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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. Attachment 1 of EOP-005-1 has been eliminated and the elements for consideration moved directly into Requirement R1 and the sub-requirements of R1 in EOP-005-2. Do you agree or have other suggestions as to how to incorporate the elements into the standards?

Yes

No

Comments: Delete 1.2.1 and revise 1.2 to read: "Document each Blackstart resource and its characteristics, including the following: the name of the Blackstart Resource, location, megawatt and megavar capacity and type of unit."

In R1.8: "Identify within the plan the coordination among Generator Owners, Generator Operators, Load-Serving Entities, Distribution Providers, and Balancing Authorities within its area, its Reliability Coordinator, and neighboring Transmission Operators and Balancing Authorities.

2. The SRB SDT has removed the language for partial shutdown as part of restoration as we consider recovery from partial shutdown as normal operations. We believe that this requirement is covered in other standards and this standard only applies to those situations where you need to apply Blackstart Resources. Do you agree or have other suggestions as to how to handle partial shutdowns?

Yes

No

Comments: We do not support this, please identify the standard that this requirement is covered in.

3. The SRB SDT has included training for generator operators and field switching personnel associated with restoration in EOP-005 in accordance with FERC Order 693. Do you agree or have other suggestions for how to supply such training?

Yes

No

Comments: Field switching personnel and Generator Operators are sufficiently trained and no specific training are required; these entities do not have decision making authority with respect to system restoration. The interpretation of the term ``operator`` is not clear in the FERC order.

Further, as a generic comment, all training requirements should be contained in the single training Standard PER-005; this comment is applicable to both proposed Standards EOP-005 and EOP-006.

4. The SRB SDT defined a new term, Blackstart Resource, which allows for greater flexibility in providing resources for blackstart operations. Do you agree with this definition?

**Comment Form for 1st Draft of Standards for System Restoration and Blackstart
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Comments: No.

The following definition is proposed: Blackstart Resource: A generation Facility and set of equipment under the control of the Generator Operator with the basic ability to start itself without support from the System, with the ability to energize a dead bus, and meeting the Transmission Operator's restoration plan needs for real and reactive power capability.

Reliability concerns point to the high failure rate of islanding schemes as an alternative to a dedicated Blackstart generator.

It is also an issue that the system dispatch would require that these islanding units always operate 24 x 7 throughout the year.

5. The SRB SDT has merged the RRO requirements in EOP-007 into EOP-006 and assigned them to the Reliability Coordinator. Do you agree with this change?

Yes

No

Comments:

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6. The SRB SDT has replaced the existing Blackstart Capability Plan (and retired the definition) with the Reliability Coordinator's requirement for a coordination element in their restoration plan. Do you agree with this approach or do you have other suggestions for how to handle this?

Yes

No

Comments:

7. If you are aware of any regional variances that would be required as a result of these standards, please identify them here.

At this time, no NPCC variance is anticipated.

8. If you are aware of any conflicts between the proposed standards and any regulatory function, rule order, tariff, rate schedule, legislative requirement or agreement, please identify them here.

No such conflict is seen at this time.

9. If you have any other comments on the proposed standards that you haven't already provided in response to the questions above, please provide them here.

Comments: The following revisions are suggested:

1) In EOP-005, the measures M4 and M5 should be the report of the event required by Standard EOP-004. The report shall address the requirements of R4 presented in proposed Standard EOP-005.

2) In R6.2, the following is proposed:

Delete R6.2.3 and 6.2.4 since real time testing of such requirements is not feasible.

A new R6.2.3 will read:

"Ability to energize a transmission line. If it is not possible to energize a transmission line during the test, the testing entity must affirm that the unit has the capability to energize a transmission line."

3) Delete R12 as having no reliability implications beyond those already stipulated in R1.2.

4) Delete R13, R14 and R15 as the Generator Operator has no decision making authority in system restoration.

5) In EOP-006,

Revise R1.1 as follows: "Identification of the authority and tasks of the Reliability Coordinator to work with its neighboring Reliability Coordinator(s) and with the Transmission Operators and Generation Operators with Blackstart Resources within its area."

**Comment Form for 1st Draft of Standards for System Restoration and Blackstart
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There should be a recognition for the Reliability Plan to be flexible and responsive to unanticipated conditions.

6) In R5, revise as follows: "The Reliability Coordinator shall authorize and coordinate re-synchronizing isolated RC/BA/TOP areas"

7) Remove the Generator Operator from R8.

8) In R1.6, please clarify this statement regarding how it applies to Blackstart Restoration.

According to Q2, the scope of this standard is limited to System restoration when Black start resources are utilized. The restoration of only islanding situations may not require the use of blackstart resources.

9) EOP-006 R8 requiring two drills per year is excessive. NPCC participating members feel that the quality of drills conducted is more important than the quantity.

In addition, EOP-006 R8 , last sentence, should be a separate requirement (R9)

10) The term critical load is subject to interpretation. From a system viewpoint, we view this as load that is critical to provide the needed balance to that portion of the BES to maintain stability and acceptable voltages.

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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 (check all Regions in which your company operates) | Registered Ballot Body Segment (check all industry segments in which your company is registered) |
| <input type="checkbox"/> ERCOT | <input type="checkbox"/> 1 – Transmission Owners |
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Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

1. Attachment 1 of EOP-005-1 has been eliminated and the elements for consideration moved directly into Requirement R1 and the sub-requirements of R1 in EOP-005-2. Do you agree or have other suggestions as to how to incorporate the elements into the standards?

Yes

No

Comments:

2. The SRB SDT has removed the language for partial shutdown as part of restoration as we consider recovery from partial shutdown as normal operations. We believe that this requirement is covered in other standards and this standard only applies to those situations where you need to apply Blackstart Resources. Do you agree or have other suggestions as to how to handle partial shutdowns?

Yes

No

Comments: We can support this standard to deal with restoration from blackstart only and cover restoration from partial shutdown by other standards. However, the title and purpose of EOP-005 and EOP-006 should be revised to more accurately reflect this scope. An appropriate standard(s) to cover the partial recovery requirements needs to be determined but we do not think that these requirements necessarily fall into "normal operations" as recovery from partial shutdown could well be regarded as emergency operations.

On the other hand, restoration may span from recovering from partial shut down, re-synchronizing islands to blackstart. It is much more desirable to group all restoration requirements in one set of standards regardless of whether or not blackstart resources are required for restoration.

We urge the SDT to consider this option as opposed to limiting this standard to restoring from blackstart only.

3. The SRB SDT has included training for generator operators and field switching personnel associated with restoration in EOP-005 in accordance with FERC Order 693. Do you agree or have other suggestions for how to supply such training?

Yes

No

Comments: All training matters should be grouped under the training standards. To have a training requirement in each standard that deals with a specific subject creates a difficulty in assessing a complete training need.

**Comment Form for 1st Draft of Standards for System Restoration and Blackstart
(Project 2006-03)**

4. The SRB SDT defined a new term, Blackstart Resource, which allows for greater flexibility in providing resources for blackstart operations. Do you agree with this definition?

Comments: No, we do not agree with the definition of this term. The definition of the term must be revised in order to narrow down the scope of the definition to "true" blackstart units only. This way we can ensure that generators which trip on detecting the absence of an energized grid and end up serving station load (islanding scheme) are not considered as a blackstart resource because such units also have the capability to re-energize the grid if they are required to do so and as soon as the synchronization parameters are achieved, but this does NOT make these blackstart units.

Hence, we propose a revised definition which is stated as follows: "Blackstart Resource: A generation Facility and set of equipment under the control of the Generator Operator with the basic ability to start itself without support from the System, with the ability to energize a dead bus, and meeting the Transmission Operator's restoration plan needs for real and reactive power capability."

5. The SRB SDT has merged the RRO requirements in EOP-007 into EOP-006 and assigned them to the Reliability Coordinator. Do you agree with this change?

Yes

No

Comments: Yes

Comment Form for 1st Draft of Standards for System Restoration and Blackstart (Project 2006-03)

6. The SRB SDT has replaced the existing Blackstart Capability Plan (and retired the definition) with the Reliability Coordinator's requirement for a coordination element in their restoration plan. Do you agree with this approach or do you have other suggestions for how to handle this?

Yes

No

Comments: We agree with the replacement, but feel that the requirement to "coordinate" fall short of requiring the RC to direct system restoration especially from a total shutdown. Please see our detailed comments under Q9.

7. If you are aware of any regional variances that would be required as a result of these standards, please identify them here.

No

8. If you are aware of any conflicts between the proposed standards and any regulatory function, rule order, tariff, rate schedule, legislative requirement or agreement, please identify them here.

9. If you have any other comments on the proposed standards that you haven't already provided in response to the questions above, please provide them here.

Comments:

We have a number of comments on specific requirements in both EOP-005 and EOP-006, as follows:

EOP-005

1. R1: should "its System" be replaced by "its area" since a Reliability Coordinator Area is described in the functional model as opposed to a Reliability Coordinator "System". Also, we don't think the second sentence belongs to R1 since it is itself a requirement for the TOP to follow the direction of the RC. It should be a separate requirement.

2. R1.2: We have difficulty visualizing how a restoration plan can be "coordinated" with a Blackstart Resource Facility Plan, a term that is not defined. We understand the need for coordinating actions and provision of critical information. We therefore suggest the requirement to be reworded to "Documented procedure that ensures the ability of the Blackstart Resource to control and maintain voltage and frequency within acceptable limits." Note that the term "Blackstart Resource Facility Plan" is not described or defined anywhere, and hence its use should be avoided.

3. R1.2.1: We do not see how inclusion of information such as "latest date of test, test results and starting method" in the TOP's restoration plan can improve or adversely affect reliability. The important requirement is to identify the resources on the cranking path that need to provide blackstart capability, and that such capability is verified to function when needed. We suggest to remove the last part of this requirement. Note that documentation of the test results, etc. are already required in R14.

**Comment Form for 1st Draft of Standards for System Restoration and Blackstart
(Project 2006-03)**

4. R1.7: The term "critical Load" is subject to interpretation. From a system restoration viewpoint, particular from a balckstart, we would view this to mean load that is critical to provide the needed balance to that portion of the BES to be restored to maintain stability and acceptable voltage. In other words, the load is critical to the restoration process. With respect to the other interpretation that it means the load that is critically dependent on electricity supply, such as off-site power, hospital load, etc., this can be very subjectively determined and can vary from area to area. We feel the determination of which load to be supplied first, if this needs to be addressed, should be left to the discretion of the TOP but not as a requirement in a NERC standard.

5. R3: We do not understand what "testing" mean". The cranking path and associated restoration process cannot be tested live. If it means computer simulation or desk top exercise, then the requirement should be reworded to be more specific.

6. R3.3: Acceptable steady-state and dynamic limits are not defined. Reference is made to R1.4 but the latter stipulates operating voltage and frequency limits. Please make them consistent.

7. R4.3: "As required" is not measurable.

8. R6.2.4: "Acceptable frequency" is subject to interpretation, unless it is referred to the range specified in R1.4.

9. R14.1: "the test including time correlation to Load applied (if any), and the unit frequency profile during the test including time correlation to Load applied (if any)" is not specific. We do not understand what it means by "time correlation to Loads applied" and the clause "if any" is subject the requirement too loose.

10. R15.3: Who determines the restoration priorities? And whose priorities, the TOP's or the GOP's? Please be specific.

EOP-006

11. R1.7: whose reporting requirements does the plan include? This needs to be specified.

12. R2: "if acceptable" is not needed since the RC shall review and approve the TOP's restoration plan. The RC would not approve it if it doesn't find the plan acceptable.

13. R5: The TOP is to follow established procedure of the RC to re-synchronize of isolated areas. We suggest changing deleting the word "coordinate" in this requirement, and add a sub-requirement in R1 that the RC develop the re-synchronization procedure.

14. R7: Add R7.3 to include directing re-synchronizing isolated areas.

15. R8:

(i) "Drill" needs to be more specific or clarified - whether it is a full scale drill involving actual switching of equipment, or just a simply desk top exercise.

(ii) The TOP and GOP with Blackstart Resources are to be include in the drill. However, there might be other entities on the cranking path, and they also need to participate in the drill. The requirements should therefore be revised to include all entities identified on the cranking path.

(iii) The way R8 is worded is a bit confusing. The first sentence says the RC shall conduct two restoration drills, exercises or simulations per year with the TOP and GOP with blackstart resources. The second sentence says each TOP and GOP with blackstart

**Comment Form for 1st Draft of Standards for System Restoration and Blackstart
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resources shall be included in a drill, exercise, or simulation at least every two years. If the first sentence already includes these entities twice a year, why would the second sentence be required?

That said, we think twice a year or even once every two year is to frequent. We suggest a drill, exercise or simulations be conducted once every 3 years.

16. R10: This requirement should be moved to the training standard.

17. General: We realize that the violation severity levels, mitigation time horizons and compliance elements have not been drafted. This and in view of the possible changes to some of the requirements, we have chosen not to comment on the measures at this time. We will offer our comments on these elements at the next posting.



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Comment Form for 1st Draft of Standards for System Restoration and Blackstart (Project 2006-03)

Please use this form to submit comments on the 1st draft of the standards for System Restoration and Blackstart (Project 2006-03). Comments must be submitted by **September 28, 2007**. Please submit the completed form by e-mail to sarcomm@nerc.net with the words "SRB Standards" in the subject line. If you have questions please contact Ed Dobrowolski at Ed.Dobrowolski@nerc.net or by telephone at 609-947-3673.

| 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) |
| <input type="checkbox"/> ERCOT | <input type="checkbox"/> | 1 – Transmission Owners |
| <input type="checkbox"/> FRCC | <input type="checkbox"/> | 2 – RTOs and ISOs |
| <input type="checkbox"/> MRO | <input type="checkbox"/> | 3 – Load-serving Entities |
| <input type="checkbox"/> NPCC | <input type="checkbox"/> | 4 – Transmission-dependent Utilities |
| <input type="checkbox"/> RFC | <input type="checkbox"/> | 5 – Electric Generators |
| <input type="checkbox"/> SERC | <input type="checkbox"/> | 6 – Electricity Brokers, Aggregators, and Marketers |
| <input type="checkbox"/> SPP | <input type="checkbox"/> | 7 – Large Electricity End Users |
| <input type="checkbox"/> WECC | <input type="checkbox"/> | 8 – Small Electricity End Users |
| <input type="checkbox"/> NA – Not Applicable | <input type="checkbox"/> | 9 – Federal, State, Provincial Regulatory or other Government Entities |
| | <input type="checkbox"/> | 10 – Regional Reliability Organizations and Regional Entities |

**Comment Form for 1st Draft of Standards for System Restoration and Blackstart
(Project 2006-03)**

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* |
|-------------------------------|---------------------------------------|----------------|-----------------|
| Greg Campoli | NYISO | NPCC | 2 |
| Alicia Daugherty | PJM | RFC | 2 |
| Ron Falsetti | IESO | NPCC | 2 |
| Matt Goldberg | ISO-NE | NPCC | 2 |
| Brent Kingsford | CAISO | WECC | 2 |
| Anita Lee | AESO | WECC | 2 |
| Steve Myers | ERCOT | ERCOT | 2 |
| William Phillips | MISO | RFC+MRO+SERC | 2 |
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*If more than one Region or Segment applies, please list all that apply. Regional acronyms and segment numbers are shown on prior page.

Comment Form for 1st Draft of Standards for System Restoration and Blackstart (Project 2006-03)

Background Information

The System Restoration and Blackstart Standard Drafting Team (SRB SDT) has made significant changes from the currently approved standards related to System Restoration and Blackstart. While the SRB SDT has considered the comments submitted in prior review periods during NERC's transition to the ERO and those from the SAR stage, particular attention has been given to the recommendations made in FERC Order 693.

The Elements for Consideration of Attachment 1 of EOP-005 have been transformed into sub-requirements of R1 in the standard itself. Attachment 1 is eliminated. Requirements regarding telecommunications systems have been eliminated as duplicative of requirements in COM standards. The requirements of EOP-009 – Blackstart testing – have been moved to EOP-005 and EOP-009 is eliminated. Training requirements are added for Transmission Operator field switching personnel and for operating personnel of Generator Operators with a Blackstart Resource Facility Plan (a newly defined term).

The SRB SDT has eliminated EOP-007 which delegates duties to the Regional Reliability Organization and put new requirements into ERO-006 for the Reliability Coordinator that functionally replace the Regional Reliability Organization requirements. The RRO Blackstart Capability Plan has been eliminated and the Reliability Coordinator has a requirement for a restoration plan to coordinate the Transmission Operator plans for its Reliability Coordinator Area. The Reliability Coordinator approves or makes recommendations for improvement of Transmission Operator restoration plans in its Reliability Coordinator Area.

The draft standards EOP-005-2 and EOP-006-2 should be reviewed as a set when providing comments.

Please review the standards, provide your comments on this form, and then e-mail the form to sarcomm@nerc.net by **September 28, 2007** with the words, "SRB Standards" in the subject line.

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. Attachment 1 of EOP-005-1 has been eliminated and the elements for consideration moved directly into Requirement R1 and the sub-requirements of R1 in EOP-005-2. Do you agree or have other suggestions as to how to incorporate the elements into the standards?

Yes

No

Comments: We can agree with moving the items from the attachment into the requirements. However, R1's subrequirements are in need of revisions. R1.1 should be broken up into at least two sentences to be clear. Suggested wording: R1.1 Identification of the authority and tasks of the Transmission Operator's control room and field switching personnel assigned to participate in restoration activities. Identification of the responsibility of the Transmission Operator to work with its Reliability Coordinator and with other Transmission Operators. Identification of the responsibility of the Transmission Operator to coordinate its restoration activities with the BAs, GOPs, LSEs, RC, DPs and GOPs (or the specific entities that the drafting team actually meant to require coordination of the restoration activities with) operating within its area.

R1.8 requires that the plan include procedures to coordinate the plan with various entities. We do not believe that this should be required to be in the plan. Coordination of the plan should be the requirement.

2. The SRB SDT has removed the language for partial shutdown as part of restoration as we consider recovery from partial shutdown as normal operations. We believe that this requirement is covered in other standards and this standard only applies to those situations where you need to apply Blackstart Resources. Do you agree or have other suggestions as to how to handle partial shutdowns?

Yes

No

Comments: We can support this standard to deal with restoration from blackstart only and cover restoration from partial shutdown by other standards. However, the title and purpose of EOP-005 and EOP-006 should be revised to more accurately reflect this scope. An appropriate standard(s) to cover the partial recovery requirements needs to be determined but we do not think that these requirements necessarily fall into "normal operations" as recovery from partial shutdown could well be regarded as emergency operations.

On the other hand, restoration may span from recovering from partial shut down, resynchronizing islands to blackstart. It is much more desirable to group all restoration requirements in one set of standards regardless of whether or not blackstart resources are required for restoration.

We urge the SDT to consider this option as opposed to limiting this standard to restoring from blackstart only.

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(Project 2006-03)**

3. The SRB SDT has included training for generator operators and field switching personnel associated with restoration in EOP-005 in accordance with FERC Order 693. Do you agree or have other suggestions for how to supply such training?

Yes

No

Comments: All training matters should be grouped under the training standards. To have a training requirement in each standard that deals with a specific subject creates a difficulty in assessing a complete training need.

We also do not see the need for R10. For example, if a field switchman is trained to switch and follow directions of the transmission dispatcher, we do not see the need for a blanket requirement that all switchmen must have specific annual blackstart training. There is also concern that the term switchmen could cause confusion. Does this requirement require training of the person pulling switches in the field or is this a resurrection of the local control center topic?

In R9., the term "existing emergency operations topics training program" should be simplified to "operations training program".

4. The SRB SDT defined a new term, Blackstart Resource, which allows for greater flexibility in providing resources for blackstart operations. Do you agree with this definition?

Comments: NO, we do not agree with the definition of this term. It is conceivable that a generating unit with blackstart capability can be located outside of the identified restoration, or "cranking" path. On the other hand, there can be facilities on the restoration path that do not provide or are not equipped with blackstart capability.

We suggest the SDT to consider requiring the responsible entity (TOP) to:

- (a) Identify a cranking path for restoration from blackstart, and
- (b) designate specific generating sources on the cranking path that have or to provide blackstart capability.

5. The SRB SDT has merged the RRO requirements in EOP-007 into EOP-006 and assigned them to the Reliability Coordinator. Do you agree with this change?

Yes

No

Comments:

Comment Form for 1st Draft of Standards for System Restoration and Blackstart (Project 2006-03)

6. The SRB SDT has replaced the existing Blackstart Capability Plan (and retired the definition) with the Reliability Coordinator's requirement for a coordination element in their restoration plan. Do you agree with this approach or do you have other suggestions for how to handle this?

Yes

No

Comments: We agree with the replacement, but feel that the requirement to "coordinate" fall short of requiring the RC to direct system restoration especially from a total shutdown. Please see our detailed comments under Q9.

7. If you are aware of any regional variances that would be required as a result of these standards, please identify them here.

No.

8. If you are aware of any conflicts between the proposed standards and any regulatory function, rule order, tariff, rate schedule, legislative requirement or agreement, please identify them here.

9. If you have any other comments on the proposed standards that you haven't already provided in response to the questions above, please provide them here.

Comments:

1. R1: "Its System" should be replaced by "its area" since a Reliability Coordinator's Area is described in the functional model as opposed to a Reliability Coordinator "System". Also, we don't think the second sentence belongs to R1 since it is itself a requirement for the TOP to follow the direction of the RC. It should be a separate requirement.

2. R1.2: We have difficulty visualizing how a restoration plan can be "coordinated" with a Blackstart Resource Facility Plan, a term that is not defined. We understand the need for coordinating actions and provision of critical information. We therefore suggest the requirement to be reworded to "Documented procedure that ensures the ability of the Blackstart Resource to control and maintain voltage and frequency within acceptable limits." Note that the term "Blackstart Resource Facility Plan" is not described or defined anywhere, and hence its use should be avoided.

3.R1.2.1 We do not see how inclusion of information such as "latest date of test, test results and starting method" in the TOP's restoration plan can improve or adverse affect reliability. The important requirement is to identify the resources on the cranking path that need to provide blackstart capability, and that such capability is verified to function when needed. We suggest to remove the last part of this requirement. Note that documentation of the test results, etc. are already required in R14.

4. R1.7: The term "critical Load" is subject to interpretation. From a system restoration viewpoint, particularly from a blackstart, we would view this to mean load that is critical to provide the needed balance to that portion of the BES to be restored to maintain stability and acceptable voltage. In other words, the load is critical to the restoration

Comment Form for 1st Draft of Standards for System Restoration and Blackstart (Project 2006-03)

process. With respect to the other interpretation that it means the load that is critically dependent on electricity supply, such as off-site power, hospital load, etc.; this can be very subjectively determined and can vary from area to area. We feel the determination of which load to be supplied first, if this needs to be addressed, should be left to the discretion of the TOP but not as a requirement in a NERC standard.

5. R2.2: We do not agree that the TOP should be required to certify annually to the RC that the plan has been reviewed. This is part of the ERO self certification process, and we do not believe that there is a need to duplicate the ERO function with the RC.

6. R3: We do not understand what "testing" means. The cranking path and associated restoration process cannot be tested live. If it means computer simulation or desk top exercise, then the requirement should be reworded to be more specific.

7. R3.3: Acceptable steady-state and dynamic limits are not defined. Reference is made to R1.4 but the latter stipulates operating voltage and frequency limits. Please make them consistent.

8. R4.3: "As required" is not measurable.

9. R6.2.4: "Acceptable frequency" is subject to interpretation, unless it is referred to the range specified in R1.4.

10. R11. Should specify an actual frequency that participation in an RC restoration exercise is required. Suggested wording:

" R11. Each Transmission Operator shall participate in its Reliability Coordinator's restoration drills, exercises, or simulations at least once every two years when requested by its Reliability Coordinator."

11. R14.1: "the test including time correlation to Load applied (if any), and the unit frequency profile during the test including time correlation to Load applied (if any)" is not specific. We do not understand what it means by "time correlation to Loads applied" and the clause "if any" is subject the requirement too loose.

12. R15.3: Who determines the restoration priorities? And whose priorities, the TOP's or the GOP's? Please be specific.

EOP-006-2

13. R1. This sentence should be broken up to add clarity. The requirement for distribution of the restoration plan should be a separate requirement.

14. R1.7: Whose reporting requirements does the plan include? This needs to be specified.

15. R2: "if acceptable" is not needed since the RC shall review and approve the TOP's restoration plan. The RC would not approve it if it doesn't find the plan acceptable.

What is the recourse if the RC does not approve plan?

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(Project 2006-03)**

16. R5: The TOP is to follow established procedure of the RC to re-synchronize of isolated areas. We suggest changing deleting the word "coordinate" in this requirement, and add a sub-requirement in R1 that the RC develop the re-synchronization procedure.

17. R7: Add R7.3 to include directing re-synchronizing isolated areas.

18. R8:

(i) "Drill" needs to be more specific or clarified - whether it is a full scale drill involving actual switching of equipment, or just a simply desk top exercise.

(ii) The TOP and GOP with Blackstart Resources are to be include in the drill. However, there might be other entities on the cranking path, and they also need to participate in the drill. The requirements should therefore be revised to include all entities identified on the cranking path.

(iii) The way R8 is worded is a bit confusing. The first sentence says the RC shall conduct two restoration drills, exercises or simulations per year with the TOP and GOP with blackstart resources. The second sentence says each TOP and GOP with blackstart resources shall be included in a drill, exercise, or simulation at least every two years. If the first sentence already includes these entities twice a year, why would the second sentence be required?

We think restoration drills, exercises or simulations should be conducted at the most once very two years.

The RC should not be responsible for the following statement: "Each Transmission Operator and Generator Operator with Blackstart Resources shall be included in a drill, exercise, or simulation at least every two years." If a GOP or TOP fails to participate, is the RC non-compliant?

19. R10: This requirement should be moved to the training standard.

20. General: We realize that the violation severity levels, mitigation time horizons and compliance elements have not been drafted. This and in view of the possible changes to some of the requirements, we have chosen not to comment on the measures at this time. We will offer our comments on these elements at the next posting.



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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) |
| <input type="checkbox"/> ERCOT | <input type="checkbox"/> 1 – Transmission Owners |
| <input type="checkbox"/> FRCC | <input checked="" type="checkbox"/> 2 – RTOs and ISOs |
| <input type="checkbox"/> MRO | <input type="checkbox"/> 3 – Load-serving Entities |
| <input checked="" type="checkbox"/> NPCC | <input type="checkbox"/> 4 – Transmission-dependent Utilities |
| <input type="checkbox"/> RFC | <input type="checkbox"/> 5 – Electric Generators |
| <input type="checkbox"/> SERC | <input type="checkbox"/> 6 – Electricity Brokers, Aggregators, and Marketers |
| <input type="checkbox"/> SPP | <input type="checkbox"/> 7 – Large Electricity End Users |
| <input type="checkbox"/> WECC | <input type="checkbox"/> 8 – Small Electricity End Users |
| <input type="checkbox"/> NA – Not Applicable | <input type="checkbox"/> 9 – Federal, State, Provincial Regulatory or other Government Entities |
| | <input type="checkbox"/> 10 – Regional Reliability Organizations and Regional Entities |

Comment Form for 1st Draft of Standards for System Restoration and Blackstart (Project 2006-03)

Background Information

The System Restoration and Blackstart Standard Drafting Team (SRB SDT) has made significant changes from the currently approved standards related to System Restoration and Blackstart. While the SRB SDT has considered the comments submitted in prior review periods during NERC's transition to the ERO and those from the SAR stage, particular attention has been given to the recommendations made in FERC Order 693.

The Elements for Consideration of Attachment 1 of EOP-005 have been transformed into sub-requirements of R1 in the standard itself. Attachment 1 is eliminated. Requirements regarding telecommunications systems have been eliminated as duplicative of requirements in COM standards. The requirements of EOP-009 – Blackstart testing – have been moved to EOP-005 and EOP-009 is eliminated. Training requirements are added for Transmission Operator field switching personnel and for operating personnel of Generator Operators with a Blackstart Resource Facility Plan (a newly defined term).

The SRB SDT has eliminated EOP-007 which delegates duties to the Regional Reliability Organization and put new requirements into ERO-006 for the Reliability Coordinator that functionally replace the Regional Reliability Organization requirements. The RRO Blackstart Capability Plan has been eliminated and the Reliability Coordinator has a requirement for a restoration plan to coordinate the Transmission Operator plans for its Reliability Coordinator Area. The Reliability Coordinator approves or makes recommendations for improvement of Transmission Operator restoration plans in its Reliability Coordinator Area.

The draft standards EOP-005-2 and EOP-006-2 should be reviewed as a set when providing comments.

Please review the standards, provide your comments on this form, and then e-mail the form to sarcomm@nerc.net by **September 28, 2007** with the words, "SRB Standards" in the subject line.

Comment Form for 1st Draft of Standards for System Restoration and Blackstart (Project 2006-03)

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. Attachment 1 of EOP-005-1 has been eliminated and the elements for consideration moved directly into Requirement R1 and the sub-requirements of R1 in EOP-005-2. Do you agree or have other suggestions as to how to incorporate the elements into the standards?

Yes

No

Comments: Delete 1.2.1 and revise 1.2 to read: "Document each Blackstart resource and its characteristics, including the following: the name of the Blackstart Resource, location, megawatt and megavar capacity and type of unit."

In R1.8: "Identify within the plan the coordination among Generator Owners, Generator Operators, Load-Serving Entities, Distribution Providers, and Balancing Authorities within its area, its Reliability Coordinator, and neighboring Transmission Operators and Balancing Authorities."

2. The SRB SDT has removed the language for partial shutdown as part of restoration as we consider recovery from partial shutdown as normal operations. We believe that this requirement is covered in other standards and this standard only applies to those situations where you need to apply Blackstart Resources. Do you agree or have other suggestions as to how to handle partial shutdowns?

Yes

No

Comments: We do not support this, please identify the standard that this requirement is covered in.

3. The SRB SDT has included training for generator operators and field switching personnel associated with restoration in EOP-005 in accordance with FERC Order 693. Do you agree or have other suggestions for how to supply such training?

Yes

No

Comments: Field switching personnel and Generator Operators are sufficiently trained and no specific restoration training is required; these entities do not have decision making authority with respect to system restoration. The interpretation of the term "operator" is not clear in the FERC order.

Further, as a generic comment to training, all training requirements should be contained in the single training Standard PER-005; this comment is applicable to both proposed Standards EOP-005 and EOP-006.

4. The SRB SDT defined a new term, Blackstart Resource, which allows for greater flexibility in providing resources for blackstart operations. Do you agree with this definition?

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Comments: No

The following definition is proposed:

Blackstart Resource - A generation Facility and set of equipment under the control of the Generator Operator with the basic ability to start itself without support from the System, with the ability to energize a dead bus, and meeting the Transmission Operator's restoration plan needs for real and reactive power capability.

Reliability concerns point to the high failure rate of islanding schemes as an alternative to a dedicated Blackstart generator.

It is also an issue that the system dispatch would require that these islanding units always operate 24 x 7 throughout the year.

5. The SRB SDT has merged the RRO requirements in EOP-007 into EOP-006 and assigned them to the Reliability Coordinator. Do you agree with this change?

Yes

No

Comments:

**Comment Form for 1st Draft of Standards for System Restoration and Blackstart
(Project 2006-03)**

6. The SRB SDT has replaced the existing Blackstart Capability Plan (and retired the definition) with the Reliability Coordinator's requirement for a coordination element in their restoration plan. Do you agree with this approach or do you have other suggestions for how to handle this?

Yes

No

Comments:

7. If you are aware of any regional variances that would be required as a result of these standards, please identify them here.

At this time, no NPCC variance is anticipated.

8. If you are aware of any conflicts between the proposed standards and any regulatory function, rule order, tariff, rate schedule, legislative requirement or agreement, please identify them here.

No such conflict is seen at this time.

9. If you have any other comments on the proposed standards that you haven't already provided in response to the questions above, please provide them here.

Comments: The following revisions are suggested:

1) In EOP-005, the measures for R4 and R5 should be the report of the event required by Standard EOP-004. The report shall address the requirements of R4 presented in proposed Standard EOP-005.

2) In R6.2, the following is proposed:

Delete R6.2.3 and 6.2.4 since the real time testing of such requirements is not feasible.

A new R6.2.3 should read:

"Ability to energize a transmission line. If it is not possible to energize a transmission line during the test, the testing entity must affirm that the unit has the capability to energize a transmission line."

3) Delete R12 as having no reliability implications beyond those already stipulated in R1.2.

4) Delete R13, R14 and R15 as the Generator Operator has no decision making authority in system restoration.

5) In EOP-006,

Revise R1.1 as follows: "Identification of the authority and tasks of the Reliability Coordinator to work with its neighboring Reliability Coordinator(s) and with the Transmission Operators, Balancing Authority and Generation Operators with Blackstart Resources within its area."

**Comment Form for 1st Draft of Standards for System Restoration and Blackstart
(Project 2006-03)**

There should be a recognition for the Reliability Plan to be flexible and responsive to unanticipated conditions.

6) In R5, revise as follows: "The Reliability Coordinator shall authorize and coordinate re-synchronizing isolated RC/BA/TOP areas"

7) Remove the Generator Operator from R8.

8) R1.6 Please clarify this statement regarding how it applies to Black Start restoration. According to question 2, the scope of the standard is limited to System Restoration when black start resources are utilized. The Restoration of islanding situations may not require the use of blackstart resources.

9) EOP-006 R8 requiring two drills per year is excessive. NPCC participating members feel that the quality of drills conducted is more important than the quantity. In addition, the last sentence in EOP-006 R8 should be a separate requirement R9.

10) The term critical load is subject to interpretation. From a system restoration viewpoint, we view this as load that is critical to provide the needed balance to that portion of the BES to maintain stability and acceptable voltages.

ISO-NE believes that the Balancing Authority is missing from the applicable entity list. The BA is responsible for load/generation balance and frequency control.



NORTH AMERICAN ELECTRIC
RELIABILITY CORPORATION

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| 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 (check all Regions in which your company operates) | | Registered Ballot Body Segment (check all industry segments in which your company is registered) |
| <input type="checkbox"/> ERCOT | <input checked="" type="checkbox"/> | 1 – Transmission Owners |
| <input type="checkbox"/> FRCC | <input type="checkbox"/> | 2 – RTOs and ISOs |
| <input type="checkbox"/> MRO | <input type="checkbox"/> | 3 – Load-serving Entities |
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Comment Form for 1st Draft of Standards for System Restoration and Blackstart (Project 2006-03)

Background Information

The System Restoration and Blackstart Standard Drafting Team (SRB SDT) has made significant changes from the currently approved standards related to System Restoration and Blackstart. While the SRB SDT has considered the comments submitted in prior review periods during NERC's transition to the ERO and those from the SAR stage, particular attention has been given to the recommendations made in FERC Order 693.

The Elements for Consideration of Attachment 1 of EOP-005 have been transformed into sub-requirements of R1 in the standard itself. Attachment 1 is eliminated. Requirements regarding telecommunications systems have been eliminated as duplicative of requirements in COM standards. The requirements of EOP-009 – Blackstart testing – have been moved to EOP-005 and EOP-009 is eliminated. Training requirements are added for Transmission Operator field switching personnel and for operating personnel of Generator Operators with a Blackstart Resource Facility Plan (a newly defined term).

The SRB SDT has eliminated EOP-007 which delegates duties to the Regional Reliability Organization and put new requirements into ERO-006 for the Reliability Coordinator that functionally replace the Regional Reliability Organization requirements. The RRO Blackstart Capability Plan has been eliminated and the Reliability Coordinator has a requirement for a restoration plan to coordinate the Transmission Operator plans for its Reliability Coordinator Area. The Reliability Coordinator approves or makes recommendations for improvement of Transmission Operator restoration plans in its Reliability Coordinator Area.

The draft standards EOP-005-2 and EOP-006-2 should be reviewed as a set when providing comments.

Please review the standards, provide your comments on this form, and then e-mail the form to sarcomm@nerc.net by **September 28, 2007** with the words, "SRB Standards" in the subject line.

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Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

1. Attachment 1 of EOP-005-1 has been eliminated and the elements for consideration moved directly into Requirement R1 and the sub-requirements of R1 in EOP-005-2. Do you agree or have other suggestions as to how to incorporate the elements into the standards?

Yes

No

Comments: Agree, no other suggestions.

2. The SRB SDT has removed the language for partial shutdown as part of restoration as we consider recovery from partial shutdown as normal operations. We believe that this requirement is covered in other standards and this standard only applies to those situations where you need to apply Blackstart Resources. Do you agree or have other suggestions as to how to handle partial shutdowns?

Yes

No

Comments: There are entities that have designed their systems to break into islands so believe the partial shutdown language should remain in the standard. In addition, not aware of any other place in the standards where restoration of partial shutdown of areas is addressed.

3. The SRB SDT has included training for generator operators and field switching personnel associated with restoration in EOP-005 in accordance with FERC Order 693. Do you agree or have other suggestions for how to supply such training?

Yes

No

Comments: It is unnecessary to include training for field switching personnel. These personnel do not act independently and are under the direction of Transmission Operators and Generation Operators who are required to be trained in this proposed standard.

4. The SRB SDT defined a new term, Blackstart Resource, which allows for greater flexibility in providing resources for blackstart operations. Do you agree with this definition?

Comments: Yes.

5. The SRB SDT has merged the RRO requirements in EOP-007 into EOP-006 and assigned them to the Reliability Coordinator. Do you agree with this change?

Yes

No

**Comment Form for 1st Draft of Standards for System Restoration and Blackstart
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Comment Form for 1st Draft of Standards for System Restoration and Blackstart (Project 2006-03)

6. The SRB SDT has replaced the existing Blackstart Capability Plan (and retired the definition) with the Reliability Coordinator's requirement for a coordination element in their restoration plan. Do you agree with this approach or do you have other suggestions for how to handle this?

Yes

No

Comments:

7. If you are aware of any regional variances that would be required as a result of these standards, please identify them here.

Not aware of any regional variances.

8. If you are aware of any conflicts between the proposed standards and any regulatory function, rule order, tariff, rate schedule, legislative requirement or agreement, please identify them here.

Not aware of any conflicts.

9. If you have any other comments on the proposed standards that you haven't already provided in response to the questions above, please provide them here.

Comments:

Proposed EOP-005-2:

1. Do not agree with the requirement in R1 stating the TO restoration plan must be approved by the RC. The primary substance of these plans are local restoration and are of little interest to the RC. This proposed EOP-005-2 contains the requirements for TO to include in their restoration plans to work in conjunction with the RC, to coordinate the restoration of interconnections with others with the RC, to maintain communication with the RC and to take direction from the RC in the restoration effort. This requirement should be for a TO to submit their restoration plans to the RC for review and coordination.
2. R1.2.1 requires the TO restoration plan to include records of testing of the Blackstart Resources. This will require unnecessary maintenance and update of the restoration plan without change of restoration plan substance. This requirement should be changed to document the testing results but do not require the results in the restoration plan.
3. Suggest removal of R1-5 as it is a requirement with no substance. It is not practical to require something that cannot be adequately measured.
4. R1.8 requires the TO to have "procedures to coordinate" their restoration plans with others. This should be a requirement to "coordinate" with others.
5. Requirement R6.1 allows an entity with one Blackstart Resource to test that resource one time in three years. The requirement should be for an entity to test a Blackstart resource on an annual basis and no less than once every three years. If an entity had 5 Blackstart resources, it could schedule testing for all 5 over a three year period, but at least one every year.
6. Requirement R10 should be removed. It is unnecessary to include training for field switching personnel. These personnel do not act independently and are under the direction of Transmission Operators and Generation Operators who are required to be trained in this proposed standard.
7. Suggest combining participation in RC restoration drills into one requirement by combining requirement R11 and R16.

**Comment Form for 1st Draft of Standards for System Restoration and Blackstart
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8. Do not agree with M3 under the measurements. The documentation required here is too vague and can be too onerous. How much of a load flow output should be saved? The assumptions and the end results? The many runs in between to prove a cranking path(s) are viable? Why isn't the electronic saved cases sufficient documentation? If a Compliance Monitor wants to dive into the details, they would all be there for their inspection electronically.

EOP-006-2:

1. Disagree with the concept in requirement R2 and the sub-requirements of R2 of the RC approving the TO restoration plans for the reasons stated above in item 1 under the EOP-005-2 comments in this question. The requirements here should be for the RC to provide comments back the TO if the RC sees problems and to document those comments for Compliance purposes with the TO.
2. Suggest removal of R1-6 as it is a requirement with no substance. It is not practical to require something that cannot be adequately measured.
3. Requirement R5 should read like R5 in EOP-005-2. The way this is written implies islanded areas within a TO and not between TO's.
4. Requirement R6 seems to be worded funny. Suggest the following change in the text to, "neighboring Reliability Coordinators, Transmission Operators, and Balancing Authorities". The "or" in the submitted text might imply it would be acceptable to exclude a TO or a BA.
5. Requirement R8 should be for "Each Transmission Operator and Generator Operator with Blackstart Resources shall be invited to participate in". It is up to the TO and GO to meet their own participation requirements as dictated in EOP-005-2. It is only necessary for the RC to advertise drills and make them available to the TO's and BA's.
6. There is no review requirement for the RC to update their restoration plan and there should be a requirement.

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| Individual Commenter Information (Complete this page for comments from one organization or individual.) | | |
|---|-------------------------------------|--|
| Name: Joseph G. DePoorter | | |
| Organization: Madison Gas and Electric Company | | |
| Telephone: 608-252-1581 | | |
| E-mail: jdepooter@mge.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) |
| <input type="checkbox"/> ERCOT | <input type="checkbox"/> | 1 – Transmission Owners |
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The SRB SDT has eliminated EOP-007 which delegates duties to the Regional Reliability Organization and put new requirements into ERO-006 for the Reliability Coordinator that functionally replace the Regional Reliability Organization requirements. The RRO Blackstart Capability Plan has been eliminated and the Reliability Coordinator has a requirement for a restoration plan to coordinate the Transmission Operator plans for its Reliability Coordinator Area. The Reliability Coordinator approves or makes recommendations for improvement of Transmission Operator restoration plans in its Reliability Coordinator Area.

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Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

1. Attachment 1 of EOP-005-1 has been eliminated and the elements for consideration moved directly into Requirement R1 and the sub-requirements of R1 in EOP-005-2. Do you agree or have other suggestions as to how to incorporate the elements into the standards?

Yes

No

Comments:

a) Agree with placing the requirements directly into the standard.

b) In R1, second sentence the word "normal" needs to be removed and replaced with "pre-Disturbance". Normal has not been defined and leaves the reader to determine its definition.

c) In R1.1, It is unclear what "identification of the authority and task of the Transmission Operator's control room and field personnel assigned to participate in restoration activities" means? The Transmission Operator may be leading switching crews from other companies within their transmission area, thus not knowing who is available. This Requirement needs to be reworded so it is clear. This may leads to some training requirements, which would need to be contained NERC Standard category "Personnel Performance, Training, and Qualifications".

d) In R1.2, The term "Blackstart Resource Facility Plan" is used for the first time, but no definition is provided, a definition needs to be provided.

e) In R1.2.1, Is "characteristics" the name plate rating? And what is contained in "test results"? Perhaps the SDT should consider placing together a list (check list) of testable items. Then the GO/GOP would know what NERC requirements need to be tested in order to be compliant. This would also stream line the reporting process, since a uniform list (possibly an attachment to the Standard) that would be reconized throughout the electrical industry.

f) In R1.5, "System Operator" in the second sentence needs to be changed to "Transmission Operator".

2. The SRB SDT has removed the language for partial shutdown as part of restoration as we consider recovery from partial shutdown as normal operations. We believe that this requirement is covered in other standards and this standard only applies to those situations where you need to apply Blackstart Resources. Do you agree or have other suggestions as to how to handle partial shutdowns?

Yes

No

Comments: A partial shutdown could be a normal occurrence, even if a Blackstart Resource is used to bring that portion of the system back to its pre-Disturbance state.

**Comment Form for 1st Draft of Standards for System Restoration and Blackstart
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3. The SRB SDT has included training for generator operators and field switching personnel associated with restoration in EOP-005 in accordance with FERC Order 693. Do you agree or have other suggestions for how to supply such training?

Yes

No

Comments:

a) 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.

b) Concerning "Generator Operator" training: Concur with FERC's decision (FERC Order 693, para 1332 and 1359) that the Generator Operator as an entity (see NERC definition of Generator Operator) is required to be NERC Trained, not the plant operators located at the generator plant site, based on the following:

As stated in FERC Order 693, para. 1360, "... a generator operator typically receives instructions from a balancing authority. Some generator operators are structured in such a way that they have a centrally-located dispatch center [note: possibly in a System Operations Center where the person performing NERC Standards in accordance with Balancing Authority are also the Generator Operator] that receives direction and then develops specific dispatch instructions for plant operators under their control". "In this type of structure, it is the personnel of the centrally-located dispatch center that must receive formal training in accordance with the Reliability Standard. Plant operators located at the generator plant site also need to be trained but the responsibility for this training is outside the scope of the Reliability Standard".

c) We should not CONFUSE Generator Operator (a registered NERC entity) with plant personnel.

d) Per NERC Definition: "Generator Operator is: The ENTITY that operates generating unit(s) and performs the FUNCTION of supplying energy and Interconnected Operations Services".

FERC states that plant operator training is outside the scope of a Reliability Standard within FERC Order 693, para, 1361, again.

FERC Order 693, para. 1365, states " regarding the need for a size limitation on generator operators...We believe that limiting the applicability of Reliability Standards to NERC's definition of bulk electric system will alleviate much of... the expanded requirements on end users who have on-site generation". The SDT need to state this in the proposed Standard.

e) Concerning "Field Switching Personnel" and "blackstart unit operators" training: Per FERC Order 693, para. 627, states "...PER-005-1 only includes Requirements on the control room personnel and not those outside of the control room. System restoration requires the participation of not only control room personnel but also those outside of the control room. These include blackstart unit operators and field switching operators in situations where SCADA capability is unavailable". According to the above paragraph, any type of training should be in PER-005-1 and not within EOP-005-2 (described in first sentence of para. 627).

**Comment Form for 1st Draft of Standards for System Restoration and Blackstart
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f) There should not be an hour (training) requirement (or mention) for non-NERC certified personnel within any NERC Standard ("Field Switching Personnel" and "blackstart unit operators"). Key people need to be in the training loop for restoration processes, but the NERC Standard training requirement can only apply to personnel who hold a NERC Certification. SRB SDT should remove training hour requirements for non NERC Certified personnel from the NERC Standard. The NERC Standard is not a receptical of NERC Requirements (?) for NON NERC Certified personnel.

g) There may be a few items that require specilized training in the restoration of the BES. One may be the synch'ing of two islands or ensuring backup systems are working within limits for pipe type cable. Perhaps these requirements could be held at the Transmission operator or Regional Entity level.

4. The SRB SDT defined a new term, Blackstart Resource, which allows for greater flexibility in providing resources for blackstart operations. Do you agree with this definition?

Comments: No. The following corrections need to be made to the definition of "Blackstart Resource".

a) After "Facility" in the first sentence , delete "and set of equipment", NERC definition of Facility is "A set of electrical equipment...", "and set of equipment" makes the sentence redundant.

b) Delete the word "basic" in the second sentence. A Blackstart Resource must be able to (Black)start on there own or not. There is no room for "basic ability".

c) Change the word "or" to "and" in the second sentence after "without support from the System". Just about every unit would be able to stay online if not connected to the remainder of the System, if it had the proper amount of load. You could have a blackstart unit online and only be providing station services to itself.

d) Concur with the last sentence in the definition of Blackstart resource stating "... and meeting the Transmission Operator's restoration plan needs for real and reactive power capability". But this is the only place that the Transmission Operator can make any minimum real and reactive power requirements to Generator Facilities on Blackstart Resources. This should be stated in a requirement (that the Transmission Operator will set minimum real and reactive limits for Blackstart resources).

5. The SRB SDT has merged the RRO requirements in EOP-007 into EOP-006 and assigned them to the Reliability Coordinator. Do you agree with this change?

Yes

No

Comments:

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(Project 2006-03)**

6. The SRB SDT has replaced the existing Blackstart Capability Plan (and retired the definition) with the Reliability Coordinator's requirement for a coordination element in their restoration plan. Do you agree with this approach or do you have other suggestions for how to handle this?

Yes

No

Comments:

7. If you are aware of any regional variances that would be required as a result of these standards, please identify them here.

No. But this Standard may impact existing regional variances.

8. If you are aware of any conflicts between the proposed standards and any regulatory function, rule order, tariff, rate schedule, legislative requirement or agreement, please identify them here.

YES, 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.

9. If you have any other comments on the proposed standards that you haven't already provided in response to the questions above, please provide them here.

Comments: Yes.

Concerning EOP-005-2.

a) R1.2.1, R1.4, R3.1, R6.2.3, R12, and R14.1 all refer to voltage and in particular megavar capacity. During an actual blackout, the Blackstart Resource may be able to handle the leading MVar's that an un-energized transmission line produces. Blackstart Resource owners are not able to accurately test the unit's megavar capacity to absorb Vars since we tend to keep the transmission system energized. The SDT will need to change the wording so Blackstart Resource owners can be compliant with the standard.

b) R3 and R6 imply that the Transmission Operator owns generation assets. They do not. The rewording of these requirements is needed.

c) R6.2.3 and R6.2.4 will not be able to be completed if the Blackstart Resource owner can not accomplish R6.2.2. R6.2.3. and 6.2.4 need to be reworded incase the Blackstart Resource owner can not accomplish R6.2.2.

d) R11 and R16 should be combined as one requirement and a time limit set, ie, "once every two years".

**Comment Form for 1st Draft of Standards for System Restoration and Blackstart
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e) R12, For clarity, in the forth sentence, after Transmission Operator's restoration plan add "as identified in R7".

f) R14.1, First sentence states test results should be provided to "Reliability Coordinator and Transmission Operator." Propose that all reporting on capabilities of black start plan should be performed by transmission provider as they are responsible for black start plan. Generator Operator should provide testing data to Transmission Operator and Transmission Operator should provide data to RC and RE as required.

g) R14.1, Last sentence "Loads applied (if any)" does not agree with R6.2.3, that states ".. while isolated from the BES and supplying minimum Load level ..." The SDT needs to change the wording so both requirements compliment each other.

Concerning EOP-006-2.

a) R1.6, "System Operator" should be changed to "Reliability Coordinator".

b) R2.2, The thirty day window for the RC to respond to the TO's plan may not be enough time. The RC may be reviewing multiple plans and will need to model and simulate the (un) expected outcomes for restoration of the innerconnection. Time frame should be expanded.

c) R4, Forth sentence, "normal" should be changed to "within acceptable limits".

d) R8, Transmission Operator's do not own Blackstart Resources, delete from paragraph. Transmission Operator's may have Blackstart Resources within their transmission operating area. Last sentence states the Generator operator shall be included in a drill, exercise, or simulation at least every two years, yet the first sentence requires to test twice a year. The STD needs to reword R8 so it is clear and understandable.

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| Individual Commenter Information (Complete this page for comments from one organization or individual.) | | |
|---|-------------------------------------|--|
| Name: Doug Rempel | | |
| Organization: Manitoba Hydro | | |
| Telephone: 204 487 5427 | | |
| E-mail: dbrempel@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) |
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Yes

No

Comments:

2. The SRB SDT has removed the language for partial shutdown as part of restoration as we consider recovery from partial shutdown as normal operations. We believe that this requirement is covered in other standards and this standard only applies to those situations where you need to apply Blackstart Resources. Do you agree or have other suggestions as to how to handle partial shutdowns?

Yes

No

Comments: I believe that a clearer definition of what a restoration plan is meant to cover is needed.

3. The SRB SDT has included training for generator operators and field switching personnel associated with restoration in EOP-005 in accordance with FERC Order 693. Do you agree or have other suggestions for how to supply such training?

Yes

No

Comments: I am in agreement with MISO in that if the training content is covered then you don't need to define how many hours of training is required by generator operators and field switching personnel.

4. The SRB SDT defined a new term, Blackstart Resource, which allows for greater flexibility in providing resources for blackstart operations. Do you agree with this definition?

Comments:

5. The SRB SDT has merged the RRO requirements in EOP-007 into EOP-006 and assigned them to the Reliability Coordinator. Do you agree with this change?

Yes

No

Comments:

Comment Form for 1st Draft of Standards for System Restoration and Blackstart (Project 2006-03)

6. The SRB SDT has replaced the existing Blackstart Capability Plan (and retired the definition) with the Reliability Coordinator's requirement for a coordination element in their restoration plan. Do you agree with this approach or do you have other suggestions for how to handle this?

Yes

No

Comments:

7. If you are aware of any regional variances that would be required as a result of these standards, please identify them here.

8. If you are aware of any conflicts between the proposed standards and any regulatory function, rule order, tariff, rate schedule, legislative requirement or agreement, please identify them here.

9. If you have any other comments on the proposed standards that you haven't already provided in response to the questions above, please provide them here.

Comments: In EOP-005-2, R1 - there is a need to more clearly state the type of event that requires a restoration plan and what the intent of the restoration plan is. You cannot have a plan for every conceivable event that requires the use of blackstart resources.

The type of approval the RC gives to a TOP plan should be more clearly defined, people have to understand what it means when approval is given or rejected.

EOP-005-2 R3.3 how far along in the restoration effort are these studies required, does it include right up to the last load applied or is there a logical point the studies should be taken to.

EOP-005-2 R10 Can this be narrowed down a little to those required or identified in the restoration plan?

EOP-006-2 R4 This requirement gets into taking action to restore frequency, which is more of an emergency operations event than a system restoration event. it could be limited to the following: "Each Reliability Coordinator shall work in conjunction with affected Balancing Authorities, Generator Operators, and Transmission Operators as well as neighboring Reliability Coordinators to monitor and coordinate restoration progress." The rest can be deleted from the requirement. "take actions to restore the Bulk Electric System frequency to normal. Such actions would consider but not be limited to: adjusting generation, placing additional generators on line, or shedding Load."



NORTH AMERICAN ELECTRIC
RELIABILITY CORPORATION

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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) |
| <input type="checkbox"/> ERCOT | <input type="checkbox"/> | 1 – Transmission Owners |
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The SRB SDT has eliminated EOP-007 which delegates duties to the Regional Reliability Organization and put new requirements into ERO-006 for the Reliability Coordinator that functionally replace the Regional Reliability Organization requirements. The RRO Blackstart Capability Plan has been eliminated and the Reliability Coordinator has a requirement for a restoration plan to coordinate the Transmission Operator plans for its Reliability Coordinator Area. The Reliability Coordinator approves or makes recommendations for improvement of Transmission Operator restoration plans in its Reliability Coordinator Area.

The draft standards EOP-005-2 and EOP-006-2 should be reviewed as a set when providing comments.

Please review the standards, provide your comments on this form, and then e-mail the form to sarcomm@nerc.net by **September 28, 2007** with the words, "SRB Standards" in the subject line.

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Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

1. Attachment 1 of EOP-005-1 has been eliminated and the elements for consideration moved directly into Requirement R1 and the sub-requirements of R1 in EOP-005-2. Do you agree or have other suggestions as to how to incorporate the elements into the standards?

Yes

No

Comments:

2. The SRB SDT has removed the language for partial shutdown as part of restoration as we consider recovery from partial shutdown as normal operations. We believe that this requirement is covered in other standards and this standard only applies to those situations where you need to apply Blackstart Resources. Do you agree or have other suggestions as to how to handle partial shutdowns?

Yes

No

Comments: What other standards is this requirement covered in? A partial shut-down may still require utilization of cranking paths and black-start units to speed restoration. We are not aware that this is covered in any other standard.

3. The SRB SDT has included training for generator operators and field switching personnel associated with restoration in EOP-005 in accordance with FERC Order 693. Do you agree or have other suggestions for how to supply such training?

Yes

No

Comments: While generator operators and field switching personnel should participate in drills associated with restoration, we are not sure it is appropriate to extend obligations beyond registered entities (field switching personnel and power plant workers may have no affiliation with the respective BA or TOP). Most utilities have scores of individuals that do field switching and in all cases they are working under the direction of a transmission operator. The specified training in Requirements R10 and R15 should only apply to those Transmission Operator and Generation Operator personnel that direct system restoration actions carried out by personnel in the field and generating plants

Assuming Generator Operators does not encompass personnel in the plant, requirement R15 of the Standard needs to be revised to delete the requirement for "a minimum of four hours of training per year." Requirement R15 already includes a minimum content for the training program for Generator Operators. As long as the training given meets the training content requirement in R15, there is no need, and it is inappropriate, to specify a required duration for the training. Also, since the training content is specified in R15, this requirement is measurable and there is no need for training duration to be added just so the requirement can be measured in this manner.

**Comment Form for 1st Draft of Standards for System Restoration and Blackstart
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4. The SRB SDT defined a new term, Blackstart Resource, which allows for greater flexibility in providing resources for blackstart operations. Do you agree with this definition?

Comments: The definition appears to deal only with the starting point of the cranking path (typically a combustion turbine or hydro unit) and leaves out the first generator downstream along the cranking path. This is where the real challenge takes place. This plant must be able to start up with a limited supply.

5. The SRB SDT has merged the RRO requirements in EOP-007 into EOP-006 and assigned them to the Reliability Coordinator. Do you agree with this change?

Yes

No

Comments: In general, we agree that many of the requirements from EOP-007 logically should be applied to the RC. However, we question the requirement for the RC to approve the TOP plan. What approval means is not defined in the standard. Does it mean that the RC guarantees the TOP plan will work, that the plan follows a consistent format or is it something else. Also, what is proposed if a plan fails to be approved? Which entity is non-compliant? It would be more appropriate for the RC to review, rather than approve, subordinate plans.

Comment Form for 1st Draft of Standards for System Restoration and Blackstart (Project 2006-03)

6. The SRB SDT has replaced the existing Blackstart Capability Plan (and retired the definition) with the Reliability Coordinator's requirement for a coordination element in their restoration plan. Do you agree with this approach or do you have other suggestions for how to handle this?

Yes

No

Comments: We agree with this approach in general. However, we do not believe 30 days is enough time to review TOP plans.

7. If you are aware of any regional variances that would be required as a result of these standards, please identify them here.

8. If you are aware of any conflicts between the proposed standards and any regulatory function, rule order, tariff, rate schedule, legislative requirement or agreement, please identify them here.

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Comments: In R2 of EOP-006-2, the "if acceptable" language should be removed. The sub-requirements should define what acceptable is. They do not adequately do this now.

In R1 in EOP-006-2, the sentence with the word integrity should be struck? Integrity is a relative term. Requirements should not be relative. Additionally, this sentence adds no additional value. The sub-requirements adequately specify what should be contained in the plan.

We notice that in R2.3 in EOP-006-2 that the RC may not approve the TOP plan. Is there any additional requirement on the TOP to work to modify their plan to gain RC approval? We didn't see one.

The standards give the TOP 90 days to update their plans once a change is identified. This may be too long. We recommend 60 days for updating and at least 60 days for the RC to review the plans.

R8 in EOP-006-2 only requires each TOP and GOP to participate in drills every two years. No BA participation is required. We believe BA participation should be required and annual participation should be required.

M4 in EOP-006-2 indicates that the RC shall have the TOP plans in its control center. Can they be electronic? If yes, can the wording be changed to access to the plans? If the plans reside on a central storage device, it technically is not likely in the control center. If only paper copies are acceptable, this should be specified.

M6 in EOP-006-2 mentions an isolated area. What is meant by isolated area? Could this be the loss of a single transmission circuit with multiple load taps? Technically, one

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could argue it is isolated but we do not think that is the intent here. We suggest you consider defining isolated area or provide more detailed explanation in the measure.



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| E-mail: | | |
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**Comment Form for 1st Draft of Standards for System Restoration and Blackstart
(Project 2006-03)**

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

Group Name: MRO NERC Standards Review Subcommittee

Lead Contact: David Rudolph

Contact Organization: MRO

Contact Segment: 10

Contact Telephone: 701-355-5722

Contact E-mail: drudolph@bepc.com

| Additional Member Name | Additional Member Organization | Region* | Segment* |
|---------------------------|--------------------------------|---------|----------|
| Joe Knight | GRE | MRO | 10 |
| Terry Bilke | MISO | MRO | 10 |
| Mike Brytowski | MRO | MRO | 10 |
| Eric Ruskamp | LES | MRO | 10 |
| Pamela Oreschnick | XCEL | MRO | 10 |
| Rober Coish | MHEB | MRO | 10 |
| Neal Balu | WPSR | MRO | 10 |
| Carol Gerou | MPr | MRO | 10 |
| Jim Haigh | WAPA | MRO | 10 |
| Ken Goldsmith | ALTW | MRO | 10 |
| Tom Mielnik | MEC | MRO | 10 |
| Michael Brytowski | MRO | MRO | 10 |
| 27 additional MRO members | not mentioned aboce | MRO | 10 |
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*If more than one Region or Segment applies, please list all that apply. Regional acronyms and segment numbers are shown on prior page.

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The Elements for Consideration of Attachment 1 of EOP-005 have been transformed into sub-requirements of R1 in the standard itself. Attachment 1 is eliminated. Requirements regarding telecommunications systems have been eliminated as duplicative of requirements in COM standards. The requirements of EOP-009 – Blackstart testing – have been moved to EOP-005 and EOP-009 is eliminated. Training requirements are added for Transmission Operator field switching personnel and for operating personnel of Generator Operators with a Blackstart Resource Facility Plan (a newly defined term).

The SRB SDT has eliminated EOP-007 which delegates duties to the Regional Reliability Organization and put new requirements into ERO-006 for the Reliability Coordinator that functionally replace the Regional Reliability Organization requirements. The RRO Blackstart Capability Plan has been eliminated and the Reliability Coordinator has a requirement for a restoration plan to coordinate the Transmission Operator plans for its Reliability Coordinator Area. The Reliability Coordinator approves or makes recommendations for improvement of Transmission Operator restoration plans in its Reliability Coordinator Area.

The draft standards EOP-005-2 and EOP-006-2 should be reviewed as a set when providing comments.

Please review the standards, provide your comments on this form, and then e-mail the form to sarcomm@nerc.net by **September 28, 2007** with the words, "SRB Standards" in the subject line.

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Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

1. Attachment 1 of EOP-005-1 has been eliminated and the elements for consideration moved directly into Requirement R1 and the sub-requirements of R1 in EOP-005-2. Do you agree or have other suggestions as to how to incorporate the elements into the standards?

Yes

No

Comments: The MRO does not agree with adding violation risk factors to every requirement. Additionally, when new requirements are proposed they should be value added, not just for documentation that needs to be reviewed and updated. The MRO does not agree with removing the BA from standard EOP-005-2, as they have a critical function in blackstart system restoration. The MRO would suggest including any limitations of the Blackstart resource and the fuel type of the Blackstart resource in requirement 1.2.1.

2. The SRB SDT has removed the language for partial shutdown as part of restoration as we consider recovery from partial shutdown as normal operations. We believe that this requirement is covered in other standards and this standard only applies to those situations where you need to apply Blackstart Resources. Do you agree or have other suggestions as to how to handle partial shutdowns?

Yes

No

Comments:

3. The SRB SDT has included training for generator operators and field switching personnel associated with restoration in EOP-005 in accordance with FERC Order 693. Do you agree or have other suggestions for how to supply such training?

Yes

No

Comments: The MRO would like the SDT to clarify who exactly needs training regarding field switching personnel and the duties they perform. Does an entity need to train all field personnel for all duties, due to the rotating nature of duties performed by field personnel?

4. The SRB SDT defined a new term, Blackstart Resource, which allows for greater flexibility in providing resources for blackstart operations. Do you agree with this definition?

Comments: The MRO feels the definition of Blackstart Resource is unclear and would suggest using a more concrete term such as Blackstart Plant or Blackstart Facility.

**Comment Form for 1st Draft of Standards for System Restoration and Blackstart
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5. The SRB SDT has merged the RRO requirements in EOP-007 into EOP-006 and assigned them to the Reliability Coordinator. Do you agree with this change?

Yes

No

Comments: Should the SDT assign the RC to this standard, then there needs to be a transition period for the RC when assigning them new requirements. The MRO wants to recognize the continued need for Regional Planning.

**Comment Form for 1st Draft of Standards for System Restoration and Blackstart
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6. The SRB SDT has replaced the existing Blackstart Capability Plan (and retired the definition) with the Reliability Coordinator's requirement for a coordination element in their restoration plan. Do you agree with this approach or do you have other suggestions for how to handle this?

Yes

No

Comments:

7. If you are aware of any regional variances that would be required as a result of these standards, please identify them here.

The MRO is not aware of any issues.

8. If you are aware of any conflicts between the proposed standards and any regulatory function, rule order, tariff, rate schedule, legislative requirement or agreement, please identify them here.

The MRO is not aware of any issues.

9. If you have any other comments on the proposed standards that you haven't already provided in response to the questions above, please provide them here.

Comments: The MRO would suggest completing Section D (Compliance) for both standards EOP-005-2 and EOP-006-2 before commenting begins. Also, in R2.1 of EOP-006-2, shouldn't the RC's restoration plan be compatible with the individual BA and TOP restoration plans. The MRO would assume that the RC's restoration plan be comprised of the individual restoration plans within their area.

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| Individual Commenter Information | |
|--|---|
| (Complete this page for comments from one organization or individual.) | |
| Name: | Michael Schiavone |
| Organization: | National Grid |
| Telephone: | 315-471-4813 |
| E-mail: | michael.schiavone@us.ngrid.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) |
| <input type="checkbox"/> ERCOT | <input checked="" type="checkbox"/> 1 – Transmission Owners |
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Yes

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Yes

No

Comments:

3. The SRB SDT has included training for generator operators and field switching personnel associated with restoration in EOP-005 in accordance with FERC Order 693. Do you agree or have other suggestions for how to supply such training?

Yes

No

Comments: Neither directs restoration therefore this requirement is unnecessary. They only need to follow the direction they are given.

4. The SRB SDT defined a new term, Blackstart Resource, which allows for greater flexibility in providing resources for blackstart operations. Do you agree with this definition?

Comments:

5. The SRB SDT has merged the RRO requirements in EOP-007 into EOP-006 and assigned them to the Reliability Coordinator. Do you agree with this change?

Yes

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Comments:

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| Individual Commenter Information | | |
|--|-------------------------------------|---|
| (Complete this page for comments from one organization or individual.) | | |
| Name: | Alden Briggs | |
| Organization: | New Brunswick System Operator | |
| Telephone: | (506) 443-6508 | |
| E-mail: | Alden.Briggs@nbso.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) |
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Yes

No

Comments: Delete 1.2.1 and revise 1.2 to read: "Document each Blackstart resource and its characteristics, including the following: the name of the Blackstart Resource, location, megawatt and megavar capacity and type of unit."

In R1.8: "Identify within the plan the coordination among Generator Owners, Generator Operators, Load-Serving Entities, Distribution Providers, and Balancing Authorities within its area, its Reliability Coordinator, and neighboring Transmission Operators and Balancing Authorities."

2. The SRB SDT has removed the language for partial shutdown as part of restoration as we consider recovery from partial shutdown as normal operations. We believe that this requirement is covered in other standards and this standard only applies to those situations where you need to apply Blackstart Resources. Do you agree or have other suggestions as to how to handle partial shutdowns?

Yes

No

Comments: A lot of partial shutdowns require restoration as per an Areas restoration plan so I would not eliminate the term. What is meant by a partial shutdown anyway? How big of an area does it cover? For example, the 2003 blackout could be considered a partial shutdown of the Eastern Interconnection and these Standards surely are meant to cover similar situations. Possibly one could use partial shutdowns, if applicable,

3. The SRB SDT has included training for generator operators and field switching personnel associated with restoration in EOP-005 in accordance with FERC Order 693. Do you agree or have other suggestions for how to supply such training?

Yes

No

Comments: Special restoration training for the field personnel is not required. They should be trained sufficiently through their normal training process.

4. The SRB SDT defined a new term, Blackstart Resource, which allows for greater flexibility in providing resources for blackstart operations. Do you agree with this definition?

Comments: No

**Comment Form for 1st Draft of Standards for System Restoration and Blackstart
(Project 2006-03)**

The following definition is proposed:

Blackstart Resource - A generation Facility and set of equipment under the control of the Generator Operator with the basic ability to start itself without support from the System, with the ability to energize a dead bus, and meeting the Transmission Operator's restoration plan needs for real and reactive power capability.

5. The SRB SDT has merged the RRO requirements in EOP-007 into EOP-006 and assigned them to the Reliability Coordinator. Do you agree with this change?

Yes

No

Comments: The RC is the proper entity.

Comment Form for 1st Draft of Standards for System Restoration and Blackstart (Project 2006-03)

6. The SRB SDT has replaced the existing Blackstart Capability Plan (and retired the definition) with the Reliability Coordinator's requirement for a coordination element in their restoration plan. Do you agree with this approach or do you have other suggestions for how to handle this?

Yes

No

Comments:

7. If you are aware of any regional variances that would be required as a result of these standards, please identify them here.

No NPCC variance is expected.

8. If you are aware of any conflicts between the proposed standards and any regulatory function, rule order, tariff, rate schedule, legislative requirement or agreement, please identify them here.

None.

9. If you have any other comments on the proposed standards that you haven't already provided in response to the questions above, please provide them here.

Comments: The following revisions are suggested:

Are there any liabilities associated with the RC approving the TOP restoration plan? Although the NBSO agrees with the RC having a copy of the plans and approving them in principle, the RC should not be held responsible for typos and etc.

Revise R1.1 as follows: "Identification of the authority and tasks of the Reliability Coordinator to work with its neighboring Reliability Coordinator(s) and with the Transmission Operators, Balancing Authority and Generation Operators with Blackstart Resources within its area."

In R5, revise as follows: "The Reliability Coordinator shall authorize and coordinate re-synchronizing isolated RC/BA/TOP areas"

NBSO believes that the Balancing Authority is missing from the applicable entity list in section 4. The BA is responsible for load/generation balance and frequency control and therefore plays an important role in the restoration process.

The terminology Cranking Paths seems to be very dated and should be replaced by Station Service Supply Path or something similar.



NORTH AMERICAN ELECTRIC
RELIABILITY CORPORATION

Comment Form for 1st Draft of Standards for System Restoration and Blackstart (Project 2006-03)

Please use this form to submit comments on the 1st draft of the standards for System Restoration and Blackstart (Project 2006-03). Comments must be submitted by **September 28, 2007**. Please submit the completed form by e-mail to sarcomm@nerc.net with the words "SRB Standards" in the subject line. If you have questions please contact Ed Dobrowolski at Ed.Dobrowolski@nerc.net or by telephone at 609-947-3673.

| Individual Commenter Information | | |
|--|-------------------------------------|---|
| (Complete this page for comments from one organization or individual.) | | |
| Name: | James Castle | |
| Organization: | New York ISO | |
| Telephone: | 518-356-6244 | |
| E-mail: | dcastle@nyiso.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) |
| <input type="checkbox"/> ERCOT | <input type="checkbox"/> | 1 – Transmission Owners |
| <input type="checkbox"/> FRCC | <input checked="" type="checkbox"/> | 2 – RTOs and ISOs |
| <input type="checkbox"/> MRO | <input type="checkbox"/> | 3 – Load-serving Entities |
| <input checked="" type="checkbox"/> NPCC | <input type="checkbox"/> | 4 – Transmission-dependent Utilities |
| <input type="checkbox"/> RFC | <input type="checkbox"/> | 5 – Electric Generators |
| <input type="checkbox"/> SERC | <input type="checkbox"/> | 6 – Electricity Brokers, Aggregators, and Marketers |
| <input type="checkbox"/> SPP | <input type="checkbox"/> | 7 – Large Electricity End Users |
| <input type="checkbox"/> WECC | <input type="checkbox"/> | 8 – Small Electricity End Users |
| <input type="checkbox"/> NA – Not Applicable | <input type="checkbox"/> | 9 – Federal, State, Provincial Regulatory or other Government Entities |
| | <input type="checkbox"/> | 10 – Regional Reliability Organizations and Regional Entities |

Comment Form for 1st Draft of Standards for System Restoration and Blackstart (Project 2006-03)

Background Information

The System Restoration and Blackstart Standard Drafting Team (SRB SDT) has made significant changes from the currently approved standards related to System Restoration and Blackstart. While the SRB SDT has considered the comments submitted in prior review periods during NERC's transition to the ERO and those from the SAR stage, particular attention has been given to the recommendations made in FERC Order 693.

The Elements for Consideration of Attachment 1 of EOP-005 have been transformed into sub-requirements of R1 in the standard itself. Attachment 1 is eliminated. Requirements regarding telecommunications systems have been eliminated as duplicative of requirements in COM standards. The requirements of EOP-009 – Blackstart testing – have been moved to EOP-005 and EOP-009 is eliminated. Training requirements are added for Transmission Operator field switching personnel and for operating personnel of Generator Operators with a Blackstart Resource Facility Plan (a newly defined term).

The SRB SDT has eliminated EOP-007 which delegates duties to the Regional Reliability Organization and put new requirements into ERO-006 for the Reliability Coordinator that functionally replace the Regional Reliability Organization requirements. The RRO Blackstart Capability Plan has been eliminated and the Reliability Coordinator has a requirement for a restoration plan to coordinate the Transmission Operator plans for its Reliability Coordinator Area. The Reliability Coordinator approves or makes recommendations for improvement of Transmission Operator restoration plans in its Reliability Coordinator Area.

The draft standards EOP-005-2 and EOP-006-2 should be reviewed as a set when providing comments.

Please review the standards, provide your comments on this form, and then e-mail the form to sarcomm@nerc.net by **September 28, 2007** with the words, "SRB Standards" in the subject line.

**Comment Form for 1st Draft of Standards for System Restoration and Blackstart
(Project 2006-03)**

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. Attachment 1 of EOP-005-1 has been eliminated and the elements for consideration moved directly into Requirement R1 and the sub-requirements of R1 in EOP-005-2. Do you agree or have other suggestions as to how to incorporate the elements into the standards?

Yes

No

Comments: If the definition of a Blackstart Resource is "A generation Facility..", then the term Blackstart Resource Facility Plan is redundant and confusing.

There is no need for requirements for a Black Start Reliability Plan independent of a system restoration plan. From the viewpoint of requirements for a system restoration plan, the location, MW and MVAR capacity and the start time are required aspects of the restoration plan.

Latest type of unit, latest date of test, test results

2. The SRB SDT has removed the language for partial shutdown as part of restoration as we consider recovery from partial shutdown as normal operations. We believe that this requirement is covered in other standards and this standard only applies to those situations where you need to apply Blackstart Resources. Do you agree or have other suggestions as to how to handle partial shutdowns?

Yes

No

Comments:

3. The SRB SDT has included training for generator operators and field switching personnel associated with restoration in EOP-005 in accordance with FERC Order 693. Do you agree or have other suggestions for how to supply such training?

Yes

No

Comments: Generator operators and field switching personnel have no decision making role in the process of system restoration. Switching personnel follow switching orders, as is their normal function. Generator operators keep their units running, keep the dispatching entity (TO or ISO) appraised of the unit capabilities, and follow the MW/MVAR instructions of the dispatching entity, as is their normal function.

All training requirements should be included in PER-005.

4. The SRB SDT defined a new term, Blackstart Resource, which allows for greater flexibility in providing resources for blackstart operations. Do you agree with this definition?

**Comment Form for 1st Draft of Standards for System Restoration and Blackstart
(Project 2006-03)**

Comments: No. In M.M. Adibi's presentation to the EPRI System Restoration Workshop 3/16/2007 presented successful performance for generator islanding schemes at 50-60%. If we are counting on that sort of success rate, the transmission operators will have to be contracting for large amounts of blackstart and/or testing those islanding schemes on a very rigorous schedule. Testing the islanding schemes sounds like a major headache to me. It would be more straightforward deal with the traditions definition of blackstart.

5. The SRB SDT has merged the RRO requirements in EOP-007 into EOP-006 and assigned them to the Reliability Coordinator. Do you agree with this change?

Yes

No

Comments:

**Comment Form for 1st Draft of Standards for System Restoration and Blackstart
(Project 2006-03)**

6. The SRB SDT has replaced the existing Blackstart Capability Plan (and retired the definition) with the Reliability Coordinator's requirement for a coordination element in their restoration plan. Do you agree with this approach or do you have other suggestions for how to handle this?

Yes

No

Comments: I

7. If you are aware of any regional variances that would be required as a result of these standards, please identify them here.

no

8. If you are aware of any conflicts between the proposed standards and any regulatory function, rule order, tariff, rate schedule, legislative requirement or agreement, please identify them here.

no

9. If you have any other comments on the proposed standards that you haven't already provided in response to the questions above, please provide them here.

Comments:

I would like the drafting team to respond to these specific questions:

- 1) What are the limits of "units to be started" in R1.2?
- 2) What is the incremental value of R1.5 over the requirements of PER-001?
- 3) Why does the standard define as acceptable an unworkable restoration plan for to exist for up to one quarter of a year?
- 4) How is it physically possible for generators to perform the black start tests required in R14 without having possession of the test requirements R6?

There is no need for "Generator Operators with Blackstart Resources" to be listed as one of the applicable entities. The system restoration plan is the Transmission Operators plan. Blackstart resources are an essential part of the Transmission Operators plan. It is the Transmission Operators responsibility to insure that the black start resources are adequately contracted and tested. The Blackstart resources have no responsibilities in the restoration plan outside its obligations to the Transmission Operator.

Requirement 1.2 has no meaning and it unenforceable. "Units to be started" is every generator on the system. Using that rule, one could assume that something like 50% of a systems transmission would have to be designated "cranking paths".

Requirement 1.5 should be a requirement of the restoration plan, not the people. The restoration plan should provide sufficient flexibility to address actual conditions at the time of the blackouts. System Operators always have the obligation and authority to

Comment Form for 1st Draft of Standards for System Restoration and Blackstart (Project 2006-03)

address system conditions, whatever they are. Requirement 1.5 should be eliminated as it is completely redundant with NERC Standard PER-001.

PER-001

R1. Each Transmission Operator and Balancing Authority shall provide operating personnel with the responsibility and authority to implement real-time actions to ensure the stable and reliable operation of the Bulk Electric System.

M1.4 Written operating procedures that state that, during normal and emergency conditions, operating personnel have the authority to take or direct timely and appropriate real-time actions. Such actions shall include shedding of firm load to prevent or alleviate System Operating Limit Interconnection or Reliability Operating Limit violations. These actions are performed without obtaining approval from higher-level personnel within the Transmission Operator or Balancing Authority.

Requirement R2, as written permits a Transmission Operator to run the system for one quarter of a year with a non-viable restoration plan. That is unacceptable. Does the Transmission Operator not know that wires are being strung and stations built until commissioning is complete and the equipment is energized? Change time requirement to prior to permanent modifications being made.

R4 and R5 in EOP-005 and R4 in EOP-006 should be eliminated as they are completely redundant with EOP-004. If the report required by EOP-004 for a blackout investigation does not include checking restoration performance versus NERC Restoration Standard Requirements, then EOP-004 should be deleted as meaningless.

R6 should be eliminated as pointless. At worst, combine it with R14. How is it physically possible for generators to perform the black start tests required in R14 without having possession of the test requirements?

R7 should be eliminated as unnecessary. This requirement prevents the Transmission Operator from perpetrating a reliability fraud - counting on reliability resources that are known to be non functional. Are reliability frauds possible in all standards but this one?

R10 should be eliminated. Field switching personnel have no decision making role in restoration.

R11 should be moved to EOP-006. It is the responsibility of the Reliability Coordinator to insure that all Transmission Operators in that jurisdiction participate in drills and exercises, as required.

R12 is a business issue and has no impact on system restoration. It should be eliminated.

R13 should be eliminated. The mechanics of how the blackstart facility brings its equipment on-line has no bearing on system restoration. Blackstart operation by definition is independent of external connections. The 90 day notification requirement is purely a contractual business issue which has no place in the reliability requirements.

R15 should be eliminated. Generator personnel have no decision making role in restoration. Their tasks and responsibilities in restoration are identical to those under normal and emergency operations.

**Comment Form for 1st Draft of Standards for System Restoration and Blackstart
(Project 2006-03)**

M4 and M5 in EOP-005 and M5, M6 and M7 in EOP-006 should be eliminated as they are completely redundant with the stated purpose of EOP-004.

M6 and M8 should be eliminated since it is identical to M13. How is it possible to comply with M13 without automatically M6 and M8?

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| Individual Commenter Information | | |
|--|-------------------------------------|---|
| (Complete this page for comments from one organization or individual.) | | |
| Name: | Joe O'Brien | |
| Organization: | NIPSCo | |
| Telephone: | 219-853-5470 | |
| E-mail: | jnobrien@nisource.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) |
| <input type="checkbox"/> ERCOT | <input checked="" type="checkbox"/> | 1 – Transmission Owners |
| <input type="checkbox"/> FRCC | <input type="checkbox"/> | 2 – RTOs and ISOs |
| <input type="checkbox"/> MRO | <input checked="" type="checkbox"/> | 3 – Load-serving Entities |
| <input type="checkbox"/> NPCC | <input type="checkbox"/> | 4 – Transmission-dependent Utilities |
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Background Information

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The Elements for Consideration of Attachment 1 of EOP-005 have been transformed into sub-requirements of R1 in the standard itself. Attachment 1 is eliminated. Requirements regarding telecommunications systems have been eliminated as duplicative of requirements in COM standards. The requirements of EOP-009 – Blackstart testing – have been moved to EOP-005 and EOP-009 is eliminated. Training requirements are added for Transmission Operator field switching personnel and for operating personnel of Generator Operators with a Blackstart Resource Facility Plan (a newly defined term).

The SRB SDT has eliminated EOP-007 which delegates duties to the Regional Reliability Organization and put new requirements into ERO-006 for the Reliability Coordinator that functionally replace the Regional Reliability Organization requirements. The RRO Blackstart Capability Plan has been eliminated and the Reliability Coordinator has a requirement for a restoration plan to coordinate the Transmission Operator plans for its Reliability Coordinator Area. The Reliability Coordinator approves or makes recommendations for improvement of Transmission Operator restoration plans in its Reliability Coordinator Area.

The draft standards EOP-005-2 and EOP-006-2 should be reviewed as a set when providing comments.

Please review the standards, provide your comments on this form, and then e-mail the form to sarcomm@nerc.net by **September 28, 2007** with the words, "SRB Standards" in the subject line.

**Comment Form for 1st Draft of Standards for System Restoration and Blackstart
(Project 2006-03)**

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. Attachment 1 of EOP-005-1 has been eliminated and the elements for consideration moved directly into Requirement R1 and the sub-requirements of R1 in EOP-005-2. Do you agree or have other suggestions as to how to incorporate the elements into the standards?

Yes

No

Comments:

2. The SRB SDT has removed the language for partial shutdown as part of restoration as we consider recovery from partial shutdown as normal operations. We believe that this requirement is covered in other standards and this standard only applies to those situations where you need to apply Blackstart Resources. Do you agree or have other suggestions as to how to handle partial shutdowns?

Yes

No

Comments:

3. The SRB SDT has included training for generator operators and field switching personnel associated with restoration in EOP-005 in accordance with FERC Order 693. Do you agree or have other suggestions for how to supply such training?

Yes

No

Comments: It may be desirable to have all training requirements in a single standard such as PER-005. It is not clear who the generator operator is in this context. Is that a person at the generating station or at the central operations center?

4. The SRB SDT defined a new term, Blackstart Resource, which allows for greater flexibility in providing resources for blackstart operations. Do you agree with this definition?

Comments: Yes/No The new definition looks fine however Blackstart Resource Facility Plans (BRFP) should also be defined and be the term replacing Blackstart Capability Plan.

5. The SRB SDT has merged the RRO requirements in EOP-007 into EOP-006 and assigned them to the Reliability Coordinator. Do you agree with this change?

Yes

No

Comments: It is not certain that the RC or RRO has the resources and information to approve individual TOP restoration plans. The TOPs test the plans using their own expertise.

**Comment Form for 1st Draft of Standards for System Restoration and Blackstart
(Project 2006-03)**

6. The SRB SDT has replaced the existing Blackstart Capability Plan (and retired the definition) with the Reliability Coordinator's requirement for a coordination element in their restoration plan. Do you agree with this approach or do you have other suggestions for how to handle this?

Yes

No

Comments: The RC should coordinate the restoration plans however this should not include approving the plans.

7. If you are aware of any regional variances that would be required as a result of these standards, please identify them here.

EOP-007-RFC-01 will need to be reviewed and updated.

8. If you are aware of any conflicts between the proposed standards and any regulatory function, rule order, tariff, rate schedule, legislative requirement or agreement, please identify them here.

9. If you have any other comments on the proposed standards that you haven't already provided in response to the questions above, please provide them here.

Comments: The BA should be included in the restoration standard in the role presently designated in standards earmarked for replacement. The BA would play an important part during restoration especially if the BA and TOP functions have been separated into different companies. Reinforcing this idea is the latest PER-005 which suggests that BAs provide emergency and system restoration training.

Comment Form for 1st Draft of Standards for System Restoration and Blackstart (Project 2006-03)

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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) |
| <input type="checkbox"/> ERCOT | <input type="checkbox"/> | 1 – Transmission Owners |
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| <input type="checkbox"/> MRO | <input type="checkbox"/> | 3 – Load-serving Entities |
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**Comment Form for 1st Draft of Standards for System Restoration and Blackstart
(Project 2006-03)**

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

Group Name: NPCC, Regional Standards Committee

Lead Contact: Guy V. Zito

Contact Organization: Northeast Power Coordinating Council

Contact Segment: 10

Contact Telephone: 212-840-1070

Contact E-mail: gzito@npcc.org

| 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 | 1 |
| 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 |
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*If more than one Region or Segment applies, please list all that apply. Regional acronyms and segment numbers are shown on prior page.

Comment Form for 1st Draft of Standards for System Restoration and Blackstart (Project 2006-03)

Background Information

The System Restoration and Blackstart Standard Drafting Team (SRB SDT) has made significant changes from the currently approved standards related to System Restoration and Blackstart. While the SRB SDT has considered the comments submitted in prior review periods during NERC's transition to the ERO and those from the SAR stage, particular attention has been given to the recommendations made in FERC Order 693.

The Elements for Consideration of Attachment 1 of EOP-005 have been transformed into sub-requirements of R1 in the standard itself. Attachment 1 is eliminated. Requirements regarding telecommunications systems have been eliminated as duplicative of requirements in COM standards. The requirements of EOP-009 – Blackstart testing – have been moved to EOP-005 and EOP-009 is eliminated. Training requirements are added for Transmission Operator field switching personnel and for operating personnel of Generator Operators with a Blackstart Resource Facility Plan (a newly defined term).

The SRB SDT has eliminated EOP-007 which delegates duties to the Regional Reliability Organization and put new requirements into ERO-006 for the Reliability Coordinator that functionally replace the Regional Reliability Organization requirements. The RRO Blackstart Capability Plan has been eliminated and the Reliability Coordinator has a requirement for a restoration plan to coordinate the Transmission Operator plans for its Reliability Coordinator Area. The Reliability Coordinator approves or makes recommendations for improvement of Transmission Operator restoration plans in its Reliability Coordinator Area.

The draft standards EOP-005-2 and EOP-006-2 should be reviewed as a set when providing comments.

Please review the standards, provide your comments on this form, and then e-mail the form to sarcomm@nerc.net by **September 28, 2007** with the words, "SRB Standards" in the subject line.

**Comment Form for 1st Draft of Standards for System Restoration and Blackstart
(Project 2006-03)**

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. Attachment 1 of EOP-005-1 has been eliminated and the elements for consideration moved directly into Requirement R1 and the sub-requirements of R1 in EOP-005-2. Do you agree or have other suggestions as to how to incorporate the elements into the standards?

Yes

No

Comments: Delete 1.2.1 and revise 1.2 to read: "Document each Blackstart resource and its characteristics, including the following: the name of the Blackstart Resource, location, megawatt and megavar capacity and type of unit."

In R1.8: "Identify within the plan the coordination among Generator Owners, Generator Operators, Load-Serving Entities, Distribution Providers, and Balancing Authorities within its area, its Reliability Coordinator, and neighboring Transmission Operators and Balancing Authorities.

2. The SRB SDT has removed the language for partial shutdown as part of restoration as we consider recovery from partial shutdown as normal operations. We believe that this requirement is covered in other standards and this standard only applies to those situations where you need to apply Blackstart Resources. Do you agree or have other suggestions as to how to handle partial shutdowns?

Yes

No

Comments: We do not support this, please identify the standard that this requirement is covered in.

3. The SRB SDT has included training for generator operators and field switching personnel associated with restoration in EOP-005 in accordance with FERC Order 693. Do you agree or have other suggestions for how to supply such training?

Yes

No

Comments: Field switching personnel and Generator Operators are sufficiently trained and no specific restoration training is required; these entities do not have decision making authority with respect to system restoration. The interpretation of the term "operator" is not clear in the FERC order.

Further, as a generic comment to training, all training requirements should be contained in the single training Standard PER-005; this comment is applicable to both proposed Standards EOP-005 and EOP-006.

**Comment Form for 1st Draft of Standards for System Restoration and Blackstart
(Project 2006-03)**

4. The SRB SDT defined a new term, Blackstart Resource, which allows for greater flexibility in providing resources for blackstart operations. Do you agree with this definition?

Comments: No

The following definition is proposed: Blackstart Resource: A generation Facility and set of equipment under the control of the Generator Operator with the basic ability to start itself without support from the System, with the ability to energize a dead bus, and meeting the Transmission Operator's restoration plan needs for real and reactive power capability.

Reliability concerns point to the high failure rate of islanding schemes as an alternative to a dedicated Blackstart generator.

It is also an issue that the system dispatch would require that these islanding units always operate 24 x 7 throughout the year.

5. The SRB SDT has merged the RRO requirements in EOP-007 into EOP-006 and assigned them to the Reliability Coordinator. Do you agree with this change?

Yes

No

Comments:

Comment Form for 1st Draft of Standards for System Restoration and Blackstart (Project 2006-03)

6. The SRB SDT has replaced the existing Blackstart Capability Plan (and retired the definition) with the Reliability Coordinator's requirement for a coordination element in their restoration plan. Do you agree with this approach or do you have other suggestions for how to handle this?

Yes

No

Comments:

7. If you are aware of any regional variances that would be required as a result of these standards, please identify them here.

At this time, no NPCC variance is anticipated.

8. If you are aware of any conflicts between the proposed standards and any regulatory function, rule order, tariff, rate schedule, legislative requirement or agreement, please identify them here.

No such conflict is seen at this time.

9. If you have any other comments on the proposed standards that you haven't already provided in response to the questions above, please provide them here.

Comments: The following revisions are suggested:

1) In EOP-005, the measures for R4 and R5 should be the report of the event required by Standard EOP-004. The report shall address the requirements of R4 presented in proposed Standard EOP-005.

2) In R6.2, the following is proposed:

Delete R6.2.3 and 6.2.4 since the real time testing of such requirements is not feasible.

A new R6.2.3 will read:

"Ability to energize a transmission line. If it is not possible to energize a transmission line during the test, the testing entity must affirm that the unit has the capability to energize a transmission line."

3) Delete R12 as having no reliability implications beyond those already stipulated in R1.2.

4) Delete R13, R14 and R15 as the Generator Operator has no decision making authority in system restoration.

5) In EOP-006,

Revise R1.1 as follows: "Identification of the authority and tasks of the Reliability Coordinator to work with its neighboring Reliability Coordinator(s) and with the Transmission Operators and Generation Operators with Blackstart Resources within its area."

**Comment Form for 1st Draft of Standards for System Restoration and Blackstart
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There should be a recognition for the Reliability Plan to be flexible and responsive to unanticipated conditions.

6) In R5, revise as follows: "The Reliability Coordinator shall authorize and coordinate re-synchronizing isolated RC/BA/TOP areas"

7) Remove the Generator Operator from R8.

8) R1.6 Please clarify this statement regarding how it applies to Black Start restoration. According to question 2, the scope of the standard is limited to System Restoration when black start resources are utilized. The Restoration of islanding situations may not require the use of blackstart resources.

9) EOP-006 R8 requiring two drills per year is excessive. NPCC participating members feel that the quality of drills conducted is more important than the quantity. In addition, the last sentence in EOP-006 R8 should be a separate requirement R9.

10) The term critical load is subject to interpretation. From a system restoration viewpoint, we view this as load that is critical to provide the needed balance to that portion of the BES to maintain stability and acceptable voltages.

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| Individual Commenter Information | | |
|--|-------------------------------------|---|
| (Complete this page for comments from one organization or individual.) | | |
| Name: | OPG Inc. | |
| Organization: | | |
| Telephone: | 416-592-7712 | |
| E-mail: | brian.gooder@opg.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) |
| <input type="checkbox"/> ERCOT | <input type="checkbox"/> | 1 – Transmission Owners |
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The Elements for Consideration of Attachment 1 of EOP-005 have been transformed into sub-requirements of R1 in the standard itself. Attachment 1 is eliminated. Requirements regarding telecommunications systems have been eliminated as duplicative of requirements in COM standards. The requirements of EOP-009 – Blackstart testing – have been moved to EOP-005 and EOP-009 is eliminated. Training requirements are added for Transmission Operator field switching personnel and for operating personnel of Generator Operators with a Blackstart Resource Facility Plan (a newly defined term).

The SRB SDT has eliminated EOP-007 which delegates duties to the Regional Reliability Organization and put new requirements into ERO-006 for the Reliability Coordinator that functionally replace the Regional Reliability Organization requirements. The RRO Blackstart Capability Plan has been eliminated and the Reliability Coordinator has a requirement for a restoration plan to coordinate the Transmission Operator plans for its Reliability Coordinator Area. The Reliability Coordinator approves or makes recommendations for improvement of Transmission Operator restoration plans in its Reliability Coordinator Area.

The draft standards EOP-005-2 and EOP-006-2 should be reviewed as a set when providing comments.

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1. Attachment 1 of EOP-005-1 has been eliminated and the elements for consideration moved directly into Requirement R1 and the sub-requirements of R1 in EOP-005-2. Do you agree or have other suggestions as to how to incorporate the elements into the standards?

Yes

No

Comments:

2. The SRB SDT has removed the language for partial shutdown as part of restoration as we consider recovery from partial shutdown as normal operations. We believe that this requirement is covered in other standards and this standard only applies to those situations where you need to apply Blackstart Resources. Do you agree or have other suggestions as to how to handle partial shutdowns?

Yes

No

Comments:

3. The SRB SDT has included training for generator operators and field switching personnel associated with restoration in EOP-005 in accordance with FERC Order 693. Do you agree or have other suggestions for how to supply such training?

Yes

No

Comments: As written the standard implies that Generator Operators do not currently possess the necessary skills to start and synchronize a unit. In addition Ontario already has a comprehensive System Restoration and Blackstart Program that includes training and integrated exercises for operators. This requirement would add an additional training burden. OPG questions the necessity for this additional training burden and requires to know the justification and rationale for its requirement.

4. The SRB SDT defined a new term, Blackstart Resource, which allows for greater flexibility in providing resources for blackstart operations. Do you agree with this definition?

Comments:

5. The SRB SDT has merged the RRO requirements in EOP-007 into EOP-006 and assigned them to the Reliability Coordinator. Do you agree with this change?

Yes

No

Comments:

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6. The SRB SDT has replaced the existing Blackstart Capability Plan (and retired the definition) with the Reliability Coordinator's requirement for a coordination element in their restoration plan. Do you agree with this approach or do you have other suggestions for how to handle this?

Yes

No

Comments:

7. If you are aware of any regional variances that would be required as a result of these standards, please identify them here.

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NORTH AMERICAN ELECTRIC
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| Individual Commenter Information | | |
|--|-------------------------------------|--|
| (Complete this page for comments from one organization or individual.) | | |
| Name: | Aaron Smith | |
| Organization: | Omaha Public Power District (OPPD) | |
| Telephone: | 402-552-5166 | |
| E-mail: | atsmith@oppd.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) |
| <input type="checkbox"/> ERCOT | <input checked="" type="checkbox"/> | 1 – Transmission Owners |
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Comments:

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Yes

No

Comments:

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Comments: Yes, we are in agreement with the definition.

5. The SRB SDT has merged the RRO requirements in EOP-007 into EOP-006 and assigned them to the Reliability Coordinator. Do you agree with this change?

Yes

No

Comments:

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Yes

No

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Yes

No

Comments: For completely new standards I would agree with the method of incorporating the elements of the Attachment as requirements or sub-requirements. But for this existing standard the elements appear to have been substantially rewritten and include requirements not in the original Attachment. Moving or revising the elements of the Attachment creates burdensome and unproductive work for an entity to re-identify where in its restoration plan the revised elements or new sub-requirements are considered.

2. The SRB SDT has removed the language for partial shutdown as part of restoration as we consider recovery from partial shutdown as normal operations. We believe that this requirement is covered in other standards and this standard only applies to those situations where you need to apply Blackstart Resources. Do you agree or have other suggestions as to how to handle partial shutdowns?

Yes

No

Comments: Partial shutdown should not be considered normal operations. Partial shutdown should be considered as emergency operations whether Blackstart Resources are applied or not.

3. The SRB SDT has included training for generator operators and field switching personnel associated with restoration in EOP-005 in accordance with FERC Order 693. Do you agree or have other suggestions for how to supply such training?

Yes

No

Comments: Training requirements should all be in one standard. The training standard should not dictate training contents. Field switching personnel should not be included in any training requirements because these personnel are under the direction and control of a NERC certified system operator.

4. The SRB SDT defined a new term, Blackstart Resource, which allows for greater flexibility in providing resources for blackstart operations. Do you agree with this definition?

Comments: No, I do not agree with the definition. It is not clear what the word "automatically" means in this context. Does it allow for some operator intervention or no operator intervention at all? The new term which might allow for greater flexibility mis-identifies resources which were never intended to be a Blackstart Resource.

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Suggest limiting the definition to the following, "A generation Facility under the control of the Generator Operator with the basic ability to start itself without support from the System."

5. The SRB SDT has merged the RRO requirements in EOP-007 into EOP-006 and assigned them to the Reliability Coordinator. Do you agree with this change?

Yes

No

Comments:

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6. The SRB SDT has replaced the existing Blackstart Capability Plan (and retired the definition) with the Reliability Coordinator's requirement for a coordination element in their restoration plan. Do you agree with this approach or do you have other suggestions for how to handle this?

Yes

No

Comments: From a practical standpoint it is probably better having the Reliability Coordinator coordinate rather than a Regional Reliability Organization.

7. If you are aware of any regional variances that would be required as a result of these standards, please identify them here.

8. If you are aware of any conflicts between the proposed standards and any regulatory function, rule order, tariff, rate schedule, legislative requirement or agreement, please identify them here.

9. If you have any other comments on the proposed standards that you haven't already provided in response to the questions above, please provide them here.

Comments:

EOP-005-2, R1, delete "approved by its Reliability Coordinator" because the approval is not necessary and overly burdensome on the Reliability Coordinator. The RC will be approving system restoration activities during an actual restoration and will not be following entities restoration plan word for word.

EOP-005-2, R1.1, revise to the following "Identification of the restoration activities to be performed by the Transmission Operator including the responsibility of the Transmission Operator to coordinate with its Reliability Coordinator and other affected Transmission Operators." The inclusion of "authority" in the R1.1 is duplicating the authority requirement in Standard PER-001, R1. Including "field switching personnel" is not required or desired because these personnel are under the direction and control of a NERC certified system operator.

EOP-005-2, R1.2, Delete this requirement because it is written as a measure rather than a requirement. R1.2.1 is too prescriptive and does not enhance system reliability. Suggest deleting R1.2.1. What if an entity has no Blackstart Resources does the requirement still apply?

EOP-005-2, R1.5, this requirement seems only to state the obvious and duplicates a requirement in Standard PER-001, R1. Suggest deleting R1.5.

EOP-005-2, R1.6, change "procedures" to "guidelines." The word procedure implies little or no flexibility where guidelines would suggest the necessary flexibility that would be needed in a restoration event.

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EOP-005-2, R1.7, change "procedures" to "guidelines." The word procedure implies little or no flexibility where guidelines would suggest the necessary flexibility that would be needed in a restoration event.

EOP-002-2, R2.2, delete this requirement because measure M2 sufficiently covers compliance to requirement R2. Also, confirmation and determination of compliance should be the responsibility of the regional compliance entity not the Reliability Coordinator.

EOP-002-2, R3.2, what if an entity has no load, how can this requirement be satisfied? What if an entity has no network analysis tools because they have never been needed, why should the tools be procured simply to satisfy compliance?

EOP-002-2, R4.2, what qualifies as "off-site power to nuclear stations?"

EOP-002-2, R6, this requirement tends to imply that Transmission Operators shall have Blackstart Resources. Is that the intended interpretation? Suggest revising "Applicability", 4.1, to read "Transmission Operators with Blackstart Resources."

EOP-002-2, R9, suggest changing "control room personnel identified in its restoration plan" to "system operators." System operators are a specific, narrowly defined group. Control room personnel has too broad of a focus. Delete R9.1 through R9.5. These sub-measures are too prescriptive and should be left to the discretion of the entity to include or not to include in its training plan.

EOP-002-2, R10, suggest deleting this requirement because the organizational structures of entities vary too widely to include such a requirement. Also, entities already provide training to transmission field switching personnel for switching tasks.

EOP-002-2, R12, R13, R14, R15, how is compliance determined for these requirements if an entity has no Blackstart Resources? R15 is again too prescriptive in detailing how many hours of training should occur. Sub-measures R15.1, R15.2, and R15.3 should be deleted because they are too prescriptive and do not enhance system reliability.

EOP-002-2, M1, Revised to the following, "Each Transmission Operator shall have a documented System restoration plan." Compliance can be sufficiently measured by the revision.

EOP-002-2, M15, the wording "if requested" should be removed. What if a request was never received? Who is the non-compliant entity?

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| Individual Commenter Information | | |
|--|-------------------------------------|---|
| (Complete this page for comments from one organization or individual.) | | |
| Name: | Kris Buchholz | |
| Organization: | Pacific Gas and Electric Company | |
| Telephone: | 415-973-1218 | |
| E-mail: | kkb1@pge.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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Yes

No

Comments:

3. The SRB SDT has included training for generator operators and field switching personnel associated with restoration in EOP-005 in accordance with FERC Order 693. Do you agree or have other suggestions for how to supply such training?

Yes

No

Comments: We don't agree that specific hours of training should be stated for generator operators, but only specify the training that is needed. We also recommend a two year requirement be considered, similar to the drills in EOP-006. We do not agree that the training should go to the field switching personnel since they take orders from the control room. In addition, their switching assignments will be based on their specific locations, wherever that is at the time of the event.

4. The SRB SDT defined a new term, Blackstart Resource, which allows for greater flexibility in providing resources for blackstart operations. Do you agree with this definition?

Comments: We are concerned that the phrase "start itself" may be misunderstood as meaning automatically restarting itself.

5. The SRB SDT has merged the RRO requirements in EOP-007 into EOP-006 and assigned them to the Reliability Coordinator. Do you agree with this change?

Yes

No

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Yes

No

Comments:

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9. If you have any other comments on the proposed standards that you haven't already provided in response to the questions above, please provide them here.

Comments: EOP-005 R5 makes sense when islanding from neighboring areas, however what if the island is within the same area or even same company, would this apply?

EOP-005 R14.1 We interpret there to be no profiles required if there are no external loads connected during the test. If this is not true, we suggest a change to only require profiles when loads are connected external to the facility.

EOP-006 R8 Requiring two drills per year for the RC seems more than necessary. The intent seems to be that each TO/GO be included every two years, thus the RC should be able to implement this requirement as necessary to have everyone involved and trained.



NORTH AMERICAN ELECTRIC
RELIABILITY CORPORATION

Comment Form for 1st Draft of Standards for System Restoration and Blackstart (Project 2006-03)

Please use this form to submit comments on the 1st draft of the standards for System Restoration and Blackstart (Project 2006-03). Comments must be submitted by **September 28, 2007**. Please submit the completed form by e-mail to sarcomm@nerc.net with the words "SRB Standards" in the subject line. If you have questions please contact Ed Dobrowolski at Ed.Dobrowolski@nerc.net or by telephone at 609-947-3673.

| Individual Commenter Information | | |
|--|-------------------------------------|---|
| (Complete this page for comments from one organization or individual.) | | |
| Name: | Lauri Jones | |
| Organization: | Pacific Gas and Electric Company | |
| Telephone: | 415-973-0918 | |
| E-mail: | LLJ8@PGE.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) |
| <input type="checkbox"/> ERCOT | <input checked="" type="checkbox"/> | 1 – Transmission Owners |
| <input type="checkbox"/> FRCC | <input type="checkbox"/> | 2 – RTOs and ISOs |
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Comment Form for 1st Draft of Standards for System Restoration and Blackstart (Project 2006-03)

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The SRB SDT has eliminated EOP-007 which delegates duties to the Regional Reliability Organization and put new requirements into ERO-006 for the Reliability Coordinator that functionally replace the Regional Reliability Organization requirements. The RRO Blackstart Capability Plan has been eliminated and the Reliability Coordinator has a requirement for a restoration plan to coordinate the Transmission Operator plans for its Reliability Coordinator Area. The Reliability Coordinator approves or makes recommendations for improvement of Transmission Operator restoration plans in its Reliability Coordinator Area.

The draft standards EOP-005-2 and EOP-006-2 should be reviewed as a set when providing comments.

Please review the standards, provide your comments on this form, and then e-mail the form to sarcomm@nerc.net by **September 28, 2007** with the words, "SRB Standards" in the subject line.

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Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

1. Attachment 1 of EOP-005-1 has been eliminated and the elements for consideration moved directly into Requirement R1 and the sub-requirements of R1 in EOP-005-2. Do you agree or have other suggestions as to how to incorporate the elements into the standards?

Yes

No

Comments:

2. The SRB SDT has removed the language for partial shutdown as part of restoration as we consider recovery from partial shutdown as normal operations. We believe that this requirement is covered in other standards and this standard only applies to those situations where you need to apply Blackstart Resources. Do you agree or have other suggestions as to how to handle partial shutdowns?

Yes

No

Comments:

3. The SRB SDT has included training for generator operators and field switching personnel associated with restoration in EOP-005 in accordance with FERC Order 693. Do you agree or have other suggestions for how to supply such training?

Yes

No

Comments: Including training for generator operators and field switching personnel associated with restoration complies with the intent of FERC Order 693, with states "System restoration requires the participation of not only control room personnel but also those outside of the control room. These include blackstart unit operators and field switching operators in situations where SCADA capability is unavailable. As such, the Commission believes that inclusion of periodic system restoration drills and training and review of restoration plans in a system restoration Reliability Standard is the most effective way of achieving the desired goal of ensuring that all participants are trained in system restoration and that the restoration plans are up to date to deal with system changes."

However, the training required in EOP-005-2 R10 and R15 are missing the words "where SCADA capability is unavailable".

R10 and R15 are also not clear who exactly is required to be involved in this required training. Recommend adding the words "where SCADA capability is unavailable" and clearly defines 'those outside of the control room' that would require training so it is not mis-interpreted and can be properly measured.

4. The SRB SDT defined a new term, Blackstart Resource, which allows for greater flexibility in providing resources for blackstart operations. Do you agree with this definition?

**Comment Form for 1st Draft of Standards for System Restoration and Blackstart
(Project 2006-03)**

Comments:

5. The SRB SDT has merged the RRO requirements in EOP-007 into EOP-006 and assigned them to the Reliability Coordinator. Do you agree with this change?

Yes

No

Comments: It is unclear on the time frame for the Reliability Coordinator training and it is well defined. Would this training be an annual requirement for the RC's or would the training fall on the RRO on how often they train each RC?

Comment Form for 1st Draft of Standards for System Restoration and Blackstart (Project 2006-03)

6. The SRB SDT has replaced the existing Blackstart Capability Plan (and retired the definition) with the Reliability Coordinator's requirement for a coordination element in their restoration plan. Do you agree with this approach or do you have other suggestions for how to handle this?

Yes

No

Comments:

7. If you are aware of any regional variances that would be required as a result of these standards, please identify them here.

8. If you are aware of any conflicts between the proposed standards and any regulatory function, rule order, tariff, rate schedule, legislative requirement or agreement, please identify them here.

9. If you have any other comments on the proposed standards that you haven't already provided in response to the questions above, please provide them here.

Comments: EOP-005-1 had a requirement to periodically test telecommunication facilities that are required to implement a blackstart plan. Is this covered in another Standard or has it been eliminated and is not required?

New training for personnel outside the Control Room has been identified as an annual requirement but the existing words in EOP-005 for Transmission Operator Control Room personnel and EOP-007 for Reliability Coordinators Control Room personnel does not detail the training requirement as an annual requirement. Were all the training requirements listed in the Standards meant to be an annual requirement?

EOP-005-2 R1.7 and R4.2 only lists nuclear stations for high priority of off-site power. EOP-005-2 R.9 states each Transmission Operator shall provide training and even lists the training program topics; it does not give a time frame for this training. Is this training to be annually, if so, it should state it? Also, isn't the existing emergency operations topics training program PER-002 and wouldn't this be a duplicate criteria for the new PER-005-1 System Personnel training?

Training requirements in EOP-005-2 R.11 needs to be clearly defined for the Transmission Operator. Will this be annual training per operator or only upon request of the Reliability Coordinator?

The WECC OTS finds the new System Restoration and Blackstart-Coordination Standards to be duplicating in their training requirements and not well defined in the time frames for this training. 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.

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.



NORTH AMERICAN ELECTRIC
RELIABILITY CORPORATION

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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) |
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Please review the standards, provide your comments on this form, and then e-mail the form to sarcomm@nerc.net by **September 28, 2007** with the words, "SRB Standards" in the subject line.

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(Project 2006-03)**

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1. Attachment 1 of EOP-005-1 has been eliminated and the elements for consideration moved directly into Requirement R1 and the sub-requirements of R1 in EOP-005-2. Do you agree or have other suggestions as to how to incorporate the elements into the standards?

Yes

No

Comments:

2. The SRB SDT has removed the language for partial shutdown as part of restoration as we consider recovery from partial shutdown as normal operations. We believe that this requirement is covered in other standards and this standard only applies to those situations where you need to apply Blackstart Resources. Do you agree or have other suggestions as to how to handle partial shutdowns?

Yes

No

Comments:

3. The SRB SDT has included training for generator operators and field switching personnel associated with restoration in EOP-005 in accordance with FERC Order 693. Do you agree or have other suggestions for how to supply such training?

Yes

No

Comments:

4. The SRB SDT defined a new term, Blackstart Resource, which allows for greater flexibility in providing resources for blackstart operations. Do you agree with this definition?

Comments:

5. The SRB SDT has merged the RRO requirements in EOP-007 into EOP-006 and assigned them to the Reliability Coordinator. Do you agree with this change?

Yes

No

Comments:

Comment Form for 1st Draft of Standards for System Restoration and Blackstart (Project 2006-03)

6. The SRB SDT has replaced the existing Blackstart Capability Plan (and retired the definition) with the Reliability Coordinator's requirement for a coordination element in their restoration plan. Do you agree with this approach or do you have other suggestions for how to handle this?

Yes

No

Comments:

7. If you are aware of any regional variances that would be required as a result of these standards, please identify them here.

8. If you are aware of any conflicts between the proposed standards and any regulatory function, rule order, tariff, rate schedule, legislative requirement or agreement, please identify them here.

9. If you have any other comments on the proposed standards that you haven't already provided in response to the questions above, please provide them here.

Comments:

R1.3 Several Blackstart units provide cranking power to steam units all located with the Generation Operator's site. The Transmission Operator has no visibility or authority over these internal plant switching paths. This needs to be part of the BRFP and not a requirement for the Transmission Operator.

R3. It is unlikely that most TOs would have an actual event or testing that will satisfy this requirement. Thus the verification will be through steady state and dynamic simulations. Steady state simulations are common and easy to perform. Dynamic simulations are more difficult to perform and involve significant effort. There needs to be some kind of acceptable phase in plan to perform dynamic simulations.

R10. The requirement states that ...training for each of its authorized transmission field switching personnel for the tasks identified in its restoration plan.... Authorized transmission field switching personnel usually means to a TO, all those personnel that are qualified to perform transmission switching. Even though we may dispatch field personnel during a restoration, their duties are their "normally performed duties" under the direction of the System Operator. It is suggested that additional words be added so it is clear that the requirement means training for only those field personnel performing specific restoration tasks during a restoration, beyond normal operating practices.

R15.1 It is suggested that it be specifically stated in the requirements that the training program also include voltage and frequency control. During a restoration event these controls will probably act differently and are critical to the success of the restoration.

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| Individual Commenter Information | | |
|--|-------------------------------------|---|
| (Complete this page for comments from one organization or individual.) | | |
| Name: | Gary Campbell | |
| Organization: | ReliabilityFirst Corporation | |
| Telephone: | 330-247-3062 | |
| E-mail: | gary.campbell@rfirst.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) |
| <input type="checkbox"/> ERCOT | <input type="checkbox"/> | 1 – Transmission Owners |
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Yes

No

Comments:

2. The SRB SDT has removed the language for partial shutdown as part of restoration as we consider recovery from partial shutdown as normal operations. We believe that this requirement is covered in other standards and this standard only applies to those situations where you need to apply Blackstart Resources. Do you agree or have other suggestions as to how to handle partial shutdowns?

Yes

No

Comments: I believe this standard is covering the event in which blackstart resources are needed or complete shutdown has happened. By covering these types of events here and training on these events the industry is ensuring that there is an understanding by personnel and equipment available to restore after these events. Partial shutdown training, understanding of operational processes and procedures and other standards is provided by existing training and docuemntation.

3. The SRB SDT has included training for generator operators and field switching personnel associated with restoration in EOP-005 in accordance with FERC Order 693. Do you agree or have other suggestions for how to supply such training?

Yes

No

Comments: However I think you need to be clear on your defintion of GOP. As I understand it , GOP's are those which communicate with the BA and relay directions to generating plant personel. Both of these types of personel should have some type of training in my opinion. These people need to be aware of these types of situations. The plant operator is concerned with his or her unit and it's operation however there are things which he should be aware of such as frequency swings during restoration, loading of units, etc. Field Switcing personnel may not make transmission operational decisions but they are involved and need a familiarity with equipment during these types of events.

The training time required should probably be reduced to 2/4 hours every 2 years.

4. The SRB SDT defined a new term, Blackstart Resource, which allows for greater flexibility in providing resources for blackstart operations. Do you agree with this definition?

**Comment Form for 1st Draft of Standards for System Restoration and Blackstart
(Project 2006-03)**

Comments: Yes, I agree

5. The SRB SDT has merged the RRO requirements in EOP-007 into EOP-006 and assigned them to the Reliability Coordinator. Do you agree with this change?

Yes

No

Comments: However, If this standard is to set requirements for the RC then the RC should mentioned in the applicability section. The RC should not be involved in any compliance function either as it is not a compliance monitor.

Comment Form for 1st Draft of Standards for System Restoration and Blackstart (Project 2006-03)

6. The SRB SDT has replaced the existing Blackstart Capability Plan (and retired the definition) with the Reliability Coordinator's requirement for a coordination element in their restoration plan. Do you agree with this approach or do you have other suggestions for how to handle this?

Yes

No

Comments:

7. If you are aware of any regional variances that would be required as a result of these standards, please identify them here.

Yes, TOP's need to be required to have a restoration plan for their entire footprint. R1 needs to be changed to state that TOP's shall have a restoration plan for their entire footprint which is approved..... Reliance on other entities under the TOP's direction during a system restoration is fine however the TOP should have an RC approved restoration plan of its entire footprint available for its operators and training on these other entity restoration plans since the TOP is the entity responsible for implementation of the restoration plan.

If the TOP relies on any of the entities under its purview to provide a part of the plan or perform any functions in implementation of its plan those entities should be subject to the requirements in this standard as they apply to those areas of the restoration plan. This region has TO personnel implementing their restoration plan for the TOP, these personnel should be addressed by this standard concerning what is applicable, training required and possible certification of the operators.

8. If you are aware of any conflicts between the proposed standards and any regulatory function, rule order, tariff, rate schedule, legislative requirement or agreement, please identify them here.

No

9. If you have any other comments on the proposed standards that you haven't already provided in response to the questions above, please provide them here.

Comments:

R1. The statement " The restoration plan shall have a priority of restoring the integrity of the Interconnection under the direction of the RC" should be a separate requirement or sub-requirement and not listed here if it is something important to the plan.

R1.2 Provide an explanation as to why you are referring to "applicable" BRFPs. This statement should be more explicit. Leaves room for a lot of interpretation.

R1.3 Provide an explanation of a cranking path and what should be included as part of the diagram. Some entities in our region question what a cranking path consists of. Is it a one-line diagram, flowchart of facility names, etc. ?

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R2 - I think the time to update the restoration plan upon a review or change is long. Considering the impact of these events I think we would want to get all entities involved working from the current plan as soon as possible.

Does the ninety days include the approval period for the RC? This could make it even linger.



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| Individual Commenter Information | |
|--|---|
| (Complete this page for comments from one organization or individual.) | |
| Name: | Glenn Kaht |
| Organization: | ReliabilityFirst Corporation |
| Telephone: | 330.933.3557 |
| E-mail: | glenn.kaht@rfirst.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) |
| <input type="checkbox"/> ERCOT | <input type="checkbox"/> 1 – Transmission Owners |
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Yes

No

Comments: R1.2.1 requires the TOP to include the latest date of test and test results of each blackstart resource. In R1 the RC is required to approve the Restoration Plan. Would the RC have to approve the plan due to changes in test results? I suggest the test results not be included in the plan, but that the TOP has record of them outside of the "plan."

R1.8 requires the TOP to coordinate with many "applicable" entities. Which of the entities are applicable? Does the applicable entities include all classes of LSEs? If the answer is yes, this would require coordinating with many LSEs that own no physical assets, such as Alternate Retail Electric Suppliers. The drafting team should consider specifying exactly what entities are applicable to the coordination requirement. Otherwise, it is very open to interpretation.

2. The SRB SDT has removed the language for partial shutdown as part of restoration as we consider recovery from partial shutdown as normal operations. We believe that this requirement is covered in other standards and this standard only applies to those situations where you need to apply Blackstart Resources. Do you agree or have other suggestions as to how to handle partial shutdowns?

Yes

No

Comments: If a partial shutdown included 90% of a system, it would be difficult to view the restoration as normal operations. In fact, the TOP would implement their System Restoration Plan.

3. The SRB SDT has included training for generator operators and field switching personnel associated with restoration in EOP-005 in accordance with FERC Order 693. Do you agree or have other suggestions for how to supply such training?

Yes

No

Comments:

4. The SRB SDT defined a new term, Blackstart Resource, which allows for greater flexibility in providing resources for blackstart operations. Do you agree with this definition?

Comments:

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Yes

No

Comments:

**Comment Form for 1st Draft of Standards for System Restoration and Blackstart
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6. The SRB SDT has replaced the existing Blackstart Capability Plan (and retired the definition) with the Reliability Coordinator's requirement for a coordination element in their restoration plan. Do you agree with this approach or do you have other suggestions for how to handle this?

Yes

No

Comments:

7. If you are aware of any regional variances that would be required as a result of these standards, please identify them here.

8. If you are aware of any conflicts between the proposed standards and any regulatory function, rule order, tariff, rate schedule, legislative requirement or agreement, please identify them here.

R1.4 of EOP-005-2 has the TOP identify acceptable voltage and frequency limits during restoration. R1.5 of EOP-005-2 has the RC identify the same. There seems to be a conflict in having 2 different functional entities identifying the same parameter. The drafting team should consider resolving this apparent conflict.

9. If you have any other comments on the proposed standards that you haven't already provided in response to the questions above, please provide them here.

Comments:

R1 requires the TOP to have a restoration plan approved by its RC. If the RC doesn't approve the plan, then the TOP is in violation. This may be outside of the TOP's control. Please consider rewording the requirement to have the TOP submit its restoration to the RC for approval.

R6 has the TOP determine and set testing requirements for Blackstart Resources. This is inappropriate. Testing requirements should be consistent across the Interconnection. They should be specified by a NERC standard.

R7 has the TOP only include Blackstart Resources that have met testing requirements. What if a Blackstart Resource failed a test? The drafting team should consider a timeframe that the TOP must comply with to remove a Blackstart Resource from its restoration plan if it has failed a test.

Is the Blackstart Facility Resource Plan a defined term? The standard says what it must include, but doesn't appear to define it.

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| Individual Commenter Information | | |
|--|-------------------------------------|---|
| (Complete this page for comments from one organization or individual.) | | |
| Name: | Thomas j Bradish | |
| Organization: | Reliant Energy | |
| Telephone: | 724-597-8593 | |
| E-mail: | tbradish@reliant.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) |
| <input checked="" type="checkbox"/> ERCOT | <input type="checkbox"/> | 1 – Transmission Owners |
| <input checked="" type="checkbox"/> FRCC | <input type="checkbox"/> | 2 – RTOs and ISOs |
| <input type="checkbox"/> MRO | <input type="checkbox"/> | 3 – Load-serving Entities |
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The Elements for Consideration of Attachment 1 of EOP-005 have been transformed into sub-requirements of R1 in the standard itself. Attachment 1 is eliminated. Requirements regarding telecommunications systems have been eliminated as duplicative of requirements in COM standards. The requirements of EOP-009 – Blackstart testing – have been moved to EOP-005 and EOP-009 is eliminated. Training requirements are added for Transmission Operator field switching personnel and for operating personnel of Generator Operators with a Blackstart Resource Facility Plan (a newly defined term).

The SRB SDT has eliminated EOP-007 which delegates duties to the Regional Reliability Organization and put new requirements into ERO-006 for the Reliability Coordinator that functionally replace the Regional Reliability Organization requirements. The RRO Blackstart Capability Plan has been eliminated and the Reliability Coordinator has a requirement for a restoration plan to coordinate the Transmission Operator plans for its Reliability Coordinator Area. The Reliability Coordinator approves or makes recommendations for improvement of Transmission Operator restoration plans in its Reliability Coordinator Area.

The draft standards EOP-005-2 and EOP-006-2 should be reviewed as a set when providing comments.

Please review the standards, provide your comments on this form, and then e-mail the form to sarcomm@nerc.net by **September 28, 2007** with the words, "SRB Standards" in the subject line.

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Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

1. Attachment 1 of EOP-005-1 has been eliminated and the elements for consideration moved directly into Requirement R1 and the sub-requirements of R1 in EOP-005-2. Do you agree or have other suggestions as to how to incorporate the elements into the standards?

Yes

No

Comments:

2. The SRB SDT has removed the language for partial shutdown as part of restoration as we consider recovery from partial shutdown as normal operations. We believe that this requirement is covered in other standards and this standard only applies to those situations where you need to apply Blackstart Resources. Do you agree or have other suggestions as to how to handle partial shutdowns?

Yes

No

Comments:

3. The SRB SDT has included training for generator operators and field switching personnel associated with restoration in EOP-005 in accordance with FERC Order 693. Do you agree or have other suggestions for how to supply such training?

Yes

No

Comments: The training requirement for generator operators is not needed because:

1. Generator operator is too broad of a term in defining who must be trained. It could mean the control room operator or the person that works the basement. I believe that the standard team means the person that actually starts the unit. In any case the 4 hours of training is over kill. These units, in the majority of the cases are simple cycle CT's that do double duty as black start and as peakers. As a peaker these units are started during high demand periods. The generator operator knows how to start these units so additional training is not needed.

2. The generator operators do what they are told. They do not take any unilateral action in the event of a blackout. The transmission operator must have a very thorough understanding of the sequence of events. The generator operator only needs to understand the process at a high level. It does not take 4 hours of training for this position to get a more detailed understanding. The generator is in possession of the black start recovery procedure. If the SDT feels that training is required then that training requirement should be on the operators' supervisor, not the operator.

3. The black start generator must do an annual test proving the units ability to start without assistance from the grid and sync to a dead bus. This should suffice as adequate training for the generator operator.

**Comment Form for 1st Draft of Standards for System Restoration and Blackstart
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4. The SRB SDT defined a new term, Blackstart Resource, which allows for greater flexibility in providing resources for blackstart operations. Do you agree with this definition?

Comments: The definition looks good.

5. The SRB SDT has merged the RRO requirements in EOP-007 into EOP-006 and assigned them to the Reliability Coordinator. Do you agree with this change?

Yes

No

Comments:

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6. The SRB SDT has replaced the existing Blackstart Capability Plan (and retired the definition) with the Reliability Coordinator's requirement for a coordination element in their restoration plan. Do you agree with this approach or do you have other suggestions for how to handle this?

Yes

No

Comments: I suggest that you take a look at how PJM handles the coordination element.

7. If you are aware of any regional variances that would be required as a result of these standards, please identify them here.

8. If you are aware of any conflicts between the proposed standards and any regulatory function, rule order, tariff, rate schedule, legislative requirement or agreement, please identify them here.

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Comments:



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| (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) |
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The SRB SDT has eliminated EOP-007 which delegates duties to the Regional Reliability Organization and put new requirements into ERO-006 for the Reliability Coordinator that functionally replace the Regional Reliability Organization requirements. The RRO Blackstart Capability Plan has been eliminated and the Reliability Coordinator has a requirement for a restoration plan to coordinate the Transmission Operator plans for its Reliability Coordinator Area. The Reliability Coordinator approves or makes recommendations for improvement of Transmission Operator restoration plans in its Reliability Coordinator Area.

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Yes

No

Comments:

2. The SRB SDT has removed the language for partial shutdown as part of restoration as we consider recovery from partial shutdown as normal operations. We believe that this requirement is covered in other standards and this standard only applies to those situations where you need to apply Blackstart Resources. Do you agree or have other suggestions as to how to handle partial shutdowns?

Yes

No

Comments:

3. The SRB SDT has included training for generator operators and field switching personnel associated with restoration in EOP-005 in accordance with FERC Order 693. Do you agree or have other suggestions for how to supply such training?

Yes

No

Comments: Training of field switching personnel should not be included in NERC Standards and should be left up to the individual entities. Field switching personnel are not typically NERC certified. This issue could be addressed in NERC Readiness Audits.

Field switching personnel should always be working under the direction of a certified Transmission Operator. Are the tasks performed by switching personnel that much different than their normal switching tasks? While the conditions triggering the performance of the tasks may be abnormal, the tasks are likely the same and a special training requirement for field personnel isn't warranted.

4. The SRB SDT defined a new term, Blackstart Resource, which allows for greater flexibility in providing resources for blackstart operations. Do you agree with this definition?

Comments: yes

5. The SRB SDT has merged the RRO requirements in EOP-007 into EOP-006 and assigned them to the Reliability Coordinator. Do you agree with this change?

Yes

**Comment Form for 1st Draft of Standards for System Restoration and Blackstart
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No

Comments:

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Yes

No

Comments:

7. If you are aware of any regional variances that would be required as a result of these standards, please identify them here.

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9. If you have any other comments on the proposed standards that you haven't already provided in response to the questions above, please provide them here.

Comments: I would like to see the training requirements in R9, R10, R11, R15, and R16 moved to a PER standard. Intermingling training requirements with operational requirements makes it a bit harder to ensure training program compliance. Monitoring every proposed standard for training requirements is essentially what we are faced with today. It makes more sense to use the PER series of standards for all training requirements. This would make for a smaller EOP-005-2, minus 5 requirements, while also being more consistent with the purpose stated in EOP-05-2.

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| Individual Commenter Information | | |
|--|-------------------------------------|---|
| (Complete this page for comments from one organization or individual.) | | |
| Name: | Scott Peterson | |
| Organization: | San Diego Gas & Electric | |
| Telephone: | (619) 990-4420 | |
| 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) |
| <input type="checkbox"/> ERCOT | <input checked="" type="checkbox"/> | 1 – Transmission Owners |
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Yes

No

Comments:

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Yes

No

Comments:

3. The SRB SDT has included training for generator operators and field switching personnel associated with restoration in EOP-005 in accordance with FERC Order 693. Do you agree or have other suggestions for how to supply such training?

Yes

No

Comments: I do not agree with the training required of field switching personnel. It is overly prescriptive given the less complex nature of their involvement in restoration. Have a requirement to include system restoration training within the TOPs authorization training for its switching personnel (typically every 3 years). That way to stay authorized, you have to have that restoration training.

4. The SRB SDT defined a new term, Blackstart Resource, which allows for greater flexibility in providing resources for blackstart operations. Do you agree with this definition?

Comments:

5. The SRB SDT has merged the RRO requirements in EOP-007 into EOP-006 and assigned them to the Reliability Coordinator. Do you agree with this change?

Yes

No

Comments:

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Yes

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Comments:

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Comments:

R1.1: The TOP is responsible for coordinating its restoration activities with the other entities operating within its area, but there is no requirement for the other entities to cooperate in that coordination effort or identify themselves to the TOP. What is the list of entities? Is it all the LSEs and PSE one might have in its transmission area. The standard does not put a requirement on them. Even generators without blackstart capabilities need to cooperate in the restoration efforts to bring the system back up.

R1.2.1: The logistics of keeping the restoration plan up to date with the latest test date, test results, and starting method of black start units seem overly complicated. That means everytime any one unit is tested, the plan needs to be updated. Can we simply reference the documentation required of the generator in R14.1 to satisfy this requirement that this be documented.

R1.8 Again, requires that the TOP coordinate with the other entities, but doesn't require most of them to cooperate with that coordination.

R3 This requirement calls for dynamic simulations. Quite often black start units are small, and are not a great contributor to system stability; therefore most of them have a very inaccurate model, a typical model or no dynamic modeling at all. Therefore, performing dynamic simulations maybe impossible or the results will be very inaccurate.

R13 The GOP needs to give a copy of updates to the BRFP to the TOP and RC.



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Yes

No

Comments: As an entity that has implemented its restoration plan following hurricanes, Santee Cooper does not believe a restoration plan should be a step by step plan based on an assumed set of conditions for a particular event. Rather, Santee Cooper believes a restoration plan needs to be developed in such a manner that it provides guidance and allows for flexibility to address many different sets of conditions and events. In addition, Santee Cooper believes restoration plans should be tailored for each particular system, and its particular circumstances, and therefore should not require approval by a Reliability Coordinator as long as all of the requirements associated with the related NERC standards are satisfied (i.e., the RC should not perform a compliance monitoring function if this is what is intended by the approval). Finally, Santee Cooper believes that a restoration plan developed to address a broad range of circumstances would not require the statement in R1.5.

2. The SRB SDT has removed the language for partial shutdown as part of restoration as we consider recovery from partial shutdown as normal operations. We believe that this requirement is covered in other standards and this standard only applies to those situations where you need to apply Blackstart Resources. Do you agree or have other suggestions as to how to handle partial shutdowns?

Yes

No

Comments:

3. The SRB SDT has included training for generator operators and field switching personnel associated with restoration in EOP-005 in accordance with FERC Order 693. Do you agree or have other suggestions for how to supply such training?

Yes

No

Comments: FERC Order 693 states the "Commission believes that inclusion of periodic system restoration drills and training and review of restoration plans . . .". We recommend that "periodic" training be conducted every 3 years, which is our current policy on refresher training (8 hours) for generator operators and field switching personnel. Providing training for two and four hours annually is not cost effective or productive for personnel involved in shift operations. The eight hours provided by Santee Cooper every three years provides an in-depth review of switching operations than could be provided in two and four hours of training. A requirement of more hours

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of training every three years will allow for more in depth training with appropriate assessments.

4. The SRB SDT defined a new term, Blackstart Resource, which allows for greater flexibility in providing resources for blackstart operations. Do you agree with this definition?

Comments: We suggest replacing the words "to start itself" in the definition with "to be started".

5. The SRB SDT has merged the RRO requirements in EOP-007 into EOP-006 and assigned them to the Reliability Coordinator. Do you agree with this change?

Yes

No

Comments: Santee Cooper believes that a restoration plan developed to address a broad range of circumstances would not require the statement in R1.6 of EOP-006.

R8 requires two system restoration drills, exercises, or simulations per year. This is a new requirement and not one that was merged from EOP007.

The approval of system restoration plans by the Reliability Coordinator is a new requirement. Does this requirement hold the RC accountable if a TOP's plan turns out to be insufficient when implemented? Does this place the RC in a compliance monitoring role? If the RC does not approve a TOP's plan, is that TOP considered to be non-compliant? Prior wording used was "shall be aware of the restoration plan of each TOP".

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Yes

No

Comments:

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9. If you have any other comments on the proposed standards that you haven't already provided in response to the questions above, please provide them here.

Comments: Blackstart Resource Facility Plans (BRFP) needs to be a definition included in the "Definitions of Terms Used in Standard".



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RELIABILITY CORPORATION

Comment Form for 1st Draft of Standards for System Restoration and Blackstart (Project 2006-03)

Please use this form to submit comments on the 1st draft of the standards for System Restoration and Blackstart (Project 2006-03). Comments must be submitted by **September 28, 2007**. Please submit the completed form by e-mail to sarcomm@nerc.net with the words "SRB Standards" in the subject line. If you have questions please contact Ed Dobrowolski at Ed.Dobrowolski@nerc.net or by telephone at 609-947-3673.

| 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) |
| <input type="checkbox"/> ERCOT | <input type="checkbox"/> | 1 – Transmission Owners |
| <input type="checkbox"/> FRCC | <input type="checkbox"/> | 2 – RTOs and ISOs |
| <input type="checkbox"/> MRO | <input type="checkbox"/> | 3 – Load-serving Entities |
| <input type="checkbox"/> NPCC | <input type="checkbox"/> | 4 – Transmission-dependent Utilities |
| <input type="checkbox"/> RFC | <input type="checkbox"/> | 5 – Electric Generators |
| <input type="checkbox"/> SERC | <input type="checkbox"/> | 6 – Electricity Brokers, Aggregators, and Marketers |
| <input type="checkbox"/> SPP | <input type="checkbox"/> | 7 – Large Electricity End Users |
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| <input type="checkbox"/> NA – Not Applicable | <input type="checkbox"/> | 9 – Federal, State, Provincial Regulatory or other Government Entities |
| | <input type="checkbox"/> | 10 – Regional Reliability Organizations and Regional Entities |

**Comment Form for 1st Draft of Standards for System Restoration and Blackstart
(Project 2006-03)**

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

Group Name: SERC Operations Planning subcommittee

Lead Contact: Doug McLaughlin

Contact Organization: Southern Company Services, Inc.

Contact Segment: Transmission Owner

Contact Telephone: 205-257-6127

Contact E-mail: wdmclaug@southernco.com

| Additional Member Name | Additional Member Organization | Region* | Segment* |
|-------------------------------|---------------------------------------|--------------------------------|-----------------|
| Chris Bradley | Big Rivers Electric Corporation | SERC | 1 |
| William Gaither | South Carolina Public Service Auth. | SERC | 1 |
| Eugene Warnecke | Ameren | SERC | 1 |
| Paul Turner | Georgia system Operations Corp. | SERC | 3 |
| Al McMeekin | South Carolina Electric & Gas | SERC | 1,3,5 |
| Mike Clements | Tennessee Valley Authority | SERC | 1,3,5,9 |
| Pat Huntley | SERC Reliability Corporation, Inc. | SERC | 10 |
| John Troha | SERC Reliability Corporation, Inc. | SERC | 10 |
| Gregory Mason | Dynegy | SERC, RFC, NPCC, WECC | 5 |
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Background Information

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The Elements for Consideration of Attachment 1 of EOP-005 have been transformed into sub-requirements of R1 in the standard itself. Attachment 1 is eliminated. Requirements regarding telecommunications systems have been eliminated as duplicative of requirements in COM standards. The requirements of EOP-009 – Blackstart testing – have been moved to EOP-005 and EOP-009 is eliminated. Training requirements are added for Transmission Operator field switching personnel and for operating personnel of Generator Operators with a Blackstart Resource Facility Plan (a newly defined term).

The SRB SDT has eliminated EOP-007 which delegates duties to the Regional Reliability Organization and put new requirements into ERO-006 for the Reliability Coordinator that functionally replace the Regional Reliability Organization requirements. The RRO Blackstart Capability Plan has been eliminated and the Reliability Coordinator has a requirement for a restoration plan to coordinate the Transmission Operator plans for its Reliability Coordinator Area. The Reliability Coordinator approves or makes recommendations for improvement of Transmission Operator restoration plans in its Reliability Coordinator Area.

The draft standards EOP-005-2 and EOP-006-2 should be reviewed as a set when providing comments.

Please review the standards, provide your comments on this form, and then e-mail the form to sarcomm@nerc.net by **September 28, 2007** with the words, "SRB Standards" in the subject line.

**Comment Form for 1st Draft of Standards for System Restoration and Blackstart
(Project 2006-03)**

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Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

1. Attachment 1 of EOP-005-1 has been eliminated and the elements for consideration moved directly into Requirement R1 and the sub-requirements of R1 in EOP-005-2. Do you agree or have other suggestions as to how to incorporate the elements into the standards?

Yes

No

Comments:

2. The SRB SDT has removed the language for partial shutdown as part of restoration as we consider recovery from partial shutdown as normal operations. We believe that this requirement is covered in other standards and this standard only applies to those situations where you need to apply Blackstart Resources. Do you agree or have other suggestions as to how to handle partial shutdowns?

Yes

No

Comments: We agree with removing partial shutdown from the language; however, we believe the plan should include requirements for the synchronization of islands resulting from partial shutdown of an individual system.

3. The SRB SDT has included training for generator operators and field switching personnel associated with restoration in EOP-005 in accordance with FERC Order 693. Do you agree or have other suggestions for how to supply such training?

Yes

No

Comments: (1) We do not agree that training requirements should be included in EOP-005, and (2) We don't agree with the "broad brush" approach taken to apply to all field personnel.

(1) We feel strongly that training for restoration should be addressed by the PER Standards rather than in the Emergency Operations Standards.

(2) In addition to the training requirements being too broadly applied to field personnel, they lack detail in what should be covered as compared to the requirements of R9. The specified training in Requirements R10 and R15 should only apply to those Transmission Operator and Generation Operator personnel that direct system restoration actions carried out by personnel in the field and generating plants. Requirement R15 of the Standard needs to be revised to delete the requirement for "a minimum of four hours of training per year." Requirement R15 already includes a minimum content for the training program for Generator Operators. As long as the training given meets the training content requirement in R15, there is no need, and it is inappropriate, to specify a required duration for the training. Also, since the training content is specified in R15, this requirement is measurable and there is no need for training duration to be added just so the requirement can be measured in this manner.

**Comment Form for 1st Draft of Standards for System Restoration and Blackstart
(Project 2006-03)**

4. The SRB SDT defined a new term, Blackstart Resource, which allows for greater flexibility in providing resources for blackstart operations. Do you agree with this definition?

Comments: Yes, with the following change to the definition: replace "start itself" with "be started".

5. The SRB SDT has merged the RRO requirements in EOP-007 into EOP-006 and assigned them to the Reliability Coordinator. Do you agree with this change?

Yes

No

Comments:

**Comment Form for 1st Draft of Standards for System Restoration and Blackstart
(Project 2006-03)**

6. The SRB SDT has replaced the existing Blackstart Capability Plan (and retired the definition) with the Reliability Coordinator's requirement for a coordination element in their restoration plan. Do you agree with this approach or do you have other suggestions for how to handle this?

Yes

No

Comments:

7. If you are aware of any regional variances that would be required as a result of these standards, please identify them here.

No

8. If you are aware of any conflicts between the proposed standards and any regulatory function, rule order, tariff, rate schedule, legislative requirement or agreement, please identify them here.

No

9. If you have any other comments on the proposed standards that you haven't already provided in response to the questions above, please provide them here.

Comments: We commend the drafting team members for their hard work in combining and clarifying the requirements of EOP-005, 006, 007 and 009.



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RELIABILITY CORPORATION

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| Individual Commenter Information | | |
|--|-------------------------------------|--|
| (Complete this page for comments from one organization or individual.) | | |
| Name: | | |
| Organization: | | |
| Telephone: | | |
| E-mail: | | |
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Comment Form for 1st Draft of Standards for System Restoration and Blackstart (Project 2006-03)

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

Group Name: Southern Company - Transmission

Lead Contact: Jim Busbin

Contact Organization: Southern Company Services, Inc.

Contact Segment: 1

Contact Telephone: 205-257-6357

Contact E-mail: jybusbin@southernco.com

| Additional Member Name | Additional Member Organization | Region* | Segment* |
|------------------------|---------------------------------|---------|----------|
| Marc Butts | Southern Company Services, Inc. | SERC | 1 |
| Roman Carter | Southern Company Services | SERC | 1 |
| J. T. Wood | Southern Company Services, Inc. | SERC | 1 |
| Mike Oatts | Southern Company Services, Inc. | SERC | 1 |
| Tom Higgins | Southern Company Generation | SERC | 5 |
| John Ciza | Southern Company Generation | SERC | 5 |
| Roger Green | Southern Company Generation | SERC | 5 |
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Comment Form for 1st Draft of Standards for System Restoration and Blackstart (Project 2006-03)

Background Information

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The Elements for Consideration of Attachment 1 of EOP-005 have been transformed into sub-requirements of R1 in the standard itself. Attachment 1 is eliminated. Requirements regarding telecommunications systems have been eliminated as duplicative of requirements in COM standards. The requirements of EOP-009 – Blackstart testing – have been moved to EOP-005 and EOP-009 is eliminated. Training requirements are added for Transmission Operator field switching personnel and for operating personnel of Generator Operators with a Blackstart Resource Facility Plan (a newly defined term).

The SRB SDT has eliminated EOP-007 which delegates duties to the Regional Reliability Organization and put new requirements into ERO-006 for the Reliability Coordinator that functionally replace the Regional Reliability Organization requirements. The RRO Blackstart Capability Plan has been eliminated and the Reliability Coordinator has a requirement for a restoration plan to coordinate the Transmission Operator plans for its Reliability Coordinator Area. The Reliability Coordinator approves or makes recommendations for improvement of Transmission Operator restoration plans in its Reliability Coordinator Area.

The draft standards EOP-005-2 and EOP-006-2 should be reviewed as a set when providing comments.

Please review the standards, provide your comments on this form, and then e-mail the form to sarcomm@nerc.net by **September 28, 2007** with the words, "SRB Standards" in the subject line.

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(Project 2006-03)**

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. Attachment 1 of EOP-005-1 has been eliminated and the elements for consideration moved directly into Requirement R1 and the sub-requirements of R1 in EOP-005-2. Do you agree or have other suggestions as to how to incorporate the elements into the standards?

Yes

No

Comments: We agree with the elimination of Attachment 1 as found in Version 1 of this Standard and the placement of its elements into, and under, Requirement 1 of Version 2. We disagree, however, with the change in the applicability of the proposed Standard (to include the provisions of the former Attachment 1) in its transition from Version 1 to Version 2. Balancing Authorities will continue to play a vital role in System Restoration; this Standard should be written to reflect that role. We have further comment on the applicability of this Standard in our response to Question #9.

2. The SRB SDT has removed the language for partial shutdown as part of restoration as we consider recovery from partial shutdown as normal operations. We believe that this requirement is covered in other standards and this standard only applies to those situations where you need to apply Blackstart Resources. Do you agree or have other suggestions as to how to handle partial shutdowns?

Yes

No

Comments: We agree with the removal of the "partial shutdown" language from this Standard for the reasons stated.

3. The SRB SDT has included training for generator operators and field switching personnel associated with restoration in EOP-005 in accordance with FERC Order 693. Do you agree or have other suggestions for how to supply such training?

Yes

No

Comments: All training requirements should be centralized in the PER category of Reliability Standards. The EOP-005-2 proposed Standard sets a minimum amount of time to be spent, on an annual basis, in training for both TOP and GO without offering much specificity or guidance, particularly for the TOP (and BA if included), as to what the training will impart. Requirement R.15 is a good beginning. More of the training detail should be developed and then specified in the Standard, perhaps with "training will include as a minimum" language. Once more detail is identified, time estimates of performing that training could then be developed and listed for the GO and TOP (and BA) if the drafting team feels minimum time periods for training should be included in the Standard. We recommend dropping the four and two hour minimum time requirements and focus more on the minimum content to be included in the training.

If the Standard will continue to utilize a "Blackstart Resource agreement", training requirements should be reflected in that agreement.

**Comment Form for 1st Draft of Standards for System Restoration and Blackstart
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4. The SRB SDT defined a new term, Blackstart Resource, which allows for greater flexibility in providing resources for blackstart operations. Do you agree with this definition?

Comments: No. As we interpret the definition provided with Version 2 of the Standard, we find the definition clouds what a Blackstart Resource actually is. We read the part of the definition "... or to automatically remain energized without connection to the remainder of the System, ..." to be mis-leading. A generating unit that has not tripped off-line and is part of an islanded system but does not have "self start" capability will now be classified as a Blackstart Resource - and it isn't. This unit cannot start without support from the power grid and should not be considered a Blackstart Resource. The "... or to automatically remain energized without connection to the remainder of the System, ..." language in the definition should be stricken.

Also, the Background section (end of the second paragraph) of this comment form states there is a newly defined term - Blackstart Resource Facility Plan - in the proposed Standard. We did not find a definition for Blackstart Resource Facility Plan.

Additionally, the portion of the definition which reads, "..with the basic ability to start itself without support ..." would read better if phrased "... with the basic ability to be started without support"

5. The SRB SDT has merged the RRO requirements in EOP-007 into EOP-006 and assigned them to the Reliability Coordinator. Do you agree with this change?

Yes

No

Comments: EOP-007 was totally applicable to the RRO. Responsibility for the Standards ultimately rolls back to the RRO. We agree with the change.

**Comment Form for 1st Draft of Standards for System Restoration and Blackstart
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6. The SRB SDT has replaced the existing Blackstart Capability Plan (and retired the definition) with the Reliability Coordinator's requirement for a coordination element in their restoration plan. Do you agree with this approach or do you have other suggestions for how to handle this?

Yes

No

Comments:

7. If you are aware of any regional variances that would be required as a result of these standards, please identify them here.

We are not aware of any regional variances that would be required as a result of these standards.

8. If you are aware of any conflicts between the proposed standards and any regulatory function, rule order, tariff, rate schedule, legislative requirement or agreement, please identify them here.

We are not aware of any conflicts between the proposed standards and any regulatory function, rule order, tariff, rate schedule, legislative requirement or agreement.

9. If you have any other comments on the proposed standards that you haven't already provided in response to the questions above, please provide them here.

Comments: All comments provided are with reference to the proposed EOP-005-2 Standard unless noted otherwise.

Generation Related Comments:

There has been a significant amount of scope creep in the requirements imposed on GOPs and GOs.

1. Requirement 1.2: This requires a Blackstart Resource Facility Plan (BRFP) which adds Mvar capacity to the data. One can provide Mvar rating but transmission system conditions (load and voltage) will dictate Mvar capacity.

2. Requirement 12: Is the Blackstart Resource Agreements new or just a new name. Also, most of this information is covered in Requirement 1.2. Why does the TOP need a copy of the start-up procedure for the blackstart units? We also feel that a Blackstart Resource Agreement for vertically integrated utilities serves no purpose and should be waived in the proposed Standard for vertically integrated utilities.

3. Requirement 13: This requirement requires the GOP to review its resource plan annually but TOPs only have to review the the system's every 5 years (R 3). It appears to us that if anyone needs to review the blackstart plan annually, then it should be the TOP not the GOP. Plant systems don't change often and thus does not need the annual review.

4. Requirement 14: This requirement adds a considerable amount of test and documentation requirements over the existing EOP-009 including special recording devices for voltage and frequency. As written, it appears that actual system restoration and actual unit blackstart have been included in the scope and added to the requirements, not just verification that blackstart units can start - as was the requirement of EOP-009-0. In general we object to these additions. As a GOP/GO we

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recommend retaining EOP-009 and removing the associated items from EOP-009 added to this standard.

5. Requirement 15: We think that a reasonable amount of training is warranted. However, the standard sets a minimum amount of time for generation and annual frequency. Both of these items should be left to the GO or GOP and/or addressed in the new "Blackstart Resource agreement" added in R 12. As a GO, we think it is interesting that the GOP must do a minimum of 4 hours of training where the TOP has to do only 2 hours (R 10).

6. Requirement 16: This appears to be a new requirement without any clarification of what is expected of the GOP. Clarify or delete.

7. M12 thru M15 need to be revised to reflect comments above.

Transmission Related Comments:

1. The current EOP-005-1 has applicability to the Balancing Authorities (e.g. R5, R6, R11.3, etc.). There is no applicability, however, to the Balancing Authority in the proposed version 2 of EOP-005 standard. In EOP-005-1 R11.3, for example, the Balancing Authorities are specifically assigned the responsibility of reviewing Interchange Schedules between BA's or fragments of BA Areas within the separated area and make adjustments to facilitate the restoration using manual or automatic generation control. Many Transmission Operators do not normally have the training or experience to manage issues that are normally the responsibility of Balancing Authority – frequency control, generation-load balancing, operating reserves and, most particularly, interchange. In many cases, the Transmission Operator also does not have the tools/mechanisms such as AGC and Scheduling software to perform these functions. System collapse/blackout/islanding will not necessarily take place along Transmission Operator boundaries and therefore the participation of affected Balancing Area is critical for a successful restoration process. In R5, the Transmission Operator is expected to resynchronize islanded Areas with neighboring areas with approval from the RC but no mention is made of the BA's participation and responsibilities in the resulting interconnection – or perhaps a new "cross-BA" island - of Balancing Areas. If the Drafting Team continues to believe that the BA should not be included at all in this version of the standard, at a minimum, the Drafting Team should consider adding a requirement to the TOP restoration plan to require that the restoration plan includes criteria for deciding when the TOP will transfer frequency control and generation/load balancing back to the Balancing Authority (i.e. when does a restoration process end and normal operation start taking back over). Even if, the BA is made an applicable entity, the Drafting team might still consider this transition to "normal" as a necessary part of the TOP restoration plan

2. The use of the term "operating procedures" used in R1.6 needs to be defined. Although the same term was used in Attachment 1 of EPO-005-1, continuing to use an ambiguous term moving forward should not be overlooked by the Drafting Team. Typically an Operating Procedure involves a specific set of actions (e.g. switching, generation dispatch, etc.). To create such detailed procedures, there needs to be some valid assumptions/criteria that the actions in the procedures are established against. Requirement R1.6, for example, requires such operating procedures for re-establishing connections for areas in the TOP's area that have become separated. Since such areas can not all be predetermined for all restoration situations that might occur, the requirement as written leaves the TOP open for always being in non-compliance since operating procedures for all perturbations of area boundaries is not feasible. Perhaps "operating procedures" needs to be more clearly defined to be less prescriptive (e.g. switching sequences) and more generic (i.e., issues to be considered such as synching locations, resulting reserves to be maintained, resulting frequency control, etc.) than is normally used for the term. In addition, the scope/wording of the 1.6 requirement

Comment Form for 1st Draft of Standards for System Restoration and Blackstart (Project 2006-03)

needs to be clarified to reflect more generic plans than might currently be interpreted from the proposed wording.

3. Requirement 3 as written implies that every five years the restoration plan is verified by the methods listed that it accomplishes its intended function. Although the items listed in R3.1-R3.3 are called out as being included in the testing, R3 does not limit the verification to these alone and would thus imply that all items in the plans should be verified - including items such as those listed in R1.6 and 1.7. From a practical standpoint it is unclear how this would reasonably be accomplished. Also, the wording of R3.2 and R3.3 makes it unclear what is to be done with the loads referred to when the simulation or testing takes place.

4. If the Balancing Authority continues to be left out of the Standards as an applicable entity during Restoration, the training required in R9 should also include TOP training in the concepts of frequency control, operating reserves, and perhaps even ACE control if reconnection to the Interconnection is performed and the BA is not involved. It is agreed that R1.8 requires the TOP to coordinate its plan with the BA but there is no requirement or obligation for the BA to take an active role in the TOP's plan. The TOP's plan may say it does everything without the BA and there is nothing in the Standards to prevent this even though it is outside the TOP role in the Functional model.

5. In Requirement 1.5 of EOP-005-2 and Requirement 1.6 of EOP-006-2 we note the use of the un-defined term "professional judgement." The drafting team might consider replacing this ambiguous term with language similar to that found in Requirement 1 of Reliability Standard TOP-001-1. While we also note Requirements 1.5 (EOP-005-2) and 1.6 (EOP-006-2) are intended for inclusion in the restoration plan, we recommend the drafting team re-consider the need for this element in the restoration plan as it is covered in the TOP-001-1 Standard.

Finally, we commend the System Restoration and Blackstart Drafting Team for its excellent work on the System Restoration and Blackstart Standards -- Project 2006-03. We appreciate the opportunity provided by the drafting team to submit comments on a matter of such importance to the industry.



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1. Attachment 1 of EOP-005-1 has been eliminated and the elements for consideration moved directly into Requirement R1 and the sub-requirements of R1 in EOP-005-2. Do you agree or have other suggestions as to how to incorporate the elements into the standards?

Yes

No

Comments:

2. The SRB SDT has removed the language for partial shutdown as part of restoration as we consider recovery from partial shutdown as normal operations. We believe that this requirement is covered in other standards and this standard only applies to those situations where you need to apply Blackstart Resources. Do you agree or have other suggestions as to how to handle partial shutdowns?

Yes

No

Comments: We would like to know in which standard(s) a partial shutdown is covered.

3. The SRB SDT has included training for generator operators and field switching personnel associated with restoration in EOP-005 in accordance with FERC Order 693. Do you agree or have other suggestions for how to supply such training?

Yes

No

Comments: FERC Order 693 assumes that switchmen and generator operators are acting independently, which is incorrect. They are always under the direction and operating authority of an entity's control room. We do not believe this additional training requirement for switchmen and generator operators is necessary as they are already trained on how to switch equipment under adverse conditions (storm restoration, loss of DC, etc.) or on how to start and synchronize a unit.

4. The SRB SDT defined a new term, Blackstart Resource, which allows for greater flexibility in providing resources for blackstart operations. Do you agree with this definition?

Comments: We agree with the definition.

5. The SRB SDT has merged the RRO requirements in EOP-007 into EOP-006 and assigned them to the Reliability Coordinator. Do you agree with this change?

Yes

No

Comments:

Comment Form for 1st Draft of Standards for System Restoration and Blackstart (Project 2006-03)

6. The SRB SDT has replaced the existing Blackstart Capability Plan (and retired the definition) with the Reliability Coordinator's requirement for a coordination element in their restoration plan. Do you agree with this approach or do you have other suggestions for how to handle this?

Yes

No

Comments:

7. If you are aware of any regional variances that would be required as a result of these standards, please identify them here.

None

8. If you are aware of any conflicts between the proposed standards and any regulatory function, rule order, tariff, rate schedule, legislative requirement or agreement, please identify them here.

None

9. If you have any other comments on the proposed standards that you haven't already provided in response to the questions above, please provide them here.

Comments:

General Comments

We would like clarification of the word annual: Does it mean every twelve months or once per calendar year?

Ample time should be given to implement the changes following BOT approval of the standards; we suggest 18 months to allow for revisions, coordination, and approval.

Comments on Standard EOP-005-2

R1 - We believe the second sentence should read "The restoration plan shall have a priority of restoring the integrity of the Interconnection in conjunction with the Reliability Coordinator" instead of "under the direction of the Reliability Coordinator" to coincide with wording in EOP-006-2 R4.

R1.2.1 - The requirement to include Blackstart Resource test dates and results in the restoration plans would require Transmission Operators to update their restoration plan as often as a Blackstart Unit is tested. We believe this creates an unnecessary amount of work to both the TO and the Reliability Coordinator, as they will have to approve or deny each revision of the plan.

R1.5 - We suggest removing this requirement because it has no substance.

R4 - We believe the requirement should be reworded to reflect that TOs should coordinate implementing their restoration plans with their RC. We suggest the following wording: "Following a Disturbance in which one or more areas of the BES shuts down and the use of Blackstart Resources is required to restore the shut down area to service, each affected Transmission Operators shall implement its restoration plan by: R4.1 Working in conjunction with its Reliability Coordinator(s) to determine the extent and condition of the isolated area(s). R4.2. Giving high priority to restoration of off-site power to nuclear stations. R4.3. Notifying its Reliability Coordinator of restoration progress as required in the Reliability Coordinator's restoration plan.

M3 - We believe the data storage requirement for this measure is excessive.

**Comment Form for 1st Draft of Standards for System Restoration and Blackstart
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Comments on Standard EOP-006-2

R1.6 - We suggest removing this requirement because it has no substance.

R2.2 - We suggest rewording the requirement to state the following as clarification:

"The Reliability Coordinator shall approve or deny the Transmission Operator's submitted restoration plan within ninety days."

R5 - We suggest rewording this requirement to the following: "The Reliability Coordinator shall authorize and coordinate re-synchronizing between isolated neighboring areas." to coincide with EOP-005-2 R5.

R6 - We suggest rewording this requirement to the following: "The Reliability Coordinator shall serve as the primary contact for disseminating information regarding restoration to neighboring Reliability Coordinators, Transmission Operators, and Balancing Authorities within its Reliability Coordinator Area."

R7 - We believe the provided training for the Reliability Coordinator should also include Restoration Priorities, Synchronizing, and Review of the restoration plan to coincide with the training for the TO in EOP-005-2 R9.

R8 - This requirement should be reworded to state that the Reliability Coordinator should request each Transmission Operator and Generator Operator participate at least every two years to make it consistent with R11 and R16 in EOP-005-2.

M3 - We believe that this measure should be reworded to the following: "Each Reliability Coordinator shall provide evidence, such as a written approval letter, that it has reviewed its Transmission Operator's submitted restoration plan(s) in accordance with Requirement R2."

M5 - "A Disturbance" in this measure should be qualified as "A Disturbance in which Blackstart Resources have been utilized in restoring the shut down area of the System to service."

M7 - "A Disturbance" in this measure should be qualified as "A Disturbance in which Blackstart Resources have been utilized in restoring the shut down area of the System to service."

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| Individual Commenter Information | | |
|--|-------------------------------------|---|
| (Complete this page for comments from one organization or individual.) | | |
| Name: | Walter E. Joly | |
| Organization: | Tennessee Valley Authority | |
| Telephone: | 423-751-6264 | |
| E-mail: | wejoly@tva.gov | |
| NERC Region (check all Regions in which your company operates) | | Registered Ballot Body Segment (check all industry segments in which your company is registered) |
| <input type="checkbox"/> ERCOT | <input checked="" type="checkbox"/> | 1 – Transmission Owners |
| <input type="checkbox"/> FRCC | <input type="checkbox"/> | 2 – RTOs and ISOs |
| <input type="checkbox"/> MRO | <input type="checkbox"/> | 3 – Load-serving Entities |
| <input type="checkbox"/> NPCC | <input type="checkbox"/> | 4 – Transmission-dependent Utilities |
| <input type="checkbox"/> RFC | <input checked="" type="checkbox"/> | 5 – Electric Generators |
| <input checked="" type="checkbox"/> SERC | <input type="checkbox"/> | 6 – Electricity Brokers, Aggregators, and Marketers |
| <input type="checkbox"/> SPP | <input type="checkbox"/> | 7 – Large Electricity End Users |
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| <input type="checkbox"/> NA – Not Applicable | <input type="checkbox"/> | 9 – Federal, State, Provincial Regulatory or other Government Entities |
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Comment Form for 1st Draft of Standards for System Restoration and Blackstart (Project 2006-03)

Background Information

The System Restoration and Blackstart Standard Drafting Team (SRB SDT) has made significant changes from the currently approved standards related to System Restoration and Blackstart. While the SRB SDT has considered the comments submitted in prior review periods during NERC's transition to the ERO and those from the SAR stage, particular attention has been given to the recommendations made in FERC Order 693.

The Elements for Consideration of Attachment 1 of EOP-005 have been transformed into sub-requirements of R1 in the standard itself. Attachment 1 is eliminated. Requirements regarding telecommunications systems have been eliminated as duplicative of requirements in COM standards. The requirements of EOP-009 – Blackstart testing – have been moved to EOP-005 and EOP-009 is eliminated. Training requirements are added for Transmission Operator field switching personnel and for operating personnel of Generator Operators with a Blackstart Resource Facility Plan (a newly defined term).

The SRB SDT has eliminated EOP-007 which delegates duties to the Regional Reliability Organization and put new requirements into ERO-006 for the Reliability Coordinator that functionally replace the Regional Reliability Organization requirements. The RRO Blackstart Capability Plan has been eliminated and the Reliability Coordinator has a requirement for a restoration plan to coordinate the Transmission Operator plans for its Reliability Coordinator Area. The Reliability Coordinator approves or makes recommendations for improvement of Transmission Operator restoration plans in its Reliability Coordinator Area.

The draft standards EOP-005-2 and EOP-006-2 should be reviewed as a set when providing comments.

Please review the standards, provide your comments on this form, and then e-mail the form to sarcomm@nerc.net by **September 28, 2007** with the words, "SRB Standards" in the subject line.

**Comment Form for 1st Draft of Standards for System Restoration and Blackstart
(Project 2006-03)**

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. Attachment 1 of EOP-005-1 has been eliminated and the elements for consideration moved directly into Requirement R1 and the sub-requirements of R1 in EOP-005-2. Do you agree or have other suggestions as to how to incorporate the elements into the standards?

Yes

No

Comments:

2. The SRB SDT has removed the language for partial shutdown as part of restoration as we consider recovery from partial shutdown as normal operations. We believe that this requirement is covered in other standards and this standard only applies to those situations where you need to apply Blackstart Resources. Do you agree or have other suggestions as to how to handle partial shutdowns?

Yes

No

Comments:

3. The SRB SDT has included training for generator operators and field switching personnel associated with restoration in EOP-005 in accordance with FERC Order 693. Do you agree or have other suggestions for how to supply such training?

Yes

No

Comments: It would be helpful to have more insight from the drafting team about the scope of training to be required. Perhaps an attachment to the standard should be added to clarify the training objectives. On initial impression, the 2/4 hr annual training requirement for Operators seems excessive. It would appear that this training should be able to be incorporated into existing operator training programs already in place.

4. The SRB SDT defined a new term, Blackstart Resource, which allows for greater flexibility in providing resources for blackstart operations. Do you agree with this definition?

Comments: Yes

5. The SRB SDT has merged the RRO requirements in EOP-007 into EOP-006 and assigned them to the Reliability Coordinator. Do you agree with this change?

Yes

No

Comments: RC should not "approve" the TOP plan. RC should review and provide technical comments to the TOP. TOP should be required to respond to RC written

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technical comments similar to the process in FAC-008-1 R2 for ratings. RC should not be a position of being liable for having "approved" the TOP plan EOP-005-2 R1 and EOP-006-2 R1 should be reworded to remove "approval".

**Comment Form for 1st Draft of Standards for System Restoration and Blackstart
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6. The SRB SDT has replaced the existing Blackstart Capability Plan (and retired the definition) with the Reliability Coordinator's requirement for a coordination element in their restoration plan. Do you agree with this approach or do you have other suggestions for how to handle this?

Yes

No

Comments:

7. If you are aware of any regional variances that would be required as a result of these standards, please identify them here.

None.

8. If you are aware of any conflicts between the proposed standards and any regulatory function, rule order, tariff, rate schedule, legislative requirement or agreement, please identify them here.

None

9. If you have any other comments on the proposed standards that you haven't already provided in response to the questions above, please provide them here.

Comments: Regarding Drills perhaps the SDT could clarify requirements for drills and what constitutes a drill. There appears to be potential inconsistency in requirements for Blackstart Resource participation in Restoration Drills once every two years while requiring Blackstart tests once every three years. In addition, requiring two Restoration Drills per year seems excessive.

1. BA's must be included in: Plan development, Training and drills, communication and coordination during restoration and connection with neighboring areas.

2. Field personnel and generation operators training requirements in this Standard appear duplicative. Field personnel switch elements under similar conditions such as storm restoration. Generator operators that test black start facilities have the operational training related to their role in restoration.



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| Individual Commenter Information | | |
|--|-------------------------------------|--|
| (Complete this page for comments from one organization or individual.) | | |
| Name: | Karl Bryan | |
| Organization: | US Army Corps of Engineers | |
| Telephone: | 503-808-3894 | |
| E-mail: | karl.a.bryan@usace.army.mil | |
| NERC Region (check all Regions in which your company operates) | | Registered Ballot Body Segment (check all industry segments in which your company is registered) |
| <input type="checkbox"/> ERCOT | <input type="checkbox"/> | 1 – Transmission Owners |
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The Elements for Consideration of Attachment 1 of EOP-005 have been transformed into sub-requirements of R1 in the standard itself. Attachment 1 is eliminated. Requirements regarding telecommunications systems have been eliminated as duplicative of requirements in COM standards. The requirements of EOP-009 – Blackstart testing – have been moved to EOP-005 and EOP-009 is eliminated. Training requirements are added for Transmission Operator field switching personnel and for operating personnel of Generator Operators with a Blackstart Resource Facility Plan (a newly defined term).

The SRB SDT has eliminated EOP-007 which delegates duties to the Regional Reliability Organization and put new requirements into ERO-006 for the Reliability Coordinator that functionally replace the Regional Reliability Organization requirements. The RRO Blackstart Capability Plan has been eliminated and the Reliability Coordinator has a requirement for a restoration plan to coordinate the Transmission Operator plans for its Reliability Coordinator Area. The Reliability Coordinator approves or makes recommendations for improvement of Transmission Operator restoration plans in its Reliability Coordinator Area.

The draft standards EOP-005-2 and EOP-006-2 should be reviewed as a set when providing comments.

Please review the standards, provide your comments on this form, and then e-mail the form to sarcomm@nerc.net by **September 28, 2007** with the words, "SRB Standards" in the subject line.

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Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

1. Attachment 1 of EOP-005-1 has been eliminated and the elements for consideration moved directly into Requirement R1 and the sub-requirements of R1 in EOP-005-2. Do you agree or have other suggestions as to how to incorporate the elements into the standards?

Yes

No

Comments:

2. The SRB SDT has removed the language for partial shutdown as part of restoration as we consider recovery from partial shutdown as normal operations. We believe that this requirement is covered in other standards and this standard only applies to those situations where you need to apply Blackstart Resources. Do you agree or have other suggestions as to how to handle partial shutdowns?

Yes

No

Comments:

3. The SRB SDT has included training for generator operators and field switching personnel associated with restoration in EOP-005 in accordance with FERC Order 693. Do you agree or have other suggestions for how to supply such training?

Yes

No

Comments: I am glad that finally there is a requirement for generator operators to be trained on black start restoration in addition to the requirement for testing of black starting of a generator. For all of the generators in my Division that are listed as black start resources, I require each operator to perform black start operations annually. I do this so that when a need arises to perform black starting, the operator on shift is fully trained in black starting a generator. The required 4 hours of training will give the operators a better idea of what the power system needs are surrounding black starting.

4. The SRB SDT defined a new term, Blackstart Resource, which allows for greater flexibility in providing resources for blackstart operations. Do you agree with this definition?

Comments: I fully agree with this term. All of my hydropower generating facilities are capable of black starting the powerhouse. This is done as part of the dam safety and flood response requirements. This does not mean all hydrogenerators can black start a transmissionline, it means that they can operate as a system generation resource during a black start event. Reconstruction of the transmission system starts with black starting lines, but having additional generation that can synch to the line will aide in how quickly large blocks of load can be picked up. So you may also want to define generation that is capable of starting or staying operational during a major system disturbance but is not

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capable of picking up the heavy reactive loads necessary to black start a transmissionline.

5. The SRB SDT has merged the RRO requirements in EOP-007 into EOP-006 and assigned them to the Reliability Coordinator. Do you agree with this change?

Yes

No

Comments: Documentation of coordination is one of the things that has been missing in previous system restoration plans.

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6. The SRB SDT has replaced the existing Blackstart Capability Plan (and retired the definition) with the Reliability Coordinator's requirement for a coordination element in their restoration plan. Do you agree with this approach or do you have other suggestions for how to handle this?

Yes

No

Comments:

7. If you are aware of any regional variances that would be required as a result of these standards, please identify them here.

8. If you are aware of any conflicts between the proposed standards and any regulatory function, rule order, tariff, rate schedule, legislative requirement or agreement, please identify them here.

Federal Entities with power or transmission assets are not allowed to take direction from non-Federal entities. This problem applies to many of the Rel Stndrds and needs to be cleared up at a legislative level in order for the Rel Stndrds to be fully complied with.

9. If you have any other comments on the proposed standards that you haven't already provided in response to the questions above, please provide them here.

Comments: I am especially pleased that generator operators now have to be coordinated with prior to listing their generators as a black start resource. In the past, it was after the fact that the generator owner was informed that their



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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) |
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**Comment Form for 1st Draft of Standards for System Restoration and Blackstart
(Project 2006-03)**

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 |
| Richard Krajewski | PNM | WECC | 10 |
| Hank LaBean | 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 |
| Bruce Fauvelle | AESO | WECC | 10 |
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*If more than one Region or Segment applies, please list all that apply. Regional acronyms and segment numbers are shown on prior page.

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Yes

No

Comments:

2. The SRB SDT has removed the language for partial shutdown as part of restoration as we consider recovery from partial shutdown as normal operations. We believe that this requirement is covered in other standards and this standard only applies to those situations where you need to apply Blackstart Resources. Do you agree or have other suggestions as to how to handle partial shutdowns?

Yes

No

Comments:

3. The SRB SDT has included training for generator operators and field switching personnel associated with restoration in EOP-005 in accordance with FERC Order 693. Do you agree or have other suggestions for how to supply such training?

Yes

No

Comments: WECC OTS agrees that including training for generator operators and field switching personnel associated with restoration complies with the intent of FERC Order 693, with states "System restoration requires the participation of not only control room personnel but also those outside of the control room. These include blackstart unit operators and field switching operators in situations where SCADA capability is unavailable. As such, the Commission believes that inclusion of periodic system restoration drills and training and review of restoration plans in a system restoration Reliability Standard is the most effective way of achieving the desired goal of ensuring that all participants are trained in system restoration and that the restoration plans are up to date to deal with system changes."

However, the training required in EOP-005-2 R10 and R15 are missing the words "where SCADA capability is unavailable". The wording in R10 and R15 are also not clear who exactly is required to be involved in this required training. The OTS recommends adding the words "where SCADA capability is unavailable" and clearly defines 'those outside of the control room' that would require training so it is not mis-interpreted and can be properly measured.

4. The SRB SDT defined a new term, Blackstart Resource, which allows for greater flexibility in providing resources for blackstart operations. Do you agree with this definition?

**Comment Form for 1st Draft of Standards for System Restoration and Blackstart
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Comments:

5. The SRB SDT has merged the RRO requirements in EOP-007 into EOP-006 and assigned them to the Reliability Coordinator. Do you agree with this change?

Yes

No

Comments: However, the OTS is unclear on the time frame for the Reliability Coordinator training and does not think it is well defined. Would this training be an annual requirement for the RC's or would the training fall on the RRO on how often they train each RC?

Comment Form for 1st Draft of Standards for System Restoration and Blackstart (Project 2006-03)

6. The SRB SDT has replaced the existing Blackstart Capability Plan (and retired the definition) with the Reliability Coordinator's requirement for a coordination element in their restoration plan. Do you agree with this approach or do you have other suggestions for how to handle this?

Yes

No

Comments:

7. If you are aware of any regional variances that would be required as a result of these standards, please identify them here.

8. If you are aware of any conflicts between the proposed standards and any regulatory function, rule order, tariff, rate schedule, legislative requirement or agreement, please identify them here.

9. If you have any other comments on the proposed standards that you haven't already provided in response to the questions above, please provide them here.

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. The OTS has several questions concerning the lack of clarity for the training requirements.

EOP-005-1 had a requirement to periodically test telecommunication facilities that are required to implement a blackstart plan. Is this covered in another Standard or has it been eliminated and is not required?

New training for personnel outside the Control Room has been identified as an annual requirement but the existing words in EOP-005 for Transmission Operator Control Room personnel and EOP-007 for Reliability Coordinators Control Room personnel does not detail the training requirement as an annual requirement. Were all the training requirements listed in the Standards meant to be an annual requirement?

EOP-005-2 R1.7 and R4.2 only lists nuclear stations for high priority of off-site power. Suggest also listing thermal stations where an area may not have nuclear resources and the Thermal stations require off site power to maintain their ability to come back on line quickly.

EOP-005-2 R.9 states each Transmission Operator shall provide training and even lists the training program topics; it does not give a time frame for this training. Is this training to be annually, if so, it should state it? Also, isn't the existing emergency operations topics training program PER-002 and wouldn't this be a duplicate criteria for the new PER-005-1 System Personnel training?

Training requirements in EOP-005-2 R.11 needs to be clearly defined for the Transmission Operator. Will this be annual training per operator or only upon request of the Reliability Coordinator?

**Comment Form for 1st Draft of Standards for System Restoration and Blackstart
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The WECC OTS finds the new System Restoration and Blackstart-Coordination Standards to be duplicating in their training requirements and not well defined in the time frames for this training. 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.

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| 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) |
| | | 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 |

Background Information

The System Restoration and Blackstart Standard Drafting Team (SRB SDT) has made significant changes from the currently approved standards related to System Restoration and Blackstart. While the SRB SDT has considered the comments submitted in prior review periods during NERC's transition to the ERO and those from the SAR stage, particular attention has been given to the recommendations made in FERC Order 693.

The Elements for Consideration of Attachment 1 of EOP-005 have been transformed into sub-requirements of R1 in the standard itself. Attachment 1 is eliminated. Requirements regarding telecommunications systems have been eliminated as duplicative of requirements in COM standards. The requirements of EOP-009 – Blackstart testing – have been moved to EOP-005 and EOP-009 is eliminated. Training requirements are added for Transmission Operator field switching personnel and for operating personnel of Generator Operators with a Blackstart Resource Facility Plan (a newly defined term).

The SRB SDT has eliminated EOP-007 which delegates duties to the Regional Reliability Organization and put new requirements into ERO-006 for the Reliability Coordinator that functionally replace the Regional Reliability Organization requirements. The RRO Blackstart Capability Plan has been eliminated and the Reliability Coordinator has a requirement for a restoration plan to coordinate the Transmission Operator plans for its Reliability Coordinator Area. The Reliability Coordinator approves or makes recommendations for improvement of Transmission Operator restoration plans in its Reliability Coordinator Area.

The draft standards EOP-005-2 and EOP-006-2 should be reviewed as a set when providing comments.

Please review the standards, provide your comments on this form, and then e-mail the form to sarcomm@nerc.net by **September 28, 2007** with the words, "SRB Standards" in the subject line.

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. Attachment 1 of EOP-005-1 has been eliminated and the elements for consideration moved directly into Requirement R1 and the sub-requirements of R1 in EOP-005-2. Do you agree or have other suggestions as to how to incorporate the elements into the standards?

Yes

No

Comments: While the WECC RCCWG has no problem with moving attachment 1 into the standard, we have concerns with R1 which states:

“Each Transmission Operator shall have a restoration plan approved by its Reliability Coordinator to restore its System to its normal state following an event that requires the utilization of Blackstart Resources. The restoration plan shall have a priority of restoring the integrity of the Interconnection under the direction of the Reliability Coordinator.”

The group questions what the criteria for “approval” by the RC are. If situations are encountered during a restoration event that are not covered in the restoration plan, are the RC and TOP in violation of the standard?

The WECC RCCWG request clarification of the phrase “normal state”. Does this refer to interconnected operation? If a TOP has a single tie and that tie experiences damage that will require a year to repair are the RC and TOP in violation of the standard?

The WECC RCCWG agrees that RC and TOP need restoration plans, but believes the plans cannot be drafted to cover every possible scenario.

The WECC RCCWG believes that the phrase “under the direction of the Reliability Coordinator should be removed. The Reliability Coordinator coordinates with the TOP, but does not direct the TOP what specific steps need to be taken. The Reliability Coordinator needs to allow the Transmission Operator to direct his own portion of a restoration. When there are islands to be synchronized, or reconnected to the interconnection, the Reliability Coordinator is in a position to “direct” (approve) action. Otherwise, the Reliability Coordinator should be coordinating with Transmission Operators.

2. The SRB SDT has removed the language for partial shutdown as part of restoration as we consider recovery from partial shutdown as normal operations. We believe that this requirement is covered in other standards and this standard only applies to those situations where you need to apply Blackstart Resources. Do you agree or have other suggestions as to how to handle partial shutdowns?

Yes

No

Comments:

3. The SRB SDT has included training for generator operators and field switching personnel associated with restoration in EOP-005 in accordance with FERC Order 693. Do you agree or have other suggestions for how to supply such training?

Yes

No

Comments: Training should be addressed in the PER standards. In addition to that comment, the WECC RCCWG feels that a standard that is applicable to Reliability Coordinators only is not the place for training requirements for generator operators and field switching personnel. Training for all switchmen is confusing as the term switchmen is not defined and varies by locality.

4. The SRB SDT defined a new term, Blackstart Resource, which allows for greater flexibility in providing resources for blackstart operations. Do you agree with this definition?

Comments: We suggest you remove the words "under the control of the Generator Operator" from the definition, leaving the definition "A generation Facility and set of equipment with the basic ability to start itself without support from the System or to automatically remain energized without connection to the remainder of the System, with the ability to energize a dead bus, and meeting the Transmission Operator's restoration plan needs for real and reactive power capability."

5. The SRB SDT has merged the RRO requirements in EOP-007 into EOP-006 and assigned them to the Reliability Coordinator. Do you agree with this change?

Yes

No

Comments:

•

6. The SRB SDT has replaced the existing Blackstart Capability Plan (and retired the definition) with the Reliability Coordinator's requirement for a coordination element in their restoration plan. Do you agree with this approach or do you have other suggestions for how to handle this?

Yes

No

Comments:

7. If you are aware of any regional variances that would be required as a result of these standards, please identify them here.

• No

•

8. If you are aware of any conflicts between the proposed standards and any

regulatory function, rule order, tariff, rate schedule, legislative requirement or agreement, please identify them here.

- There are no conflicts that we are aware of.
 -
9. If you have any other comments on the proposed standards that you haven't already provided in response to the questions above, please provide them here.

Comments: R1.6 requires "A statement indicating that in situations where the actual conditions do not match the studied conditions, the System Operator shall use professional judgment to modify the System restoration plan." This standard is only applicable to the Reliability Coordinator. The WECC RCCWG requests removal of requirements for other entities.

The WECC RCCWG believes that R2 needs to state criteria for approval or disapproval of Transmission Operator restoration plans. The WECC RCCWG believes that a 2009/2010 implementation to meet this requirement and the coordination requirement in R1 will allow the necessary time to budgeting additional staff required.

R2.2: The TOP should not be required to certify annually to the RC that the plan has been reviewed. This should be done through the ERO self certification process.

The WECC RCCWG believes that R2.2 should be increased from 30 days to 60 days.

The WECC RCCWG believes that R6 should be reworded to indicate that "The Reliability Coordinator shall serve as the primary contact for disseminating information regarding restoration to those parties not immediately involved in the restoration process. The Reliability Coordinator should not be placed in a position to interfere with, or be placed as another communication link to, direct communication between entities immediately involved.

The WECC RCCWG requests clarification of the phrase "control room personnel" in R7. Who does that term refer to? As this standard is applicable to the Reliability Coordinator, we suggest changing that wording to "Reliability Coordinator identified in the restoration plan". Furthermore, this training requirement should be moved to a PER standard, such as PER-005-R3.

R8 would require two System restoration drills, exercises, or simulations per year. The WECC RCCWG feels a requirement for one such drill, exercise, or simulation per year is sufficient, while two is excessive. The WECC RCCWG feels that this training requirement should be part of PER-005-R3 and should not be part of this standard, which is not a training standard.

R15.3. Restoration priorities. It is not clear who determines priorities.

Comment Form for 1st Draft of Standards for System Restoration and Blackstart (Project 2006-03)

Please use this form to submit comments on the 1st draft of the standards for System Restoration and Blackstart (Project 2006-03). Comments must be submitted by **September 28, 2007**. Please submit the completed form by e-mail to sarcomm@nerc.net with the words "SRB Standards" in the subject line. If you have questions please contact Ed Dobrowolski at Ed.Dobrowolski@nerc.net or by telephone at 609-947-3673.

| 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) |
| <input type="checkbox"/> ERCOT | <input type="checkbox"/> | 1 – Transmission Owners |
| <input type="checkbox"/> FRCC | <input type="checkbox"/> | 2 – RTOs and ISOs |
| <input type="checkbox"/> MRO | <input checked="" type="checkbox"/> | 3 – Load-serving Entities |
| <input type="checkbox"/> NPCC | <input checked="" type="checkbox"/> | 4 – Transmission-dependent Utilities |
| <input checked="" type="checkbox"/> RFC | <input checked="" type="checkbox"/> | 5 – Electric Generators |
| <input type="checkbox"/> SERC | <input type="checkbox"/> | 6 – Electricity Brokers, Aggregators, and Marketers |
| <input type="checkbox"/> SPP | <input type="checkbox"/> | 7 – Large Electricity End Users |
| <input type="checkbox"/> WECC | <input type="checkbox"/> | 8 – Small Electricity End Users |
| <input type="checkbox"/> NA – Not Applicable | <input type="checkbox"/> | 9 – Federal, State, Provincial Regulatory or other Government Entities |
| | <input type="checkbox"/> | 10 – Regional Reliability Organizations and Regional Entities |

Comment Form for 1st Draft of Standards for System Restoration and Blackstart (Project 2006-03)

Background Information

The System Restoration and Blackstart Standard Drafting Team (SRB SDT) has made significant changes from the currently approved standards related to System Restoration and Blackstart. While the SRB SDT has considered the comments submitted in prior review periods during NERC's transition to the ERO and those from the SAR stage, particular attention has been given to the recommendations made in FERC Order 693.

The Elements for Consideration of Attachment 1 of EOP-005 have been transformed into sub-requirements of R1 in the standard itself. Attachment 1 is eliminated. Requirements regarding telecommunications systems have been eliminated as duplicative of requirements in COM standards. The requirements of EOP-009 – Blackstart testing – have been moved to EOP-005 and EOP-009 is eliminated. Training requirements are added for Transmission Operator field switching personnel and for operating personnel of Generator Operators with a Blackstart Resource Facility Plan (a newly defined term).

The SRB SDT has eliminated EOP-007 which delegates duties to the Regional Reliability Organization and put new requirements into ERO-006 for the Reliability Coordinator that functionally replace the Regional Reliability Organization requirements. The RRO Blackstart Capability Plan has been eliminated and the Reliability Coordinator has a requirement for a restoration plan to coordinate the Transmission Operator plans for its Reliability Coordinator Area. The Reliability Coordinator approves or makes recommendations for improvement of Transmission Operator restoration plans in its Reliability Coordinator Area.

The draft standards EOP-005-2 and EOP-006-2 should be reviewed as a set when providing comments.

Please review the standards, provide your comments on this form, and then e-mail the form to sarcomm@nerc.net by **September 28, 2007** with the words, "SRB Standards" in the subject line.

**Comment Form for 1st Draft of Standards for System Restoration and Blackstart
(Project 2006-03)**

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. Attachment 1 of EOP-005-1 has been eliminated and the elements for consideration moved directly into Requirement R1 and the sub-requirements of R1 in EOP-005-2. Do you agree or have other suggestions as to how to incorporate the elements into the standards?

Yes

No

Comments:

2. The SRB SDT has removed the language for partial shutdown as part of restoration as we consider recovery from partial shutdown as normal operations. We believe that this requirement is covered in other standards and this standard only applies to those situations where you need to apply Blackstart Resources. Do you agree or have other suggestions as to how to handle partial shutdowns?

Yes

No

Comments: The major impetus for restructuring the entire industry, especially from the regulatory perspective, is the partial shutdown that occurred on August 14, 2003. Anyone participating in that restoration effort would likely not describe the efforts as normal operations. Suggest that the term restoration apply any time resynchronizing is required to restore the interconnected system to whole.

3. The SRB SDT has included training for generator operators and field switching personnel associated with restoration in EOP-005 in accordance with FERC Order 693. Do you agree or have other suggestions for how to supply such training?

Yes

No

Comments: We disagree with the training requirements for field switching personnel and Generator Operators.

For the field switching, there is no value added by requiring the training. Field personnel routinely switch under adverse conditions related to storm recovery and equipment damage.

The GO is the entity testing units for Black Start capability for compliance to NERC and Regional Entity Standards. The training required in the proposed standards is redundant. The GO does not determine restoration philosophy. Restoration priorities are not the purview of the GO.

4. The SRB SDT defined a new term, Blackstart Resource, which allows for greater flexibility in providing resources for blackstart operations. Do you agree with this definition?

**Comment Form for 1st Draft of Standards for System Restoration and Blackstart
(Project 2006-03)**

Comments:

5. The SRB SDT has merged the RRO requirements in EOP-007 into EOP-006 and assigned them to the Reliability Coordinator. Do you agree with this change?

Yes

No

Comments:

**Comment Form for 1st Draft of Standards for System Restoration and Blackstart
(Project 2006-03)**

6. The SRB SDT has replaced the existing Blackstart Capability Plan (and retired the definition) with the Reliability Coordinator's requirement for a coordination element in their restoration plan. Do you agree with this approach or do you have other suggestions for how to handle this?

Yes

No

Comments:

7. If you are aware of any regional variances that would be required as a result of these standards, please identify them here.

8. If you are aware of any conflicts between the proposed standards and any regulatory function, rule order, tariff, rate schedule, legislative requirement or agreement, please identify them here.

9. If you have any other comments on the proposed standards that you haven't already provided in response to the questions above, please provide them here.

Comments: The standards appear to be drafted from the perspective of a vertically integrated utility, not in terms of the NERC functional model entities. The conspicuous absence of the NERC functional entity "Balancing Authority" in both EOP-005-2 and EOP-006-2 produces doubt as to the value of the standards. The BA should be intimately involved in all aspects of the system restoration plan and the execution thereof.

The argument that the BA role is prescribed for all operating conditions in the Balancing Authority standards is fallacious. Below are extracts from BAL-001 through BAL-006 with comments regarding the applicability during the restoration process.

A. Introduction

1. Title: Real Power Balancing Control Performance

2. Number: BAL-001-0

3. Purpose: To maintain Interconnection steady-state frequency within defined limits by balancing real power demand and supply in real-time.

4. Applicability:

4.1. Balancing Authorities

5. Effective Date: April 1, 2005

The purview of BAL-001 is limited to interconnection steady state frequency, and does not pertain to island frequency during system restoration efforts. During island scenarios ACE is irrelevant as are the control performance criteria – the frequencies of the various islands will not be equal and there will be no scheduled interchange.

EOP-005 R1.4 requires identification of acceptable operating frequency limits during restoration efforts. R3.3 further requires that frequency be controlled within dynamic limits documented in R1.4. Since BAL-001 does not apply to restoration scenarios, and the Balancing Authority is responsible for maintaining frequency, the NERC functional entity "Balancing Authority" should be included in the EOP-005-2 standard.

Comment Form for 1st Draft of Standards for System Restoration and Blackstart (Project 2006-03)

A. Introduction

1. Title: Disturbance Control Performance
2. Number: BAL-002-0
3. Purpose:

The purpose of the Disturbance Control Standard (DCS) is to ensure the Balancing Authority is able to utilize its Contingency Reserve to balance resources and demand and return Interconnection frequency within defined limits following a Reportable Disturbance. Because generator failures are far more common than significant losses of load and because Contingency Reserve activation does not typically apply to the loss of load, the application of DCS is limited to the loss of supply and does not apply to the loss of load.

4. Applicability:

- 4.1. Balancing Authorities
- 4.2. Reserve Sharing Groups (Balancing Authorities may meet the requirements of Standard 002 through participation in a Reserve Sharing Group.)
- 4.3. Regional Reliability Organizations
5. Effective Date: April 1, 2005

Again, interconnection frequency has no meaning in an island scenario.

A. Introduction

1. Title: Frequency Response and Bias
2. Number: BAL-003-0
3. Purpose:

This standard provides a consistent method for calculating the Frequency Bias component of ACE.

4. Applicability:

- 4.1. Balancing Authorities
5. Effective Date: April 1, 2005

During island scenarios, ACE is irrelevant.

A. Introduction

1. Title: Time Error Correction
2. Number: BAL-004-0
3. Purpose:

The purpose of this standard is to ensure that Time Error Corrections are conducted in a manner that does not adversely affect the reliability of the Interconnection.

4. Applicability:

- 4.1. Reliability Coordinators
- 4.2. Balancing Authorities
5. Effective Date: April 1, 2005

No RC will initiate a Time Error Correction during island scenarios.

A. Introduction

1. Title: Automatic Generation Control
2. Number: BAL-005-0
3. Purpose:

Comment Form for 1st Draft of Standards for System Restoration and Blackstart (Project 2006-03)

This standard establishes requirements for Balancing Authority Automatic Generation Control

(AGC) necessary to calculate Area Control Error (ACE) and to routinely deploy the Regulating Reserve. The standard also ensures that all facilities and load electrically synchronized to the Interconnection are included within the metered boundary of a Balancing

Area so that balancing of resources and demand can be achieved.

4. Applicability:

4.1. Balancing Authorities

4.2. Generator Operators

4.3. Transmission Operators

4.4. Load Serving Entities

5. Effective Date: April 1, 2005

AGC will be useless until system conditions are near to normal interconnection status.

A. Introduction

1. Title: Inadvertent Interchange

2. Number: BAL-006-1

3. Purpose:

This standard defines a process for monitoring Balancing Authorities to ensure that, over the

long term, Balancing Authority Areas do not excessively depend on other Balancing Authority

Areas in the Interconnection for meeting their demand or Interchange obligations.

4. Applicability:

4.1. Balancing Authorities.

5. Effective Date: May 1, 2006

There will be no inadvertent flows out from or into an island.

In summary, the existing NERC Balancing Authority Standards BAL-001 through BAL-006 do not apply during system restoration efforts. Further, the proposed standards EOP-005-2 and EOP-006-2 do not address the operations of the Balancing Authority during system restoration events.

Comments specific to EOP-005

No training is specified for the BA system operators. The system restoration scenario is very unique and challenging in terms of balancing resources to load. Load behavior will be very dynamic – cold load pick up and loss of diversity will be significant factors during the restoration process. Since the BA is ultimately responsible for balancing under all conditions, it is imperative for the BA to be involved in the training for restoration and the implementation during an event.

The LSE has no involvement here. I see some value including the LSE in terms of load used as a tool. What load profiles are expected? What impact does that have on the generation and island frequency?

R1.4 – Specifies voltage and frequency limits. Without the BA involvement, how do you control frequency? Who determines the frequency limits? The BAL Standards apply for normal operations with bias control, but system restoration scenarios are totally different.

R3.3 – What is meant by Dynamic Limits? During system restoration is stability in the usual sense attainable?

**Comment Form for 1st Draft of Standards for System Restoration and Blackstart
(Project 2006-03)**

R10 – Why the 2 hour training requirement for “all field personnel?” Not sure there is any added value here. And if there is a training requirement, should it be in the Personnel Standards?

R15 – Is this a GO item? The GO does not determine restoration philosophy. Restoration priorities are not the purview of the GO. Who sponsors this training? What qualifies as acceptable?

EOP-006

R4 – Sounds good up to the part stating “. . . and take actions to restore the Bulk Electric System frequency to normal. Such actions would consider but not be limited to: adjusting generation, placing generation on line, or shedding load.” I suspect that the RC will not have sufficient infrastructure to monitor frequencies in each island that could potentially form, much less track and react to the information. Based on the exercises conducted with our TO, it will be a significant chore for the system control operators building the islands to maintain frequency and voltage to specified bounds within that island. Once there is a “Bulk Electric System frequency,” then the RC might be more active.

The list of actions should include opening circuits to save part of the “interconnect” in the event flows dictate.

R5 – Need to bring the BA function in here (the standard is applicable only to the RC). This will be particularly important if there is more than a single BA involved. Tie line flow control will dictate whether AGC control is desirable.

Consideration of Comments on 1st Draft of System Restoration and Blackstart Standard (Project 2006-03)

The System Restoration and Blackstart Standard Drafting Team thanks all commenters who submitted comments on the first draft of the standards. These standards were posted for a 45-day public comment period from August 15 through September 28, 2007. The requesters asked stakeholders to provide feedback on the standard through a special Comment Form. There were 46 sets of comments, including comments from more than 140 different people from more than 60 companies representing 9 of the 10 Industry Segments as shown in the table on the following pages.

Based on the volume of comments received and the subsequent changes made to the standards, the drafting team is recommending that the standards be put out for a second round of comments.

Industry comments in some areas disputed the position of the SDT for the draft requirements. In some instances, the SDT has accepted these comments and made changes to the draft requirements to reflect these changes. (See the red-lined EOP-005-2: Definitions, Title, Purpose, Requirements: R1, R2, R3, R4, R9, R10, R13, R14, R15, R16, and R17 plus the required changes in the Measures to accommodate the requirements changes. See the red-lined EOP-006-2: Definitions, Title, and Purpose, Requirements: R1, R2, R3, R4, R6, R7, R8, R9, and R10 plus the required changes in the Measures to accommodate the requirements changes.) However, in other areas, the SDT has not made changes requested by the industry and has provided explanations as to why the requested changes were not made. These items included:

- Applicability of the BA
 - The SDT considered these comments but believes that the BA does not have an “applicability” role in the TOP restoration plan or its implementation. Beginning with the system collapse, the TOP restores the Transmission System, restores Interconnections, and supplies off-site power to nuclear generating stations. This is accomplished on a command and control basis by the Transmission Operator in conjunction with the GOP. Once Interconnections have been reestablished and the Transmission System restored, the restoration of firm Load can begin. The TOP is restoring the System through command and control until a sufficient System has been built where frequency is under control.
- Moving training to the PER standards
 - FERC Order 693 mandates that restoration training be included in the blackstart standards. “The Commission believes that inclusion of periodic system restoration drills and training and review of restoration plans in a system restoration Reliability Standard is the most effective way of achieving the desired goal of ensuring that all participants are trained in system restoration and that the restoration plans are up to date to deal with system changes.”
- Approval process by the RC
 - RC review and approval of the plan is not an issue of compliance but of coordination and workability with the RC’s restoration plan. The SDT believes that this gives input to the RC in the development of plans such that the various TOP plans are coordinated with the RC’s plan. In FERC Order 693, “the Commission directs the ERO to develop a modification to EOP-006-1 through the Reliability Standards development process that ensures that the reliability coordinator, which is the highest level of authority responsible for reliability of the Bulk-Power System, is involved in the development and approval of system

Consideration of Comments on 2nd Draft of System Restoration and Blackstart Standard (Project 2006-03)

- restoration plans.” The SDT believes that the process described in EOP-005-2 and EOP-006-2 meets the Commission directive.
- Removal of restoration from partial shutdown from these standards
 - The SDT believes that partial shutdowns are already covered by other standards including TOP-001, TOP-004, and EOP-001.
 - Training of field switching personnel and Generator Operators
 - In FERC Order 693, FERC determined that “System restoration requires the participation of not only control room personnel but also those outside of the control room. These include blackstart unit operators and field switching operators in situations where SCADA capability is unavailable.”
 - If the TOP’s restoration plan has field switching tasks unique to system restoration that are not included in normal operations, then training shall be required.

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_Restoration_Blackstart.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>.

Consideration of Comments on 2nd Draft of System Restoration and Blackstart Standard (Project 2006-03)

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. | Dan Boezio (G16) | AEP | ✓ | | | | | | | | | | | |
| 2. | Anita Lee (G8) | AESO | | ✓ | | | | | | | | | | |
| 3. | Bruce Fauvelle (G13) | AESO | | ✓ | | | | | | | | | | |
| 4. | Ken Goldsmith (G10) | ALTW | | | | | | | | | | | | |
| 5. | Jeffrey V. Hackman | Ameren | ✓ | | ✓ | | ✓ | ✓ | | | | | | |
| 6. | Eugene Warnecke (G15) | Ameren | ✓ | | | | | | | | | | | |
| 7. | Thad K. Ness | American Electric Power (AEP) | ✓ | | | | ✓ | ✓ | | | | | | |
| 8. | Jason Shaver | American Transmission Co. (ATC) | ✓ | | | | | | | | | | | |
| 9. | Warren Maxvill (G13) | AVA | | | | | | | | | | | | |
| 10. | Rod Byrnell (G13) | BCTC | | ✓ | | | | | | | | | | |
| 11. | Dave Rudolph (G10) | BEPC | | | | | | | | | | | | ✓ |
| 12. | Chris Bradley (G15) | Big Rivers Electric Corp. | ✓ | | | | | | | | | | | |
| 13. | Brian Tuck (G13) | BPA | ✓ | | | | | | | | | | | |
| 14. | Thomas Fung | British Columbia TC (BCTC) | | ✓ | | | | | | | | | | |
| 15. | Brent Kingsford (G8) | CAISO | | ✓ | | | | | | | | | | |
| 16. | Eric Hudson (G13) | CAISO | | ✓ | | | | | | | | | | |
| 17. | John Jonte | CenterPoint Energy | ✓ | | | | | | | | | | | |
| 18. | Alan Gale (G7) | City of Tallahassee | | | | | ✓ | | | | | | | |
| 19. | Paul Bleuss (G3) | CMRC | | | | | | | | | | | | |
| 20. | Greg Tillitson (G3) | CMRC | | | | | | | | | | | | |
| 21. | Edwin Thompson (G11) | Con Edison | ✓ | | | | | | | | | | | |

Consideration of Comments on 2nd Draft of System Restoration and Blackstart Standard (Project 2006-03)

| Commenter | | Organization | Industry Segment | | | | | | | | | | | |
|-----------|---------------------------|--------------------------------------|------------------|---|---|---|---|---|---|---|---|----|--|---|
| | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | | |
| 22. | Charles L. Bunnell | Consumers Energy | | | ✓ | ✓ | ✓ | | | | | | | |
| 23. | Vic Davis (G4) | Delmarva | ✓ | | | | | | | | | | | |
| 24. | Phillip Vavala (G4) | Delmarva | ✓ | | | | | | | | | | | |
| 25. | Jack Kerr | Dominion Virginia Power | | | | | | | | | | | | |
| 26. | Hank LaBean (G13) | DOPD | | | | | | | | | | | | |
| 27. | Greg Rowland | Duke Energy | ✓ | | ✓ | | ✓ | | | | | | | |
| 28. | Gregory Mason (G15) | Dynegy | | | | | ✓ | | | | | | | |
| 29. | Brian Berkstresser (G16) | EDE | ✓ | | | | | | | | | | | |
| 30. | John Bonner (G11) | Entergy Nuclear | | | ✓ | | | | | | | | | |
| 31. | Edward J. Davis | Entergy Services, Inc. | ✓ | | | | | | | | | | | |
| 32. | Will Franklin | Entergy Services, Inc. (Gen. & Mkt.) | | | | | | ✓ | | | | | | |
| 33. | Steve Myers (G8) | ERCOT | | ✓ | | | | | | | | | | ✓ |
| 34. | Doug Hohlbaugh (G5) | FirstEnergy Corp. | ✓ | | ✓ | | ✓ | ✓ | | | | | | |
| 35. | Sam Ciccone (G5) | FirstEnergy Corp. | ✓ | | | | | | | | | | | |
| 36. | Dave Folk (G5) | FirstEnergy Corp. | ✓ | | | | | | | | | | | |
| 37. | John Reed (G5) | FirstEnergy Corp. | ✓ | | | | | | | | | | | |
| 38. | John Martinez (G5) | FirstEnergy Corp. | ✓ | | | | | | | | | | | |
| 39. | Jerry Sanicky (G5) | FirstEnergy Corp. | ✓ | | | | | | | | | | | |
| 40. | Ken Dresner (G5) | FirstEnergy Corp. – Fossil | | | | | ✓ | | | | | | | |
| 41. | Jeff Gooding (G6) | Florida Power & Light Co. | ✓ | | | | | | | | | | | |
| 42. | Marty Mennes (G6) | Florida Power & Light Co. | ✓ | | | | | | | | | | | |
| 43. | Pedro Modia (G6) | Florida Power & Light Co. | ✓ | | | | | | | | | | | |
| 44. | Frank Prieto (G6) | Florida Power & Light Co. | ✓ | | | | | | | | | | | |
| 45. | Eric Senkowicz (G7) | FRCC | | | | | | | | | | | | ✓ |
| 46. | Mark Bennett (G7) | Gainesville Regional Utilities | | | | | ✓ | | | | | | | |
| 47. | Paul Turner (G15) | Georgia System Operations Corp. | | | ✓ | | | | | | | | | |
| 48. | Joe Knight (G9) (G10) | Great River Energy | | | | | | | | | | | | ✓ |
| 49. | David Kiguel (G11) | Hydro One Networks | ✓ | | | | | | | | | | | |
| 50. | Roger Champagne (I) (G11) | Hydro-Québec/TransÉnergie (HQT) | ✓ | | | | | | | | | | | |

Consideration of Comments on 2nd Draft of System Restoration and Blackstart Standard (Project 2006-03)

| Commenter | | Organization | Industry Segment | | | | | | | | | | | |
|-----------|-----------------------------|-----------------------------------|------------------|---|---|---|---|---|---|---|---|----|--|---|
| | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | | |
| 51. | Ron Falsetti (I) (G8) (G11) | IESO | | ✓ | | | | | | | | | | |
| 52. | Matt Goldberg (G8) | ISO New England | | ✓ | | | | | | | | | | |
| 53. | Kathleen Goodman (G11) | ISO New England | | ✓ | | | | | | | | | | |
| 54. | Jim Cyrulewski (G9) | JDRJC Associates | | | | | | | | | ✓ | | | |
| 55. | Michael Gammon (I) (G17) | Kansas City Power & Light | ✓ | | | | | | | | | | | |
| 56. | Eric Ruskamp (G10) | LES | | | | | | | | | | | | ✓ |
| 57. | Don Nelson (G11) | MA Department of Public Utilities | | | | | | | | | | ✓ | | |
| 58. | Joseph DePoorter (I) (G9) | Madison Gas and Electric | | | | ✓ | | | | | | | | |
| 59. | Doug Rempel | Manitoba Hydro | ✓ | | ✓ | | ✓ | ✓ | | | | | | |
| 60. | Robert Coish (G10) | Manitoba Hydro | ✓ | | ✓ | | ✓ | ✓ | | | | | | |
| 61. | Tom Mielnik (G10) | MEC | | | | | | | | | | | | |
| 62. | Jason L. Marshall (G9) | Midwest ISO Stakeholders | | ✓ | | | | | | | | | | |
| 63. | Michael Brytowski (G10) | Midwest Reliability Organization | | | | | | | | | | | | ✓ |
| 64. | Bill Phillips (G8) | MISO | | ✓ | | | | | | | | | | |
| 65. | Terry Bilke (G10) | MISO | | | | | | | | | | | | ✓ |
| 66. | Carol Gerou (G10) | MP | | | | | | | | | | | | ✓ |
| 67. | Michael Schiavone | National Grid | ✓ | | | | | | | | | | | |
| 68. | Mike Rinnali (G11) | National Grid | ✓ | | | | | | | | | | | |
| 69. | Alden Briggs | New Brunswick System Operator | | ✓ | | | | | | | | | | |
| 70. | Randy MacDonald (G11) | New Brunswick System Operator | | ✓ | | | | | | | | | | |
| 71. | James Castle | New York ISO | | ✓ | | | | | | | | | | |
| 72. | Greg Campoli (G8) | New York ISO | | ✓ | | | | | | | | | | |
| 73. | Ralph Rufrano (G11) | New York Power Authority | ✓ | | | | | | | | | | | |
| 74. | Joe O'Brien | NIPSCO | ✓ | | ✓ | | | ✓ | | | | | | |
| 75. | Murale Gopinathan (G11) | Northeast Utilities | ✓ | | | | | | | | | | | |
| 76. | Reza Rizvi (G11) | NPCC | | | | | | | | | | | | ✓ |
| 77. | Guy V. Zito (G11) | NPCC | | | | | | | | | | | | ✓ |
| 78. | Al Adamson (G11) | NY State Reliability Council | | | | | | | | | | | | ✓ |
| 79. | George Brady | Ohio Valley Electric | ✓ | | | | | | | | | | | |

Consideration of Comments on 2nd Draft of System Restoration and Blackstart Standard (Project 2006-03)

| | Commenter | Organization | Industry Segment | | | | | | | | | | | |
|------|-------------------------|-----------------------------------|------------------|---|---|---|---|---|---|---|---|----|---|---|
| | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | | |
| | (G12) | Corp. | | | | | | | | | | | | |
| 80. | Scott Cummingham (G12) | Ohio Valley Electric Corp. | ✓ | | | | | | | | | | | |
| 81. | Robert Matthey (G12) | Ohio Valley Electric Corp. | ✓ | | | | | | | | | | | |
| 82. | Pete Kubeck (G16) | OKE&G | ✓ | | | | | | | | | | | |
| 83. | Brian Gooder (I) (G11) | Ontario Power Generation Inc. | | | | | | ✓ | | | | | | |
| 84. | Aaron Smith | Omaha Public Power District | ✓ | | ✓ | | | ✓ | ✓ | | | | | |
| 85. | Richard Kinas (G7) | Orlando Utilities Commission | ✓ | | | | | | | | | | | |
| 86. | Ron Verraneault (G13) | PAC | | | | | | | | | | | | |
| 87. | David Thorne (G4) | Pepco Holdings, Inc. – Affiliates | ✓ | | | | | | | | | | | |
| 88. | Kris Buchholz | PG&E (1) | ✓ | | | | | | | | | | | |
| 89. | Lauri Jones | PG&E (2) | | | | | | | | | | | | |
| 90. | Alicia Daugherty (G8) | PJM | | ✓ | | | | | | | | | | |
| 91. | Richard Krajewski (G13) | PNM | | | | | | | | | | | | |
| 92. | Dick Schwarz (G13) | PNSC | | | | | | | | | | | | |
| 93. | Rick Brock (G13) | PSC | | | | | | | | | | | ✓ | |
| 94. | Gary Campbell | ReliabilityFirst Corp. (1) | | | | | | | | | | | | ✓ |
| 95. | Glenn Kaht | ReliabilityFirst Corp. (2) | | | | | | | | | | | | |
| 96. | Thomas J. Bradish (G1) | Reliant Energy | | | | | | ✓ | | | | | | |
| 97. | Mike Gentry | Salt River Project | ✓ | | ✓ | | | ✓ | ✓ | | | | | |
| 98. | Mike Pfeister | Salt River Project | ✓ | | ✓ | | | ✓ | ✓ | | | | | |
| 99. | Mike Gentry (G3) | Salt River Project | | | | | | | | | | | | |
| 100. | Scott Peterson | San Diego Gas & Electric Co. | ✓ | | ✓ | | | | | | | | | |
| 101. | Terry Blackwell (G1) | Santee Cooper | ✓ | | | | | | | | | | | |
| 102. | Tom Abrams (G1) | Santee Cooper | ✓ | | | | | | | | | | | |
| 103. | Glenn Stephens (G1) | Santee Cooper | ✓ | | | | | | | | | | | |
| 104. | Rene' Free (G1) | Santee Cooper | ✓ | | | | | | | | | | | |
| 105. | Kristi Boland (G1) | Santee Cooper | ✓ | | | | | | | | | | | |
| 106. | Jim Peterson (G1) | Santee Cooper | ✓ | | | | | | | | | | | |
| 107. | Wayne Ahl (G1) | Santee Cooper | ✓ | | | | | | | | | | | |
| 108. | William Gaither | SC Public Service | ✓ | | | | | | | | | | | |

Consideration of Comments on 2nd Draft of System Restoration and Blackstart Standard (Project 2006-03)

| | Commenter | Organization | Industry Segment | | | | | | | | | | | |
|------|-----------------------|-----------------------------------|------------------|---|---|---|---|---|---|---|---|----|--|---|
| | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | | |
| | (G15) | Authority | | | | | | | | | | | | |
| 109. | George Noller (G13) | SCE | ✓ | | | | | | | | | | | |
| 110. | Pat Huntley (G15) | SERC | | | | | | | | | | | | ✓ |
| 111. | John Troha (G15) | SERC | | | | | | | | | | | | ✓ |
| 112. | Jon Crook (G13) | SMUD | ✓ | | | | | | | | | | | |
| 113. | Al McMeekin (G15) | South Carolina Electric & Gas Co. | ✓ | | ✓ | | | ✓ | | | | | | |
| 114. | Marc Butts (G16) | Southern Company Services | ✓ | | | | | | | | | | | |
| 115. | Roman Carter (G16) | Southern Company Services | ✓ | | | | | | | | | | | |
| 116. | Jim Busbin (G16) | Southern Company Services | ✓ | | | | | | | | | | | |
| 117. | J. T. Wood (G16) | Southern Company Services | ✓ | | | | | | | | | | | |
| 118. | Tom Higgins (G16) | Southern Company Services | | | | | | ✓ | | | | | | |
| 119. | Mike Oats (G16) | Southern Company Services | | | | | | ✓ | | | | | | |
| 120. | John Ciza (G16) | Southern Company Services | | | | | | | ✓ | | | | | |
| 121. | Roger Green (G16) | Southern Company Services | | | | | | ✓ | | | | | | |
| 122. | Doug McLaughlin (G15) | Southern Company Services, Inc. | ✓ | | | | | | | | | | | |
| 123. | Charles Yeung (G8) | Southwest Power Pool | | | | | | | | | | | | ✓ |
| 124. | Katy Onnen (G16) | Southwest Power Pool | | | | | | | | | | | | ✓ |
| 125. | Robert Rhodes (G16) | Southwest Power Pool | | | | | | | | | | | | ✓ |
| 126. | Bill Grant (G16) | SPS | ✓ | | | | | | | | | | | |
| 127. | Kyle McMenamin (G16) | SPS | ✓ | | | | | | | | | | | |
| 128. | Stephen Joseph (G7) | Tampa Electric Company | ✓ | | | | | | | | | | | |
| 129. | Walter E. Joly (G2) | Tennessee Valley Authority | ✓ | | | | | ✓ | | | | | | |
| 130. | Chuck Owens (G2) | Tennessee Valley Authority | ✓ | | | | | | | | | | | |
| 131. | Stuart Goza (G2) | Tennessee Valley Authority | ✓ | | | | | | | | | | | |
| 132. | David Thompson (G2) | Tennessee Valley Authority | | | | | | ✓ | | | | | | |
| 133. | Mark Marcum (G2) | Tennessee Valley Authority | | | | | | ✓ | | | | | | |

Consideration of Comments on 2nd Draft of System Restoration and Blackstart Standard (Project 2006-03)

| Commenter | | Organization | Industry Segment | | | | | | | | | | |
|-----------|----------------------|------------------------------|------------------|---|---|---|---|---|---|---|---|----|---|
| | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | |
| 134. | Mike Clements (G15) | Tennessee Valley Authority | ✓ | | ✓ | | ✓ | | | | | ✓ | |
| 135. | Robert Eubank (G13) | TSGT | ✓ | | | | | | | | | | |
| 136. | Karl Bryan | U.S. Army Corps of Engineers | | | | | ✓ | | | | | | |
| 137. | Jim Haigh (G10) | WAPA | | | | | | | | | | | ✓ |
| 138. | Nancy Bellows (G3) | WAPA (WACM) | | | | | | | | | | | |
| 139. | Ken Driggs (G13) | WECC | | | | | | | | | | | ✓ |
| 140. | Eric Langhorst (G13) | WECC | | | | | | | | | | | ✓ |
| 141. | Neal Balu (G10) | WPSR | | | | | | | | | | | |
| 142. | Allen Klassen (G16) | WR | ✓ | | | | | | | | | | |
| 143. | Pam Oreschick (G10) | XCEL | | | | | | | | | | | ✓ |
| 144. | Howard Rulf | We Energies | | | ✓ | ✓ | ✓ | | | | | | |

I – Indicates that individual comments were submitted in addition to comments submitted as part of a group

G1 – Santee Cooper

G2 – Tennessee Valley Authority (TVA)

G3 – WECC Reliability Coordination Comments Work Group (WECC RCCWG)

G4 – Pepco Holdings, Inc. – Affiliates

G5 – FirstEnergy Corp.

G6 – Florida Power & Light Co. (FPL)

G7 – Florida Reliability Coordinating Council (FRCC)

G8 – ISO/RTO Council

G9 – Midwest ISO Stakeholders

G10 – MRO Standards Review Committee (MRO SRC)

G11 – NPCC Reliability Standards Committee (NPCC RSC)

G12 – Ohio Valley Electric Corp. (OVEC)

G13 – WECC Operations Training Subcommittee (WECC OTS)

G14 – WECC Reliability Coordination Comments Work Group (WECC RCCWG)

G15 – SERC Operations Planning Subcommittee (SERC OPS)

G16 – Southern Company Services, Inc. (Southern Transmission)

G17 – SPP Operating Reliability Working Group (SPP ORWG)

Index to Questions, Comments, and Responses

1. Attachment 1 of EOP-005-1 has been eliminated and the elements for consideration moved directly into Requirement R1 and the sub-requirements of R1 in EOP-005-2. Do you agree or have other suggestions as to how to incorporate the elements into the standards? 10
2. The SRB SDT has removed the language for partial shutdown as part of restoration as we consider recovery from partial shutdown as normal operations. We believe that this requirement is covered in other standards and this standard only applies to those situations where you need to apply Blackstart Resources. Do you agree or have other suggestions as to how to handle partial shutdowns? 23
3. The SRB SDT has included training for generator operators and field switching personnel associated with restoration in EOP-005 in accordance with FERC Order 693. Do you agree or have other suggestions for how to supply such training? 29
4. The SRB SDT defined a new term, Blackstart Resource, which allows for greater flexibility in providing resources for blackstart operations. Do you agree with this definition? 44
5. The SRB SDT has merged the RRO requirements in EOP-007 into EOP-006 and assigned them to the Reliability Coordinator. Do you agree with this change? 49
6. The SRB SDT has replaced the existing Blackstart Capability Plan (and retired the definition) with the Reliability Coordinator's requirement for a coordination element in their restoration plan. Do you agree with this approach or do you have other suggestions for how to handle this? 54
7. If you are aware of any regional variances that would be required as a result of these standards, please identify them here. 58
8. If you are aware of any conflicts between the proposed standards and any regulatory function, rule order, tariff, rate schedule, legislative requirement or agreement, please identify them here. 60
9. If you have any other comments on the proposed standards that you haven't already provided in response to the questions above, please provide them here. 62

Consideration of Comments on 1st Draft of System Restoration and Blackstart Standards (Project 2006-03)

1. Attachment 1 of EOP-005-1 has been eliminated and the elements for consideration moved directly into Requirement R1 and the sub-requirements of R1 in EOP-005-2. Do you agree or have other suggestions as to how to incorporate the elements into the standards?

Summary Consideration: While most stakeholders agreed with the elimination of Attachment 1 of EOP-005-1, there were many comments suggesting improvements to the standard. Due to comments received, changes have been made to Title, Purpose, R1 and its sub-requirements, establishment of the new R2, R12, and R17 as shown below.

EOP-005-2:

Title: System Restoration from Blackstart Resources — Operations

Purpose: Ensure plans, and Facilities are established, and personnel are available in place to restore the Bulk Electric enable System (BES) to its normal state following an event that requires the utilization of restoration from Blackstart Resources: to ensure reliability is maintained during restoration and priority is placed on restoring the Interconnection.

R1. Each Transmission Operator shall have a restoration plan approved by its Reliability Coordinator to restore its System to its normal state following an event that requires the utilization of Blackstart Resources. The restoration plan shall have allow for restoring the Transmission Operator's System following a priority of Disturbance in which one or more areas of the Bulk Electric System (BES) shuts down and the use of Blackstart Resources is required to restore the shut down area to service, to a state whereby the choice of the next Load to be restored is not driven by the need to control frequency or voltage regardless of whether the Blackstart Resource is located within the Transmission Operator's System. The restoration plan shall include:

R1.1. A description of the manner in which all obligations for off-site power requirements of nuclear power plants will be fulfilled.

R1.2. Procedures for restoring the integrity of the Interconnection under the direction of the Reliability Coordinator.

R1.1. Identification of the authority and tasks of the Transmission Operator's control room and field switching personnel assigned to participate in restoration activities including the responsibility of the Transmission Operator to work with its Reliability Coordinator and with other Transmission Operators and the responsibility of the Transmission Operator to coordinate its restoration activities with the entities operating within its area.

R1.2. Documented coordination with applicable Blackstart Resource Facility Plans (BRFP) to ensure the ability of the Blackstart Resource to control and maintain voltage and frequency within acceptable limits.

R1.3. Identification of each Blackstart Resource and its characteristics including the following: the name of the Blackstart Resource, location, megawatt and megavar capacity, and type of unit, latest date of test, test results and starting method.

- R1.4. Identification of Cranking Paths ~~diagrams, including and~~ initial switching requirements; between each Blackstart Resource and the unit(s) to be started.
- R1.5. Identification of acceptable operating voltage and frequency limits during restoration.
- R1.6. A statement ~~accounting for the possibility that restoration can not be completed as expected~~ indicating that in situations where the actual conditions do not match the studied conditions, the System Operator shall use professional judgment to ~~modify-deviate from~~ the System restoration plan.
- R1.7. Operating Procedures to re-establish connections within the Transmission Operator's System for areas that have become separated.
- R1.8. Operating Procedures to restore Loads, ~~including identification of any critical Load requirements that require high priority including off-site power for nuclear Facilities, and Facilities required to restore the BES.~~ such as station service for substations, units to be restarted or stabilized, the Load needed to stabilize generation and frequency, and provide voltage control for restoring the System.

~~R1.8. Procedures to coordinate its restoration plan with the applicable Generator Owners, Generator Operators, Load Serving Entities, Distribution Providers, and Balancing Authorities within its area, its Reliability Coordinator, and neighboring Transmission Operators and Balancing Authorities. Operating~~

R2. Each Transmission Operator, in order to ensure the reliability of the Interconnection, shall distribute its approved restoration plan to the entities identified in its restoration plan, and to its Reliability Coordinator.

R12. Each Transmission Operator shall provide a minimum of two hours of System restoration training per year for ~~each of its authorized transmission~~ field switching personnel ~~for the tasks~~ identified ~~in~~ as performing unique tasks associated with its restoration plan; and outside of their normal tasks.

R17. Each Generator Operator ~~shall provide documentation of its~~ a Blackstart Resource ~~test results to its Reliability Coordinator~~ shall perform Blackstart Resource tests, and maintain records of such testing, in accordance with the testing requirements set by the Transmission Operator; ~~to verify that the Blackstart Resource can perform as specified in the restoration plan.~~

R17.1. Testing records shall include at a minimum: name of the Blackstart Resource, unit tested, date of the test, duration of the test, time required to start the unit, an indication of any testing requirements not met under Requirement R6, ~~the voltage profile during the test including time correlation to Loads applied (if any), and the unit frequency profile during the test including time correlation to Loads applied (if any).~~

R17.2. Each Generator Operator shall provide the blackstart test results within thirty calendar days following a request from its Reliability Coordinator or Transmission Operator.

Consideration of Comments on 1st Draft of System Restoration and Blackstart Standards (Project 2006-03)

Based on stakeholder comments, changes were also made to the Title, Purpose and R1 of EOP-006 as shown below.

Title: System Restoration ~~and from~~ Blackstart Resources – Coordination

Purpose: Ensure plans, ~~facilities,~~ **Facilities are established** and personnel are available for in place to enable effective coordination of the System restoration ~~from Blackstart Resources~~ process to ensure reliability is maintained during restoration and priority is placed on restoring the Interconnection.

R1. ~~The~~ Each Reliability Coordinator shall have a Reliability Coordinator Area restoration plan ~~that has been made available to its Transmission Operators, Balancing Authorities, and neighboring Reliability Coordinators to restore its area to its normal state following an event that requires the utilization of Blackstart Resources. The restoration plan shall have a priority of~~. The restoration plan shall be written such that it allows for the restoration of its area following a Disturbance in which one or more areas of the Bulk Electric System (BES) shuts down and the use of Blackstart Resources is required to restore the shut down area to service, to a state whereby the choice of the next Load to be restored is not driven by the need to control frequency or voltage for an event that requires the utilization of Blackstart Resources regardless of whether the Blackstart Resource is located within the Reliability Coordinator’s Area. The restoration plan shall include:

Several commenters suggested that the Balancing Authority (BA) should be added to the revised standards. The SDT disagrees that the BA has an “applicability” role in the TOP restoration plan or its implementation. Beginning with the system collapse, the TOP restores the Transmission System, restores interconnections, and supplies off-site power to nuclear generating stations. This is accomplished on a command and control basis by the Transmission Operator (TOP) in conjunction with the Generator Operator (GOP). Once interconnections have been reestablished and the transmission System restored, the restoration of firm Load can begin. The TOP is restoring the System through command and control until a sufficient System has been built where frequency is under control. EOP-001 and TOP-001 include requirements for actions during partial restorations.

Several commenters suggested that the Reliability Coordinator should not ‘approve’ the TOP’s restoration plans. As to the RC approval process: In FERC Order 693, “the Commission directs the ERO to develop a modification to EOP-006-1 through the Reliability Standards development process that ensures that the reliability coordinator, which is the highest level of authority responsible for reliability of the Bulk-Power System, is involved in the development and approval of system restoration plans.” The SDT believes that the process described in EOP-005-2 and EOP-006-2 meets the Commission directive.

Several commenters questioned the inclusion of training requirements. The SDT supports FERC’s recommendation that inclusion of periodic system restoration drills and training requirements in the EOP standards as the most effective way of achieving the desired level of system restoration training.

| Question #1 | | | |
|-------------|-----|-------------------------------------|--|
| Commenter | Yes | No | Comment |
| RFC (2) | | <input checked="" type="checkbox"/> | R1.2.1 requires the TOP to include the latest date of test and test results of each blackstart resource. In R1 the RC is required to approve the Restoration Plan. Would the |

Consideration of Comments on 1st Draft of System Restoration and Blackstart Standards (Project 2006-03)

| Question #1 | | | |
|--|-----|-------------------------------------|---|
| Commenter | Yes | No | Comment |
| | | | RC have to approve the plan due to changes in test results? I suggest the test results not be included in the plan, but that the TOP has record of them outside of the "plan." R1.8 requires the TOP to coordinate with many "applicable" entities. Which of the entities are applicable? Do the applicable entities include all classes of LSEs? If the answer is yes, this would require coordinating with many LSEs that own no physical assets, such as Alternate Retail Electric Suppliers. The drafting team should consider specifying exactly what entities are applicable to the coordination requirement. Otherwise, it is very open to interpretation. |
| <p>Response: The SDT agrees that test results should not be a component of R1.2.1. The GOP now has the requirement to maintain these records (new R17). R1.8 has been changed to R2 and the use of the term 'applicable' has been removed.</p> | | | |
| Duke Energy | | <input checked="" type="checkbox"/> | In moving the Attachment 1 to EOP-005, the SDT made it a requirement that all elements of the attachment be part of a restoration plan. The previous version did not require this and stated where applicable. The SDT should reword their statement in R1 to say "The restoration plan shall include the following where applicable:" Audit teams could review this requirement as it is currently written and find a company in non-compliance because they do not have a Requirement in their plan and the company could not have a need for that requirement. The SDT also changed the wording in R1 and placed priority of a restoration plan on the restoring of the integrity of the Interconnection. Why does this need to be stated when that is the purpose of all restoration plans? And by including this statement, is a conflict introduced with requirement R1.7 and the restoring of off-site power to a Nuclear Station. Some people could interpret that as saying that you need to establish the transmission network integrity before you restore power to a nuclear facility. While it may be understood by some that in restoring power to a nuclear facility is establishing the integrity of the transmission network, it may not be understood by all. |
| <p>Response: The SDT did not move all items from Attachment 1 to the requirements. The SDT believes that all the sub-requirements stated in R1 must be included in the TOP's restoration plan.</p> <p>The SDT has made changes to R1 in an attempt to clarify the nuclear power plant issue. See R1.1 in the revised EOP-005-2 which requires that the restoration plan include a "A description of the manner in which all obligations for off-site power requirements of nuclear power plants will be fulfilled."</p> | | | |
| Santee Cooper | | <input checked="" type="checkbox"/> | As an entity that has implemented its restoration plan following hurricanes, Santee Cooper does not believe a restoration plan should be a step by step plan based on an assumed set of conditions for a particular event. Rather, Santee Cooper believes a restoration plan needs to be developed in such a manner that it provides guidance and allows for flexibility to address many different sets of conditions and events. In addition, |

Consideration of Comments on 1st Draft of System Restoration and Blackstart Standards (Project 2006-03)

| Question #1 | | | |
|--|-----|-------------------------------------|---|
| Commenter | Yes | No | Comment |
| | | | Santee Cooper believes restoration plans should be tailored for each particular system, and its particular circumstances, and therefore should not require approval by a Reliability Coordinator as long as all of the requirements associated with the related NERC standards are satisfied (i.e., the RC should not perform a compliance monitoring function if this is what is intended by the approval). Finally, Santee Cooper believes that a restoration plan developed to address a broad range of circumstances would not require the statement in R1.5. |
| <p>Response: The SDT has changed R1.5 to accommodate the indicated concern. The revised sub-requirement (now R1.6) requires that the restoration plan include “a statement accounting for the possibility that restoration can not be completed as expected indicating that in situations where the actual conditions do not match the studied conditions, the System Operator shall use professional judgment to deviate from the System restoration plan.”</p> <p>In FERC Order 693, “the Commission directs the ERO to develop a modification to EOP-006-1 through the Reliability Standards development process that ensures that the reliability coordinator, which is the highest level of authority responsible for reliability of the Bulk-Power System, is involved in the development and approval of system restoration plans.” The SDT believes that the process described in EOP-005-2 and EOP-006-2 meets the Commission directive.</p> | | | |
| AEP | | <input checked="" type="checkbox"/> | <p>EOP-005, R1 & EOP-006, R1– The first sentence of EOP-005, R1 needs revised to reflect its intent. It presently says the Transmission Operator shall have a restoration plan approved by its Reliability Coordinator “following” an event that requires the utilization of Black-start recourses. As written, the requirement could be misinterpreted to mean you need to have an approved plan only after using the plan to restore your system. The verbiage should be clear that you need an approved plan. The same is true with the wording of EOP-006, R1.</p> <p>EOP-005, R1.1 & EOP-006, R1.1 – The proposed training standard PER-005 requires system operator position/control center tasks for reliability and emergency be identified, by each operating entity for their system operator positions, from the PER-005 Attachment A Generic Task List. This PER-005 requirement has a 36 month time frame of implementation. If these tasks are identified under the PER-005 standard, we do not see the benefit or necessity of documentation in the EOP. The black-start plan is implemented via system operators. Identification of plan parameters will by default fall to the assigned reliability tasks of the system operator personnel as identified in PER-005. Also, the time implementation would be an issue with the EOP, as the tasks identified in the EOP must match the tasks identified for the PER-005 standard.</p> <p>EOP-005, R1.1 – We do not agree with naming the tasks of field switching personnel. The transmission sub-station field switching personnel are already trained for operation and switching of the sub-station equipment and know their associated tasks. They do it</p> |

Consideration of Comments on 1st Draft of System Restoration and Blackstart Standards (Project 2006-03)

| Question #1 | | | |
|--|-----|-------------------------------------|--|
| Commenter | Yes | No | Comment |
| | | | <p>on a daily bases. Tasks performed on any equipment with operating, control power, or other problems are dealt with during maintenance and repair by the field personnel on a routine bases, much of which are under emergency situations which often include reliability situations. Any tasks they perform for restoration are under the authority and direction of system operators in the control center. Since field switch-person tasks are performed under the authority of the System Operator, they are directed as functions of the System Operator Emergency Operations Tasks to implement emergency procedures and direct restoration.</p> <p>EOP-005, R1.2 - The Blackstart Resource Facility Plans (BRFP) first appears in R1.2. but it is not defined until R12. Suggest adding the definition in R1.21 since the wording is similar to the wording appearing in R12. Adding the definition sooner would lead to a more understandable requirement.</p> |
| <p>Response: The SDT agrees and has rewritten R1 for EOP-005 and EOP-006. (See the summary consideration above.)</p> <p>The SDT supports FERC's recommendation that inclusion of periodic system restoration drills and training requirements in the EOP standards as the most effective way of achieving the desired level of system restoration training.</p> <p>If the TOP's restoration plan has field switching tasks unique to system restoration that are not included in normal operations, then training shall be required. Changes have been made to R12 to clarify this position.</p> <p>BRFP has been removed from the standard in the new revision for the second posting.</p> | | | |
| OVEC | | <input checked="" type="checkbox"/> | <p>For completely new standards I would agree with the method of incorporating the elements of the Attachment as requirements or sub-requirements. But for this existing standard the elements appear to have been substantially rewritten and include requirements not in the original Attachment. Moving or revising the elements of the Attachment creates burdensome and unproductive work for an entity to re-identify where in its restoration plan the revised elements or new sub-requirements are considered.</p> |
| <p>Response: The purpose of the Reliability Standards Development Work Plan 2007-2009 is to revise the standards to make them more specific and measurable and to minimize duplication across standards. The sub-requirements of R1 are required elements of the system restoration plan. Some are based on Attachment 1. Not all elements of Attachment 1 have been moved to sub-requirements of R1.</p> | | | |
| MRO SRC | | <input checked="" type="checkbox"/> | <p>The MRO does not agree with adding violation risk factors to every requirement. Additionally, when new requirements are proposed they should be value added, not just for documentation that needs to be reviewed and updated. The MRO does not agree with removing the BA from standard EOP-005-2, as they have a critical function in blackstart system restoration. The MRO would suggest including any limitations of the Blackstart</p> |

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| Question #1 | | | |
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| Commenter | Yes | No | Comment |
| | | | resource and the fuel type of the Blackstart resource in requirement 1.2.1. |
| <p>Response: The Reliability Standards Development Procedure requires that each requirement have a VRF. The SDT disagrees that the BA has an “applicability” role in the TOP restoration plan or its implementation. Beginning with the system collapse, the TOP restores the Transmission System, restores interconnections, and supplies off-site power to nuclear generating stations. This is accomplished on a command and control basis by the Transmission Operator in conjunction with the GOP. Once interconnections have been reestablished and the Transmission System restored, the restoration of firm Load can begin. The TOP is restoring the System through command and control until a sufficient System has been built where frequency is under control. The SDT believes that the requirements cited in R1 are sufficient.</p> | | | |
| FPL | | <input checked="" type="checkbox"/> | <p>I do not believe that a restoration plan should be a step by step plan based on an assumed set of conditions for a particular event. A restoration plan needs to be developed in such a manner that it provides guidance and allows flexibility to address many different sets of conditions and events. In addition the restoration plan should be tailored for each particular system and therefore should not require approval of the Reliability Coordinator as long as all the requirements associated with the NERC Standards are satisfied. The Reliability Coordinator should not perform a compliance monitoring function if this is what is intended by the approval. There is no need for A Black Start Reliability Plan independent of a System restoration Plan. The System Restoration plan requirements include location of blackstart units, MW and Mvar capability, start time, and fuel requirements.</p> |
| <p>Response: The SDT has changed R1.5 to accommodate the indicated concern. The revised sub-requirement (now R1.6) requires that the restoration plan include “a statement accounting for the possibility that restoration can not be completed as expected indicating that in situations where the actual conditions do not match the studied conditions, the System Operator shall use professional judgment to deviate from the System restoration plan.”</p> <p>RC review and approval of the plan is not an issue of compliance but of coordination and workability with the RC’s restoration plan. In FERC Order 693, “the Commission directs the ERO to develop a modification to EOP-006-1 through the Reliability Standards development process that ensures that the reliability coordinator, which is the highest level of authority responsible for reliability of the Bulk-Power System, is involved in the development and approval of system restoration plans.” The SDT believes that the process described in EOP-005-2 and EOP-006-2 meets the Commission directive. BRFP has been removed from the standard in the new revision for the second posting.</p> <p>The requirement to have a Blackstart Resource Facility Plan has been removed from the revised standard.</p> | | | |
| Consumers | | <input checked="" type="checkbox"/> | |
| CenterPoint | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | It is appropriate to incorporate the elements from Attachment 1 into R1. CenterPoint Energy agrees with FERC that more than just control room personnel would be involved |

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| Question #1 | | | |
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| Commenter | Yes | No | Comment |
| | | | in system restoration. However, CenterPoint Energy disagrees that field switching personnel should be specifically identified. Field switching personnel follow switching orders in any restoration situation, regardless of its cause, and therefore specific task identification specifically related to blackstart restoration is not warranted. In other words, field switching personnel would not perform any tasks during a blackstart system restoration that they would not perform as part of their normal, day to day duties. Specific training in blackstart restoration is therefore not required. |
| <p>Response: If the TOP's restoration plan has field switching tasks unique to system restoration that are not included in normal operations, then training shall be required. Changes have been made to R12 to clarify this position. (See the summary consideration above.)</p> | | | |
| New York ISO | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <p>If the definition of a Blackstart Resource is "A generation Facility..", then the term Blackstart Resource Facility Plan is redundant and confusing. There is no need for requirements for a Black Start Reliability Plan independent of a system restoration plan. From the viewpoint of requirements for a system restoration plan, the location, MW and MVAR capacity and the start time are required aspects of the restoration plan.</p> <p>Latest type of unit, latest date of test, test results.</p> |
| <p>Response: BRFP has been removed from the standard in the new revision for the second posting.</p> | | | |
| Southern Transmission | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <p>We agree with the elimination of Attachment 1 as found in Version 1 of this Standard and the placement of its elements into, and under, Requirement 1 of Version 2. We disagree, however, with the change in the applicability of the proposed Standard (to include the provisions of the former Attachment 1) in its transition from Version 1 to Version 2. Balancing Authorities will continue to play a vital role in System Restoration; this Standard should be written to reflect that role. We have further comment on the applicability of this Standard in our response to Question #9.</p> |
| <p>Response: The SDT disagrees that the BA has an "applicability" role in the TOP restoration plan or its implementation. Beginning with the system collapse, the TOP restores the Transmission System, restores interconnections, and supplies off-site power to nuclear generating stations. This is accomplished on a command and control basis by the Transmission Operator in conjunction with the GOP. Once interconnections have been reestablished and the Transmission System restored, the restoration of firm Load can begin. The TOP is restoring the System through command and control until a sufficient System has been built where "balancing" is not an issue.</p> | | | |
| FRCC | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <p>The DT has re-defined the intent of attachment 1. The "Elements for Consideration in Development of Restoration Plan" are now requirements that "shall be included" but the conversion retains subjective language of the original attachment. After the conversions and as written some of the requirements are still editorial, subjective and open to interpretation.</p> <p>Comments on R1 language: What is a "normal state"? "Following an event that requires</p> |

Consideration of Comments on 1st Draft of System Restoration and Blackstart Standards (Project 2006-03)

| Question #1 | | | |
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| Commenter | Yes | No | Comment |
| | | | utilization of Blackstart Resources". This implies that this standard does not apply to restoration plans for systems that are re-connecting to an energized section of the Interconnection (recovery from "partial shutdown" as described below). If this is the DT intent, the title of the standard should be revised to "System Blackstart - Operations". |
| <p>Response: The SDT did not move all items from Attachment 1 to the requirements. The SDT believes that all the sub-requirements stated in R1 must be included in the TOP's restoration plan. Changes have been made to the sub-requirements to address the concerns. (See the summary consideration above.)</p> <p>The purpose of a restoration plan is not to restore every MW of Load and Transmission System element to service but to reach a stage whereby the choice of the next Load to be restored is not driven by the need to control frequency or voltage. Normal state has been eliminated in the text to reflect this purpose.</p> <p>The SDT agrees with the comment on the title and has made changes to address this concern. The revised title is, "System Restoration and Blackstart Resources — Operations"</p> | | | |
| ISO/RTO | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <p>We can agree with moving the items from the attachment into the requirements. However, R1's sub-requirements are in need of revisions.</p> <p>R1.1 should be broken up into at least two sentences to be clear. Suggested wording: R1.1 Identification of the authority and tasks of the Transmission Operator's control room and field switching personnel assigned to participate in restoration activities. Identification of the responsibility of the Transmission Operator to work with its Reliability Coordinator and with other Transmission Operators. Identification of the responsibility of the Transmission Operator to coordinate its restoration activities with the BAs, GOPs, LSEs, RC, DPs and GOPs (or the specific entities that the drafting team actually meant to require coordination of the restoration activities with) operating within its area.</p> <p>R1.8 requires that the plan include procedures to coordinate the plan with various entities. We do not believe that this should be required to be in the plan. Coordination of the plan should be the requirement.</p> |
| <p>Response: Changes have been made to the sub-requirements of R1 to address the concerns. (See the summary consideration above.) The proposed R1.1 was not adopted because the authority of the TOP is already addressed in TOP-001. The SDT agrees with the point made concerning R1.8 and has moved it to its own requirement (R2).</p> | | | |
| HQT NBSO NPCC RSC | <input checked="" type="checkbox"/> | | <p>Delete 1.2.1 and revise 1.2 to read: "Document each Blackstart resource and its characteristics, including the following: the name of the Blackstart Resource, location, megawatt and megavars capacity and type of unit."</p> <p>In R1.8: "Identify within the plan the coordination among Generator Owners, Generator Operators, Load-Serving Entities, Distribution Providers, and Balancing Authorities within its area, its Reliability Coordinator, and neighboring Transmission Operators and Balancing Authorities.</p> |
| <p>Response: The SDT agrees that test results should not be a component of R1.2.1. The GOP now has the requirement to maintain these records (R17).</p> | | | |

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| Question #1 | | | |
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| Commenter | Yes | No | Comment |
| The SDT agrees with the point made concerning R1.8 and has moved it to its own requirement (R2). | | | |
| WECC RCCWG | <input checked="" type="checkbox"/> | | <p>While the WECC RCCWG has no problem with attachment 1 be moved into the standard we have concerns with R1 which states: "Each Transmission Operator shall have a restoration plan approved by its Reliability Coordinator to restore its System to its normal state following an event that requires the utilization of Blackstart Resources. The restoration plan shall have a priority of restoring the integrity of the Interconnection under the direction of the Reliability Coordinator." The group questions what the criteria for "approval" by the RC are. If situations are encountered during a restoration event that are not covered in the restoration plan, are the RC and TOP in violation of the standard? The WECC RCCWG request clarification of the phrase "normal state". Does this refer to interconnected operation? If a TOP has a single tie and that tie experiences damage that will require a year to repair are the RC and TOP in violation of the standard? The WECC RCCWG agrees that RC and TOP need restoration plans, but believes the plans cannot be drafted to cover every possible scenario. The WECC RCCWG believes that the phrase "under the direction of the Reliability Coordinator should be removed. The Reliability Coordinator coordinates with the TOP, but does not direct the TOP what specific steps need to be taken. The Reliability Coordinator needs to allow the Transmission Operator to direct his own portion of a restoration. When there are islands to be synchronized, or reconnected to the interconnection, the Reliability Coordinator is in a position to "direct" (approve) action. Otherwise, the Reliability Coordinator should be coordinating with Transmission Operators.</p> |
| <p>Response: RC review and approval of the plan is not an issue of compliance but of coordination and workability with the RC's restoration plan. The SDT believes that this gives input to the RC in the development of plans such that the various TOP plans are coordinated with the RC's plan. In FERC Order 693, "the Commission directs the ERO to develop a modification to EOP-006-1 through the Reliability Standards development process that ensures that the reliability coordinator, which is the highest level of authority responsible for reliability of the Bulk-Power System, is involved in the development and approval of system restoration plans." The SDT believes that the process described in EOP-005-2 and EOP-006-2 meets the Commission directive.</p> <p>The purpose of a restoration plan is not to restore every MW of Load and Transmission System element to service but to reach a stage whereby the choice of the next Load to be restored is not driven by the need to control frequency or voltage. Normal state has been eliminated in the text to reflect this purpose.</p> <p>The SDT has changed the new R1.6 to accommodate the indicated concern. The revised sub-requirement (now R1.6) requires that the restoration plan include "a statement accounting for the possibility that restoration can not be completed as expected indicating that in situations where the actual conditions do not match the studied conditions, the System Operator shall use professional judgment to deviate from the System restoration plan."</p> | | | |

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| Question #1 | | | |
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| Commenter | Yes | No | Comment |
| The SDT believes that the phrase "...under the direction of the RC..." is appropriate as worded. | | | |
| Madison G&E | <input checked="" type="checkbox"/> | | <p>a) Agree with placing the requirements directly into the standard.</p> <p>b) In R1, second sentence the word "normal" needs to be removed and replaced with "pre-Disturbance". Normal has not been defined and leaves the reader to determine its definition.</p> <p>c) In R1.1, It is unclear what "identification of the authority and task of the Transmission Operator's control room and field personnel assigned to participate in restoration activities" means? The Transmission Operator may be leading switching crews from other companies within their transmission area, thus not knowing who is available. This Requirement needs to be reworded so it is clear. This may leads to some training requirements, which would need to be contained NERC Standard category "Personnel Performance, Training, and Qualifications".</p> <p>d) In R1.2, The term "Blackstart Resource Facility Plan" is used for the first time, but no definition is provided, a definition needs to be provided.</p> <p>e) In R1.2.1, Is "characteristics" the name plate rating? And what is contained in "test results"? Perhaps the SDT should consider placing together a list (check list) of testable items. Then the GO/GOP would know what NERC requirements need to be tested in order to be compliant. This would also stream line the reporting process, since a uniform list (possibly an attachment to the Standard) that would be reconized throughout the electrical industry.</p> <p>f) In R1.5, "System Operator" in the second sentence needs to be changed to "Transmission Operator".</p> |
| <p>Response: R1 - The purpose of a restoration plan is not to restore every MW of Load and Transmission System element to service but to reach a stage whereby the choice of the next Load to be restored is not driven by the need to control frequency or voltage. Normal state has been eliminated in the text to reflect this purpose.</p> <p>R1.1 - The SDT agrees, this requirement is handled in TOP-001. Therefore, the SDT has deleted this sub-requirement.</p> <p>R1.2 - BRFP has been removed from the standard in the new revision for the second posting.</p> <p>R1.2.1 - The SDT agrees that test results should not be a component of R1. The GOP now has the requirement to maintain these records (R17).</p> <p>R1.5 - System Operator is a defined term in the NERC Glossary and is used correctly in this context.</p> | | | |
| Ameren | <input checked="" type="checkbox"/> | | <p>Agree with the idea. However, we believe that phrases such as "identification of the authority" do not speak to a uniform requirement. The standard would be well served to tighten this language to exactly define the requirement and to include as an appendix an "example of excellence" as a guide, or some other similar means, to demonstrate explicitly what is desired.</p> |
| <p>Response: The SDT agrees, this requirement is handled in TOP-001. Therefore, the SDT has deleted this sub-requirement.</p> | | | |
| BCTC | <input checked="" type="checkbox"/> | | <p>Suggest replace "normal" state in R1 with "stable" state. The end configuration might be normal state if the disturbance originated outside the Balancing Authority's Area.</p> |

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| Question #1 | | | |
|--|-------------------------------------|----|---|
| Commenter | Yes | No | Comment |
| | | | <p>Requirement R1.1 is the first time in this Standard that identifies field switching personnel. The Standard requires field switching personnel to have their authority identified. Field switching personnel would only be expected to have authority to complete operations where the Transmission Operator or System Operator did not have SCADA control of equipment as FERC 693 suggests. And this authority should only have to be identified clearly for restoration and only if communications were lost. The lack of SCADA control (as suggested by FERC in order 693) for restoration should be identified in the requirement as the trigger for identifying authority of field switching personnel.</p> <p>Suggest adding "if applicable" to end of R1.3.</p> <p>The statement in R1.5 that allows System Operators to use professional judgment to modify plans under the conditions listed is a good idea.</p> |
| <p>Response: R1 - The purpose of a restoration plan is not to restore every MW of Load and Transmission System element to service but to reach a stage whereby the choice of the next Load to be restored is not driven by the need to control frequency or voltage. Normal state has been eliminated in the text to reflect this purpose.</p> <p>R1.1 - The SDT has deleted this sub-requirement to identify authorities – several commenters identified that there are other requirements in existing standards to address authority.</p> <p>R1.3 - The SDT does not believe that 'if applicable' is appropriate for this requirement. Cranking Paths are always present in some form. However, the SDT has deleted diagram from the requirement.</p> | | | |
| ATC | <input checked="" type="checkbox"/> | | We agree with the Standard Drafting Team's decision to incorporated the "elements of consideration" into the standards. |
| FirstEnergy | <input checked="" type="checkbox"/> | | FE Agrees - The information in the attachment of every standard should always be immediately included into the body of the requirements section. |
| KCPL | <input checked="" type="checkbox"/> | | Agree, no other suggestions. |
| OPG | <input checked="" type="checkbox"/> | | |
| OPPD | <input checked="" type="checkbox"/> | | |
| National Grid | <input checked="" type="checkbox"/> | | |
| Entergy (G&M) | <input checked="" type="checkbox"/> | | |
| IESO | <input checked="" type="checkbox"/> | | |
| Manitoba Hydro | <input checked="" type="checkbox"/> | | |

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| Question #1 | | | |
|-----------------------------|-------------------------------------|-----------|----------------|
| Commenter | Yes | No | Comment |
| MISO Stakeholders | <input checked="" type="checkbox"/> | | |
| NIPSCO | <input checked="" type="checkbox"/> | | |
| RFC (1) | <input checked="" type="checkbox"/> | | |
| Entergy | <input checked="" type="checkbox"/> | | |
| Dominion | <input checked="" type="checkbox"/> | | |
| Salt River Project | <input checked="" type="checkbox"/> | | |
| SERC OPS | <input checked="" type="checkbox"/> | | |
| SPP ORWG | <input checked="" type="checkbox"/> | | |
| We Energies | <input checked="" type="checkbox"/> | | |
| TVA | <input checked="" type="checkbox"/> | | |
| US Army Corps Eng. | <input checked="" type="checkbox"/> | | |
| Response: Thank you. | | | |

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2. The SRB SDT has removed the language for partial shutdown as part of restoration as we consider recovery from partial shutdown as normal operations. We believe that this requirement is covered in other standards and this standard only applies to those situations where you need to apply Blackstart Resources. Do you agree or have other suggestions as to how to handle partial shutdowns?

Summary Consideration: Most commenters agreed with removal of language for partial shutdown. Some commenters suggested that the title and purpose of EOP-005 and EOP-006 should be modified, the drafting team made the following changes:

EOP-005-2:

Title: System Restoration from Blackstart Resources — Operations

Purpose: Ensure plans, and Facilities are established, and personnel are available in place to ~~restore the Bulk Electric~~ enable System (BES) ~~to its normal state following an event that requires the utilization of~~ restoration from Blackstart Resources. ~~to ensure reliability is maintained during restoration and priority is placed on restoring the Interconnection.~~

EOP-006-2:

Title: System Restoration ~~and~~ from Blackstart Resources – Coordination

Purpose: Ensure plans, ~~facilities, and~~ Facilities are established and personnel are available for in place to enable effective coordination of the System restoration from Blackstart Resources process to ensure reliability is maintained during restoration and priority is placed on restoring the Interconnection.

Because there were several comments indicating that additional clarification is needed to distinguish an emergency state from a system restoration, the SDT further refined R1 in EOP-005 and EOP-006. The SDT believes that, while an emergency state, restoring the System without the use of Blackstart Resources does not require the frequency and voltage balancing capabilities required by EOP-005 and EOP-006. Partial shutdowns are already covered by other standards including TOP-001, TOP-004, and EOP-001.

Due to industry comments, Requirement R1 has been changed as shown below.

EOP-005:

R1. Each Transmission Operator shall have a restoration plan approved by its Reliability Coordinator ~~to restore its System to its normal state following an event that requires the utilization of Blackstart Resources.~~ The restoration plan shall ~~have allow for~~ restoring the Transmission Operator's System following a ~~priority of~~ Disturbance in which one or more areas of the Bulk Electric System (BES) shuts down and the use of Blackstart Resources is required to restore the shut down area to service, to a

state whereby the choice of the next Load to be restored is not driven by the need to control frequency or voltage regardless of whether the Blackstart Resource is located within the Transmission Operator's System. The restoration plan shall include:

- R1.1.** A description of the manner in which all obligations for off-site power requirements of nuclear power plants will be fulfilled.
- R1.2.** Procedures for restoring the integrity of the Interconnection under the direction of the Reliability Coordinator.
- ~~**R1.1.** Identification of the authority and tasks of the Transmission Operator's control room and field switching personnel assigned to participate in restoration activities including the responsibility of the Transmission Operator to work with its Reliability Coordinator and with other Transmission Operators and the responsibility of the Transmission Operator to coordinate its restoration activities with the entities operating within its area.~~
- ~~**R1.2.** Documented coordination with applicable Blackstart Resource Facility Plans (BRFP) to ensure the ability of the Blackstart Resource to control and maintain voltage and frequency within acceptable limits.~~
- R1.3.** Identification of each Blackstart Resource and its characteristics including the following: the name of the Blackstart Resource, location, megawatt and megavar capacity, and type of unit, ~~latest date of test, test results and starting method.~~
- R1.4.** Identification of Cranking Paths ~~diagrams, including~~ and initial switching requirements, between each Blackstart Resource and the unit(s) to be started.
- R1.5.** Identification of acceptable operating voltage and frequency limits during restoration.
- R1.6.** A statement **accounting for the possibility that restoration can not be completed as expected** indicating that in situations where the actual conditions do not match the studied conditions, the System Operator shall use professional judgment to ~~modify deviate from~~ the System restoration plan.
- R1.7.** Operating Procedures to re-establish connections within the Transmission Operator's System for areas that have become separated.
- R1.8.** Operating Procedures to restore Loads, ~~, including identification of any critical Load requirements that require high priority including off-site power for nuclear Facilities, and Facilities required to restore the BES.~~ such as station service for substations, units to be restarted or stabilized, the Load needed to stabilize generation and frequency, and provide voltage control for restoring the System.
- ~~**R1.8.** Procedures to coordinate its restoration plan with the applicable Generator Owners, Generator Operators, Load-Serving Entities, Distribution Providers, and Balancing Authorities within its area, its Reliability Coordinator, and neighboring Transmission Operators and Balancing Authorities. Operating~~

EOP-006-2 Requirement R1 was changed as follows:

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R1. ~~The Each Reliability Coordinator shall have a Reliability Coordinator Area restoration plan that has been made available to its Transmission Operators, Balancing Authorities, and neighboring Reliability Coordinators to restore its area to its normal state following an event that requires the utilization of Blackstart Resources. The restoration plan shall have a priority of-~~ The restoration plan shall be written such that it allows for the restoration of its area following a Disturbance in which one or more areas of the Bulk Electric System (BES) shuts down and the use of Blackstart Resources is required to restore the shut down area to service, to a state whereby the choice of the next Load to be restored is not driven by the need to control frequency or voltage for an event that requires the utilization of Blackstart Resources regardless of whether the Blackstart Resource is located within the Reliability Coordinator’s Area. The restoration plan shall include:

| Question #2 | | | |
|--|-----|-------------------------------------|---|
| Commenter | Yes | No | Comment |
| MISO Stakeholders | | <input checked="" type="checkbox"/> | What other standards is this requirement covered in? A partial shut-down may still require utilization of cranking paths and black-start units to speed restoration. We are not aware that this is covered in any other standard. |
| Entergy (G&M) | | <input checked="" type="checkbox"/> | Please identify the "other standards" in which the drafting team believes is covering partial shutdown recovery. |
| HQT NPCC RSC | | <input checked="" type="checkbox"/> | We do not support this, please identify the standard that this requirement is covered in. |
| KCPL | | <input checked="" type="checkbox"/> | There are entities that have designed their systems to break into islands so believe the partial shutdown language should remain in the standard. In addition, not aware of any other place in the standards where restoration of partial shutdown of areas is addressed. |
| Response: Partial shutdowns are already covered by other standards including TOP-001, TOP-004, and EOP-001. | | | |
| FRCC | | <input checked="" type="checkbox"/> | Recovery from "partial shutdown" is a critical EOP and is much more likely to be encountered by areas of the Interconnections. Requirement R1.6 still addresses restoration of separated systems so the intent of this question as well as wording within R1 of both standards is not clear to us. Coordinated restoration of "partial shutdowns" has to be coordinated with neighboring TOPs and the RC to ensure that a system disturbance causing a local area shutdown does not propagate further, during restoration. Restoration from an energized section of the Interconnection, if available, will always be the preferred, most stable and quickest method for restoring the integrity of the affected BES transmission system. The stability of an energized system makes restoration much more efficient, but the energized system must be protected from an un-coordinated connection to the de-energized system. A Blackstart restoration will inherently transition to a restoration from "partial shutdown" state or configuration. |
| NBSO | | <input checked="" type="checkbox"/> | A lot of partial shutdowns require restoration as per an Areas restoration plan so I would not eliminate the term. What is meant by a partial shutdown anyway? How big of an area does it cover? For example, the 2003 blackout could be considered a partial shutdown of the Eastern Interconnection and these Standards surely are meant to cover similar situations. Possibly one could use partial shutdowns, if applicable, |

Consideration of Comments on 1st Draft of System Restoration and Blackstart Standards (Project 2006-03)

| Question #2 | | | |
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| Commenter | Yes | No | Comment |
| We Energies | | <input checked="" type="checkbox"/> | The major impetus for restructuring the entire industry, especially from the regulatory perspective, is the partial shutdown that occurred on August 14, 2003. Anyone participating in that restoration effort would likely not describe the efforts as normal operations. Suggest that the term restoration apply any time resynchronizing is required to restore the interconnected system to whole. |
| BCTC | <input checked="" type="checkbox"/> | | We agree with removing language for partial shutdown as part of this restoration standard, but we disagree that restoring from a partial shutdown is normal operations. The concepts taught to System Operating personnel for restoration from a partial shutdown or a complete shutdown are the same. |
| OVEC | <input checked="" type="checkbox"/> | | Partial shutdown should not be considered normal operations. Partial shutdown should be considered as emergency operations whether Blackstart Resources are applied or not. |
| SPP ORWG | <input checked="" type="checkbox"/> | | We would like to know in which standard(s) a partial shutdown is covered. |
| RFC (2) | | <input checked="" type="checkbox"/> | If a partial shutdown included 90% of a system, it would be difficult to view the restoration as normal operations. In fact, the TOP would implement their System Restoration Plan. |
| <p>Response: The SDT believes that, while an emergency state, restoring the System without the use of Blackstart Resources does not require the frequency and voltage balancing capabilities required by EOP-005 and EOP-006. Partial shutdowns are already covered by other standards including TOP-001, TOP-004, and EOP-001.</p> | | | |
| SERC OPS | | <input checked="" type="checkbox"/> | We agree with removing partial shutdown from the language; however, we believe the plan should include requirements for the synchronization of islands resulting from partial shutdown of an individual system |
| <p>Response: The SDT agrees. The requirement for maintaining plans for resynchronization are included in R1. (See R1.7 in the revised standard.)</p> | | | |
| OPG | | <input checked="" type="checkbox"/> | |
| ISO/RTO IESO | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <p>We can support this standard to deal with restoration from blackstart only and cover restoration from partial shutdown by other standards. However, the title and purpose of EOP-005 and EOP-006 should be revised to more accurately reflect this scope. An appropriate standard(s) to cover the partial recovery requirements needs to be determined but we do not think that these requirements necessarily fall into "normal operations" as recovery from partial shutdown could well be regarded as emergency operations.</p> <p>On the other hand, restoration may span from recovering from partial shut down, re-synchronizing islands to blackstart. It is much more desirable to group all restoration requirements in one set of standards regardless of whether or not blackstart resources are required for restoration.</p> |

Consideration of Comments on 1st Draft of System Restoration and Blackstart Standards (Project 2006-03)

| Question #2 | | | |
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| Commenter | Yes | No | Comment |
| | | | We urge the SDT to consider this option as opposed to limiting this standard to restoring from blackstart only. |
| <p>Response: The SDT has changed the Title and Purpose of both EOP-005 and EOP-006. (See the summary consideration above.) The SDT believes that, while an emergency state, restoring the System without the use of Blackstart Resources does not require the frequency and voltage balancing capabilities required by EOP-005 and EOP-006. Partial shutdowns are already covered by other standards including TOP-001, TOP-004, and EOP-001.</p> | | | |
| Manitoba Hydro | <input checked="" type="checkbox"/> | | I believe that a clearer definition of what a restoration plan is meant to cover is needed. |
| <p>Response: The SDT has re-written the Purpose statement and R1 to accommodate these concerns. (See the summary consideration above.)</p> | | | |
| ATC | <input checked="" type="checkbox"/> | | ATC agrees that this standard should apply in those situations that require Blackstart Resource. |
| Madison G&E | <input checked="" type="checkbox"/> | | A partial shutdown could be a normal occurrence, even if a Blackstart Resource is used to bring that portion of the system back to its pre-Disturbance state. |
| RFC (1) | <input checked="" type="checkbox"/> | | I believe this standard is covering the event in which blackstart resources are needed or complete shutdown has happened. By covering these types of events here and training on these events the industry is ensuring that there is an understanding by personnel and equipment available to restore after these events. Partial shutdown training, understanding of operational processes and procedures and other standards is provided by existing training and documentation. |
| Southern Transmission | <input checked="" type="checkbox"/> | | We agree with the removal of the "partial shutdown" language from this Standard for the reasons stated. |
| FirstEnergy | <input checked="" type="checkbox"/> | | FE Agrees |
| New York ISO | <input checked="" type="checkbox"/> | | |
| Santee Cooper | <input checked="" type="checkbox"/> | | |
| TVA | <input checked="" type="checkbox"/> | | |
| US Army Corps Eng. | <input checked="" type="checkbox"/> | | |
| Ameren | <input checked="" type="checkbox"/> | | |
| Reliant | <input checked="" type="checkbox"/> | | |
| Entergy | <input checked="" type="checkbox"/> | | |
| Dominion | <input checked="" type="checkbox"/> | | |
| AEP | <input checked="" type="checkbox"/> | | |

Consideration of Comments on 1st Draft of System Restoration and Blackstart Standards (Project 2006-03)

| Question #2 | | | |
|-----------------------------|-------------------------------------|-----------|----------------|
| Commenter | Yes | No | Comment |
| CenterPoint | <input checked="" type="checkbox"/> | | |
| Consumers | <input checked="" type="checkbox"/> | | |
| Duke Energy | <input checked="" type="checkbox"/> | | |
| FPL | <input checked="" type="checkbox"/> | | |
| MRO SRC | <input checked="" type="checkbox"/> | | |
| National Grid | <input checked="" type="checkbox"/> | | |
| NIPSCO | <input checked="" type="checkbox"/> | | |
| Salt River Project | <input checked="" type="checkbox"/> | | |
| Response: Thank you. | | | |

Consideration of Comments on 1st Draft of System Restoration and Blackstart Standards (Project 2006-03)

3. The SRB SDT has included training for generator operators and field switching personnel associated with restoration in EOP-005 in accordance with FERC Order 693. Do you agree or have other suggestions for how to supply such training?

Summary Consideration: Most commenters disagreed with the inclusion of training for generator operators and field switching personnel associated with restoration.

The SDT notes that in FERC Order 693, the FERC determined that *“System restoration requires the participation of not only control room personnel but also those outside of the control room. These include blackstart unit operators and field switching operators in situations where SCADA capability is unavailable.”*

The drafting team modified R10 (now R12 in the revised standard) to clarify that if the TOP’s restoration plan has field switching tasks **unique** to system restoration that are not included in normal operations, then training is required.

In FERC Order 693, the ERO is directed to identify time frames for training and review of restoration plan requirements. Requirements have been changed accordingly. Several commenters questioned the proposed time frames and the drafting team modified the requirement to clarify that the training must be a minimum of two hours rather than four hours, and the training requirement is only applied to Generator Operators of Blackstart Resources.

The drafting team’s modifications to EOP-005 Requirements R12 (formerly R10) & R18 as shown below.

R12. Each Transmission Operator shall provide a minimum of two hours of System restoration training per year for ~~each of its authorized transmission~~ field switching personnel ~~for the tasks~~ identified ~~in~~ as performing unique tasks associated with its restoration plan, and outside of their normal tasks.

R18. Each Generator Operator ~~of a Blackstart Resource~~ shall provide a minimum of ~~four~~ two hours of training per year to ~~each of its~~ operating personnel responsible for the startup and synchronization of its Blackstart Resource generation units ~~identified in the BRFP~~. The training program shall include the following:

| Question #3 | | | |
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| Commenter | Yes | No | Comment |
| SDG&E | | <input checked="" type="checkbox"/> | I do not agree with the training required of field switching personnel. It is overly prescriptive given the less complex nature of their involvement in restoration. Have a requirement to include system restoration training within the TOPs authorization training for its switching personnel (typically every 3 years). That way to stay authorized, you have to have that restoration training. |
| WECC RCCWG | | | Training should be addressed in the PER standards. In addition to that comment, the WECC RCCWG feels that a standard that is applicable to Reliability Coordinators only is not the place for Training for Generator Operators and field switching personnel. |

Consideration of Comments on 1st Draft of System Restoration and Blackstart Standards (Project 2006-03)

| Question #3 | | | |
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| Commenter | Yes | No | Comment |
| | | | Training for all switchmen is confusing as the term switchmen is not defined and varies by locality. |
| <p>Response: If the TOP's restoration plan has field switching tasks unique to system restoration that are not included in normal operations, then training shall be required. Changes have been made to R12 to clarify this position.</p> | | | |
| PG&E (1) | | | We don't agree that specific hours of training should be stated for generator operators, but only specify the training that is needed. We also recommend a two year requirement be considered, similar to the drills in EOP-006. We do not agree that the training should go to the field switching personnel since they take orders from the control room. In addition, their switching assignments will be based on their specific locations, wherever that is at the time of the event. |
| <p>Response: It is appropriate to include both the minimum hours of training and the training content in this standard, similar to the training requirements documented in PER-002-2 which states "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." Additionally, in the new version of the standard, PER-005, requirement R3 states "shall provide each System Operator with at least 32 hours annually of emergency operations and system restoration training" PER-005 R3.1. states "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)."</p> <p>If the TOP's restoration plan has field switching tasks unique to system restoration that are not included in normal operations, then training shall be required. Changes have been made to R12 to clarify this position.</p> | | | |
| Salt River Project | | <input checked="" type="checkbox"/> | Training of field switching personnel should not be included in NERC Standards and should be left up to the individual entities. Field switching personnel are not typically NERC certified. This issue could be addressed in NERC Readiness Audits. Field switching personnel should always be working under the direction of a certified Transmission Operator. Are the tasks performed by switching personnel that much different than their normal switching tasks? While the conditions triggering the performance of the tasks may be abnormal, the tasks are likely the same and a special training requirement for field personnel isn't warranted. |
| <p>Response: System restoration requires the participation of control room personnel, generator operators and field switching personnel regardless of NERC certification. As such, all should receive system restoration training. EOP-005-2 establishes the minimum training requirements to ensure all participants are trained in system restoration. Other NERC standards require training of non-certified personnel such as CIP-004-1.</p> <p>If the TOP's restoration plan has field switching tasks unique to system restoration that are not included in normal operations, then training shall be required. Changes have been made to R12 to clarify this position.</p> | | | |
| SERC OPS | | <input checked="" type="checkbox"/> | (1) We do not agree that training requirements should be included in EOP-005, and (2) We don't agree with the "broad brush" approach taken to apply to all field personnel. (1) We feel strongly that training for restoration should be addressed by the PER Standards rather than in the Emergency Operations Standards. |

Consideration of Comments on 1st Draft of System Restoration and Blackstart Standards (Project 2006-03)

| Question #3 | | | |
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| Commenter | Yes | No | Comment |
| | | | (2) In addition to the training requirements being too broadly applied to field personnel, they lack detail in what should be covered as compared to the requirements of R9. The specified training in Requirements R10 and R15 should only apply to those Transmission Operator and Generation Operator personnel that direct system restoration actions carried out by personnel in the field and generating plants. Requirement R15 of the Standard needs to be revised to delete the requirement for "a minimum of four hours of training per year." Requirement R15 already includes a minimum content for the training program for Generator Operators. As long as the training given meets the training content requirement in R15, there is no need, and it is inappropriate, to specify a required duration for the training. Also, since the training content is specified in R15, this requirement is measurable and there is no need for training duration to be added just so the requirement can be measured in this manner. |
| New York ISO | | <input checked="" type="checkbox"/> | Generator operators and field switching personnel have no decision making role in the process of system restoration. Switching personnel follow switching orders, as is their normal function. Generator operators keep their units running, keep the dispatching entity (TO or ISO) appraised of the unit capabilities, and follow the MW/MVAR instructions of the dispatching entity, as is their normal function. All training requirements should be included in PER-005. |
| Entergy | | <input checked="" type="checkbox"/> | There should not be a requirement for training of "field switching personnel" in system restorations as those personnel do not take unilateral action. Field personnel are trained as needed to fulfill all the requirements of their positions and duties, including restoration. In addition, we believe all the compliance monitoring and book-keeping needed to show compliance for training 2 hours per year does not justify the placement of this type of requirement in a NERC standard. Please delete EOP-005-2 R10. |
| Dominion | | <input checked="" type="checkbox"/> | Dominion's position is that system restoration training should be provided to each of our approved transmission field switching personnel as part of their re-qualification training that is currently performed on a three year cycle. In fact we intend to integrate this training into the qualification program whether or not the proposed requirement for such training is approved or not. This training will cover all of the switching tasks identified in our system restoration plan. We do not agree that such training is necessary on an annual cycle, and an annual requirement would needlessly disrupt our established and proven training cycle. A three year cycle is the current requirement for blackstart resource testing, and we believe that a three year cycle is adequate for qualifying field switching personnel as long as the qualification training covers all components of switching tasks identified in the system restoration plan as it may change and become more complex over time. Therefore, Dominion believes that requirement R10 of EOP-005 should read as follows: R10. Each Transmission Operator shall provide System restoration training at least |

Consideration of Comments on 1st Draft of System Restoration and Blackstart Standards (Project 2006-03)

| Question #3 | | | |
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| Commenter | Yes | No | Comment |
| | | | <p>every three years for each of its authorized transmission field switching personnel for the tasks identified in its restoration plan.</p> <p>Dominion's position is that the blackstart generator operator needs to know how to coordinate with the Transmission Operator, how to perform a black start-up, how to perform switching, and how to control the generator voltage and frequency as load is added during a system restart. The operator is familiar with most of these activities through experience gained while normally operating the generator and through the normally scheduled blackstart testing. Therefore, we do not agree that a minimum of four hours of training per year is necessary based on the day to day activities that the generator operators perform. If there is to be a training requirement, it should be based on the topics that should be covered rather than be time based.</p> |
| AEP | | <input checked="" type="checkbox"/> | <p>EOP-005, R10 – We do not agree with mandating 2 hours of annual training for field switching personnel. Their initial training gives them the required training to qualify and certify them to perform switching. Their daily job is switching, operating, and maintaining the sub-station and line equipment. All field-switching by field switching personnel is done under the authority and direction of the NERC certified system operators in the operating/dispatch centers. The System Operators give detailed step by step switching instructions to field-switching personnel, whether emergency or routine maintenance switching, related to the isolation and restoration of equipment. Instructions are not given to unqualified personnel. Instructions are given to qualified personnel only. Our Company policy requires a switchperson to take a refresher course if a switchperson has not switched within a twelve month period. Consequently we find little value in mandating an annual two hour training session for every switchperson on the AEP system. Field switching personnel will follow the switching instructions given by the System Operators/Dispatchers during black-start the same as they do in other situations of maintenance, emergencies following storms, and emergencies of other unplanned outages. In most cases, these are step-by-step instructions. However, we could support a requirement mandating 2 hrs of annual training for field switching personnel that have not performed switching in the past 12 months.</p> |
| ATC | | <input checked="" type="checkbox"/> | <p>ATC does not agree with the requirement to train field switching personnel and request that it be deleted. ATC believes that emergency field switching done during a blackout is no different than field switching performed during planned events or other emergencies. In addition, the field switching personnel work under the direction of a NERC certified system operator.</p> <p>If the SDT determines its necessary to address this issue, then we recommend that the SDT request NERC to have a personnel specific committee explore the idea.</p> |
| Consumers | | <input checked="" type="checkbox"/> | <p>R15 - Consumers agrees that it is appropriate for the Standard to require the generator operator to provide training to its operating personnel, however, the generator operator</p> |

Consideration of Comments on 1st Draft of System Restoration and Blackstart Standards (Project 2006-03)

| Question #3 | | | |
|-------------|-----|-------------------------------------|--|
| Commenter | Yes | No | Comment |
| | | | should be allowed flexibility in determining what training is necessary to ensure it meets its obligations set forth in the transmission operators BRFP. |
| HQT | | <input checked="" type="checkbox"/> | Field switching personnel and Generator Operators are sufficiently trained and no specific training is required; these entities do not have decision making authority with respect to system restoration. The interpretation of the term "operator" is not clear in the FERC order. Further, as a generic comment, all training requirements should be contained in the single training Standard PER-005; this comment is applicable to both proposed Standards EOP-005 and EOP-006. |
| FirstEnergy | | <input checked="" type="checkbox"/> | FE Disagrees. We do not support the proposed R10 requirement of EOP-005-2. FE's field switching personnel do not independently perform transmission switching without taking direction from our transmission operations staff. It is FE's view that our field personnel do not need to be trained in the "big picture view" of system restoration and that the tasks required of them would not be significantly different than switching steps performed during normal operations. With regard to proposed requirement R15 of EOP-005-2, we agree with the proposed training for the Generator Operator related to the system restoration plans. However, the SDT should further clarify the Generator Operator definition for this requirement; i.e. plant generator operator or control center generator operator with oversight of multiple units, or both. Furthermore, we do not agree with including training requirements in the EOP standards. We recommend that all training requirements be included in the PER set of training standards. Also, there is a current NERC project (2006-01) that is creating new requirements for system personnel training. The new standard is PER-005 and it discusses training with regard to system restoration in requirement R3. The SDTs for this project and the 2006-01 project should coordinate the training requirements and keep them in the PER set of standards. |
| CenterPoint | | <input checked="" type="checkbox"/> | Any training requirement should be contained within the appropriate PER standard. However, field switching personnel should not be included. The role of field switching personnel in a black start restoration situation would not differ significantly from storm restoration or other service restoration situations. Therefore, specific training requirements are not warranted. (See response to Q.1. above.) |
| IESO | | <input checked="" type="checkbox"/> | All training matters should be grouped under the training standards. To have a training requirement in each standard that deals with a specific subject creates a difficulty in assessing a complete training need. |
| KCPL | | <input checked="" type="checkbox"/> | It is unnecessary to include training for field switching personnel. These personnel do not act independently and are under the direction of Transmission Operators and Generation Operators who are required to be trained in this proposed standard. |

Consideration of Comments on 1st Draft of System Restoration and Blackstart Standards (Project 2006-03)

| Question #3 | | | |
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| Commenter | Yes | No | Comment |
| FPL | | <input checked="" type="checkbox"/> | <p>Generator Operators and field switching personnel have no decision making role in the process of system restoration.</p> <p>R-16 If the term Generation Operators must remain then it should be clear that these are the Generation Operators only responsible for Operation of the Black Start resources.</p> <p>All training requirements should be covered under Per-005. Training requirements sprinkled throughout the Standards become confusing.</p> <p>Clarification needs to be given on what type of training is required for authorized transmission field switching personnel.</p> |
| NPCC RSC | | <input checked="" type="checkbox"/> | <p>Field switching personnel and Generator Operators are sufficiently trained and no specific restoration training is required; these entities do not have decision making authority with respect to system restoration. The interpretation of the term "operator" is not clear in the FERC order.</p> <p>Further, as a generic comment to training, all training requirements should be contained in the single training Standard PER-005; this comment is applicable to both proposed Standards EOP-005 and EOP-006.</p> |
| Southern Transmission | | <input checked="" type="checkbox"/> | <p>All training requirements should be centralized in the PER category of Reliability Standards. The EOP-005-2 proposed Standard sets a minimum amount of time to be spent, on an annual basis, in training for both TOP and GO without offering much specificity or guidance, particularly for the TOP (and BA if included), as to what the training will impart. Requirement R.15 is a good beginning. More of the training detail should be developed and then specified in the Standard, perhaps with "training will include as a minimum" language. Once more detail is identified, time estimates of performing that training could then be developed and listed for the GO and TOP (and BA) if the drafting team feels minimum time periods for training should be included in the Standard. We recommend dropping the four and two hour minimum time requirements and focus more on the minimum content to be included in the training. If the Standard will continue to utilize a "Blackstart Resource agreement", training requirements should be reflected in that agreement.</p> |
| PG&E (2) | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <p>Including training for generator operators and field switching personnel associated with restoration complies with the intent of FERC Order 693, with states "System restoration requires the participation of not only control room personnel but also those outside of the control room. These include blackstart unit operators and field switching operators in situations where SCADA capability is unavailable. As such, the Commission believes that inclusion of periodic system restoration drills and training and review of restoration plans in a system restoration Reliability Standard is the most effective way of achieving the desired goal of ensuring that all participants are trained in system restoration and that the restoration plans are up to date to deal with system changes."</p> |

Consideration of Comments on 1st Draft of System Restoration and Blackstart Standards (Project 2006-03)

| Question #3 | | | |
|--------------------|-------------------------------------|-------------------------------------|--|
| Commenter | Yes | No | Comment |
| | | | However, the training required in EOP-005-2 R10 and R15 are missing the words "where SCADA capability is unavailable". R10 and R15 are also not clear who exactly is required to be involved in this required training. Recommend adding the words "where SCADA capability is unavailable" and clearly defines 'those outside of the control room' that would require training so it is not mis-interpreted and can be properly measured. |
| SPP ORWG | | <input checked="" type="checkbox"/> | FERC Order 693 assumes that switchmen and generator operators are acting independently, which is incorrect. They are always under the direction and operating authority of an entity's control room. We do not believe this additional training requirement for switchmen and generator operators is necessary as they are already trained on how to switch equipment under adverse conditions (storm restoration, loss of DC, etc.) or on how to start and synchronize a unit. |
| OVEC | | <input checked="" type="checkbox"/> | Training requirements should all be in one standard. The training standard should not dictate training contents. Field switching personnel should not be included in any training requirements because these personnel are under the direction and control of a NERC certified system operator. |
| OPG | | <input checked="" type="checkbox"/> | As written the standard implies that Generator Operators do not currently possess the necessary skills to start and synchronize a unit. In addition Ontario already has a comprehensive System Restoration and Blackstart Program that includes training and integrated exercises for operators. This requirement would add an additional training burden. OPG questions the necessity for this additional training burden and requires to know the justification and rationale for its requirement. |
| MRO SRC | | <input checked="" type="checkbox"/> | The MRO would like the SDT to clarify who exactly needs training regarding field switching personnel and the duties they perform. Does an entity need to train all field personnel for all duties, due to the rotating nature of duties performed by field personnel? |
| National Grid | | <input checked="" type="checkbox"/> | Neither directs restoration therefore this requirement is unnecessary. They only need to follow the direction they are given. |
| NBSO | | <input checked="" type="checkbox"/> | Special restoration training for the field personnel is not required. They should be trained sufficiently through their normal training process. |
| Duke Energy | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | At generator facilities, operators may be required to perform non-routine duties associated with blackstart, such as switchyard activities. It is appropriate to provide blackstart training for these individuals. However transmission field switching personnel would be performing familiar tasks under the direction of the Transmission Operator, and do not need specialized training. We have hundreds of field switching personnel, and providing two additional hours of training purely on blackstart restoration is unwarranted. |
| FRCC | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | Training requirements for EOPs should be centrally located in the PER standards and not |

Consideration of Comments on 1st Draft of System Restoration and Blackstart Standards (Project 2006-03)

| Question #3 | | | |
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| Commenter | Yes | No | Comment |
| | | | <p>embedded within EOP-005 and EOP-006.</p> <p>For companies with local Generation Control Centers, we agree that training is needed. For companies with Generation, Interchange, and Transmission in the same control center, this training is already required (EOP-005-0, R6 and R7). Field switching personnel are already trained on how to operate switches and devices. In a restoration situation field operating personnel need only to follow the instructions given to them by the System Operator, therefore specific training for field personnel in restoration is not needed.</p> |
| We Energies | <input checked="" type="checkbox"/> | | <p>We disagree with the training requirements for field switching personnel and Generator Operators.</p> <p>For the field switching, there is no value added by requiring the training. Field personnel routinely switch under adverse conditions related to storm recovery and equipment damage.</p> <p>The GO is the entity testing units for Black Start capability for compliance to NERC and Regional Entity Standards. The training required in the proposed standards is redundant. The GO does not determine restoration philosophy. Restoration priorities are not the purview of the GO.</p> |
| NIPSCO | <input checked="" type="checkbox"/> | | <p>It may be desirable to have all training requirements in a single standard such as PER-005. It is not clear who the generator operator is in this context. Is that a person at the generating station or at the central operations center?</p> |
| Manitoba Hydro | <input checked="" type="checkbox"/> | | <p>I am in agreement with MISO in that if the training content is covered then you don't need to define how many hours of training is required by generator operators and field switching personnel.</p> |
| MISO Stakeholders | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <p>While generator operators and field switching personnel should participate in drills associated with restoration, we are not sure it is appropriate to extend obligations beyond registered entities (field switching personnel and power plant workers may have no affiliation with the respective BA or TOP). Most utilities have scores of individuals that do field switching and in all cases they are working under the direction of a transmission operator. The specified training in Requirements R10 and R15 should only apply to those Transmission Operator and Generation Operator personnel that direct system restoration actions carried out by personnel in the field and generating plants. Assuming Generator Operators does not encompass personnel in the plant, requirement R15 of the Standard needs to be revised to delete the requirement for "a minimum of four hours of training per year." Requirement R15 already includes a minimum content for the training program for Generator Operators. As long as the training given meets the training content requirement in R15, there is no need, and it is inappropriate, to specify a required duration for the training. Also, since the training content is specified in R15, this requirement is measurable and there is no need for training duration to be</p> |

Consideration of Comments on 1st Draft of System Restoration and Blackstart Standards (Project 2006-03)

| Question #3 | | | |
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| Commenter | Yes | No | Comment |
| | | | added just so the requirement can be measured in this manner. |
| WECC OTS | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <p>WECC OTS agrees that including training for generator operators and field switching personnel associated with restoration complies with the intent of FERC Order 693, with states "System restoration requires the participation of not only control room personnel but also those outside of the control room. These include blackstart unit operators and field switching operators in situations where SCADA capability is unavailable. As such, the Commission believes that inclusion of periodic system restoration drills and training and review of restoration plans in a system restoration Reliability Standard is the most effective way of achieving the desired goal of ensuring that all participants are trained in system restoration and that the restoration plans are up to date to deal with system changes."</p> <p>However, the training required in EOP-005-2 R10 and R15 are missing the words "where SCADA capability is unavailable". The wording in R10 and R15 are also not clear who exactly is required to be involved in this required training. The OTS recommends adding the words "where SCADA capability is unavailable" and clearly defines 'those outside of the control room' that would require training so it is not mis-interpreted and can be properly measured.</p> |
| Ameren | | <input checked="" type="checkbox"/> | <p>While a case could be made that the only generator operators that would participate in a Blackstart plan are able to be defined and thus easy to target for training, it is not the case with field switching personnel. For blackouts resulting from sabotage or natural disaster, it is highly likely that many field switching personnel will be called into duty to aid in restoration that can not be pre-determined or would not be logical choices for yearly training. For example, many utilities rely on contractors, other utilities, and even staff employees during storm or disaster events. These people may be trained to various work, e.g operation of a switch or operation of switches in a control room that may be necessary depending on the extent of the blackout, the duration, and the extent of other damage. Even those people who routinely perform switching may be called to a more important purpose during a restoration event if a replacement employee from one of the "emergency responder" categories could be used. The switching training will be nothing but a feel good which does not contribute to reliability. It would be far better for the requirement to be that following an event a TOP showed it utilized appropriate levels to support the restoration.</p> |
| ISO/RTO | | <input checked="" type="checkbox"/> | <p>All training matters should be grouped under the training standards. To have a training requirement in each standard that deals with a specific subject creates a difficulty in assessing a complete training need.</p> <p>We also do not see the need for R10. For example, if a field switchman is trained to switch and follow directions of the transmission dispatcher, we do not see the need for a blanket requirement that all switchmen must have specific annual blackstart training.</p> |

Consideration of Comments on 1st Draft of System Restoration and Blackstart Standards (Project 2006-03)

| Question #3 | | | |
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| Commenter | Yes | No | Comment |
| | | | <p>There is also concern that the term switchmen could cause confusion. Does this requirement require training of the person pulling switches in the field or is this a resurrection of the local control center topic?</p> <p>In R9., the term "existing emergency operations topics training program" should be simplified to "operations training program".</p> |
| BCTC | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <p>This training should be covered in the PER Standards that are being re-worked at the same time.</p> <p>FERC Order 693 said in part "System restoration requires the participation of not only control room personnel but also those outside of the control room. These include blackstart unit operators and field switching operators in situations where SCADA capability is unavailable. As such, the Commission believes that inclusion of periodic system restoration drills and training and review of restoration plans in a system restoration Reliability Standard is the most effective way of achieving the desired goal of ensuring that all participants are trained in system restoration and that the restoration plans are up to date to deal with system changes." The training required in EOP-005-2 R10 and R15 are missing the words "where SCADA capability is unavailable". The wording in R10 and R15 are also not clear who exactly is required to be involved in this required training. Suggest adding the words "where SCADA capability is unavailable".</p> <p>R15 says Generator Operators not Generator Operators of Blackstart Resources. Is this requirement meant to cover more than Generator Operators of Blackstart Resources? If yes, they should be clearly defined which Generator Operators must be trained. Generator Operators of Blackstart Resources are required to test the plant once every three years to ensure the plant is capable of meeting the requirements of being a Blackstart Resource. A certain amount of training goes into meeting this test. Would 4 hours of training to test the Blackstart Resource meet this requirement or is the training that is being suggested as required annually be different? If it is different the Standard should say that as we believe the training program for Generator Operators in R15 is part of the blackstart testing we do every 3 years. Who would be required to maintain these training records for an audit, the Generator Operator or the Transmission Operator?</p> |
| <p>Response: The SDT notes that in FERC Order 693, the FERC determined that "System restoration requires the participation of not only control room personnel but also those outside of the control room. These include blackstart unit operators and field switching operators in situations where SCADA capability is unavailable."</p> <p>If the TOP's restoration plan has field switching tasks unique to system restoration that are not included in normal operations, then training shall be required. Changes have been made to R12 to clarify this position.</p> <p>In FERC Order 693, the ERO is directed to identify time frames for training and review of restoration plan requirements.</p> | | | |
| Santee Cooper | | <input checked="" type="checkbox"/> | FERC Order 693 states the "Commission believes that inclusion of periodic |

Consideration of Comments on 1st Draft of System Restoration and Blackstart Standards (Project 2006-03)

| Question #3 | | | |
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| Commenter | Yes | No | Comment |
| | | | system restoration drills and training and review of restoration plans . . .". We recommend that "periodic" training be conducted every 3 years, which is our current policy on refresher training (8 hours) for generator operators and field switching personnel. Providing training for two and four hours annually is not cost effective or productive for personnel involved in shift operations. The eight hours provided by Santee Cooper every three years provides an in-depth review of switching operations than could be provided in two and four hours of training. A requirement of more hours of training every three years will allow for more in depth training with appropriate assessments. |
| <p>Response: EOP-005-2 establishes the minimum training requirements to ensure all participants are trained in system restoration. Annual training is more effective and required by other standards such as PER-002. Many methods are available for training shift workers besides typical classroom style instruction.</p> | | | |
| Reliant | | <input checked="" type="checkbox"/> | <p>The training requirement for generator operators is not needed because:</p> <ol style="list-style-type: none"> 1. Generator operator is too broad of a term in defining who must be trained. It could mean the control room operator or the person that works the basement. I believe that the standard team means the person that actually starts the unit. In any case the 4 hours of training is over kill. These units, in the majority of the cases are simple cycle CT's that do double duty as black start and as peakers. As a peaker these units are started during high demand periods. The generator operator knows how to start these units so additional training is not needed. 2. The generator operators do what they are told. They do not take any unilateral action in the event of a blackout. The transmission operator must have a very though understanding of the sequence of events. The generator operator only needs to understand the process at a high level. It does not take 4 hours of training for this position to get a more detailed understanding. The generator is in possession of the black start recovery procedure. If the SDT feels that training is required then that training requirement should be on the operators' supervisor, not the operator. 3. The black start generator must do an annual test proving the units ability to start without assistance from the grid and sync to a dead bus. This should suffice as adequate training for the generator operator. |
| <p>Response: The SDT has made changes to the old R17 to accommodate these concerns.</p> | | | |

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| Question #3 | | | |
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| Commenter | Yes | No | Comment |
| Madison G&E | | <input checked="" type="checkbox"/> | <p>a) 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.</p> <p>b) Concerning "Generator Operator" training: Concur with FERC's decision (FERC Order 693, para 1332 and 1359) that the Generator Operator as an entity (see NERC definition of Generator Operator) is required to be NERC Trained, not the plant operators located at the generator plant site, based on the following: As stated in FERC Order 693, para. 1360, "... a generator operator typically receives instructions from a balancing authority. Some generator operators are structured in such a way that they have a centrally-located dispatch center [note: possibly in a System Operations Center where the person performing NERC Standards in accordance with Balancing Authority are also the Generator Operator] that receives direction and then develops specific dispatch instructions for plant operators under their control". "In this type of structure, it is the personnel of the centrally-located dispatch center that must receive formal training in accordance with the Reliability Standard. Plant operators located at the generator plant site also need to be trained but the responsibility for this training is outside the scope of the Reliability Standard".</p> <p>c) We should not CONFUSE Generator Operator (a registered NERC entity) with plant personnel.</p> <p>d) Per NERC Definition: "Generator Operator is: The ENTITY that operates generating unit(s) and performs the FUNCTION of supplying energy and Interconnected Operations Services". FERC states that plant operator training is outside the scope of a Reliability Standard within FERC Order 693, para, 1361, again. FERC Order 693, para. 1365, states " regarding the need for a size limitation on generator operators...We believe that limiting the applicability of Reliability Standards to NERC's definition of bulk electric system will alleviate much of... the expanded requirements on end users who have on-site generation". The SDT need to state this in the proposed Standard.</p> <p>e) Concerning "Field Switching Personnel" and "blackstart unit operators" training: Per FERC Order 693, para. 627, states "...PER-005-1 only includes Requirements on the control room personnel and not those outside of the control room. System restoration requires the participation of not only control room personnel but also those outside of</p> |

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| Question #3 | | | |
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| Commenter | Yes | No | Comment |
| | | | <p>the control room. These include blackstart unit operators and field switching operators in situations where SCADA capability is unavailable". According to the above paragraph, any type of training should be in PER-005-1 and not within EOP-005-2 (described in first sentence of para. 627).</p> <p>f) There should not be an hour (training) requirement (or mention) for non-NERC certified personnel within any NERC Standard ("Field Switching Personnel" and "blackstart unit operators"). Key people need to be in the training loop for restoration processes, but the NERC Standard training requirement can only apply to personnel who hold a NERC Certification. SRB SDT should remove training hour requirements for non NERC Certified personnel from the NERC Standard. The NERC Standard is not a receptacle of NERC Requirements (?) for NON NERC Certified personnel.</p> <p>g) There may be a few items that require specialized training in the restoration of the BES. One may be the synching of two islands or ensuring backup systems are working within limits for pipe type cable. Perhaps these requirements could be held at the Transmission operator or Regional Entity level.</p> |
| <p>Response:</p> <p>A. The SDT notes that in FERC Order 693, the FERC determined that "System restoration requires the participation of not only control room personnel but also those outside of the control room. These include blackstart unit operators and field switching operators in situations where SCADA capability is unavailable."</p> <p>B. Thank you.</p> <p>C. The SDT has made changes to R17 to accommodate this concern.</p> <p>D. The SDT has made changes to R17 to accommodate this concern.</p> <p>E. If the TOP's restoration plan has field switching tasks unique to system restoration that are not included in normal operations, then training shall be required. Changes have been made to the new R12 to clarify this position.</p> <p>F. (and G.) It is appropriate to include both the minimum hours of training and the training content in this standard, similar to the training requirements documented in PER-002-2 which states "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." Additionally, in the new version of the standard, PER-005, requirement R3 states "shall provide each System Operator with at least 32 hours annually of emergency operations and system restoration training" PER-005 R3.1. states "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)."</p> | | | |
| RFC (1) | <input checked="" type="checkbox"/> | | <p>However I think you need to be clear on your definition of GOP. As I understand it , GOP's are those which communicate with the BA and relay directions to generating plant personnel. Both of these types of personnel should have some type of training in my opinion. These people need to be aware of these types of situations. The plant</p> |

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| Question #3 | | | |
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| Commenter | Yes | No | Comment |
| | | | operator is concerned with his or her unit and it's operation however there are things which he should be aware of such as frequency swings during restoration, loading of units, etc. Field Switching personnel may not make transmission operational decisions but they are involved and need a familiarity with equipment during these types of events. The training time required should probably be reduced to 2/4 hours every 2 years. |
| <p>Response: EOP-005 has been modified to make it clear that representative staff members of a TOP or GOP must participate in drills not the TOP or GOP function.</p> <p>It is appropriate to include both the minimum hours of training and the training content in this standard, similar to the training requirements documented in PER-002-2 which states "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." Additionally, in the new version of the standard, PER-005, requirement R3 states "shall provide each System Operator with at least 32 hours annually of emergency operations and system restoration training" PER-005 R3.1. states "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)." In FERC Order 693, the ERO is directed to identify time frames for training and review of restoration plan requirements.</p> | | | |
| TVA | <input checked="" type="checkbox"/> | | It would be helpful to have more insight from the drafting team about the scope of training to be required. Perhaps an attachment to the standard should be added to clarify the training objectives. On initial impression, the 2/4 hr annual training requirement for Operators seems excessive. It would appear that this training should be able to be incorporated into existing operator training programs already in place. |
| <p>Response: It is appropriate to include both the minimum hours of training and the training content in this standard, similar to the training requirements documented in PER-002-2 which states "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." Additionally, in the new version of the standard, PER-005, requirement R3 states "shall provide each System Operator with at least 32 hours annually of emergency operations and system restoration training" PER-005 R3.1. states "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)." The training mentioned is part of the existing training requirement not in addition to. In FERC Order 693, the ERO is directed to identify time frames for training and review of restoration plan requirements.</p> | | | |
| US Army Corps Eng. | <input checked="" type="checkbox"/> | | I am glad that finally there is a requirement for generator operators to be trained on black start restoration in addition to the requirement for testing of black starting of a generator. For all of the generators in my Division that are listed as black start resources, I require each operator to perform black start operations annually. I do this so that when a need arises to perform black starting, the operator on shift is fully trained in black starting a generator. The required 4 hours of training will give the |

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| Question #3 | | | |
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| Commenter | Yes | No | Comment |
| | | | operators a better idea of what the power system needs are surrounding black starting. |
| OPPD | <input checked="" type="checkbox"/> | | |
| Entergy (G&M) | <input checked="" type="checkbox"/> | | |
| Response: Thank you for your comment. | | | |

Consideration of Comments on 1st Draft of System Restoration and Blackstart Standards (Project 2006-03)

- The SRB SDT defined a new term, Blackstart Resource, which allows for greater flexibility in providing resources for blackstart operations. Do you agree with this definition?

Summary Consideration: Several commenters suggested that the definition was not clear and the SDT modified the definition based on comments received as shown below.

Blackstart Resource: A generation Facility and associated set of equipment ~~under which has the control of the Generator Operator with the basic~~ ability to ~~start itself be started~~ without support from the System or to ~~automatically~~ remain energized without connection to the remainder of the System, with the ability to energize a dead (de-energized) bus, ~~and~~ meeting the Transmission Operator’s restoration plan needs for real and reactive power capability, frequency and voltage control, and that has been included in the Transmission Operator’s restoration plan.

| Question #4 | |
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| Commenter | Comment |
| Ameren | Again, the nuance that is supposed to be derived from this wording is not clear. Again, please state what you mean and if necessary use an example to define. |
| <p>Response: The creation of this term helps define the true application of this standard since it only applies to a subset of all generators. Also, it helps define the fact that this standard only applies to designated units and not to other units that may be blackstart capable. The definition will eventually be moved into the NERC Glossary and may be used by other standards beyond these.</p> | |
| IESO | No, we do not agree with the definition of this term. The definition of the term must be revised in order to narrow down the scope of the definition to "true" blackstart units only. This way we can ensure that generators which trip on detecting the absence of an energized grid and end up serving station load (islanding scheme) are not considered as a blackstart resource because such units also have the capability to re-energize the grid if they are required to do so and as soon as the synchronization parameters are achieved, but this does NOT make these blackstart units. Hence, we propose a revised definition which is stated as follows: "Blackstart Resource: A generation Facility and set of equipment under the control of the Generator Operator with the basic ability to start itself without support from the System, with the ability to energize a dead bus, and meeting the Transmission Operator’s restoration plan needs for real and reactive power capability." |
| New York ISO | In M.M. Adibi's presentation to the EPRI System Restoration Workshop 3/16/2007 presented successful performance for generator islanding schemes at 50-60%. If we are counting on that sort of success rate, the transmission operators will have to be contracting for large amounts of blackstart and/or testing those islanding schemes on a very rigorous schedule. Testing the islanding schemes sounds like a major headache to me. It would be more straightforward deal with the traditions definition of blackstart. |
| NBSO | No The following definition is proposed: Blackstart Resource - A generation Facility and set of equipment under the control of the Generator Operator with the basic ability to start itself without support from the System, with the ability to energize a dead bus, and meeting the Transmission Operator’s |

Consideration of Comments on 1st Draft of System Restoration and Blackstart Standards (Project 2006-03)

| Question #4 | |
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| Commenter | Comment |
| | restoration plan needs for real and reactive power capability. |
| FirstEnergy | FE Agrees with the need for a revised "Blackstart" term. However, the definition seems longer than required with much of the verbiage repetitive and unnecessary. Therefore we propose the following revised definition: "Blackstart Resource - A generation Facility under the control of the Generator Operator with the ability to start itself without support from the System and that meets the restoration plan of the Transmission Operator." |
| ATC | We do not agree with the proposed definition for "Blackstart Resources". The proposed language would allow an entity to claim it has a "Blackstart Resource" even if the unit's availability is directly dependent on its pre-disturbance activity. In other words if the unit was on prior to the blackout then it may be available following the event, but if the unit was offline prior to the blackout then it will not be available post disturbance. A "Blackstart Resource" should be limited to a generator that has the ability to start without system support. An adequate level of reliability is dependent on the ability to restore the BPS following a blackout. That concept should not be dependent on the pre-disturbance status of the Blackstart Resource. |
| Southern Transmission | No. As we interpret the definition provided with Version 2 of the Standard, we find the definition clouds what a Blackstart Resource actually is. We read the part of the definition "... or to automatically remain energized without connection to the remainder of the System, ..." to be misleading. A generating unit that has not tripped off-line and is part of an islanded system but does not have "self start" capability will now be classified as a Blackstart Resource - and it isn't. This unit cannot start without support from the power grid and should not be considered a Blackstart Resource. The "... or to automatically remain energized without connection to the remainder of the System, ..." language in the definition should be stricken. Also, the Background section (end of the second paragraph) of this comment form states there is a newly defined term - Blackstart Resource Facility Plan - in the proposed Standard. We did not find a definition for Blackstart Resource Facility Plan. Additionally, the portion of the definition which reads, "...with the basic ability to start itself without support ..." would read better if phrased "... with the basic ability to be started without support" |
| <p>Response: Resources that can isolate themselves and remain in service are as important to the restoration effort as resources that can start without outside sources of power and are being considered Blackstart Resources. This type of resource being considered a Blackstart Resource is currently used in several regions. Blackstart Resource Facility Plan has been deleted from the standard.</p> | |
| NPCC RSC HQT | No The following definition is proposed: Blackstart Resource: A generation Facility and set of equipment under the control of the Generator Operator with the basic ability to start itself without support from the System, with the ability to energize a dead bus, and meeting the Transmission Operator's restoration plan needs for real and reactive power capability. Reliability concerns point to the high failure rate of islanding schemes as an alternative to a dedicated |

Consideration of Comments on 1st Draft of System Restoration and Blackstart Standards (Project 2006-03)

| Question #4 | |
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| Commenter | Comment |
| | Blackstart generator. It is also an issue that the system dispatch would require that these islanding units always operate 24 x 7 throughout the year. |
| Response: Resources that can isolate themselves and remain in service are as important to the restoration effort as resources that can start without outside sources of power and are being considered Blackstart Resources because of request from several industry representatives. This type of resource being considered a Blackstart Resource is currently used in several regions. These types of units are usually base load generation that is assumed to be running 24/7 except for maintenance. | |
| ISO/RTO | NO, we do not agree with the definition of this term. It is conceivable that a generating unit with blackstart capability can be located outside of the identified restoration, or "cranking" path. On the other hand, there can be facilities on the restoration path that do not provide or are not equipped with blackstart capability. We suggest the SDT to consider requiring the responsible entity (TOP) to: (a) Identify a cranking path for restoration from blackstart, and (b) designate specific generating sources on the cranking path that have or to provide blackstart capability. |
| Response: It's the TOP's responsibility to define which units are to be used in its restoration plan. Other units that are blackstart capable but not included in the restoration plan are not Blackstart Resources under these standards. | |
| MISO Stakeholders | The definition appears to deal only with the starting point of the cranking path (typically a combustion turbine or hydro unit) and leaves out the first generator downstream along the cranking path. This is where the real challenge takes place. This plant must be able to start up with a limited supply. |
| Response: True. Only the first unit to start is considered to be a Blackstart Resource under the NERC definition. Starting the next generator is part of the restoration plan. | |
| MRO SRC | The MRO feels the definition of Blackstart Resource is unclear and would suggest using a more concrete term such as Blackstart Plant or Blackstart Facility. |
| Response: Your comment should have included the definition of the suggested terms. Without the definitions we cannot act on this suggestion. | |
| NIPSCO | Yes/No The new definition looks fine however Blackstart Resource Facility Plans (BRFP) should also be defined and be the term replacing Blackstart Capability Plan. |
| Response: The "Blackstart Resource Facility Plan" has been deleted from the revised standard. | |
| OVEC | No, I do not agree with the definition. It is not clear what the word "automatically" means in this context. Does it allow for some operator intervention or no operator intervention at all? The new term which might allow for greater flexibility mis-identifies resources which were never intended to be a Blackstart Resource. Suggest limiting the definition to the following, "A generation Facility under the control of the Generator Operator with the basic ability to start itself without support from the System." |
| Response: This type of isolation scheme is required to act in time frames that are much faster than operator intervention time frames. Resources that can isolate themselves and remain in service are as important to the restoration effort as | |

Consideration of Comments on 1st Draft of System Restoration and Blackstart Standards (Project 2006-03)

| Question #4 | |
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| Commenter | Comment |
| | resources that can start without outside sources of power and are being considered Blackstart Resources because of request from several industry representatives. This type of resource being considered a Blackstart Resource is not new to this draft to several regions. |
| WECC RCCWG | We suggest you remove the words "under the control of the Generator Operator" from the definition, leaving the definition "A generation Facility and set of equipment with the basic ability to start itself without support from the System or to automatically remain energized without connection to the remainder of the System, with the ability to energize a dead bus, and meeting the Transmission Operator's restoration plan needs for real and reactive power capability." |
| | Response: The SDT chooses to retain the existing wording to address the possibility of additional Facilities under the control of the GOP beyond the definition of generation Facility. |
| Santee Cooper | We suggest replacing the words "to start itself" in the definition with "to be started". |
| FPL | No. The terms "basic ability to start it self" and "under the control of the generation operator" need to be clearer. |
| Entergy (G&M) | Yes, we agree with the definition. Consider adding a frequency component to the definition (as mentioned in the testing criteria). |
| PG&E (1) | We are concerned that the phrase "start itself" may be misunderstood as meaning automatically restarting itself. |
| FRCC | Yes, although the wording "basic ability to start itself" is a bit awkward. |
| SERC OPS | Yes, with the following change to the definition: replace "start itself" with "be started". |
| | Response: The definition has been modified to reflect your suggestion. (See the summary consideration above.) |
| Madison G&E | No. The following corrections need to be made to the definition of "Blackstart Resource". a) After "Facility" in the first sentence, delete "and set of equipment", NERC definition of Facility is "A set of electrical equipment...", "and set of equipment" makes the sentence redundant. b) Delete the word "basic" in the second sentence. A Blackstart Resource must be able to (Black)start on there own or not. There is no room for "basic ability". c) Change the word "or" to "and" in the second sentence after "without support from the System". Just about every unit would be able to stay online if not connected to the remainder of the System, if it had the proper amount of load. You could have a blackstart unit online and only be providing station services to itself. d) Concur with the last sentence in the definition of Blackstart resource stating "... and meeting the Transmission Operator's restoration plan needs for real and reactive power capability". But this is the only place that the Transmission Operator can make any minimum real and reactive power requirements to Generator Facilities on Blackstart Resources. This should be stated in a requirement (that the Transmission Operator will set minimum real and reactive limits for Blackstart resources). |
| | Response: a) and b) - The definition has been modified to reflect your suggestions. (See the summary consideration above.) c) Units that can separate from the system but remain on-line are a special type of blackstart resource that needs to be clearly identified. |

Consideration of Comments on 1st Draft of System Restoration and Blackstart Standards (Project 2006-03)

| Question #4 | |
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| Commenter | Comment |
| d) The SDT believes that this is addressed in R13. | |
| US Army Corps Eng. | I fully agree with this term. All of my hydropower generating facilities are capable of black starting the powerhouse. This is done as part of the dam safety and flood response requirements. This does not mean all hydro generators can black start a transmission line, it means that they can operate as a system generation resource during a black start event. Reconstruction of the transmission system starts with black starting lines, but having additional generation that can synch to the line will aide in how quickly large blocks of load can be picked up. So you may also want to define generation that is capable of starting or staying operational during a major system disturbance but is not capable of picking up the heavy reactive loads necessary to black start a transmission line. |
| TVA | Yes |
| Reliant | The definition looks good. |
| Entergy | Yes |
| AEP | Yes |
| BCTC | Yes |
| Duke Energy | Yes |
| KCPL | Yes |
| OPPD | Yes, we are in agreement with the definition. |
| RFC (1) | Yes, I agree. |
| Salt River Project | Yes |
| SPP ORWG | We agree with the definition. |
| Response: Thank you for your comment. | |

Consideration of Comments on 1st Draft of System Restoration and Blackstart Standards (Project 2006-03)

- 5. The SRB SDT has merged the RRO requirements in EOP-007 into EOP-006 and assigned them to the Reliability Coordinator. Do you agree with this change?

Summary Consideration: While most commenters agreed with the merging and reassignment of the RRO requirements from EOP-007 into EOP-006 there were some suggestions for modifying the requirements for training and drills And for making modifications to recognize that the actual restoration may deviate from the restoration plan. Based on these comments, the drafting team made the following changes to R1.6, R10 (now R12) and R18.

R1.6. A statement **accounting for the possibility that restoration can not be completed as expected** indicating that in situations where the actual conditions do not match the studied conditions, the System Operator shall use professional judgment to **modify-deviate from** the System restoration plan.

R12. Each Transmission Operator shall provide a minimum of two hours of System restoration training per year for **each of its authorized transmission** field switching personnel **for the tasks** identified **in** as performing unique tasks associated with its restoration plan; and outside of their normal tasks.

R18. Each Generator Operator **of a Blackstart Resource** shall provide a minimum of **four** two hours of training per year to **each of its** operating personnel responsible for the startup and synchronization of its Blackstart Resource generation units **identified in the BRFP**. The training program shall include the following:

Several commenters suggested that the Reliability Coordinator should not 'approve' the TOP's restoration plans. As to the RC approval process: In FERC Order 693, "the Commission directs the ERO to develop a modification to EOP-006-1 through the Reliability Standards development process that ensures that the reliability coordinator, which is the highest level of authority responsible for reliability of the Bulk-Power System, is involved in the development and approval of system restoration plans." The SDT believes that the process described in EOP-005-2 and EOP-006-2 meets the Commission directive.

| Question #5 | | | |
|-------------|-------------------------------------|-------------------------------------|--|
| Commenter | Yes | No | Comment |
| TVA | | <input checked="" type="checkbox"/> | RC should not "approve" the TOP plan. RC should review and provide technical comments to the TOP. TOP should be required to respond to RC written technical comments similar to the process in FAC-008-1 R2 for ratings. RC should not be a position of being liable for having "approved" the TOP plan EOP-005-2 R1 and EOP-006-2 R1 should be reworded to remove "approval". |
| NIPSCO | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | It is not certain that the RC or RRO has the resources and information to approve individual TOP restoration plans. The TOPs test the plans using their own expertise. |
| FRCC | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | We caution the DT that Reliability Coordinators should not be put in a position as Compliance Monitors. This is not the intention or the design of the NERC Standards program or the Compliance programs. The Reliability Coordinators should review and be aware of restoration plans but the "approval" step is shifting the responsibility for |

Consideration of Comments on 1st Draft of System Restoration and Blackstart Standards (Project 2006-03)

| Question #5 | | | |
|--|-------------------------------------|-------------------------------------|---|
| Commenter | Yes | No | Comment |
| | | | determining the effectiveness or "acceptability" of a plan back on the RC and effectively puts responsibility on the RC without organizational authority over the various entities within their footprint. This could add significant administrative burden on the RCs while diluting the restoration reliability responsibilities of individual entities. |
| RFC (1) | <input checked="" type="checkbox"/> | | However, If this standard is to set requirements for the RC then the RC should mentioned in the applicability section. The RC should not be involved in any compliance function either as it is not a compliance monitor. |
| MISO Stakeholders | | <input checked="" type="checkbox"/> | In general, we agree that many of the requirements from EOP-007 logically should be applied to the RC. However, we question the requirement for the RC to approve the TOP plan. What approval means is not defined in the standard. Does it mean that the RC guarantees the TOP plan will work, that the plan follows a consistent format or is it something else. Also, what is proposed if a plan fails to be approved? Which entity is non-compliant? It would be more appropriate for the RC to review, rather than approve, subordinate plans. |
| <p>Response: RC review and approval of the plan is not an issue of compliance but of coordination and workability with the RC's restoration plan.</p> <p>The SDT believes that this gives input to the RC in the development of plans such that the various TOP plans are coordinated with the RC's plan. In FERC Order 693, "the Commission directs the ERO to develop a modification to EOP-006-1 through the Reliability Standards development process that ensures that the reliability coordinator, which is the highest level of authority responsible for reliability of the Bulk-Power System, is involved in the development and approval of system restoration plans." The SDT believes that the process described in EOP-005-2 and EOP-006-2 meets the Commission directive.</p> <p>The applicability section of EOP-006-2 has the RC as the applicable entity.</p> <p>If a plan is not approved, EOP-006-2: R2, describes the process and defines who is responsible in a specific timeframe.</p> | | | |
| Santee Cooper | | <input checked="" type="checkbox"/> | Santee Cooper believes that a restoration plan developed to address a broad range of circumstances would not require the statement in R1.6 of EOP-006. R8 requires two system restoration drills, exercises, or simulations per year. This is a new requirement and not one that was merged from EOP007. The approval of system restoration plans by the Reliability Coordinator is a new requirement. Does this requirement hold the RC accountable if a TOP's plan turns out to be insufficient when implemented? Does this place the RC in a compliance monitoring role? If the RC does not approve a TOP's plan, is that TOP considered to be non-compliant? Prior wording used was "shall be aware of the restoration plan of each TOP". |
| <p>Response: The SDT has modified old R1.6 to accommodate this concern. (See the summary consideration above.)</p> <p>Yes, this is a new requirement that the SDT believes is necessary.</p> <p>RC review and approval of the plan is not an issue of compliance but of coordination and workability with the RC's restoration plan. The SDT believes that this gives input to the RC in the development of plans such that the various TOP plans are coordinated with the RC's plan. In Order 693, "the Commission directs the ERO to develop a modification to EOP-006-1</p> | | | |

Consideration of Comments on 1st Draft of System Restoration and Blackstart Standards (Project 2006-03)

| Question #5 | | | |
|---|-------------------------------------|-------------------------------------|--|
| Commenter | Yes | No | Comment |
| <p><i>through the Reliability Standards development process that ensures that the reliability coordinator, which is the highest level of authority responsible for reliability of the Bulk-Power System, is involved in the development and approval of system restoration plans." The SDT believes that the process described in EOP-005-2 and EOP-006-2 meets the Commission directive.</i></p> | | | |
| FPL | | <input checked="" type="checkbox"/> | <p>R8 requires two restoration drills, exercises, or simulations per year. This is a new requirement and not one merged from EOP-007</p> <p>The approval of system restoration plans by the Reliability Coordinator is also a new requirement. Prior wording used in the Standards was "shall be aware of the restoration plan of each TOP", I believe this was sufficient. Does this requirement hold the Reliability Coordinator accountable if the TOP's plan turns out to be insufficient when implemented? Does this place the RC in a compliance monitoring role?</p> |
| <p>Response: Yes, this is a new requirement that the SDT believes is necessary. RC review and approval of the plan is not an issue of compliance but of coordination and workability with the RC's restoration plan. The SDT believes that this gives input to the RC in the development of plans such that the various TOP plans are coordinated with the RC's plan. In Order 693, "the Commission directs the ERO to develop a modification to EOP-006-1 through the Reliability Standards development process that ensures that the reliability coordinator, which is the highest level of authority responsible for reliability of the Bulk-Power System, is involved in the development and approval of system restoration plans." The SDT believes that the process described in EOP-005-2 and EOP-006-2 meets the Commission directive.</p> | | | |
| FirstEnergy | <input checked="" type="checkbox"/> | | <p>FE Agrees - But we would we recommend considering further consolidation of EOP-006 into the proposed EOP-005-2. Since the standards coordinate with each other, it would alleviate having to constantly look at both standards from both a compliance and standards development standpoint. These standards go "hand-in-hand" since the Transmission Operator and Generator Operator would need to have an understanding of what the Reliability Coordinator would be asking of them, and vice versa.</p> <p>If the standards are kept separate, we need to point out that requirement R8 of EOP-006-2 ["Each Reliability Coordinator shall conduct two System restoration drills, exercises, or simulations per year which include the Transmission Operators and Generator Operators with Blackstart Resources in their area of responsibility as dictated by the particular scope of the drill, exercise, or simulation that is being conducted. Each Transmission Operator and Generator Operator with Blackstart Resources shall be included in a drill, exercise, or simulation at least every two years."] does not coordinate with its counterpart requirement, R11, in EOP-005-2 ["Each Transmission Operator shall participate in its Reliability Coordinator's restoration drills, exercises, or simulations as requested by its Reliability Coordinator."]. There should be an agreement between the RC and TOP/GOP functions as to when it would be feasible to conduct these drills with consideration for those times of the year when all TOP/GOP personnel resources are</p> |

Consideration of Comments on 1st Draft of System Restoration and Blackstart Standards (Project 2006-03)

| Question #5 | | | |
|--|-------------------------------------|----|--|
| Commenter | Yes | No | Comment |
| | | | occupied with a busy work load. We suggest adding statements within these requirements with regard to such an agreement. |
| <p>Response: The SDT believes that the operations and coordination functions need to remain separated. The existing standards required periodic drills. The SDT defined a minimum number of times the RC is required to hold a restoration drill based on current operations in many entities. Entities are required to be involved in one of the drills.</p> | | | |
| WECC OTS | <input checked="" type="checkbox"/> | | However, the OTS is unclear on the time frame for the Reliability Coordinator training and does not think it is well defined. Would this training be an annual requirement for the RC's or would the training fall on the RRO on how often they train each RC? |
| PG&E (2) | <input checked="" type="checkbox"/> | | It is unclear on the time frame for the Reliability Coordinator training and it is well defined. Would this training be an annual requirement for the RC's or would the training fall on the RRO on how often they train each RC? |
| BCTC | <input checked="" type="checkbox"/> | | The time frame for training for RC's is not defined. Is this an annual requirement or is this left up to each RC how often they train each RC? |
| <p>Response: Since the training cited is within the existing operations training program as defined in the PER-004 standard, the timeframe is included by default.</p> | | | |
| MRO SRC | <input checked="" type="checkbox"/> | | Should the SDT assign the RC to this standard, then there needs to be a transition period for the RC when assigning them new requirements. The MRO wants to recognize the continued need for Regional Planning. |
| <p>Response: As mentioned in the Standard Development Roadmap document, the SDT understands that a transition plan is required. See the proposed phase-in of requirements in the implementation plan posted with the revised standard. Nothing in the revised standards prevents an RE from performing their own planning.</p> | | | |
| US Army Corps Eng. | <input checked="" type="checkbox"/> | | Documentation of coordination is one of the things that have been missing in previous system restoration plans. |
| Southern Transmission | <input checked="" type="checkbox"/> | | EOP-007 was totally applicable to the RRO. Responsibility for the Standards ultimately rolls back to the RRO. We agree with the change. |
| NBSO | <input checked="" type="checkbox"/> | | The RC is the proper entity. |
| New York ISO | <input checked="" type="checkbox"/> | | |
| Ameren | <input checked="" type="checkbox"/> | | |
| Reliant | <input checked="" type="checkbox"/> | | |
| Entergy | <input checked="" type="checkbox"/> | | |
| Dominion | <input checked="" type="checkbox"/> | | |
| Madison G&E | <input checked="" type="checkbox"/> | | |
| AEP | <input checked="" type="checkbox"/> | | |
| ATC | <input checked="" type="checkbox"/> | | |

Consideration of Comments on 1st Draft of System Restoration and Blackstart Standards (Project 2006-03)

| Question #5 | | | |
|-----------------------------|-------------------------------------|-----------|----------------|
| Commenter | Yes | No | Comment |
| CenterPoint | <input checked="" type="checkbox"/> | | |
| Duke Energy | <input checked="" type="checkbox"/> | | |
| Entergy (G&M) | <input checked="" type="checkbox"/> | | |
| HQT | <input checked="" type="checkbox"/> | | |
| IESO | <input checked="" type="checkbox"/> | | |
| ISO/RTO | <input checked="" type="checkbox"/> | | |
| KCPL | <input checked="" type="checkbox"/> | | |
| Manitoba Hydro | <input checked="" type="checkbox"/> | | |
| NPCC RSC | <input checked="" type="checkbox"/> | | |
| OPG | <input checked="" type="checkbox"/> | | |
| OPPD | <input checked="" type="checkbox"/> | | |
| OVEC | <input checked="" type="checkbox"/> | | |
| Salt River Project | <input checked="" type="checkbox"/> | | |
| SERC OPS | <input checked="" type="checkbox"/> | | |
| SPP ORWG | <input checked="" type="checkbox"/> | | |
| We Energies | <input checked="" type="checkbox"/> | | |
| Response: Thank you. | | | |

Consideration of Comments on 1st Draft of System Restoration and Blackstart Standards (Project 2006-03)

6. The SRB SDT has replaced the existing Blackstart Capability Plan (and retired the definition) with the Reliability Coordinator's requirement for a coordination element in their restoration plan. Do you agree with this approach or do you have other suggestions for how to handle this?

Summary Consideration: Most commenters agreed with replacing the Blackstart Capability Plan with the Reliability Coordinator's (RC's) requirement for a coordination element in its restoration plan.

Some commenters questioned the requirement for the RC to approve the Transmission Operator's (TOP's) restoration plan, thinking that this approval is compliance-related. RC review and approval of the plan is not an issue of compliance but of coordination and workability with the RC's restoration plan. The SDT believes that this gives input to the RC in the development of plans such that the various TOP plans are coordinated with the RC's plan. In FERC Order 693, "the Commission directs the ERO to develop a modification to EOP-006-1 through the Reliability Standards development process that ensures that the reliability coordinator, which is the highest level of authority responsible for reliability of the Bulk-Power System, is involved in the development and approval of system restoration plans." The SDT believes that the process described in EOP-005-2 and EOP-006-2 meets the Commission directive.

Requirement R1 has been changed to accommodate industry concerns.

EOP-005-2:

EOP-005:

R1. Each Transmission Operator shall have a restoration plan approved by its Reliability Coordinator ~~to restore its System to its normal state following an event that requires the utilization of Blackstart Resources.~~ The restoration plan shall ~~have allow for restoring the Transmission Operator's System following a priority of Disturbance in which one or more areas of the Bulk Electric System (BES) shuts down and the use of Blackstart Resources is required to restore the shut down area to service, to a state whereby the choice of the next Load to be restored is not driven by the need to control frequency or voltage regardless of whether the Blackstart Resource is located within the Transmission Operator's System.~~ The restoration plan shall include:

EOP-006-2:

R1. ~~The~~ Each Reliability Coordinator shall have a Reliability Coordinator Area restoration plan ~~that has been made available to its Transmission Operators, Balancing Authorities, and neighboring Reliability Coordinators to restore its area to its normal state following an event that requires the utilization of Blackstart Resources. The restoration plan shall have a priority of.~~ The restoration plan shall be written such that it allows for the restoration of its area following a Disturbance in which one or more areas of the Bulk Electric System (BES) shuts down and the use of Blackstart Resources is required to restore the shut down area to service, to a state whereby the choice of the next Load to be restored is not driven by the need to control frequency or voltage for an event that requires the utilization of Blackstart Resources regardless of whether the Blackstart Resource is located within the Reliability Coordinator's Area. The restoration plan shall include:

Consideration of Comments on 1st Draft of System Restoration and Blackstart Standards (Project 2006-03)

| Question #6 | | | |
|---|-------------------------------------|-------------------------------------|---|
| Commenter | Yes | No | Comment |
| ISO/RTO | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | We agree with the replacement, but feel that the requirement to "coordinate" fall short of requiring the RC to direct system restoration especially from a total shutdown. Please see our detailed comments under Q9. |
| IESO | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | We agree with the replacement, but feel that the requirement to "coordinate" fall short of requiring the RC to direct system restoration especially from a total shutdown. Please see our detailed comments under Q9. |
| Duke Energy | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | We agree with this approach, with certain clarifications. The existing EOP-006-1 requires the Reliability Coordinator to be aware of the restoration plans of Transmission Operators within its RC Area (R1), and to have a current copy of each plan that it relies upon to confirm that it meets R1 (M1). The revised EOP-006-2 requires the Reliability Coordinator to review and approve the Transmission Operators' plans (R2). We do not see a need for the RC to approve each Transmission Operator's restoration plan, or to have a copy of the plans, since the RC is unlikely to have the level of detailed knowledge that the balancing authorities and transmission operators have for setting-up the stable islands required under restoration plans. Requiring the RC to approve those plans implies that the RC must have the requisite expertise to approve them, and within 30 days (R2.3). The revised EOP-006-2 also requires the RC to have a RC Area restoration plan with documented coordination between Transmission Operator plans and neighboring RC Area plans (R1). R1 is sufficient to address FERC's concern that the RC be involved in the development and approval of system restoration plans, and R2 is not needed. |
| NIPSCO | <input checked="" type="checkbox"/> | | The RC should coordinate the restoration plans however this should not include approving the plans. |
| Entergy | | <input checked="" type="checkbox"/> | We do not agree the RC should be responsible for the development, review, approval, or implementation of any Blackstart Capability Plan. A BCP is a local requirement incumbent on the Transmission Owner/Operator to develop and implement. |
| <p>Response: RC review and approval of the plan is not an issue of compliance but of coordination and workability with the RC's restoration plan. The SDT believes that this gives input to the RC in the development of plans such that the various TOP plans are coordinated with the RC's plan. In FERC Order 693, "the Commission directs the ERO to develop a modification to EOP-006-1 through the Reliability Standards development process that ensures that the reliability coordinator, which is the highest level of authority responsible for reliability of the Bulk-Power System, is involved in the development and approval of system restoration plans." The SDT believes that the process described in EOP-005-2 and EOP-006-2 meets the Commission directive.</p> | | | |
| Reliant | <input checked="" type="checkbox"/> | | I suggest that you take a look at how PJM handles the coordination element. |
| <p>Response: PJM is represented on the SDT.</p> | | | |
| BCTC | <input checked="" type="checkbox"/> | | Agree with the concept but suggest the following revision to the 2 nd sentence in R1. "The restoration plan shall have a priority of restoring the integrity of the Interconnection |

Consideration of Comments on 1st Draft of System Restoration and Blackstart Standards (Project 2006-03)

| Question #6 | | | |
|---|-------------------------------------|-----------|--|
| Commenter | Yes | No | Comment |
| | | | under the direction of the Reliability Coordinator as required." Alternately, suggest deleting the clause "under the direction of the Reliability Coordinator". During the time when the Transmission Operator is restoring its own System, doing this under the direction of the Reliability Coordinator would not make best use of the Reliability Coordinator's time and knowledge. |
| Response: The SDT has modified R1 to address these concerns. The revised standard states that the following must be included in the restoration plan, "Procedures for restoring the integrity of the Interconnection under the direction of the Reliability Coordinator." (R1.2 in the revised standard) | | | |
| MISO Stakeholders | <input checked="" type="checkbox"/> | | We agree with this approach in general. However, we do not believe 30 days is enough time to review TOP plans. |
| Response: The SDT believes that 30 days is appropriate. | | | |
| OVEC | <input checked="" type="checkbox"/> | | From a practical standpoint it is probably better having the Reliability Coordinator coordinate rather than a Regional Reliability Organization. |
| Ameren | <input checked="" type="checkbox"/> | | This is a very worthwhile change. |
| FirstEnergy | <input checked="" type="checkbox"/> | | FE agrees |
| New York ISO | <input checked="" type="checkbox"/> | | |
| Santee Cooper | <input checked="" type="checkbox"/> | | |
| TVA | <input checked="" type="checkbox"/> | | |
| US Army Corps Eng. | <input checked="" type="checkbox"/> | | |
| Dominion | <input checked="" type="checkbox"/> | | |
| Madison G&E | <input checked="" type="checkbox"/> | | |
| AEP | <input checked="" type="checkbox"/> | | |
| ATC | <input checked="" type="checkbox"/> | | |
| CenterPoint | <input checked="" type="checkbox"/> | | |
| Consumers | <input checked="" type="checkbox"/> | | |
| Entergy (G&M) | <input checked="" type="checkbox"/> | | |
| FPL | <input checked="" type="checkbox"/> | | |
| FRCC | <input checked="" type="checkbox"/> | | |
| HQT | <input checked="" type="checkbox"/> | | |
| KCPL | <input checked="" type="checkbox"/> | | |

Consideration of Comments on 1st Draft of System Restoration and Blackstart Standards (Project 2006-03)

| Question #6 | | | |
|-----------------------------|-------------------------------------|-----------|----------------|
| Commenter | Yes | No | Comment |
| Manitoba Hydro | <input checked="" type="checkbox"/> | | |
| MRO SRC | <input checked="" type="checkbox"/> | | |
| NBSO | <input checked="" type="checkbox"/> | | |
| NPCC RSC | <input checked="" type="checkbox"/> | | |
| OPG | <input checked="" type="checkbox"/> | | |
| RFC (1) | <input checked="" type="checkbox"/> | | |
| Salt River Project | <input checked="" type="checkbox"/> | | |
| SERC OPS | <input checked="" type="checkbox"/> | | |
| Southern Transmission | <input checked="" type="checkbox"/> | | |
| SPP ORWG | <input checked="" type="checkbox"/> | | |
| We Energies | <input checked="" type="checkbox"/> | | |
| Response: Thank you. | | | |

Consideration of Comments on 1st Draft of System Restoration and Blackstart Standards (Project 2006-03)

7. If you are aware of any regional variances that would be required as a result of these standards, please identify them here.

Summary Consideration: Stakeholders did not identify any regional variances that are needed for these standards. No changes were made to the standard based on comments to this question.

| Question #7 | |
|---|---|
| Commenter | Comment |
| RFC (1) | <p>Yes, TOP's need to be required to have a restoration plan for their entire footprint. R1 needs to be changed to state that TOP's shall have a restoration plan for their entire footprint which is approved..... Reliance on other entities under the TOP's direction during a system restoration is fine however the TOP should have an RC approved restoration plan of its entire footprint available for its operators and training on these other entity restoration plans since the TOP is the entity responsible for implementation of the restoration plan.</p> <p>If the TOP relies on any of the entities under its purview to provide a part of the plan or perform any functions in implementation of its plan those entities should be subject to the requirements in this standard as they apply to those areas of the restoration plan. This region has TO personnel implementing their restoration plan for the TOP, these personnel should be addressed by this standard concerning what is applicable, training required and possible certification of the operators.</p> |
| <p>Response: The SDT agrees that the TOP needs to have a plan that covers its entire footprint and believes that using the term 'System' accommodates this concern.</p> | |
| ATC | <p>ATC believes that this standard may require Regulatory support in terms of locating a "Blackstart Resources" and testing. The standard requires testing of these resources which may use up some unit's emission constraints.</p> <p>At a minimum NERC should ask the question about emission constraints surrounding "Blackstart Resources".</p> |
| <p>Response: Thank you for your input.</p> | |
| NIPSCO | EOP-007-RFC-01 will need to be reviewed and updated |
| <p>Response: The intent of the ERO and EAct 2005 is to develop international standards that cover the North American Interconnections. Regional standards are either to be more stringent or address a physical difference. It is expected that many regional standards will either be obsolete or need to be revised.</p> | |
| New York ISO | No |
| TVA | None |
| WECC RCCWG | No |
| Entergy | No |
| BCTC | None |
| Consumers | N/A |
| Duke Energy | None |
| HQT | At this time, no NPCC variance is anticipated. |

Consideration of Comments on 1st Draft of System Restoration and Blackstart Standards (Project 2006-03)

| Question #7 | |
|-----------------------------|---|
| Commenter | Comment |
| IESO | No |
| ISO/RTO | No |
| KCPL | Not aware of any regional variances. |
| MRO SRC | The MRO is not aware of any issues. |
| NBSO | No NPCC variance is expected. |
| NPCC RSC | At this time, no NPCC variance is anticipated. |
| SERC OPS | No |
| Southern Transmission | We are not aware of any regional variances that would be required as a result of these standards. |
| SPP ORWG | None |
| Response: Thank you. | |

Consideration of Comments on 1st Draft of System Restoration and Blackstart Standards (Project 2006-03)

8. If you are aware of any conflicts between the proposed standards and any regulatory function, rule order, tariff, rate schedule, legislative requirement or agreement, please identify them here.

Summary Consideration: Stakeholders did not identify any conflicts between the proposed standards and any regulatory function, rule order, tariff, rate schedule, legislative requirement or agreement. No changes were made to the standard based on comments to this question.

The inclusion of restoration training in these standards was questioned. FERC Order 693 mandates that restoration training be included in the blackstart standards. *"The Commission believes that inclusion of periodic system restoration drills and training and review of restoration plans in a system restoration Reliability Standard is the most effective way of achieving the desired goal of ensuring that all participants are trained in system restoration and that the restoration plans are up to date to deal with system changes."*

| Question #8 | |
|--|--|
| Commenter | Comment |
| US Army Corps Eng. | Federal Entities with power or transmission assets are not allowed to take direction from non-Federal entities. This problem applies to many of the Rel Stndrds and needs to be cleared up at a legislative level in order for the Rel Stndrds to be fully complied with. |
| Response: This issue is beyond the authority of the SDT. | |
| Madison G&E | YES, 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. |
| Response: FERC Order 693 mandates that restoration training be included in the blackstart standards. <i>"The Commission believes that inclusion of periodic system restoration drills and training and review of restoration plans in a system restoration Reliability Standard is the most effective way of achieving the desired goal of ensuring that all participants are trained in system restoration and that the restoration plans are up to date to deal with system changes."</i> | |
| ATC | <ul style="list-style-type: none"> - The TOP is currently responsible for transporting energy supplied from the Black Start generator interconnection point to restore the transmission grid as a whole under the restoration services portion of the Transmission Tariff. The costs of planning for, and implementing this responsibility are currently reimbursed under the network transmission tariff. If by "securing blackstart services" it is intended that the TOP must contract with generators or otherwise arrange with "Black Start Generators" to provide this capability, ATC cannot support this approach unless a mechanism is also provided that will allow the TOP to include any costs that might be incurred in transmission rates. - ATC, is willing to be responsible as the TOP to enter into agreements for Black Start Services with |

Consideration of Comments on 1st Draft of System Restoration and Blackstart Standards (Project 2006-03)

| Question #8 | |
|--|---|
| Commenter | Comment |
| | <p>generators that are interconnected to ATC's transmission facilities, and anticipate making the necessary tariff filings or otherwise arrange for reimbursement for any costs incurred through the regional transmission organization.</p> <ul style="list-style-type: none"> - If the Standard is eventually written that the TOP is responsible for "procuring" or "arranging" for the service, an adequate timeframe prior to implementation of the requirement must be allowed to pursue the necessary rate and other tariff approval together with the required agreements prior to this standard becoming enforceable. |
| <p>Response: Reimbursement for services has no impact on the reliable operation of the BES and should not be included in a reliability standard.</p> | |
| RFC (2) | <p>R1.4 of EOP-005-2 has the TOP identify acceptable voltage and frequency limits during restoration. R1.5 of EOP-005-2 has the RC identify the same. There seems to be a conflict in having 2 different functional entities identifying the same parameter. The drafting team should consider resolving this apparent conflict.</p> |
| <p>Response: The SDT sees no conflict from the early stages of restoration where the TOP is controlling voltage and frequency and the latter stages where the RC takes control. The RC should be aware of the voltage limits set by the TOP. The RC can include in its restoration plan the limits that must be maintained by the TOPs in its area.</p> | |
| New York ISO | No |
| TVA | None |
| WECC RCCWG | There are no conflicts that we are aware of. |
| Entergy | No |
| BCTC | None |
| Consumers | N/A |
| Duke Energy | None |
| HQT | No such conflict is seen at this time. |
| KCPL | Not aware of any conflicts. |
| MRO SRC | The MRO is not aware of any issues. |
| NBSO | None |
| NPCC RSC | No such conflict is seen at this time. |
| RFC (1) | No |
| SERC OPS | No |
| Southern Transmission | We are not aware of any conflicts between the proposed standards and any regulatory function, rule order, tariff, rate schedule, legislative requirement or agreement. |
| SPP ORWG | None |
| <p>Response: Thank you.</p> | |

Consideration of Comments on 1st Draft of System Restoration and Blackstart Standards (Project 2006-03)

9. If you have any other comments on the proposed standards that you haven't already provided in response to the questions above, please provide them here.

Summary Consideration: Extensive Changes were made to EOP-005 and to EOP-006 due to the comments received from the industry. Please consult the posted red-line and clean versions of the 2nd draft of both standards.

Comments are grouped by standard and requirement.

EOP-005 and EOP-006 — Miscellaneous comments:

| | |
|---|--|
| SERC OPS | We commend the drafting team members for their hard work in combining and clarifying the requirements of EOP-005, 006, 007 and 009. |
| Southern Transmission | Finally, we commend the System Restoration and Blackstart Drafting Team for its excellent work on the System Restoration and Blackstart Standards -- Project 2006-03. We appreciate the opportunity provided by the drafting team to submit comments on a matter of such importance to the industry. |
| US Army Corps Eng. | I am especially pleased that generator operators now have to be coordinated with prior to listing their generators as a black start resource. In the past, it was after the fact that the generator owner was informed that their. |
| IESO ISO/RTO | 17. General: We realize that the violation severity levels, mitigation time horizons and compliance elements have not been drafted. This and in view of the possible changes to some of the requirements, we have chosen not to comment on the measures at this time. We will offer our comments on these elements at the next posting. |
| FirstEnergy | 1. A good set of EOP requirements will achieve the goal of eliminating need for any existing regional standards, so we need to work towards a good set of blackstart standards. |
| Response: Thank you | |
| MRO SRC | The MRO would suggest completing Section D (Compliance) for both standards EOP-005-2 and EOP-006-2 before commenting begins. Also, in R2.1 of EOP-006-2, shouldn't the RC's restoration plan be compatible with the individual BA and TOP restoration plans. The MRO would assume that the RC's restoration plan be comprised of the individual restoration plans within their area. |
| Response: The SDT has deferred Section D to a future draft so that we can concentrate on requirements. | |
| We Energies | The standards appear to be drafted from the perspective of a vertically integrated utility, not in terms of the NERC functional model entities. The conspicuous absence of the NERC functional entity "Balancing Authority" in both EOP-005-2 and EOP-006-2 produces doubt as to the value of the standards. The BA should be intimately involved in all aspects of the system restoration plan and the execution thereof. The argument that the BA role is prescribed for all operating conditions in the Balancing Authority standards is fallacious. Below are extracts from BAL-001 thorough BAL-006 with comments regarding the applicability during the restoration process. A. Introduction 1. Title: Real Power Balancing Control Performance 2. Number: BAL-001-0 |

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| | <p>3. Purpose: To maintain Interconnection steady-state frequency within defined limits by balancing real power demand and supply in real-time.</p> <p>4. Applicability:</p> <p>4.1. Balancing Authorities</p> <p>5. Effective Date: April 1, 2005</p> <p>The purview of BAL-001 is limited to interconnection steady state frequency, and does not pertain to island frequency during system restoration efforts. During island scenarios ACE is irrelevant as are the control performance criteria – the frequencies of the various islands will not be equal and there will be no scheduled interchange.</p> <p>EOP-005 R1.4 requires identification of acceptable operating frequency limits during restoration efforts. R3.3 further requires that frequency be controlled within dynamic limits documented in R1.4. Since BAL-001 does not apply to restoration scenarios, and the Balancing Authority is responsible for maintaining frequency, the NERC functional entity “Balancing Authority” should be included in the EOP-005-2 standard.</p> <p>A. Introduction</p> <p>1. Title: Disturbance Control Performance</p> <p>2. Number: BAL-002-0</p> <p>3. Purpose:</p> <p>The purpose of the Disturbance Control Standard (DCS) is to ensure the Balancing Authority is able to utilize its Contingency Reserve to balance resources and demand and return Interconnection frequency within defined limits following a Reportable Disturbance. Because generator failures are far more common than significant losses of load and because Contingency Reserve activation does not typically apply to the loss of load, the application of DCS is limited to the loss of supply and does not apply to the loss of load.</p> <p>4. Applicability:</p> <p>4.1. Balancing Authorities</p> <p>4.2. Reserve Sharing Groups (Balancing Authorities may meet the requirements of Standard 002 through participation in a Reserve Sharing Group.)</p> <p>4.3. Regional Reliability Organizations</p> <p>5. Effective Date: April 1, 2005</p> <p>Again, interconnection frequency has no meaning in an island scenario.</p> <p>A. Introduction</p> <p>1. Title: Frequency Response and Bias</p> <p>2. Number: BAL-003-0</p> <p>3. Purpose:</p> <p>This standard provides a consistent method for calculating the Frequency Bias component of ACE.</p> <p>4. Applicability:</p> <p>4.1. Balancing Authorities</p> <p>5. Effective Date: April 1, 2005</p> <p>During island scenarios, ACE is irrelevant.</p> |
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| <p>A. Introduction</p> <ol style="list-style-type: none">1. Title: Time Error Correction2. Number: BAL-004-03. Purpose: The purpose of this standard is to ensure that Time Error Corrections are conducted in a manner that does not adversely affect the reliability of the Interconnection.4. Applicability:<ol style="list-style-type: none">4.1. Reliability Coordinators4.2. Balancing Authorities5. Effective Date: April 1, 2005 <p>No RC will initiate a Time Error Correction during island scenarios.</p> <p>A. Introduction</p> <ol style="list-style-type: none">1. Title: Automatic Generation Control2. Number: BAL-005-03. Purpose: This standard establishes requirements for Balancing Authority Automatic Generation Control (AGC) necessary to calculate Area Control Error (ACE) and to routinely deploy the Regulating Reserve. The standard also ensures that all facilities and load electrically synchronized to the Interconnection are included within the metered boundary of a Balancing Area so that balancing of resources and demand can be achieved.4. Applicability:<ol style="list-style-type: none">4.1. Balancing Authorities4.2. Generator Operators4.3. Transmission Operators4.4. Load Serving Entities5. Effective Date: April 1, 2005 <p>AGC will be useless until system conditions are near to normal interconnection status.</p> <p>A. Introduction</p> <ol style="list-style-type: none">1. Title: Inadvertent Interchange2. Number: BAL-006-13. Purpose: This standard defines a process for monitoring Balancing Authorities to ensure that, over the long term, Balancing Authority Areas do not excessively depend on other Balancing Authority Areas in the Interconnection for meeting their demand or Interchange obligations.4. Applicability:<ol style="list-style-type: none">4.1. Balancing Authorities.5. Effective Date: May 1, 2006 <p>There will be no inadvertent flows out from or into an island.</p> <p>In summary, the existing NERC Balancing Authority Standards BAL-001 through BAL-006 do not apply during system restoration efforts. Further, the proposed standards EOP-005-2 and EOP-006-2 do not address the operations of the Balancing Authority during system restoration events.</p> |
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| <p>Response: The SDT disagrees that the BA has an “applicability” role in the TOP restoration plan or its implementation. Beginning with the system collapse, the TOP restores the Transmission System, restores interconnections, and supplies off-site power to nuclear generating stations. This is accomplished on a command and control basis by the Transmission Operator in conjunction with the GOP. Once interconnections have been reestablished and the Transmission System restored, the restoration of firm Load can begin. The TOP is restoring the System through command and control until a sufficient System has been built where frequency is under control.</p> | |
| Salt River Project | <p>I would like to see the training requirements in R9, R10, R11, R15, and R16 moved to a PER standard. Intermingling training requirements with operational requirements makes it a bit harder to ensure training program compliance. Monitoring every proposed standard for training requirements is essentially what we are faced with today. It makes more sense to use the PER series of standards for all training requirements. This would make for a smaller EOP-005-2, minus 5 requirements, while also being more consistent with the purpose stated in EOP-05-2.</p> |
| PG&E (2) | <p>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.</p> |
| <p>Response: FERC Order 693 mandates that restoration training be included in the blackstart standards. <i>“The Commission believes that inclusion of periodic system restoration drills and training and review of restoration plans in a system restoration Reliability Standard is the most effective way of achieving the desired goal of ensuring that all participants are trained in system restoration and that the restoration plans are up to date to deal with system changes.”</i></p> | |
| BCTC | <p>The new training for personnel outside the Control Room has been identified as an annual requirement but the existing words in EOP-005 for TO Control Room personnel and EOP-007 for RC Control Room personnel does not detail the training requirement as an annual requirement. Was all the training requirements listed in the Standards meant to be an annual requirement? EOP-005-1 had a requirement to periodically test telecommunication facilities that are required to implement a blackstart plan. Is this covered in another Standard or is this no longer required?</p> |
| <p>Response: Since the training cited is within the existing operations training program as defined in the PER-004 standard, the timeframe is included by default. The SDT believes that COM-001-1 – Telecommunications already requires the redundancy and reliability required for emergency communications systems during system restoration.</p> | |
| SPP ORWG | <p>Ample time should be given to implement the changes following BOT approval of the standards; we suggest 18 months to allow for revisions, coordination, and approval.</p> |
| <p>Response: The SDT will post its proposed implementation plan with the revised standard.</p> | |
| NBSO | <p>Are there any liabilities associated with the RC approving the TOP restoration plan? Although the NBSO agrees with the RC having a copy of the plans and approving them in principle, the RC should not be held responsible for typos and etc. NBSO believes that the Balancing Authority is missing from the applicable entity list in section 4. The BA is responsible for load/generation balance and frequency control and therefore plays an important role in the restoration process.</p> |
| <p>Response: RC review and approval of the plan is not an issue of compliance but of coordination and workability with the RC’s restoration plan. The SDT believes that this gives input to the RC in the development of plans such that the various TOP</p> | |

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plans are coordinated with the RC's plan. In FERC Order 693, "the Commission directs the ERO to develop a modification to EOP-006-1 through the Reliability Standards development process that ensures that the reliability coordinator, which is the highest level of authority responsible for reliability of the Bulk-Power System, is involved in the development and approval of system restoration plans." The SDT believes that the process described in EOP-005-2 and EOP-006-2 meets the Commission directive.

The SDT disagrees that the BA has an "applicability" role in the TOP restoration plan or its implementation. Beginning with the system collapse, the TOP restores the Transmission System, restores interconnections, and supplies off-site power to nuclear generating stations. This is accomplished on a command and control basis by the Transmission Operator in conjunction with the GOP. Once interconnections have been reestablished and the Transmission System restored, the restoration of firm Load can begin. The TOP is restoring the System through command and control until a sufficient System has been built where frequency is under control.

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| New York ISO | <p>I would like the drafting team to respond to these specific questions:</p> <ol style="list-style-type: none"> 1) What are the limits of "units to be started" in R1.2? 2) What is the incremental value of R1.5 over the requirements of PER-001? 3) Why does the standard define as acceptable an unworkable restoration plan for to exist for up to one quarter of a year? 4) How is it physically possible for generators to perform the black start tests required in R14 without having possession of the test requirements R6? <p>Requirement 1.2 has no meaning and it unenforceable. "Units to be started" is every generator on the system. Using that rule, one could assume that something like 50% of a system's transmission would have to be designated "cranking paths".</p> |
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Response:

- 1) Each Blackstart Resource should have a cranking path to at least one other non-blackstart resource. These do not need to be independent from the non-blackstart resource goals of other Blackstart Resources.
- 2) The SDT has changed R1.5 to accommodate the indicated concern.
- 3) No restoration plan can be updated immediately, and a prior restoration plan should contain useful information (with recognized deficiencies) for restoring the system.
- 4) The requirement to distribute testing requirements is in the old R8 (now R10 in the revised standard)

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| ATC | <p>The standards appear to be drafted from the perspective of a vertically integrated utility, not in terms of the NERC functional model entities. The conspicuous absence of the NERC functional entity "Balancing Authority" in both EOP-005-2 and EOP-006-2 produces doubt as to the value of the standards. The BA should be intimately involved in all aspects of the system restoration plan and the execution thereof.</p> <p>The existing NERC Balancing Authority Standards BAL-001 through BAL-006 do not apply during system restoration efforts. Further, the proposed standards EOP-005-2 and EOP-006-2 do not address the operations of the Balancing Authority during system restoration events.</p> <p>ATC believes that Standard EOP-005-2 would be more readable if the Standard Drafting Team (SDT) split the standard into two standards. It's our suggestion that Requirements six and nine be moved to a new standard to address blackstart generator testing.</p> <p>In addition to moving these requirements into a separate standard ATC believes that the SDT should write an industry standard for blackstart resources.</p> |
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| | <ul style="list-style-type: none"> - Frequency of testing - Demonstrate ability to start the unit when isolated - Demonstrate ability to energize a dead bus - Demonstrate ability to remain stable an control voltage - Demonstrate ability to maintain acceptable frequency - Determine a minimum testing duration <p>Lastly those results should be shared with the Transmission Operator. Failure to write specific industry standards will create fill-in-the-blank standards for the Transmission Operator. No training is specified for the BA system operators. The system restoration scenario is very unique and challenging in terms of balancing resources to load. Load behavior will be very dynamic – cold load pick up and loss of diversity will be significant factors during the restoration process. Since the BA is ultimately responsible for balancing under all conditions, it is imperative for the BA to be involved in the training for restoration and the implementation during an event.</p> |
| | <p>Response: The SDT disagrees that the BA has an “applicability” role in the TOP restoration plan or its implementation. Beginning with the system collapse, the TOP restores the Transmission System, restores interconnections, and supplies off-site power to nuclear generating stations. This is accomplished on a command and control basis by the Transmission Operator in conjunction with the GOP. Once interconnections have been reestablished and the Transmission System restored, the restoration of firm Load can begin. The TOP is restoring the System through command and control until a sufficient System has been built where frequency is under control. Industry comments indicated that the majority of the industry wanted the blackstart testing requirements in the blackstart standard. The SDT believes that there are too many physical differences within the industry; adopting a continent-wide standard would cause us to come up with a Least Common Denominator list of requirements that would end up being a detriment to reliability. The suggested topics are mentioned in the revised text. Test results are available to the TOP on request as shown in the new R17.2</p> |
| TVA | <p>Regarding Drills perhaps the SDT could clarify requirements for drills and what constitutes a drill. There appears to be potential inconsistency in requirements for Blackstart Resource participation in Restoration Drills once every two years while requiring Blackstart tests once every three years. In addition, requiring two Restoration Drills per year seems excessive.</p> <ol style="list-style-type: none"> 1. BA's must be included in: Plan development, Training and drills, communication and coordination during restoration and connection with neighboring areas. 2. Field personnel and generation operators training requirements in this Standard appear duplicative. Field personnel switch elements under similar conditions such as storm restoration. Generator operators that test black start facilities have the operational training related to their role in restoration. |
| | <p>Response: The SDT is allowing the RC to set the scope and content of the drills, exercises, or simulations required by the standards. The SDT disagrees that the BA has an “applicability” role in the TOP restoration plan or its implementation. Beginning with the system collapse, the TOP restores the Transmission System, restores interconnections, and supplies off-site power to nuclear generating stations. This is accomplished on a command and control basis by the Transmission Operator in</p> |

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conjunction with the GOP. Once interconnections have been reestablished and the Transmission System restored, the restoration of firm Load can begin. The TOP is restoring the System through command and control until a sufficient System has been built where frequency is under control.

It is appropriate to include both the minimum hours of training and the training content in this standard, similar to the training requirements documented in PER-002-2 which states "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." Additionally, in the new version of the standard, PER-005, requirement R3 states "shall provide each System Operator with at least 32 hours annually of emergency operations and system restoration training" PER-005 R3.1. states "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)."

The SDT notes that in FERC Order 693, the FERC determined that "System restoration requires the participation of not only control room personnel but also those outside of the control room. These include blackstart unit operators and field switching operators in situations where SCADA capability is unavailable." If the TOP's restoration plan has field switching tasks unique to system restoration that are not included in normal operations, then training shall be required. Changes have been made to R11 to clarify this position.

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| FRCC | A requirement for a Blackstart plan or procedure should include a sub-requirement that specifies that the procedure or plan include a step that the TOP and /or GO shall isolate itself electrically from all other systems prior to initiating restoration activities. |
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Response: R1.3 (R1.4 in the revised draft) includes "initial switching requirements" – the SDT believes that anything more than that in a standard would be too prescriptive.

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| PG&E (2) | <p>EOP-005-1 had a requirement to periodically test telecommunication facilities that are required to implement a blackstart plan. Is this covered in another Standard or has it been eliminated and is not required?</p> <p>New training for personnel outside the Control Room has been identified as an annual requirement but the existing words in EOP-005 for Transmission Operator Control Room personnel and EOP-007 for Reliability Coordinators Control Room personnel does not detail the training requirement as an annual requirement. Were all the training requirements listed in the Standards meant to be an annual requirement?</p> |
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| WECC OTS | <p>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. The OTS has several questions concerning the lack of clarity for the training requirements.</p> <p>EOP-005-1 had a requirement to periodically test telecommunication facilities that are required to implement a blackstart plan. Is this covered in another Standard or has it been eliminated and is not</p> |
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| | <p>required?</p> <p>New training for personnel outside the Control Room has been identified as an annual requirement but the existing words in EOP-005 for Transmission Operator Control Room personnel and EOP-007 for Reliability Coordinators Control Room personnel does not detail the training requirement as an annual requirement. Were all the training requirements listed in the Standards meant to be an annual requirement?</p> <p>The WECC OTS finds the new System Restoration and Blackstart-Coordination Standards to be duplicating in their training requirements and not well defined in the time frames for this training. 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.</p> |
| <p>Response: The SDT believes that COM-001-1 – Telecommunications already requires the redundancy and reliability required for emergency communications systems during system restoration.</p> <p>Since the training cited is within the existing operations training program as defined in the PER standards, the timeframe is included by default.</p> <p>FERC Order 693 mandates that restoration training be included in the blackstart standards. <i>“The Commission believes that inclusion of periodic system restoration drills and training and review of restoration plans in a system restoration Reliability Standard is the most effective way of achieving the desired goal of ensuring that all participants are trained in system restoration and that the restoration plans are up to date to deal with system changes.”</i></p> | |
| FRCC | <p>General comments:</p> <p>In a few requirements / sub-requirements there are multiple requirements embedded within a single requirement. For clarity, we would encourage the drafting team to further breakout individual requirements and sub-requirements where appropriate. ie. R1 both standards includes multiple requirements - EOP-005, R1.7 and R12 includes multiple requirements)</p> <p>A few of the requirements would not be enforceable as drafted.</p> <p>EOP-006</p> <p>R4 includes words such as "work in conjunction", "monitor restoration progress". Measurement for this type of requirements is subjective at best and would be difficult to measure in a consistent manner. EOP-005, R1.1, "identification of the authority and tasks" is also a subjectively measured requirement and would be difficult to enforce consistently. Requirements that cannot be measured consistently should be re-drafted or deleted. - ex. EOP-005, R1, R1.1</p> <p>Purpose should be revised to clearly state the intent of this draft, ie, System Blackstart Operations as stated in R1 of both standards.</p> <p>We appreciate the Drafting Team's efforts on these important standards and hope our comments provide value to the process.</p> |
| <p>Response: Changes have been made to several requirements such as R1 and R12 to address these types of concerns.</p> | |

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| <p>The SDT believes that measures can and have been written to cover these issues. The Purpose statement has been re-written for the second posting.</p> | |
| KCPL | EOP-006 6. There is no review requirement for the RC to update their restoration plan and there should be a requirement. |
| <p>Response: The SDT agrees and has added a new requirement to address this oversight. (See R3 and R4 in the revised EOP-006.)</p> | |

EOP-005 and EOP-006 — Comments on Definitions and Terminology:

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| Santee Cooper | Blackstart Resource Facility Plans (BRFP) needs to be a definition included in the "Definitions of Terms Used in Standard". |
| RFC | Is the Blackstart Facility Resource Plan a defined term? The standard says what it must include, but doesn't appear to define it. |
| <p>Response: BRFP has been removed from the standard in the new revision for the second posting.</p> | |
| NPCC RSC | 10) The term critical load is subject to interpretation. From a system restoration viewpoint, we view this as load that is critical to provide the needed balance to that portion of the BES to maintain stability and acceptable voltages. |
| HQT | 10) The term critical load is subject to interpretation. From a system viewpoint, we view this as load that is critical to provide the needed balance to that portion of the BES to maintain stability and acceptable voltages. |
| <p>Response: Critical Load in BES system restoration includes station service for substations, units to be restarted or stabilized, the Load needed to stabilize generation and frequency and provide voltage control for restoring the System. This statement has been added to the standard, and the term, 'critical load' has been deleted.</p> | |
| NBSO | The terminology Cranking Paths seems to be very dated and should be replaced by Station Service Supply Path or something similar. |
| <p>Response: Cranking Path is a defined term in the NERC Glossary.</p> | |
| ATC | The Term System Shut Down needs to be better defined. (EOP-005-2 Requirement 1) |
| <p>Response: The SDT has revised the Purpose and R1 to address this concern. (See the summary consideration at the end of Question 1 to see the changes to the purpose and R1.)</p> | |
| Southern Transmission | 5. In Requirement 1.5 of EOP-005-2 and Requirement 1.6 of EOP-006-2 we note the use of the undefined term "professional judgment." The drafting team might consider replacing this ambiguous term with language similar to that found in Requirement 1 of Reliability Standard TOP-001-1. While we also note Requirements 1.5 (EOP-005-2) and 1.6 (EOP-006-2) are intended for inclusion in the restoration plan, we recommend the drafting team re-consider the need for this element in the restoration plan as it is covered in the TOP-001-1 Standard. |
| <p>Response: The SDT has changed the old R1.5 of EOP-005 and R1.6 of EOP-006 to accommodate the indicated concern. R1.5 (now R1.6 in both EOP-005 and EOP-006) requires the restoration plan to include, "A statement accounting for the possibility that restoration can not be completed as expected indicating that in situations where the actual conditions do not match the studied conditions, the System Operator shall use professional judgment to modify deviate from the System</p> | |

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| restoration plan.” | |
| SPP ORWG | We would like clarification of the word annual: Does it mean every twelve months or once per calendar year? Ample time should be given to implement the changes following BOT approval of the standards; we suggest 18 months to allow for revisions, coordination, and approval. |
| Response: The SDT assumed that annually means once a calendar year. The SDT will add a transition plan in a future draft. | |
| FRCC | We would encourage the DT to more clearly define the following terms: "normal state", "priority of restoring the integrity of the Interconnection", "acceptable TOP restoration plan" and "documented coordination". These terms are ambiguous and make demonstrating compliance very subjective. We would also suggest removing all wording using "but not be limited to". This is unnecessary and does not add value to the requirements (ie EOP-005 R6, EOP-006 R4). Standard requirements should focus on requirements and limit the amount of editorial language. |
| Response: Normal state has been removed. R1 has been re-written to clarify the integrity of the Interconnection. Acceptable has been removed. Documented has been removed. "But not be limited to" has been removed. | |

EOP-005 and EOP-006 — Comments on Applicability:

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| NIPSCO | The BA should be included in the restoration standard in the role presently designated in standards earmarked for replacement. The BA would play an important part during restoration especially if the BA and TOP functions have been separated into different companies. Reinforcing this idea is the latest PER-005 which suggests that Bas provide emergency and system restoration training. |
| NBSO | NBSO believes that the Balancing Authority is missing from the applicable entity list in section 4. The BA is responsible for load/generation balance and frequency control and therefore plays an important role in the restoration process. |
| Southern Transmission | 1. The current EOP-005-1 has applicability to the Balancing Authorities (e.g. R5, R6, R11.3, etc.). There is no applicability, however, to the Balancing Authority in the proposed version 2 of EOP-005 standard. In EOP-005-1 R11.3, for example, the Balancing Authorities are specifically assigned the responsibility of reviewing Interchange Schedules between BA's or fragments of BA Areas within the separated area and make adjustments to facilitate the restoration using manual or automatic generation control. Many Transmission Operators do not normally have the training or experience to manage issues that are normally the responsibility of Balancing Authority – frequency control, generation-load balancing, operating reserves and, most particularly, interchange. In many cases, the Transmission Operator also does not have the tools/mechanisms such as AGC and Scheduling software to perform these functions. System collapse/blackout/islanding will not necessarily take place along Transmission Operator boundaries and therefore the participation of affected Balancing Area is critical for a successful restoration process. In R5, the Transmission Operator is expected to resynchronize islanded Areas with neighboring areas with approval from the RC but no mention is made of the BA's participation and responsibilities in the resulting interconnection – or perhaps a new "cross-BA" island - of Balancing Areas. If the Drafting Team continues to believe that the BA should |

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| | not be included at all in this version of the standard, at a minimum, the Drafting Team should consider adding a requirement to the TOP restoration plan to require that the restoration plan includes criteria for deciding when the TOP will transfer frequency control and generation/load balancing back to the Balancing Authority (i.e. when does a restoration process end and normal operation start taking back over). Even if, the BA is made an applicable entity, the Drafting team might still consider this transition to "normal" as a necessary part of the TOP restoration plan |
| BCTC | This Standard is not applicable to Balancing Authorities. Why are these operators not covered? |
| Duke Energy | The existing EOP-005-1 includes Balancing Authorities, and requires them to work with the TOs and RC(s) to determine the extent and condition of the isolated area(s), coordinate with TOs and generators to adjust generation, place additional generators on line, or load shedding (R11.1 and R11.2). The BAs are also required to review Interchange Schedules and make adjustments as needed to facilitate restoration (R11.3). The revised EOP-005-2 and EOP-006-2 no longer have applicability to the BA, and we believe they should have applicability to the BA with these same requirements. |
| ATC | ATC believes that the Applicability section be expanded to included the BA, LSE and DP. Requirement 1.8 should have a counter requirement that requires the BA, LSE and DP to follow the TOPs orders during the restoration effort. |
| We Energies | No training is specified for the BA system operators. The system restoration scenario is very unique and challenging in terms of balancing resources to load. Load behavior will be very dynamic – cold load pick up and loss of diversity will be significant factors during the restoration process. Since the BA is ultimately responsible for balancing under all conditions, it is imperative for the BA to be involved in the training for restoration and the implementation during an event. The LSE has no involvement here. I see some value including the LSE in terms of load used as a tool. What load profiles are expected? What impact does that have on the generation and island frequency? |
| <p>Response: The SDT disagrees that the BA has an "applicability" role in the TOP restoration plan or its implementation. Beginning with the system collapse, the TOP restores the Transmission System, restores interconnections, and supplies off-site power to nuclear generating stations. This is accomplished on a command and control basis by the Transmission Operator in conjunction with the GOP. Once interconnections have been reestablished and the Transmission System restored, the restoration of firm Load can begin. The TOP is restoring the System through command and control until a sufficient System has been built where frequency is under control. R2 in the revised standard requires distribution of the restoration plan to the entities identified in the plan.</p> | |
| New York ISO | There is no need for "Generator Operators with Blackstart Resources" to be listed as one of the applicable entities. The system restoration plan is the Transmission Operators plan. Blackstart resources are an essential part of the Transmission Operators plan. It is the Transmission Operators responsibility to insure that the black start resources are adequately contracted and tested. The Blackstart resources have no responsibilities in the restoration plan outside its obligations to the Transmission Operator. |
| <p>Response: The SDT notes that in Order 693, the FERC determined that "System restoration requires the participation of not only control room personnel but also those outside of the control room. These include blackstart unit operators and field</p> | |

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switching operators in situations where SCADA capability is unavailable."

EOP-005 — Comments on Requirement 1:

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| Pepco | R1.3 Several Blackstart units provide cranking power to steam units all located with the Generation Operator's site. The Transmission Operator has no visibility or authority over these internal plant switching paths. This needs to be part of the BRFP and not a requirement for the Transmission Operator. |
| <p>Response: BRFP has been removed from the standard in the new revision for the second posting.</p> | |
| We Energies | R1.4 – Specifies voltage and frequency limits. Without the BA involvement, how do you control frequency? Who determines the frequency limits? The BAL Standards apply for normal operations with bias control, but system restoration scenarios are totally different. |
| <p>Response: The SDT disagrees that the BA has an “applicability” role in the TOP restoration plan or its implementation. Beginning with the system collapse, the TOP restores the Transmission System, restores interconnections, and supplies off-site power to nuclear generating stations. This is accomplished on a command and control basis by the Transmission Operator in conjunction with the GOP. Once interconnections have been reestablished and the Transmission System restored, the restoration of firm Load can begin. The TOP is restoring the System through command and control until a sufficient System has been built where frequency is under control.</p> | |
| SPP ORWG | <p>R1 - We believe the second sentence should read "The restoration plan shall have a priority of restoring the integrity of the Interconnection in conjunction with the Reliability Coordinator" instead of "under the direction of the Reliability Coordinator" to coincide with wording in EOP-006-2 R4.</p> <p>R1.2.1 - The requirement to include Blackstart Resource test dates and results in the restoration plans would require Transmission Operators to update their restoration plan as often as a Blackstart Unit is tested. We believe this creates an unnecessary amount of work to both the TO and the Reliability Coordinator, as they will have to approve or deny each revision of the plan.</p> <p>R1.5 - We suggest removing this requirement because it has no substance.</p> |
| <p>Response: In FERC Order 693, “the Commission directs the ERO to develop a modification to EOP-006-1 through the Reliability Standards development process that ensures that the reliability coordinator, which is the highest level of authority responsible for reliability of the Bulk-Power System, is involved in the development and approval of system restoration plans.” The SDT believes that the process described in EOP-005-2 and EOP-006-2 meets the Commission directive.</p> <p>The SDT agrees that test results should not be a component of R1.2.1. The GOP now has the requirement to maintain these records (R17).</p> <p>The SDT has changed R1.5 (Now R1.6) as follows, “A statement accounting for the possibility that restoration can not be completed as expected indicating that in situations where the actual conditions do not match the studied conditions, the System Operator shall use professional judgment to modify deviate from the System restoration plan.</p> | |
| Southern Transmission | 2. The use of the term “operating procedures” used in R1.6 needs to be defined. Although the same term was used in Attachment 1 of EPO-005-1, continuing to use an ambiguous term moving forward should not be overlooked by the Drafting Team. Typically an Operating Procedure involves a specific set of actions (e.g. switching, generation dispatch, etc.). To create such detailed procedures, there needs to be some valid assumptions/criteria that the actions in the procedures are established |

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| | <p>against. Requirement R1.6, for example, requires such operating procedures for re-establishing connections for areas in the TOP's area that have become separated. Since such areas can not all be predetermined for all restoration situations that might occur, the requirement as written leaves the TOP open for always being in non-compliance since operating procedures for all perturbations of area boundaries is not feasible. Perhaps "operating procedures" needs to be more clearly defined to be less prescriptive (e.g. switching sequences) and more generic (i.e., issues to be considered such as synching locations, resulting reserves to be maintained, resulting frequency control, etc.) than is normally used for the term. In addition, the scope/wording of the 1.6 requirement needs to be clarified to reflect more generic plans than might currently be interpreted from the proposed wording.</p> |
| | <p>Response: "Operating Procedures" is the preferred term since it is defined in the NERC Glossary.</p> |
| SDE&G | <p>R1.1: The TOP is responsible for coordinating its restoration activities with the other entities operating within its area, but there is no requirement for the other entities to cooperate in that coordination effort or identify themselves to the TOP. What is the list of entities? Is it all the LSEs and PSE one might have in it's transmission area. The standard does not put a requirement on them. Even generators without blackstart capabilities need to cooperate in the restoration efforts to bring the system back up.</p> <p>R1.2.1: The logistics of keeping the restoration plan up to date with the latest test date, test results, and starting method of black start units seem overly complicated. That means every time any one unit is tested, the plan needs to be updated. Can we simply reference the documentation required of the generator in R14.1 to satisfy this requirement that this be documented.</p> <p>R1.8 Again, requires that the TOP coordinate with the other entities, but doesn't require most of them to cooperate with that coordination.</p> |
| | <p>Response: R1.1 & R1.8: TOP-001 covers the coordination issues. The SDT agrees that test results should not be a component of R1.2.1. The GOP now has the requirement to maintain these records (R17).</p> |
| PG&E (2) | <p>EOP-005-2 R1.7 and R4.2 only lists nuclear stations for high priority of off-site power.</p> |
| WECC OTS | <p>EOP-005-2 R1.7 and R4.2 only lists nuclear stations for high priority of off-site power. Suggest also listing thermal stations where an area may not have nuclear resources and the Thermal stations require off site power to maintain their ability to come back on line quickly.</p> |
| | <p>Response: The SDT has made changes to R1 in an attempt to clarify the nuclear power plant issue. In the revised standard, R1.1 requires that the restoration plan include, "A description of the manner in which all obligations for off-site power requirements of nuclear power plants will be fulfilled."</p> |
| Entergy | <p>EOP-005-2 R1 requires the TOP to have a restoration plan "approved" by its RC. We disagree with this aspect of this requirement. Blackstart is a local procedure so the TOP develops his restoration plan, without approval by the RC, and provides that plan to the RC for his awareness. The RC then coordinates the interconnection of the restarted systems with the rest of the interconnection. Please delete the phrase "approved by its Reliability Coordinator".</p> <p>EOP-005-2 R1.1 includes identification of authority and tasks of the TOP "field switching personnel" and R10 requires a minimum of 2 hours training per year for tasks identified in the restoration plan.</p> |

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| | <p>Blackstart plans are a roadmap for restarting a system, must be flexible and not prescriptive to the field personnel level. Field personnel are trained as needed to fulfill all the requirements of their positions and duties, including restoration. We agree with the Order 693 statement</p> <ul style="list-style-type: none"> - System restoration requires the participation of not only control room personnel but also those outside of the control room. These include blackstart unit operators and field switching operators in situations where SCADA capability is unavailable. As such, the Commission believes that inclusion of periodic system restoration drills and training and review of restoration plans in a system restoration Reliability Standard is the most effective way of achieving the desired goal of ensuring that all participants are trained in system restoration and that the restoration plans are up to date to deal with system changes. <p>However, that training should be part of the - periodic system restoration drills - rather than a specific training period per year. Please delete "field switching personnel" from R1.1 and delete all of R10.</p> <p>We believe the TOP should be able to perform its own task assignments, NERC standards should not make those assignments and we suggest the deletion of "field switching personnel" from all of these NERC standards.</p> |
| <p>Response: In FERC Order 693, "the Commission directs the ERO to develop a modification to EOP-006-1 through the Reliability Standards development process that ensures that the reliability coordinator, which is the highest level of authority responsible for reliability of the Bulk-Power System, is involved in the development and approval of system restoration plans." The SDT believes that the process described in EOP-005-2 and EOP-006-2 meets the Commission directive.</p> <p>The SDT notes that in FERC Order 693, the FERC determined that "System restoration requires the participation of not only control room personnel but also those outside of the control room. These include blackstart unit operators and field switching operators in situations where SCADA capability is unavailable."</p> <p>R1.1 was deleted from the revised standard because several stakeholders indicated that authority is addressed in other standards. If the TOP's restoration plan has field switching tasks unique to system restoration that are not included in normal operations, then training shall be required. Changes have been made to R12 to clarify this position.</p> | |
| Entergy (G&M) | R1.5 : This authority is not appropriate in a NERC standard. Each entity's own procedure may choose to include such language however it should not be a requirement to allow an operator to deviate from a procedure. |
| <p>Response: The SDT has changed R1.5 to accommodate the indicated concern.</p> | |
| Madison G&E | <p>a) R1.2.1, R1.4, R3.1, R6.2.3, R12, and R14.1 all refer to voltage and in particular megavar capacity. During an actual blackout, the Blackstart Resource may be able to handle the leading MVar's that an un-energized transmission line produces. Blackstart Resource owners are not able to accurately test the unit's megavars capacity to absorb Vars since we tend to keep the transmission system energized. The SDT will need to change the wording so Blackstart Resource owners can be compliant with the standard.</p> |
| <p>Response: The SDT has revised the requirements to address these concerns.</p> | |

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| Duke Energy | R1.1 of EOP-005-2 requires that the Transmission Operator's restoration plan identify the authority and tasks of the Transmission Operator's control room and field switching personnel assigned to participate in restoration activities. We do not agree that restoration plans should identify authority and tasks of field switching personnel since these personnel are not NERC-certified and only act under the direction of the Transmission Operator's NERC-certified control room operators. |
| <p>Response: The SDT notes that in FERC Order 693, the FERC determined that <i>"System restoration requires the participation of not only control room personnel but also those outside of the control room. These include blackstart unit operators and field switching operators in situations where SCADA capability is unavailable."</i></p> <p>If the TOP's restoration plan has field switching tasks unique to system restoration that are not included in normal operations, then training shall be required. Changes have been made to R11 to clarify this position.</p> | |
| FPL | R1.3 To what level do cranking paths need to be identified? R1.5 should be removed, PER-001 states that Operating personnel have the responsibility and authority to implement actions to ensure reliable operation of the BES up to and including shedding of firm load. |
| <p>Response: The SDT did not see the need to be more specific on what a Cranking Path is leaving it to the system restoration plan to identify Cranking Paths consistent with the NERC Glossary of Terms definition and to the necessary detail as required in the system restoration plan. Each Blackstart Resource should have a cranking path to at least one other non blackstart resource. These do not need to be independent the non blackstart resource goals of other Blackstart Resources. The SDT has modified R1.5 (now R1.6) as follows, "A statement accounting for the possibility that restoration can not be completed as expected indicating that in situations where the actual conditions do not match the studied conditions, the System Operator shall use professional judgment to modify-deviate from the System restoration plan. "</p> | |
| FRCC | EOP-005, R1 and EOP-006, R1 clearly exempt activities that restore from energized systems from having to comply with these standards. If this is the intent of the current draft we would caution that this approach actually reduces reliability by removing "partial shutdown" restoration coordination requirements from the current standards in place. Blackstart and "partial shutdown" restoration - are extremely inter-related and are part of an optimal de-energized system response plan and an integrated approach to restoring Interconnection integrity by whatever means are available. If this is the intent of the DT then this standard should only address "islanded operations" and should clearly transition to another standard that addresses synchronization of islanded systems or restoration of "partially shutdown" systems. |
| <p>Response: The SDT has changed the Title, Purpose and R1 to address these concerns. (Please see the summary consideration of changes following Question 1 on pages 10 and 11 of this document.) Partial shutdowns are already covered by other standards including TOP-001, TOP-004, and EOP-001.</p> | |
| Consumers | R1.4: The transmission operator needs to coordinate with the generator operators when identifying acceptable operating voltage and frequency limits during restoration. Generator underfrequency relaying and terminal bus voltage limits will affect the acceptable limits. |
| <p>Response: R14 requires an agreement between the TOP and the GOP with Blackstart Resources.</p> | |
| Southern Transmission | There has been a significant amount of scope creep in the requirements imposed on GOPs and GOs. 1. Requirement 1.2: This requires a Blackstart Resource Facility Plan (BRFP) which adds Mvar |

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| | capacity to the data. One can provide Mvar rating but transmission system conditions (load and voltage) will dictate Mvar capacity. |
| <p>Response: BRFP has been removed from the standard in the new revision for the second posting. Sub-requirements of R1 have been modified to address the concerns. (Please see the summary consideration of changes following Question 1 on page 10 to see the modifications made to the sub-requirements of R1.)</p> | |
| Manitoba Hydro | <p>In EOP-005-2, R1 - there is a need to more clearly state the type of event that requires a restoration plan and what the intent of the restoration plan is. You cannot have a plan for every conceivable event that requires the use of blackstart resources.</p> <p>The type of approval the RC gives to a TOP plan should be more clearly defined, people have to understand what it means when approval is given or rejected.</p> |
| <p>Response: The purpose of a restoration plan is not to restore every MW of Load and Transmission System element to service but to reach a stage whereby the choice of the next Load to be restored is not driven by the need to control frequency or voltage.</p> <p>The SDT has changed the Title, Purpose and R1 to address these concerns. (Please see the summary consideration of changes following Question 1 on pages 10 and 11 of this document to see the changes made to the Title, Purpose and R1.)</p> | |
| NBSO | Revise R1.1 as follows: "Identification of the authority and tasks of the Reliability Coordinator to work with its neighboring Reliability Coordinator(s) and with the Transmission Operators, Balancing Authority and Generation Operators with Blackstart Resources within its area." |
| <p>Response: The SDT has deleted R1.1 from the revised standard. Several stakeholders indicated that the authority issue is already addressed in other standards.</p> | |
| New York ISO | <p>Requirement 1.2 has no meaning and it unenforceable. "Units to be started" is every generator on the system. Using that rule, one could assume that something like 50% of a system's transmission would have to be designated "cranking paths".</p> <p>Requirement 1.5 should be a requirement of the restoration plan, not the people. The restoration plan should provide sufficient flexibility to address actual conditions at the time of the blackouts. System Operators always have the obligation and authority to address system conditions, whatever they are. Requirement 1.5 should be eliminated as it is completely redundant with NERC Standard PER-001.</p> <p>PER-001 R1. Each Transmission Operator and Balancing Authority shall provide operating personnel with the responsibility and authority to implement real-time actions to ensure the stable and reliable operation of the Bulk Electric System.</p> <p>M1.4 Written operating procedures that state that, during normal and emergency conditions, operating personnel have the authority to take or direct timely and appropriate real-time actions. Such actions shall include shedding of firm load to prevent or alleviate System Operating Limit Interconnection or Reliability Operating Limit violations. These actions are performed without obtaining approval from higher-level personnel within the Transmission Operator or Balancing Authority.</p> |
| <p>Response: R1.2 was deleted from the revised standard.</p> | |

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Each Blackstart Resource should have a cranking path to at least one other non-blackstart resource. These do not need to be independent from the non-blackstart resource goals of other Blackstart Resources.
 The SDT has modified R1.5 to clarify that the restoration plan must include, "A statement accounting for the possibility that restoration can not be completed as expected indicating that in situations where the actual conditions do not match the studied conditions, the System Operator shall use professional judgment to modify-deviate from the System restoration plan."

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| IESO | <ol style="list-style-type: none"> 1. R1: should "its System" be replaced by "its area" since a Reliability Coordinator Area is described in the functional model as opposed to a Reliability Coordinator "System". Also, we don't think the second sentence belongs to R1 since it is itself a requirement for the TOP to follow the direction of the RC. It should be a separate requirement. 2. R1.2: We have difficulty visualizing how a restoration plan can be "coordinated" with a Blackstart Resource Facility Plan, a term that is not defined. We understand the need for coordinating actions and provision of critical information. We therefore suggest the requirement to be reworded to "Documented procedure that ensures the ability of the Blackstart Resource to control and maintain voltage and frequency within acceptable limits." Note that the term "Blackstart Resource Facility Plan" is not described or defined anywhere, and hence its use should be avoided. 3. R1.2.1: We do not see the how inclusion of information such as "latest date of test, test results and starting method" in the TOP's restoration plan can improve or adverse affect reliability. The important requirement is to identify the resources on the cranking path that need to provide blackstart capability, and that such capability is verified to function when needed. We suggest to remove the last part of this requirement. Note that documentation of the test results, etc. are already required in R14. 4. R1.7: The term "critical Load" is subject to interpretation. From a system restoration viewpoint, particular from a balckstart, we would view this to mean load that is critical to provide the needed balance to that portion of the BES to be restored to maintain stability and acceptable voltage. In other words, the load is critical to the restoration process. With respect to the other interpretation that it means the load that is critically dependent on electricity supply, such as off-site power, hospital load, etc., this can be very subjectively determined and can vary from area to area. We feel the determination of which load to be supplied first, if this needs to be addressed, should be left to the discretion of the TOP but not as a requirement in a NERC standard. |
| ISO/RTO | <ol style="list-style-type: none"> 1. R1: "Its System" should be replaced by "its area" since a Reliability Coordinator's Area is described in the functional model as opposed to a Reliability Coordinator "System". Also, we don't think the second sentence belongs to R1 since it is itself a requirement for the TOP to follow the direction of the RC. It should be a separate requirement. 2. R1.2: We have difficulty visualizing how a restoration plan can be "coordinated" with a Blackstart Resource Facility Plan, a term that is not defined. We understand the need for coordinating actions and provision of critical information. We therefore suggest the requirement to be reworded to "Documented procedure that ensures the ability of the Blackstart Resource to control and maintain voltage and frequency within acceptable limits." Note that the term "Blackstart Resource Facility Plan" is not described or defined anywhere, and hence its use should be avoided. |

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| | <p>3.R1.2.1 We do not see how inclusion of information such as "latest date of test, test results and starting method" in the TOP's restoration plan can improve or adversely affect reliability. The important requirement is to identify the resources on the cranking path that need to provide blackstart capability, and that such capability is verified to function when needed. We suggest to remove the last part of this requirement. Note that documentation of the test results, etc. are already required in R14.</p> <p>4. R1.7: The term "critical Load" is subject to interpretation. From a system restoration viewpoint, particularly from a blackstart, we would view this to mean load that is critical to provide the needed balance to that portion of the BES to be restored to maintain stability and acceptable voltage. In other words, the load is critical to the restoration process. With respect to the other interpretation that it means the load that is critically dependent on electricity supply, such as off-site power, hospital load, etc.; this can be very subjectively determined and can vary from area to area. We feel the determination of which load to be supplied first, if this needs to be addressed, should be left to the discretion of the TOP but not as a requirement in a NERC standard.</p> |
| <p>Response:</p> | <p>1. R1 has been revised –note that R1 is addressing the Transmission Operator's System, not the Reliability Coordinator's System. The revised EOP-005 R1 uses the phrase, 'Transmission Operator's System'.</p> <p>2. BRFP has been removed from the standard in the new revision for the second posting.</p> <p>3. The SDT agrees that test results should not be a component of R1.2.1. The GOP now has the requirement to maintain these records (R17).</p> <p>4. Critical Load in BES system restoration includes station service for substations, units to be restarted or stabilized, the Load needed to stabilize generation and frequency and provide voltage control for restoring the System. This statement has been added to the standard and the term, 'critical load' has been deleted.</p> |
| <p>OVEC</p> | <p>EOP-005-2, R1, delete "approved by its Reliability Coordinator" because the approval is not necessary and overly burdensome on the Reliability Coordinator. The RC will be approving system restoration activities during an actual restoration and will not be following entities restoration plan word for word.</p> <p>EOP-005-2, R1.1, revise to the following "Identification of the restoration activities to be performed by the Transmission Operator including the responsibility of the Transmission Operator to coordinate with its Reliability Coordinator and other affected Transmission Operators." The inclusion of "authority" in the R1.1 is duplicating the authority requirement in Standard PER-001, R1. Including "field switching personnel" is not required or desired because these personnel are under the direction and control of a NERC certified system operator.</p> <p>EOP-005-2, R1.2, Delete this requirement because it is written as a measure rather than a requirement. R1.2.1 is too prescriptive and does not enhance system reliability. Suggest deleting R1.2.1. What if an entity has no Blackstart Resources does the requirement still apply?</p> <p>EOP-005-2, R1.5, this requirement seems only to state the obvious and duplicates a requirement in Standard PER-001, R1. Suggest deleting R1.5.</p> <p>EOP-005-2, R1.6, change "procedures" to "guidelines." The word procedure implies little or no flexibility where guidelines would suggest the necessary flexibility that would be needed in a restoration event.</p> <p>EOP-005-2, R1.7, change "procedures" to "guidelines." The word procedure implies little or no</p> |

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| | flexibility where guidelines would suggest the necessary flexibility that would be needed in a restoration event. |
| <p>Response: In FERC Order 693, "the Commission directs the ERO to develop a modification to EOP-006-1 through the Reliability Standards <i>development process that ensures that the reliability coordinator, which is the highest level of authority responsible for reliability of the Bulk-Power System, is involved in the development and approval of system restoration plans.</i>" The SDT believes that the process described in EOP-005-2 and EOP-006-2 meets the Commission directive.</p> <p>R1.1, R1.2.1 and R1.5 have been revised to address these concerns. R1.1 was deleted from the revised standard because several stakeholders indicated that the requirement is redundant with R1 in PER-001.</p> <p>R 1.2.1, which required identification of each Blackstart Resource is now R1.3 and no longer includes testing results. Testing results have been moved into R17 and remain with the Generator Operator unless requested by the Reliability Coordinator or Transmission Operator.</p> <p>R1.5 is different from PER-001 R1 – several commenters suggested modifications and the drafting team modified the sub-requirement as follows: "A statement accounting for the possibility that restoration can not be completed as expected indicating that in situations where the actual conditions do not match the studied conditions, the System Operator shall use professional judgment to modify-deviate from the System restoration plan."</p> <p>"Operating Procedures" is the preferred term since it is defined in the NERC Glossary.</p> | |
| KCPL | <ol style="list-style-type: none"> 1. Do not agree with the requirement in R1 stating the TO restoration plan must be approved by the RC. The primary substance of these plans are local restoration and are of little interest to the RC. This proposed EOP-005-2 contains the requirements for TO to include in their restoration plans to work in conjunction with the RC, to coordinate the restoration of interconnections with others with the RC, to maintain communication with the RC and to take direction from the RC in the restoration effort. This requirement should be for a TO to submit their restoration plans to the RC for review and coordination. 2. R1.2.1 requires the TO restoration plan to include records of testing of the Blackstart Resources. This will require unnecessary maintenance and update of the restoration plan without change of restoration plan substance. This requirement should be changed to document the testing results but do not require the results in the restoration plan. 3. Suggest removal of R1-5 as it is a requirement with no substance. It is not practical to require something that cannot be adequately measured. 4. R1.8 requires the TO to have "procedures to coordinate" their restoration plans with others. This should be a requirement to "coordinate" with others. |
| <p>Response: In FERC Order 693, "the Commission directs the ERO to develop a modification to EOP-006-1 through the Reliability Standards <i>development process that ensures that the reliability coordinator, which is the highest level of authority responsible for reliability of the Bulk-Power System, is involved in the development and approval of system restoration plans.</i>" The SDT believes that the process described in EOP-005-2 and EOP-006-2 meets the Commission directive.</p> <p>R1.2.1 and R1.5 has been revised to address these concerns. R 1.2.1, which required identification of each Blackstart Resource is now R1.3 and no longer includes testing results. Testing results have been moved into R17 and remain with the</p> | |

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| <p>Generator Operator unless requested by the Reliability Coordinator or Transmission Operator.</p> <p>R1.5 was modified to clarify that the restoration plan must include: "A statement accounting for the possibility that restoration can not be completed as expected indicating that in situations where the actual conditions do not match the studied conditions, the System Operator shall use professional judgment to modify-deviate from the System restoration plan."</p> <p>R1.8 has been changed to R2 and the use of the term 'applicable' has been removed.</p> | |
| RFC (1) | <p>R1. The statement "The restoration plan shall have a priority of restoring the integrity of the Interconnection under the direction of the RC" should be a separate requirement or sub-requirement and not listed here if it is something important to the plan.</p> <p>R1.2 Provide an explanation as to why you are referring to "applicable" BRFPs. This statement should be more explicit. Leaves room for a lot of interpretation.</p> <p>R1.3 Provide an explanation of a cranking path and what should be included as part of the diagram. Some entities in our region question what a cranking path consists of. Is it a one-line diagram, flowchart of facility names, etc. ?</p> |
| <p>Response: R1 has been revised and R1.2 in the revised standard states that the restoration plan must include, "Procedures for restoring the integrity of the Interconnection under the direction of the Reliability Coordinator. "</p> <p>BRFP has been removed from the standard in the new revision for the second posting. The SDT did not see the need to be more specific on what a Cranking Path is leaving it to the system restoration plan to identify Cranking Paths consistent with the NERC Glossary of Terms definition and to the necessary detail as required in the system restoration plan. Each Blackstart Resource should have a cranking path to at least one other non blackstart resource. These do not need to be independent the non blackstart resource goals of other Blackstart Resources. The SDT believes that a one-line diagram or detailed list of facility names in flowchart order would document the requirement.</p> | |
| RFC (2) | <p>R1 requires the TOP to have a restoration plan approved by its RC. If the RC doesn't approve the plan, then the TOP is in violation. This may be outside of the TOP's control. Please consider rewording the requirement to have the TOP submit its restoration to the RC for approval.</p> |
| <p>Response: The initial approval will be addressed in the transition plan. Once approved, there will always be an approved plan, even if a new one is in the approval process.</p> <p>In FERC Order 693, "the Commission directs the ERO to develop a modification to EOP-006-1 through the Reliability Standards development process that ensures that the reliability coordinator, which is the highest level of authority responsible for reliability of the Bulk-Power System, is involved in the development and approval of system restoration plans." The SDT believes that the process described in EOP-005-2 and EOP-006-2 meets the Commission directive.</p> | |

EOP-005 — Comments on Requirement 2:

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| Duke Energy | <p>R2 of EOP-005-2 requires that the Transmission Operator's restoration plan be updated within 90 days after completing permanent modifications that would change the planned Cranking Paths or after detecting deficiencies in the restoration plan. We agree with making updates within 90 days for major changes in Cranking Paths, or to correct deficiencies in the plan. For example, changing the</p> |
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| | Cranking Path at the substation level (i.e. breaker or switch change) would not be considered a major change. However changing blackstart units or transmission line path would be a major change. We believe that an annual update is sufficient for any non-major changes. |
| | <p>Response: The SDT has modified the standard to address these concerns. The revised standard includes the following requirements relative to updating the restoration plan:</p> <p>R3. Each Transmission Operator shall review its restoration plan and submit it to its Reliability Coordinator on an annual (rolling 365 days) basis.</p> <p>R3.1 If there are no changes to the previously submitted restoration plan, the Transmission Operator shall confirm annually (rolling 365 day basis) to its Reliability Coordinator that it has reviewed its restoration plan and no changes were necessary.</p> <p>R4. Each Transmission Operator shall update its restoration plan within ninety calendar days after identifying any permanent System modifications that would change the implementation of its restoration plan.</p> <p>R4.1 Each Transmission Operator shall submit its revised restoration plan to its Reliability Coordinator within the same ninety calendar day period</p> |
| OVEC | EOP-002-2, R2.2, delete this requirement because measure M2 sufficiently covers compliance to requirement R2. Also, confirmation and determination of compliance should be the responsibility or the regional compliance entity not the Reliability Coordinator. |
| ISO/RTO | 5. R2.2: We do not agree that the TOP should be required to certify annually to the RC that the plan has been reviewed. This is part of the ERO self certification process, and we do not believe that there is a need to duplicate the ERO function with the RC. |
| | Response: RC review and approval of the plan is not an issue of compliance but of coordination and workability with the RC's restoration plan. |
| NYISO | Requirement R2, as written permits a Transmission Operator to run the system for one quarter of a year with a non-viable restoration plan. That is unacceptable. Does the Transmission Operator not know that wires are being strung and stations built until commissioning is complete and the equipment is energized? Change time requirement to prior to permanent modifications being made. |
| | Response: There can be unanticipated changes, such as the loss or removal of a Blackstart Resource or other facility on a permanent or long term basis. The SDT believes the 90 day requirement is reasonable. |
| ATC | Requirement 2 Suggested rewording: Each Transmission Operator shall review its restoration plan at least annually and update, if necessary. Question on Requirement 2: The term deficiencies is not defined by the SDT so will each TOP be allowed to determine the severity of the deficiency that would trigger the update to the plan? |
| First Energy | 3. FE does not agree that it is necessary to review the restoration plan each year. We believe it could be reviewed less frequently without compromising the reliability of the BES. We suggest "every 5 years", and then also a qualifying statement such as "or when changes in the System warrant a more |

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| | frequent review." |
| <p>Response: The SDT has revised the wording to address these concerns. In the revised standard, the Transmission Operator is obligated to review its restoration plan once each year and if no changes are needed, the Transmission Operator must notify its Reliability Coordinator that it reviewed its restoration plan and no changes were needed to the prior plan.</p> | |
| WECC RCCWG | <p>The WECC RCCWG believes that R2 needs to state criteria for approval or disapproval of Transmission Operator restoration plans. The WECC RCCWG believes that a 2009/2010 implementation to meet this requirement and the coordination requirement in R1 will allow the necessary time to budgeting additional staff required.</p> <p>R2.2: The TOP should not be required to certify annually to the RC that the plan has been reviewed. This should be done through the ERO self certification process.</p> <p>The WECC RCCWG believes that R2.2 should be increased from 30 days to 60 days.</p> <p>The WECC RCCWG believes that R6 should be reworded to indicate that "The Reliability Coordinator shall serve as the primary contact for disseminating information regarding restoration to those parties not immediately involved in the restoration process. The Reliability Coordinator should not be placed in a position to interfere with, or be placed as another communication link to, direct communication between entities immediately involved.</p> |
| <p>Response: These comments apply to EOP-006. RC review and approval of the plan is not an issue of compliance but of coordination and workability with the RC's restoration plan. The SDT believes that this gives input to the RC in the development of plans such that the various TOP plans are coordinated with the RC's plan. In FERC Order 693, "the Commission directs the ERO to develop a modification to EOP-006-1 through the Reliability Standards development process that ensures that the reliability coordinator, which is the highest level of authority responsible for reliability of the Bulk-Power System, is involved in the development and approval of system restoration plans." The SDT believes that the process described in EOP-005-2 and EOP-006-2 meets the Commission directive.</p> <p>The SDT will supply an Implementation Plan with the posting of the second draft of the standards.</p> <p>RC review and approval of the plan is not an issue of compliance but of coordination and workability with the RC's restoration plan.</p> <p>The SDT believes that 30 days is appropriate.</p> <p>The SDT believes that R6 is appropriate as written since this is the RC's responsibility as per definition.</p> | |

EOP-005 — Comments on Requirement 3:

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| We Energies | R3.3 – What is meant by Dynamic Limits? During system restoration is stability in the usual sense attainable? |
| <p>Response: The SDT has modified the new R6.3 to address these concerns – and the reference to dynamic limits was deleted. R6.3 reads as follows: "The Loads and generating resources required to control voltages and frequency within acceptable operating limits (documented in Requirement R1.5) as the BES is restored."</p> | |
| Southern Transmission | 3. Requirement 3 as written implies that every five years the restoration plan is verified by the methods listed that it accomplishes its intended function. Although the items listed in R3.1-R3.3 are called out as being included in the testing, R3 does not limit the verification to these alone and would |

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| | thus imply that all items in the plans should be verified - including items such as those listed in R1.6 and 1.7. From a practical standpoint it is unclear how this would reasonably be accomplished. Also, the wording of R3.2 and R3.3 makes it unclear what is to be done with the loads referred to when the simulation or testing takes place. |
| SDE&G | R3 This requirement calls for dynamic simulations. Quite often black start units are small, and are not a great contributor to system stability; therefore most of them have a very inaccurate model, a typical model or no dynamic modeling at all. Therefore, performing dynamic simulations maybe impossible or the results will be very inaccurate. |
| Pepco | R3. It is unlikely that most TOs would have an actual event or testing that will satisfy this requirement. Thus the verification will be through steady state and dynamic simulations. Steady state simulations are common and easy to perform. Dynamic simulations are more difficult to perform and involve significant effort. There needs to be some kind of acceptable phase in plan to perform dynamic simulations. |
| IESO RTO/ISO | 5. R3: We do not understand what "testing" mean". The cranking path and associated restoration process cannot be tested live. If it means computer simulation or desk top exercise, then the requirement should be reworded to be more specific. 6. R3.3: Acceptable steady-state and dynamic limits are not defined. Reference is made to R1.4 but the latter stipulates operating voltage and frequency limits. Please make them consistent. |
| <p>Response: The SDT used the word "verify" to permit a variety of methods. Normal unit response characteristics have been published, and the TOP may determine that these are sufficient for the dynamics. The SDT has changed the wording of the new R6.3 to address the IESO concern – the reference to dynamic limits was removed. The revised sub-requirement reads as follows, "The Loads and generating resources required to control voltages and frequency within acceptable operating limits (documented in Requirement R1.5) as the BES is restored."</p> | |
| Manitoba Hydro | EOP-005-2 R3.3 how far along in the restoration effort are these studies required, does it include right up to the last load applied or is there a logical point the studies should be taken to. |
| <p>Response: The purpose of a restoration plan is not to restore every MW of Load and Transmission System element to service but to reach a stage whereby the choice of the next Load to be restored is not driven by the need to control frequency or voltage. Normal state has been eliminated in the text to reflect this purpose. The SDT has changed the Title, Purpose and R1. (See the summary consideration under Question 1 on page 10 of this document to see the specific revisions.)</p> | |
| OVEC | EOP-002-2, R3.2, what if an entity has no load, how can this requirement be satisfied? What if an entity has no network analysis tools because they have never been needed, why should the tools be procured simply to satisfy compliance? |
| <p>Response: There is load in every TOP area. The standard does not require the procurement of tools. The SDT used the word "verify" to permit a variety of methods.</p> | |
| Madison G&E | b) R3 and R6 imply that the Transmission Operator owns generation assets. They do not. The rewording of these requirements is needed. |
| <p>Response: The SDT disagrees. These are not ownership or operator requirements but performance requirements.</p> | |
| Madison G&E | a) R1.2.1, R1.4, R3.1, R6.2.3, R12, and R14.1 all refer to voltage and in particular megavar capacity. During an actual blackout, the Blackstart Resource may be able to handle the leading MVar's that an |

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| | un-energized transmission line produces. Blackstart Resource owners are not able to accurately test the unit's megavars capacity to absorb Vars since we tend to keep the transmission system energized. The SDT will need to change the wording so Blackstart Resource owners can be compliant with the standard. |
| Response: R1.2.1 has been revised to address this concern. R 1.2.1, which required identification of each Blackstart Resource is now R1.3 and no longer includes testing results. Testing results have been moved into R17 and remain with the Generator Operator unless requested by the Reliability Coordinator or Transmission Operator. | |

EOP-005 — Comments on Requirement 4:

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| NYISO | R4 and R5 in EOP-005 and R4 in EOP-006 should be eliminated as they are completely redundant with EOP-004. If the report required by EOP-004 for a blackout investigation does not include checking restoration performance versus NERC Restoration Standard Requirements, than EOP-004 should be deleted as meaningless. |
| FPL | R4 and R5 should be removed, EOP-004 addresses reporting of disturbances. |
| NYISO | R4 and R5 in EOP-005 and R4 in EOP-006 should be eliminated as they are completely redundant with EOP-004. If the report required by EOP-004 for a blackout investigation does not include checking restoration performance versus NERC Restoration Standard Requirements, than EOP-004 should be deleted as meaningless. |
| FPL | R4 and R5 should be removed, EOP-004 addresses reporting of disturbances. |
| Response: EOP-004 is disturbance reporting, not performance during restoration. | |
| IESO | 7. R4.3: "As required" is not measurable. |
| ISO/RTO | 8. R4.3: "As required" is not measurable. |
| Response: The RC's restoration plan will describe what is required. | |
| PG&E (2) | EOP-005-2 R1.7 and R4.2 only lists nuclear stations for high priority of off-site power. |
| WECC OTS | EOP-005-2 R1.7 and R4.2 only lists nuclear stations for high priority of off-site power. Suggest also listing thermal stations where an area may not have nuclear resources and the Thermal stations require off site power to maintain their ability to come back on line quickly. |
| Response: FERC Order 693 requires explicit recognition of off-site power to nuclear stations. Critical Load in BES restoration includes station service for substations, units to be restarted or stabilized, the Load needed to stabilize generation and frequency and provide voltage control for restoring the System. This statement has been added to the standard and the term, 'critical load' has been deleted | |
| SPP ORWG | R4 - We believe the requirement should be reworded to reflect that TOs should coordinate implementing their restoration plans with their RC. We suggest the following wording: "Following a Disturbance in which one or more areas of the BES shuts down and the use of Blackstart Resources is required to restore the shut down area to service, each affected Transmission Operators shall implement its restoration plan by: R4.1 Working in conjunction with its Reliability Coordinator(s) to determine the extent and condition of the isolated area(s). R4.2. Giving high priority to restoration of |

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| | off-site power to nuclear stations. R4.3. Notifying its Reliability Coordinator of restoration progress as required in the Reliability Coordinator’s restoration plan. |
| Response: The SDT believes the wording is equivalent. | |
| OVEC | EOP-002-2, R4.2, what qualifies as "off-site power to nuclear stations?" |
| Response: Off-site power is any source outside the emergency power sources at the nuclear station. | |

EOP-005 — Comments on Requirement 5:

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| Entergy (G&M) | R4: This requirement should be applicable whether or not Blackstart Resources are used to restore the system. Consider striking the phrase "and the use of Blackstart Resources is required to restore the shut down area to service." Consider rewording this requirement to state "work in conjunction with it's Reliability Coordinator to:" and then list items 4.1 through 4.3. |
| Response: The SDT has changed the Title, Purpose, and R1. (See the summary consideration under Question 1 on page 10 of this document to see the specific revisions.) Partial shutdowns are already covered by other standards including TOP-001, TOP-004, and EOP-001. | |
| PG&E (1) | EOP-005 R5 makes sense when islanding from neighboring areas, however what if the island is within the same area or even same company, would this apply? |
| Response: The intent of "neighboring areas" is to describe areas outside the TOP's footprint. | |
| AEP | EOP-005, R5 – As the neighboring Transmission Operator area to be resynchronized may be under a different Reliability Coordinator, we propose the following wording change for R5: Each affected Transmission Operator shall resynchronize islanded area(s) with neighboring Transmission Operator area(s) only with the authorization of the Reliability Coordinator(s) and in accordance with the established procedures of the Reliability Coordinator(s). |
| NBSO | In R5, revise as follows: "The Reliability Coordinator shall authorize and coordinate re-synchronizing isolated RC/BA/TOP areas" |
| Response: Note – This comment refers to EOP-006 and not EOP-005. The SDT has revised the new R8 in EOP-006 to address this concern. The revised EOP-006 R8 states: "Following a Disturbance in which one or more areas of the BES shuts down and the use of Blackstart Resources is required to restore the shut down area to service, the Reliability Coordinator shall authorize and coordinate resynchronizing isolated areas that bridge boundaries between Transmission Operators or Reliability Coordinators. " | |

EOP-005 — Comments on Requirement 6:

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| BCTC | R6.2.3 and R6.2.4 should be moved to R3. Tests to ensure voltage and frequency stability while energized to a minimum Load level may only be possible via simulation since the TO would require the LSE to provide this Load and it is highly unlikely customers would to agree to this type of test. |
| ATC | Requirement 6.3 is a statement not a requirement. ATC recommends that this statement be deleted from the standards. What does a failure of Requirement 6.3 represent? |
| Madison G&E | c) R6.2.3 and R6.2.4 will not be able to be completed if the Blackstart Resource owner can not |

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| | accomplish R6.2.2. R6.2.3. and 6.2.4 need to be reworded incase the Blackstart Resource owner can not accomplish R6.2.2. |
| Response: The SDT deleted the old R6.2.3 & R6.2.4 to address these concerns. The SDT believes that the old R6.3 is a valid requirement. | |
| RFC (2) | R6 has the TOP determine and set testing requirements for Blackstart Resources. This is inappropriate. Testing requirements should be consistent across the Interconnection. They should be specified by a NERC standard. |
| Response: The SDT believes that there are too many physical differences within the industry; adopting a continent-wide standard would cause us to come up with a Least Common Denominator list of requirements that would end up being a detriment to reliability. The suggested topics are mentioned in the revised text. | |
| OVEC | EOP-002-2, R6, this requirement tends to imply that Transmission Operators shall have Blackstart Resources. Is that the intended interpretation? Suggest revising "Applicability", 4.1, to read "Transmission Operators with Blackstart Resources." |
| Madison G&E | b) R3 and R6 imply that the Transmission Operator owns generation assets. They do not. The rewording of these requirements is needed. |
| Response: "with Blackstart Resources" modifies Generator Operator, not Transmission Operator. | |
| Madison G&E | a) R1.2.1, R1.4, R3.1, R6.2.3, R12, and R14.1 all refer to voltage and in particular megavar capacity. During an actual blackout, the Blackstart Resource may be able to handle the leading MVar's that an un-energized transmission line produces. Blackstart Resource owners are not able to accurately test the unit's megavars capacity to absorb Vars since we tend to keep the transmission system energized. The SDT will need to change the wording so Blackstart Resource owners can be compliant with the standard. |
| Response: The SDT has revised the requirements to address these concerns. R 1.2.1, which required identification of each Blackstart Resource is now R1.3 and no longer includes testing results. Testing results have been moved into R17 and remain with the Generator Operator unless requested by the Reliability Coordinator or Transmission Operator. | |
| Entergy (G&M) | R6: Are there any fuel supply requirements for a Blackstart Resource? The test should indicate if the test must be performed on the fuel that would be used during a blackstart. Must the fuel supply be able to support a certain length of operation without support from the BES? Are pipelines acceptable sources, or are their certain requirements that would apply if a pipeline were the fuel supply? |
| Response: The test includes minimum duration which the SDT believes is equivalent and sufficient. | |
| NPCC RSC HQT | 2) In R6.2, the following is proposed: Delete R6.2.3 and 6.2.4 since the real time testing of such requirements is not feasible. A new R6.2.3 will read: "Ability to energize a transmission line. If it is not possible to energize a transmission line during the test, the testing entity must affirm that the unit has the capability to energize a transmission line." |
| Response: The SDT deleted the old R6.2.3 & R6.2.4 to address these concerns. | |
| NYISO | R6 should be eliminated as pointless. At worst, combine it with R14. How is it physically possible for generators to perform the black start tests required in R14 without having possession of the test requirements? |
| Response: The new R10 requires distribution of test requirements. | |

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| IESO | 8. R6.2.4: "Acceptable frequency" is subject to interpretation, unless it is referred to the range specified in R1.4. |
| ISO/RTO | 9. R6.2.4: "Acceptable frequency" is subject to interpretation, unless it is referred to the range specified in R1.4. |
| Response: The old R6.2.4 was deleted to address these concerns. | |
| KCPL | 5. Requirement R6.1 allows an entity with one Blackstart Resource to test that resource one time in three years. The requirement should be for an entity to test a Blackstart resource on an annual basis and no less than once every three years. If an entity had 5 Blackstart resources, it could schedule testing for all 5 over a three year period, but at least one every year. |
| Response: The SDT disagrees in consideration of those TOP's that have numerous Blackstart Resources to test. | |

EOP-005 — Comments on Requirement 7:

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| NYISO | R7 should be eliminated as unnecessary. This requirement prevents the Transmission Operator from perpetrating a reliability fraud – counting on reliability resources that are known to be non functional. Are reliability frauds possible in all standards but this one? |
| RFC | R7 has the TOP only include Blackstart Resources that have met testing requirements. What if a Blackstart Resource failed a test? The drafting team should consider a timeframe that the TOP must comply with to remove a Blackstart Resource from its restoration plan if it has failed a test. |
| Response: The old R7 has been deleted to address this concern. | |

EOP-005 — Comments on Requirement 9:

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| AEP | EOP-005-2, R9 & EOP-006-2, R7 – The subject R9 and R7 requirements mandate training for “control room personnel”. Why change the accepted and more common term of “operating personnel”? The NERC term for certification of personnel is “System Operator Certification Program” (TO, BI, BT, & RC). We recommend keeping the identification name consistent with certification program terminology (System Operators) and PER-003 (Operating Personnel Credentials). OSHA also uses the term “system operator” for personnel in charge of the power system lines or equipment. EOP-005-2, R9 & EOP-006-2, R7 – In the existing approved EOP-005-1, the Compliance Monitoring Process requires “annual training of operating personnel” in the implementation of the Transmission Operator’s System Restoration Plans and restoration exercises. EOP-005-2, R9 & EOP-006-2, R7, draft 1, does not identify how often personnel must be trained in the emergency operations topics training program. Is the intent annual? Will this be revealed in draft 2 of these standards with the compliance requirements? There is no compliance monitoring processes in draft 1. |
| OVEC | EOP-002-2, R9, suggest changing "control room personnel identified in its restoration plan" to "system operators." System operators are a specific, narrowly defined group. Control room personnel has too broad of a focus. Delete R9.1 through R9.5. These sub-measures are too prescriptive and should be left to the discretion of the entity to include or not to include in its training |

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| | plan. |
| | <p>Response: The SDT notes that in FERC Order 693, the FERC determined that "System restoration requires the participation of not only control room personnel but also those outside of the control room. These include blackstart unit operators and field switching operators in situations where SCADA capability is unavailable." Since the training cited is within the existing operations training program as defined in the PER-004 standard, the timeframe is included by default. Compliance elements of the standard will be added once there is consensus on the requirements.</p> |
| Southern Transmission | <p>4. If the Balancing Authority continues to be left out of the Standards as an applicable entity during Restoration, the training required in R9 should also include TOP training in the concepts of frequency control, operating reserves, and perhaps even ACE control if reconnection to the Interconnection is performed and the BA is not involved. It is agreed that R1.8 requires the TOP to coordinate its plan with the BA but there is no requirement or obligation for the BA to take an active role in the TOP's plan. The TOP's plan may say it does everything without the BA and there is nothing in the Standards to prevent this even though it is outside the TOP role in the Functional model.</p> |
| | <p>Response: The SDT disagrees that the BA has an "applicability" role in the TOP restoration plan or its implementation. Beginning with the system collapse, the TOP restores the Transmission System, restores interconnections, and supplies off-site power to nuclear generating stations. This is accomplished on a command and control basis by the Transmission Operator in conjunction with the GOP. Once interconnections have been reestablished and the Transmission System restored, the restoration of firm Load can begin. The TOP is restoring the System through command and control until a sufficient System has been built where frequency is under control.</p> |
| PG&E (2) | <p>EOP-005-2 R.9 states each Transmission Operator shall provide training and even lists the training program topics; it does not give a time frame for this training. Is this training to be annually, if so, it should state it? Also, isn't the existing emergency operations topics training program PER-002 and wouldn't this be a duplicate criteria for the new PER-005-1 System Personnel training?</p> |
| | <p>Response: Since the training cited is within the existing operations training program as defined in the PER standards, the timeframe is included by default.</p> |
| ATC | <p>Requirement 9 should be rewritten to require the blackstart generator operator to supply the BRFP data to its TOP. ATC does not understand the need to require an agreement for this data.</p> |
| | <p>Response: BRFP has been removed from the standard in the new revision for the second posting.</p> |
| Consumers | <p>R9.4: The Standard should be more specific as to the applicability of R9.4. Is this related to synchronizing between transmission networks or between the transmission operator and the generator operator?</p> |
| | <p>Response: The SDT has revised the requirement to clarify that the training must include synchronizing (re-energized sections of the System). (See R11.4 in the revised standard.)</p> |
| WECC OTS | <p>EOP-005-2 R.9 states each Transmission Operator shall provide training and even lists the training program topics; it does not give a time frame for this training. Is this training to be annually, if so, it should state it? Also, isn't the existing emergency operations topics training program PER-002 and wouldn't this be a duplicate criteria for the new PER-005-1 System Personnel training? Training requirements in EOP-005-2 R.11 needs to be clearly defined for the Transmission Operator. Will this be annual training per operator or only upon request of the Reliability Coordinator?</p> |

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| <p>Response: Since the training cited is within the existing operations training program as defined in the PER-004 standard, the timeframe is included by default.</p> <p>FERC Order 693 mandates that restoration training be included in the blackstart standards. <i>“The Commission believes that inclusion of periodic system restoration drills and training and review of restoration plans in a system restoration Reliability Standard is the most effective way of achieving the desired goal of ensuring that all participants are trained in system restoration and that the restoration plans are up to date to deal with system changes.”</i></p> | |
| FPL | R9, All Training requirements should be in the PER Standards. |
| ATC | ATC strongly believes that any training requirement should be moved to the NERC PER standards. This standard should focus on blackstart efforts not training issues. |
| <p>Response: FERC Order 693 mandates that restoration training be included in the blackstart standards. <i>“The Commission believes that inclusion of periodic system restoration drills and training and review of restoration plans in a system restoration Reliability Standard is the most effective way of achieving the desired goal of ensuring that all participants are trained in system restoration and that the restoration plans are up to date to deal with system changes.”</i></p> | |

EOP-005 — Comments on Requirement 10:

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| We Energies | R10 – Why the 2 hour training requirement for “all field personnel?” Not sure there is any added value here. And if there is a training requirement, should it be in the Personnel Standards? |
| IESO ISO/RTO | 16. R10: This requirement should be moved to the training standard. |
| ATC | ATC strongly believes that any training requirement should be moved to the NERC PER standards. This standard should focus on blackstart efforts not training issues. |
| <p>Response: FERC Order 693 mandates that restoration training be included in the blackstart standards. <i>“The Commission believes that inclusion of periodic system restoration drills and training and review of restoration plans in a system restoration Reliability Standard is the most effective way of achieving the desired goal of ensuring that all participants are trained in system restoration and that the restoration plans are up to date to deal with system changes.”</i></p> <p>In FERC Order 693, the ERO is directed to identify time frames for training and review of restoration plan requirements.</p> | |
| Pepco | R10. The requirement states that ...training for each of its authorized transmission field switching personnel for the tasks identified in its restoration plan.... Authorized transmission field switching personnel usually means to a TO, all those personnel that are qualified to perform transmission switching. Even though we may dispatch field personnel during a restoration, their duties are their "normally performed duties" under the direction of the System Operator. It is suggested that additional words be added so it is clear that the requirement means training for only those field personnel performing specific restoration tasks during a restoration, beyond normal operating practices. |
| NYISO | R10 should be eliminated. Field switching personnel have no decision making role in restoration. |
| Manitoba Hydro | EOP-005-2 R10 Can this be narrowed down a little to those required or identified in the restoration plan? |
| OVEC | EOP-002-2, R10, suggest deleting this requirement because the organizational structures of entities vary too widely to include such a requirement. Also, entities already provide training to transmission |

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| | field switching personnel for switching tasks. |
| KCPL | 6. Requirement R10 should be removed. It is unnecessary to include training for field switching personnel. These personnel do not act independently and are under the direction of Transmission Operators and Generation Operators who are required to be trained in this proposed standard. |
| <p>Response: The SDT notes that in FERC Order 693, the FERC determined that "System restoration requires the participation of not only control room personnel but also those outside of the control room. These include blackstart unit operators and field switching operators in situations where SCADA capability is unavailable."</p> <p>If the TOP's restoration plan has field switching tasks unique to system restoration that are not included in normal operations, then training shall be required. Changes have been made to R10 (R12 in the revised standard) as shown below to clarify this position.</p> <p>R12. Each Transmission Operator shall provide a minimum of two hours of System restoration training per year for each of its authorized transmission field switching personnel for the tasks identified in as performing unique tasks associated with its restoration plan- and outside of their normal tasks.</p> | |

EOP-005 — Comments on Requirement 11:

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| Madison G&E | d) R11 and R16 should be combined as one requirement and a time limit set, ie, "once every two years". |
| Entergy | We also suggest TOPs and GOPs should perform a system restoration drill of the TOPs plan once every two years and that requirement should be in EOP-005-2 R11 and R16. |
| KCPL | 7. Suggest combining participation in RC restoration drills into one requirement by combining requirement R11 and R16. |
| <p>Response: The SDT believes that participating in the RC's drills is sufficient. There is a statement in EOP-006 covering the once in every two year concept. The SDT has strived to keep the requirements for TOP and GOP separate.</p> | |
| PG&E (2) | Training requirements in EOP-005-2 R.11 needs to be clearly defined for the Transmission Operator. Will this be annual training per operator or only upon request of the Reliability Coordinator? The WECC OTS finds the new System Restoration and Blackstart-Coordination Standards to be duplicating in their training requirements and not well defined in the time frames for this training. 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. |
| <p>Response: Since the training cited is within the existing operations training program as defined in the PER standards, the timeframe is included by default.</p> <p>FERC Order 693 mandates that restoration training be included in the blackstart standards. "The Commission believes that inclusion of periodic system restoration drills and training and review of restoration plans in a system restoration Reliability Standard is the most effective way of achieving the desired goal of ensuring that all participants are trained in system restoration and that the restoration plans are up to date to deal with system changes."</p> | |
| AEP | EOP-005, R11 & R16 – We do not agree with the verbiage of R11 & R16.... "as requested by its Reliability Coordinator"..... related to drills, exercises and simulations. We feel the verbiage should put a minimum number as to the number of Reliability Coordinator drills, exercises and simulations in |

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| | <p>which the Transmission Operator must participate, and the number should be in agreement with Reliability Coordinator requirements of EOP-006, R8. The present wording would require the Transmission Operator to participate in all drills, regardless of number, if the Reliability Coordinator provided and requested such. The Transmission Operator is required to train all its system operating personnel on their restoration plan, so participation in the Reliability Coordinator's restoration drills and exercises are in addition to the Transmission Operators training drills, exercises, and simulations. We recommend the wording of R11, R16 and M10 be changed to correspond with the wording of the EOP-006-2, R8 requiring Transmission Operator inclusion in a RC black-start restoration drill, exercise, or simulation once every two years. The following wording is suggested for EOP-005, R11 & R16, which specifies the minimum number of participations: "Each Transmission Operator (or Generator Operator for R16) shall participate in its Reliability Coordinator's restoration drills, exercises, or simulations as provided and requested by its Reliability Coordinator at least once every two years".</p> |
| <p>Response: The requirement is for the applicable entity and not for individuals. It is up to the TOP (GOP) to get their individual personnel trained as per the standards.</p> | |
| NYISO | R11 should be moved to EOP-006. It is the responsibility of the Reliability Coordinator to insure that all Transmission Operators in that jurisdiction participate in drills and exercises, as required. |
| FPL | R11 Should be removed. 1. The RC should not be responsible for all TOP's in the area to attend regional drills. 2. All TOP's should not be required twice a year to attend regional drills, Some TOP's have no effect on restoration of the BES. |
| <p>Response: The RC is responsible for "including the Transmission Operators and Generator Operators with Blackstart Resources in their area of responsibility as dictated by the particular scope of the drill, exercise, or simulation that is being conducted."</p> | |
| ISO/RTO | 10. R11. Should specify an actual frequency that participation in an RC restoration exercise is required. Suggested wording: " R11. Each Transmission Operator shall participate in its Reliability Coordinator's restoration drills, exercises, or simulations at least once every two years when requested by its Reliability Coordinator." |
| <p>Response: The SDT will keep the current requirement. The RC can determine by the scope of the event which TOPs need to be included and there is an inclusion requirement in EOP-006.</p> | |

EOP-005 — Comments on Requirement 12:

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| NPCC RSC HQT | 3) Delete R12 as having no reliability implications beyond those already stipulated in R1.2. |
| NYISO | R12 is a business issue and has no impact on system restoration. It should be eliminated. |
| Southern Transmission | 2. Requirement 12: Is the Blackstart Resource Agreements new or just a new name. Also, most of this information is covered in Requirement 1.2. Why does the TOP need a copy of the start-up |

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| | <p>procedure for the blackstart units? We also feel that a Blackstart Resource Agreement for vertically integrated utilities serves no purpose and should be waived in the proposed Standard for vertically integrated utilities.</p> |
| CenterPoint | <p>EOP-005-2 R12 requires documented agreements specifying terms and conditions. CenterPoint Energy believes it is unnecessary and inappropriate to have such a requirement in a standard. Documented agreements are a business issue between two or more parties and can not be mandated by NERC standards. However, if such a requirement is ultimately established, consideration should be given to requiring such agreements to be for at least a three year term, with the same blackstart resources committed for at least a three year period. This will help ensure competent performance in a blackout event, with the blackstart resources remaining consistent for a reasonable period of time. A three year term would align with the three year testing of Blackstart Resources (R6.1), as well as meeting the five year (minimum) verification of the restoration procedure by actual simulations (R3). Additionally, because changes in blackstart resources significantly impact the blackstart paths, changing the blackstart resources on an annual basis may negatively impact efforts to comply with other reliability standards. For example, CIP-002 requires that "critical assets" and subsequently "critical cyber assets" be identified and that these "critical assets" be identified along the blackstart paths. Changes to the blackstart paths on an annual basis could significantly alter an entity's critical asset list, and significantly impact an entity's ability to project its critical cyber assets associated with each critical asset. While an annual assessment of critical assets is required by CIP-002, CenterPoint Energy does not believe CIP-002 envisions that an entity's critical asset list would change dramatically from year to year. However, changing blackstart resources and ultimately blackstart paths could in fact have a dramatic impact on an entity's critical asset list.</p> |
| <p>Response: An agreement provides assurance that the GOP knows they are included in the TOP's restoration plan. In a vertically integrated utility, an internal document would serve as an agreement.</p> | |
| OVEC | <p>EOP-002-2, R12, R13, R14, R15, how is compliance determined for these requirements if an entity has no Blackstart Resources? R15 is again too prescriptive in detailing how many hours of training should occur. Sub-measures R15.1, R15.2, and R15.3 should be deleted because they are to prescriptive and do not enhance system reliability.</p> |
| <p>Response: This standard applies to TOPs and to GOPs with Blackstart Resources. In FERC Order 693, the ERO is directed to identify time frames for training and review of restoration plan requirements.</p> | |
| Madison G&E | <p>a) R1.2.1, R1.4, R3.1, R6.2.3, R12, and R14.1 all refer to voltage and in particular megavar capacity. During an actual blackout, the Blackstart Resource may be able to handle the leading MVar's that an un-energized transmission line produces. Blackstart Resource owners are not able to accurately test the unit's megavars capacity to absorb Vars since we tend to keep the transmission system energized. The SDT will need to change the wording so Blackstart Resource owners can be compliant with the standard.</p> |
| <p>Response: The SDT has revised the requirements to address these concerns. "Megavar capacity" refers to equipment capability, such as a reactive capability curve, not the results of a test.</p> | |
| Madison G&E | <p>e) R12, For clarity, in the forth sentence, after Transmission Operator's restoration plan add "as identified in R7".</p> |

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| Consumers | R12: Please clarify what is expected to be included in the generator operator’s BRFP. Are we to assume that only those items mention in R12 (name of the resource, location, megawatt and megavar capacity, type of unit, fuel type, latest date of test, test results, starting method and procedures for the startup of the blackstart resource) are what is expected? |
| Response: BRFP has been removed from the standard in the new revision for the second posting. | |
| FirstEnergy | 2. In EOP-005-2, the "Agreement" between the Transmission Operator (TOP) and the Generator Operator per requirement R12 needs to be coordinated with the Reliability Coordinator (RC), especially since in some instances RC acts as the TOP. Also, requirements regarding this "agreement" should be included in EOP-006-2. Plus this further points to the need for consolidation of EOP-006-2 into EOP-005-2 per our comments to Question #5 above. Additionally, it is not clear what would be considered an acceptable "agreement". We suggest that the SDT consider a similar approach to defining Agreement expectations as is currently done in the BOT approved NUC-001 standard. |
| Response: The SDT does not see the need for explicit coordination of ‘Blackstart Resource agreement’ with the RC. Note the RC already approves the TOP restoration plans. If the RC acts as the TOP then that organization also follows the TOP requirements. | |

EOP-005 — Comments on Requirement 13:

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| Southern Transmission | 3. Requirement 13: This requirement requires the GOP to review its resource plan annually but TOPs only have to review the the system's every 5 years (R 3). It appears to us that if anyone needs to review the blackstart plan annually, then it should be the TOP not the GOP. Plant systems don't change often and thus does not need the annual review. |
| Response: BRFP has been removed from the standard in the new revision for the second posting. | |
| OVEC | EOP-002-2, R12, R13, R14, R15, how is compliance determined for these requirements if an entity has no Blackstart Resources? R15 is again too prescriptive in detailing how many hours of training should occur. Sub-measures R15.1, R15.2, and R15.3 should be deleted because they are to prescriptive and do not enhance system reliability. |
| Response: The requirements do not apply to an entity with no Blackstart Resources. | |
| NPCC RSC HQT | 4) Delete R13, R14 and R15 as the Generator Operator has no decision making authority in system restoration. |
| Response: BRFP has been removed from the standard in the new revision for the second posting. The SDT notes that in FERC Order 693, the FERC determined that <i>“System restoration requires the participation of not only control room personnel but also those outside of the control room. These include blackstart unit operators and field switching operators in situations where SCADA capability is unavailable.”</i> Testing is required to assure the Blackstart Resource can meet the requirements of the restoration plan. | |
| NYISO | R13 should be eliminated. The mechanics of how the blackstart facility brings its equipment on-line has no bearing on system restoration. Blackstart operation by definition is independent of external connections. The 90 day notification requirement is purely a contractual business issue which has no place in the reliability requirements. |
| SDE&G | R13 The GOP needs to give a copy of updates to the BRFP to the TOP and RC. |
| Response: BRFP has been removed from the standard in the new revision for the second posting. | |

EOP-005 — Comments on Requirement 14:

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| Southern Transmission | 4. Requirement 14: This requirement adds a considerable amount of test and documentation requirements over the existing EOP-009 including special recording devices for voltage and frequency. As written, it appears that actual system restoration and actual unit blackstart have been included in the scope and added to the requirements, not just verification that blackstart units can start - as was the requirement of EOP-009-0. In general we object to these additions. As a GOP/GO we recommend retaining EOP-009 and removing the associated items from EOP-009 added to this standard. |
| <p>Response: The SDT believes that the requirements, as revised for the second draft, are appropriate. The revised requirement (now R17) reads as follows:</p> <p>R17. Each Generator Operator of a Blackstart Resource shall perform Blackstart Resource tests, and maintain records of such testing, in accordance with the testing requirements set by the Transmission Operator to verify that the Blackstart Resource can perform as specified in the restoration plan.</p> <p>R17.1 Testing records shall include at a minimum: name of the Blackstart Resource, unit tested, date of the test, duration of the test, time required to start the unit, an indication of any testing requirements not met under Requirement R6.</p> <p>R17.2 Each Generator Operator shall provide the blackstart test results within thirty calendar days following a request from its Reliability Coordinator or Transmission Operator.</p> | |
| NPCC RSC HQT | 4) Delete R13, R14 and R15 as the Generator Operator has no decision making authority in system restoration. |
| <p>Response: BRFP has been removed from the standard in the new revision for the second posting. The SDT notes that in FERC Order 693, the FERC determined that "System restoration requires the participation of not only control room personnel but also those outside of the control room. These include blackstart unit operators and field switching operators in situations where SCADA capability is unavailable." Testing is required to assure the Blackstart Resource can meet the requirements of the restoration plan.</p> | |
| OVEC | EOP-002-2, R12, R13, R14, R15, how is compliance determined for these requirements if an entity has no Blackstart Resources? R15 is again too prescriptive in detailing how many hours of training should occur. Sub-measures R15.1, R15.2, and R15.3 should be deleted because they are to prescriptive and do not enhance system reliability. |
| <p>Response: The requirement does not apply to an entity with no Blackstart Resources.</p> | |
| IESO | 9. R14.1: "the test including time correlation to Load applied (if any), and the unit frequency profile during the test including time correlation to Load applied (if any)" is not specific. We do not understand what it means by "time correlation to Loads applied" and the clause "if any" is subject the requirement too loose. |
| ISO/RTO | 11. R14.1: "the test including time correlation to Load applied (if any), and the unit frequency profile during the test including time correlation to Load applied (if any)" is not specific. We do not understand what it means by "time correlation to Loads applied" and the clause "if any" is subject the |

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| | requirement too loose. |
| PG&E(1) | EOP-005 R14.1 We interpret there to be no profiles required if there are no external loads connected during the test. If this is not true, we suggest a change to only require profiles when loads are connected external to the facility. |
| <p>Response: The SDT has revised the new R15 as suggested. The following phrase was deleted from the revised standard (R17.1); "the voltage profile during the test including time correlation to Loads applied (if any), and the unit frequency profile during the test including time correlation to Loads applied (if any)."</p> | |
| Madison G&E | <p>f) R14.1, First sentence states test results should be provided to "Reliability Coordinator and Transmission Operator." Propose that all reporting on capabilities of black start plan should be performed by transmission provider as they are responsible for black start plan. Generator Operator should provide testing data to Transmission Operator and Transmission Operator should provide data to RC and RE as required.</p> <p>g) R14.1, Last sentence "Loads applied (if any)" does not agree with R6.2.3, that states "... while isolated from the BES and supplying minimum Load level ...". The SDT needs to change the wording so both requirements compliment each other.</p> |
| <p>Response: The SDT has revised the requirement so that the GOP is now responsible for maintaining these records. The old R6.2.3 has been deleted as well as the last phrase in R14.1 (now R17.1) has been deleted: "the voltage profile during the test including time correlation to Loads applied (if any), and the unit frequency profile during the test including time correlation to Loads applied (if any)."</p> | |
| Madison G&E | <p>a) R1.2.1, R1.4, R3.1, R6.2.3, R12, and R14.1 all refer to voltage and in particular megavar capacity. During an actual blackout, the Blackstart Resource may be able to handle the leading MVar's that an un-energized transmission line produces. Blackstart Resource owners are not able to accurately test the unit's megavars capacity to absorb Vars since we tend to keep the transmission system energized. The SDT will need to change the wording so Blackstart Resource owners can be compliant with the standard.</p> |
| <p>Response: The SDT has revised the requirements to address these concerns. "Megavar capacity" refers to equipment capability, such as a reactive capability curve, not the results of a test.</p> | |
| Consumers | <p>R14: MISO currently does not have an ancillary service market for blackstart services. The testing requirements being established by the transmission operator need to be mutually agreed upon by the generator operator to ensure that (a) the testing requirements are feasible and (b) the testing requirements do not create a significant financial burden on the generator operator.</p> |
| <p>Response: The SDT believes that there are too many physical differences within the industry; adopting a continent-wide standard would cause us to come up with a Least Common Denominator list of requirements that would end up being a detriment to reliability. The suggested topics are mentioned in the revised text.</p> | |

EOP-005 — Comments on Requirement 15:

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| Southern Transmission | 5. Requirement 15: We think that a reasonable amount of training is warranted. However, the standard sets a minimum amount of time for generation and annual frequency. Both of these items |
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| | should be left to the GO or GOP and/or addressed in the new "Blackstart Resource agreement" added in R 12. As a GO, we think it is interesting that the GOP must do a minimum of 4 hours of training where the TOP has to do only 2 hours (R 10). |
| Response: BRFP has been removed from the standard in the new revision for the second posting. In FERC Order 693, the ERO is directed to identify time frames for training and review of restoration plan requirements. The training hours for the GOP personnel have been set the same as for field switching personnel. | |
| We Energies | R15 – Is this a GO item? The GO does not determine restoration philosophy. Restoration priorities are not the purview of the GO. Who sponsors this training? What qualifies as acceptable? |
| NPCC RSC HQT | 4) Delete R13, R14 and R15 as the Generator Operator has no decision making authority in system restoration. |
| NYISO | R15 should be eliminated. Generator personnel have no decision making role in restoration. Their tasks and responsibilities in restoration are identical to those under normal and emergency operations. |
| Response: The SDT notes that in FERC Order 693, the FERC determined that "System restoration requires the participation of not only control room personnel but also those outside of the control room. These include blackstart unit operators and field switching operators in situations where SCADA capability is unavailable." This is a GOP requirement. | |
| OVEC | EOP-002-2, R12, R13, R14, R15, how is compliance determined for these requirements if an entity has no Blackstart Resources? R15 is again too prescriptive in detailing how many hours of training should occur. Sub-measures R15.1, R15.2, and R15.3 should be deleted because they are to prescriptive and do not enhance system reliability. |
| Response: The requirement does not apply to an entity with no Blackstart Resources. | |
| Pepco | R15.1 It is suggested that it be specifically stated in the requirements that the training program also include voltage and frequency control. During a restoration event these controls will probably act differently and are critical to the success of the restoration. |
| Response: The SDT believes that the R15.2 (now R18.2) on 'special actions' covers this item. | |
| Consumers | R15: Consumers agrees that it is appropriate for the Standard to require the generator operator to provide training to its operating personnel, however, the generator operator should be allowed flexibility in determining what training is necessary to ensure it meets its obligations set forth in the transmission operators BRFP. |
| Response: In FERC Order 693, the ERO is directed to identify time frames for training and review of restoration plan requirements. The training hours for the GOP personnel have been set the same as for field switching personnel. | |
| IESO | 10. R15.3: Who determines the restoration priorities? And whose priorities, the TOP's or the GOP's? Please be specific. |
| ISO/RTO | 12. R15.3: Who determines the restoration priorities? And whose priorities, the TOP's or the GOP's? Please be specific. |
| WECC RCCWG | R15.3. Restoration priorities. It is not clear who determines priorities. |
| Response: The SDT has deleted this requirement. | |

EOP-005 — Comments on Requirement 16:

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| AEP | EOP-005, R11 & R16 – We do not agree with the verbiage of R11 & R16.... “as requested by its Reliability Coordinator”..... related to drills, exercises and simulations. We feel the verbiage should put a minimum number as to the number of Reliability Coordinator drills, exercises and simulations in which the Transmission Operator must participate, and the number should be in agreement with Reliability Coordinator requirements of EOP-006, R8. The present wording would require the Transmission Operator to participate in all drills, regardless of number, if the Reliability Coordinator provided and requested such. The Transmission Operator is required to train all its system operating personnel on their restoration plan, so participation in the Reliability Coordinator’s restoration drills and exercises are in addition to the Transmission Operators training drills, exercises, and simulations. We recommend the wording of R11, R16 and M10 be changed to correspond with the wording of the EOP-006-2, R8 requiring Transmission Operator inclusion in a RC black-start restoration drill, exercise, or simulation once every two years. The following wording is suggested for EOP-005, R11 & R16, which specifies the minimum number of participations: “Each Transmission Operator (or Generator Operator for R16) shall participate in its Reliability Coordinator’s restoration drills, exercises, or simulations as provided and requested by its Reliability Coordinator at least once every two years”. |
| Entergy | We also suggest TOPs and GOPs should perform a system restoration drill of the TOPs plan once every two years and that requirement should be in EOP-005-2 R11 and R16. |
| Madison G&E | d) R11 and R16 should be combined as one requirement and a time limit set, ie, "once every two years". |
| KCPL | 7. Suggest combining participation in RC restoration drills into one requirement by combining requirement R11 and R16. |
| <p>Response: The requirement is for the applicable entity and not for individuals. It is up to the TOP (GOP) to get their individual personnel trained as per the standards. The SDT will keep the training requirements separate.</p> | |
| Southern Transmission | 6. Requirement 16: This appears to be a new requirement without any clarification of what is expected of the GOP. Clarify or delete. |
| <p>Response: The RC will define the level of participation expected.</p> | |
| BCTC | EOP-005-1 R16 requires each Generator Operator to participate in the RC's restoration drills as requested by the RC. Is this meant to be Generator Operator's with Blackstart Resources or all Generator Operators? |
| <p>Response: It is GOPs as requested by the RC.</p> | |

EOP-005 — Comments on Measures:

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| KCPL | 8. Do not agree with M3 under the measurements. The documentation required here is too vague and can be too onerous. How much of a load flow output should be saved? The assumptions and the end results? The many runs in between to prove a cranking path(s) are viable? Why isn't the |
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| | electronic saved cases sufficient documentation? If a Compliance Monitor wants to dive into the details, they would all be there for their inspection electronically. |
| Southern Transmission | 7. M12 thru M15 need to be revised to reflect comments above. |
| Response: The SDT has revised the measures to match the new requirements. | |
| SPP ORWG | M3 - We believe the data storage requirement for this measure is excessive. |
| Response: In these days of CD storage, the SDT believes that this cannot be onerous. | |
| OVEC | EOP-002-2, M1, Revised to the following, "Each Transmission Operator shall have a documented System restoration plan." Compliance can be sufficiently measured by the revision. EOP-002-2, M15, the wording "if requested" should be removed. What if a request was never received? Who is the non-compliant entity? |
| Response: "Documented" does not mean "approved." The SDT believes that the wording used is correct and that there is proper and sufficient coordination between EOP-005 and EOP-006 to determine who the non-compliant entity is. | |
| NPCC RSC HQT | 1) In EOP-005, the measures for R4 and R5 should be the report of the event required by Standard EOP-004. The report shall address the requirements of R4 presented in proposed Standard EOP-005. |
| Response: The requirement is for evidence, not a report. | |
| AEP | EOP-005, R11 & R16 – We do not agree with the verbiage of R11 & R16.... "as requested by its Reliability Coordinator"..... related to drills, exercises and simulations. We feel the verbiage should put a minimum number as to the number of Reliability Coordinator drills, exercises and simulations in which the Transmission Operator must participate, and the number should be in agreement with Reliability Coordinator requirements of EOP-006, R8. The present wording would require the Transmission Operator to participate in all drills, regardless of number, if the Reliability Coordinator provided and requested such. The Transmission Operator is required to train all its system operating personnel on their restoration plan, so participation in the Reliability Coordinator's restoration drills and exercises are in addition to the Transmission Operators training drills, exercises, and simulations. We recommend the wording of R11, R16 and M10 be changed to correspond with the wording of the EOP-006-2, R8 requiring Transmission Operator inclusion in a RC black-start restoration drill, exercise, or simulation once every two years. The following wording is suggested for EOP-005, R11 & R16, which specifies the minimum number of participations: "Each Transmission Operator (or Generator Operator for R16) shall participate in its Reliability Coordinator's restoration drills, exercises, or simulations as provided and requested by its Reliability Coordinator at least once every two years". |
| Response: The requirement is for the applicable entity and not for individuals. It is up to the TOP (GOP) to get their individual personnel trained as per the standards. The SDT will keep the training requirements separate. | |
| Entergy (G&M) | M4, M5: As commented for R4, consider removing "in which Blackstart Resources have been utilized..." and phrase it such that it applies during any restoration of service to shut down areas. Also M4 & 5 are redundant, recommend consolidating as one Measure, unless the desire is to have a unique line item Measure for every Requirement. |
| Response: The SDT has revised the purpose to cover restoration requiring Blackstart Resources, even if they are external to | |

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| the TOP's System. Every requirement must have at least one measure. | |
| NYISO | M4 and M5 in EOP-005 and M5,M6 and M7 in EOP-006 should be eliminated as they are completely redundant with the stated purpose of EOP-004. M6 and M8 should be eliminates since it is identical to M13. How is it possible to comply with M13 without automatically M6 and M8? |
| Response: The requirement is for evidence, not a report. Every requirement must have at least one measure. | |
| OVEC | 1) In EOP-005, the measures for R4 and R5 should be the report of the event required by Standard EOP-004. The report shall address the requirements of R4 presented in proposed Standard EOP-005. |
| Response: The requirement is for evidence, not a report. | |

EOP-006 — Comments on Requirement 1:

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| NYISO | M4 and M5 in EOP-005 and M5,M6 and M7 in EOP-006 should be eliminated as they are completely redundant with the stated purpose of EOP-004. |
| Response: The requirement is for evidence, not a report. | |
| ISO/RTO | 13. R1. This sentence should be broken up to add clarity. The requirement for distribution of the restoration plan should be a separate requirement. 14. R1.7: Whose reporting requirements does the plan include? This needs to be specified. |
| Response: The requirement to make distribution of the plan has been made separate. R1.7 has been modified as shown below to address this concern. R1.7. Documentation of reporting Reporting requirements to for the entities within the Reliability Coordinator Area during a restoration event. | |
| NPCC RSC | 8) R1.6 Please clarify this statement regarding how it applies to Black Start restoration. According to question 2, the scope of the standard is limited to System Restoration when black start resources are utilized. The Restoration of islanding situations may not require the use of blackstart resources. |
| Entergy (G&M) | R1.6: This authority is not appropriate in a NERC standard. Each entity's own procedure may choose to include such language however it should not be a requirement to allow an operator to deviate from a procedure. |
| SPP ORG | R1.6 - We suggest removing this requirement because it has no substance. |
| KCPL | 2. Suggest removal of R1-6 as it is a requirement with no substance. It is not practical to require something that cannot be adequately measured. |
| Response: The SDT has changed R1.6 as shown below to accommodate the indicated concern. R1.6. A statement accounting for the possibility that restoration can not be completed as expected indicating that in situations where the actual conditions do not match the studied conditions, the System Operator shall use professional judgment to modify deviate from the System restoration plan. | |
| HQT NPCC RSC | Revise R1.1 as follows: "Identification of the authority and tasks of the Reliability Coordinator to work with its neighboring Reliability Coordinator(s) and with the Transmission Operators and Generation Operators with Blackstart Resources within its area." |

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| | There should be a recognition for the Reliability Plan to be flexible and responsive to unanticipated conditions. |
| <p>Response: R1.1 has been revised. The SDT has changed R1.6 as shown below to accommodate the indicated concern. R1.6. A statement accounting for the possibility that restoration can not be completed as expected indicating that in situations where the actual conditions do not match the studied conditions, the System Operator shall use professional judgment to modify-deviate from the System restoration plan.</p> | |
| IESO | 11. R1.7: whose reporting requirements does the plan include? This needs to be specified. |
| <p>Response: R1.7 has been modified as shown below to address this concern. R1.7. Documentation of reporting Reporting requirements to for the entities within the Reliability Coordinator Area during a restoration event.</p> | |
| HQT | 8) In R1.6, please clarify this statement regarding how it applies to Blackstart Restoration. According to Q2, the scope of this standard is limited to System restoration when Black start resources are utilized. The restoration of only islanding situations may not require the use of blackstart resources. |
| <p>Response: The SDT has changed R1.6 as shown below to accommodate the indicated concern. R1.6. A statement accounting for the possibility that restoration can not be completed as expected indicating that in situations where the actual conditions do not match the studied conditions, the System Operator shall use professional judgment to modify-deviate from the System restoration plan. The purpose of a restoration plan is not to restore every MW of Load and Transmission System element to service but to reach a stage whereby the choice of the next Load to be restored is not driven by the need to control frequency or voltage. Normal state has been eliminated in the text to reflect this purpose. The SDT has changed the Title, Purpose and R1.</p> | |
| Entergy | <p>EOP-006-2 R1 requires the RC to have a restoration plan. The scope of that plan is somewhat vague. We suggest the RC should have a "procedure" that is limited to address re-connection of TOP areas with other TOPs. The TOP restores its area to its "normal state". We suggest replacing the statement " .. restore its area to its normal state following .. " with " .. with restore TOP synchronous operation with other TOP synchronous operation following ... ". We also suggest the RC develop that plan in coordination with TOPs.</p> <p>EOP-006-2 R1.5 requires the RC to identify acceptable voltage and frequency limits during restoration, similar to the requirement on TOP in EOP-005-2 R1.4. We believe the establishment of acceptable voltage and frequency limits during the restoration process is a local issue, the prerogative of the TOP, the limits should be flexible depend on the operational situation during the restoration process, and those values should not be developed, reviewed, approved or implemented by the RC. During the restoration process the RC should have the limited role of linking the BAs together after the BAs have re-started.</p> |
| <p>Response: The purpose of a restoration plan is not to restore every MW of Load and Transmission System element to service but to reach a stage whereby the choice of the next Load to be restored is not driven by the need to control frequency or voltage. Normal state has been eliminated in the text to reflect this purpose. The SDT has changed the Title, Purpose and R1. (See the summary consideration under Question 1 on page 10 of this</p> | |

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| document to see the specific modifications.) The SDT sees no conflict from the early stages of restoration where the TOP is controlling voltage and frequency and the latter stages where the RC takes control. The RC should be aware of the voltage limits set by the TOP. The RC can include in its restoration plan the limits that must be maintained by the TOPs in its area. | |
| Madison G&E | a) R1.6, "System Operator" should be changed to "Reliability Coordinator". |
| Response: System Operator is a defined term in the NERC Glossary and includes personnel of the RC. | |
| MISO Stakeholders | In R1 in EOP-006-2, the sentence with the word integrity should be struck? Integrity is a relative term. Requirements should not be relative. Additionally, this sentence adds no additional value. The sub-requirements adequately specify what should be contained in the plan. |
| Response: The SDT believes that integrity of the interconnection is a valid and well understood concept and has retained the term although R1 has been altered to place this sentence in a sub-requirement – R1.1 Procedures for restoring the integrity of the Interconnection.' | |

EOP-006 — Comments on Requirement 2:

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| Entergy | EOP-006-2 requires the RC to review and approve the TOP restoration plans. As stated in the response to Question 6 above, we do not agree the RC should be responsible for the development, review, approval, or implementation of any Blackstart Capability Plan. A BCP is a local requirement incumbent on the Transmission Owner/Operator to develop and implement. Therefore, we suggest R2 be changed to require the RC to be familiar with the TOP blackstart plan. R2.1 should require the RC to ensure his plan is compatible with the TOP restoration plans. We notice that in R2.3 in EOP-006-2 that the RC may not approve the TOP plan. Is there any additional requirement on the TOP to work to modify their plan to gain RC approval? We didn't see one. The standards give the TOP 90 days to update their plans once a change is identified. This may be too long. We recommend 60 days for updating and at least 60 days for the RC to review the plans. |
| KCPL | 1. Disagree with the concept in requirement R2 and the sub-requirements of R2 of the RC approving the TO restoration plans for the reasons stated above in item 1 under the EOP-005-2 comments in this question. The requirements here should be for the RC to provide comments back the TO if the RC sees problems and to document those comments for Compliance purposes with the TO. |
| Response: Blackstart Capability Plan is a current requirement for the RRO, which is being retired with this version. In FERC Order 693, "the Commission directs the ERO to develop a modification to EOP-006-1 through the Reliability Standards development process that ensures that the reliability coordinator, which is the highest level of authority responsible for reliability of the Bulk-Power System, is involved in the development and approval of system restoration plans." The SDT believes that the process described in EOP-005-2 and EOP-006-2 meets the Commission directive. The SDT has retained the times for revision and review from Draft 1 | |
| SPP ORG | R2.2 - We suggest rewording the requirement to state the following as clarification: "The Reliability Coordinator shall approve or deny the Transmission Operator's submitted restoration plan within ninety days." |
| MISO Stakeholders | In R2 of EOP-006-2, the "if acceptable" language should be removed. The sub-requirements should |

Consideration of Comments on 1st Draft of System Restoration and Blackstart Standards (Project 2006-03)

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| | define what acceptable is. They do not adequately do this now. |
| IESO | 12. R2: "if acceptable" is not needed since the RC shall review and approve the TOP's restoration plan. The RC would not approve it if it doesn't find the plan acceptable. |
| ISO/RTO | 15. R2: "if acceptable" is not needed since the RC shall review and approve the TOP's restoration plan. The RC would not approve it if it doesn't find the plan acceptable. What is the recourse if the RC does not approve plan? |
| Response: The SDT modified the standard to address this concern and the phrase, 'if acceptable' has been deleted. | |
| FPL | EOP-006-2 R2.2 The RC should not be responsible for approving or disapproving with a written response the TOP's system restoration plan, this should be the responsibility of the RRO for compliance monitoring. |
| Response: RC review and approval of the plan is not an issue of compliance but of coordination and workability with the RC's restoration plan. | |
| AEP | EOP-006-2: Add a new requirement as R 2.4: The Reliability Coordinator shall provide to the Transmission Operator written documentation of approval of the Transmission Operator's restoration plan. |
| Response: The SDT believes the new R5.3 does this. | |
| Madison G&E | b) R2.2, The thirty day window for the RC to respond to the TO's plan may not be enough time. The RC may be reviewing multiple plans and will need to model and simulate the (un) expected outcomes for restoration of the interconnection. Time frame should be expanded. |
| Response: No RC has expressed this concern. | |

EOP-006 — Comments on Requirement 4:

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| NYISO | R4 and R5 in EOP-005 and R4 in EOP-006 should be eliminated as they are completely redundant with EOP-004. If the report required by EOP-004 for a blackout investigation does not include checking restoration performance versus NERC Restoration Standard Requirements, than EOP-004 should be deleted as meaningless. M4 and M5 in EOP-005 and M5,M6 and M7 in EOP-006 should be eliminated as they are completely redundant with the stated purpose of EOP-004. |
| Response: The requirement is for evidence, not a report. | |
| We Energies | R4 – Sounds good up to the part stating “. . . and take actions to restore the Bulk Electric System frequency to normal. Such actions would consider but not be limited to: adjusting generation, placing generation on line, or shedding load.” I suspect that the RC will not have sufficient infrastructure to monitor frequencies in each island that could potentially form, much less track and react to the information. Based on the exercises conducted with our TO, it will be a significant chore for the system control operators building the islands to maintain frequency and voltage to specified bounds within that island. Once there is a “Bulk Electric System frequency,” then the RC might be more active. The list of actions should include opening circuits to save part of the “interconnect” in the event flows dictate. |
| Response: The SDT believes that the RC should be kept informed of island frequency bands at all stages of restoration and | |

Consideration of Comments on 1st Draft of System Restoration and Blackstart Standards (Project 2006-03)

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| <p>this can be required by the RC's restoration plan. Additionally, the RC is coordinating with the TOPs in its Area, and the TOPs monitor frequency and communicate with the GOPs until such time that the frequency variations have reached a point that the BAs can be brought back into the operation. Ordering the disconnection of lines to prevent damage is a normal procedure included in TOP-001-1.</p> | |
| Madison G&E | R4, Forth sentence, "normal" should be changed to "within acceptable limits". |
| <p>Response: The SDT has revised the requirement (R7 in the revised standard) to clarify that the frequency must be restored to within acceptable operating limits</p> | |
| Manitoba Hydro | EOP-006-2 R4 This requirement gets into taking action to restore frequency, which is more of an emergency operations event than a system restoration event. it could be limited to the following: "Each Reliability Coordinator shall work in conjunction with affected Balancing Authorities, Generator Operators, and Transmission Operators as well as neighboring Reliability Coordinators to monitor and coordinate restoration progress." The rest can be deleted from the requirement. "take actions to restore the Bulk Electric System frequency to normal. Such actions would consider but not be limited to: adjusting generation, placing additional generators on line, or shedding Load." |
| <p>Response: The SDT will retain the existing requirements noting that frequency restoration in electrical islands is an inherent task of system restoration.</p> | |

EOP-006 — Comments on Requirement 5:

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| ATC | Requirement 5 (suggested rewrite) The Reliability Coordinator will authorize and coordinate re-synchronizing neighboring TOPs. |
| SPP ORG | R5 - We suggest rewording this requirement to the following: "The Reliability Coordinator shall authorize and coordinate re-synchronizing between isolated neighboring areas." to coincide with EOP-005-2 R5. |
| KCPL | 3. Requirement R5 should read like R5 in EOP-005-2. The way this is written implies islanded areas within a TO and not between TO's. |
| HQT NPCC RSC | 6) In R5, revise as follows: "The Reliability Coordinator shall authorize and coordinate re-synchronizing isolated RC/BA/TOP areas" |
| <p>Response: The SDT has revised the requirement as follows: R8. The Following a Disturbance in which one or more areas of the BES shuts down and the use of Blackstart Resources is required to restore the shut down area to service, the Reliability Coordinator shall authorize and coordinate re-synchronizing isolated areas that bridge boundaries between Transmission Operators or Reliability Coordinators.</p> | |
| We Energies | R5 – Need to bring the BA function in here (the standard is applicable only to the RC). This will be particularly important if there is more than a single BA involved. Tie line flow control will dictate whether AGC control is desirable. |
| <p>Response: The SDT disagrees that the BA has an "applicability" role in the TOP restoration plan or its implementation. Beginning with the system collapse, the TOP restores the Transmission System, restores interconnections, and supplies off-site power to nuclear generating stations. This is accomplished on a command and control basis by the Transmission Operator in conjunction with the GOP. Once interconnections have been reestablished and the Transmission System restored, the restoration of firm Load can begin. The TOP is restoring the System through command and control until a sufficient System has been built where frequency is under control.</p> | |

Consideration of Comments on 1st Draft of System Restoration and Blackstart Standards (Project 2006-03)

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| ISO/RTO | 16. R5: The TOP is to follow established procedure of the RC to re-synchronize of isolated areas. We suggest changing deleting the word "coordinate" in this requirement, and add a sub-requirement in R1 that the RC develop the re-synchronization procedure. |
| IESO | 13. R5: The TOP is to follow established procedure of the RC to re-synchronize of isolated areas. We suggest changing deleting the word "coordinate" in this requirement, and add a sub-requirement in R1 that the RC develop the re-synchronization procedure. |
| Response: The SDT believes that "authorize" permits the RC to establish procedures to be followed. | |

EOP-006 — Comments on Requirement 6:

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| KCPL | 4. Requirement R6 seems to be worded funny. Suggest the following change in the text to, "neighboring Reliability Coordinators, Transmission Operators, and Balancing Authorities". The "or" in the submitted text might imply it would be acceptable to exclude a TO or a BA. |
| SPP ORG | R6 - We suggest rewording this requirement to the following: "The Reliability Coordinator shall serve as the primary contact for disseminating information regarding restoration to neighboring Reliability Coordinators, Transmission Operators, and Balancing Authorities within its Reliability Coordinator Area." |
| Response: The SDT agrees and has revised the new R9 as follows: R9. The Following a Disturbance in which one or more areas of the BES shuts down and the use of Blackstart Resources is required to restore the shut down area to service, the Reliability Coordinator shall serve as the primary contact for disseminating information regarding restoration to neighboring Reliability Coordinators, and to Transmission Operators or, and Balancing Authorities within its Reliability Coordinator Area. | |

EOP-006 — Comments on Requirement 7:

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| WECC RCCWG | EOP-006 The WECC RCCWG requests clarification of the phrase "control room personnel" in R7. Who does that term refer to? As this standard is applicable to the Reliability Coordinator, we suggest changing that wording to "Reliability Coordinator identified in the restoration plan". Furthermore, this training requirement should be moved to a PER standard, such as PER-005-R3. |
| ATC | Requirement 7 Should be removed from this Standard and be placed in a PER Standard. |
| Response: The SDT notes that in FERC Order 693, the FERC determined that "System restoration requires the participation of not only control room personnel but also those outside of the control room. These include blackstart unit operators and field switching operators in situations where SCADA capability is unavailable." The RC can identify the personnel in its restoration plan. FERC Order 693 mandates that restoration training be included in the blackstart standards. "The Commission believes that inclusion of periodic system restoration drills and training and review of restoration plans in a system restoration Reliability Standard is the most effective way of achieving the desired goal of ensuring that all participants are trained in system restoration and that the restoration plans are up to date to deal with system changes." | |

Consideration of Comments on 1st Draft of System Restoration and Blackstart Standards (Project 2006-03)

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| SPP ORG | R7 - We believe the provided training for the Reliability Coordinator should also include Restoration Priorities, Synchronizing, and Review of the restoration plan to coincide with the training for the TO in EOP-005-2 R9. |
| IESO | 14. R7: Add R7.3 to include directing re-synchronizing isolated areas. |
| ISO/RTO | 17. R7: Add R7.3 to include directing re-synchronizing isolated areas. |
| <p>Response: The SDT believes this is included in the revised R8: R8. The Following a Disturbance in which one or more areas of the BES shuts down and the use of Blackstart Resources is required to restore the shut down area to service, the Reliability Coordinator shall authorize and coordinate re-synchronizing isolated areas that bridge boundaries between Transmission Operators or Reliability Coordinators.</p> | |
| AEP | EOP-005-2, R9 & EOP-006-2, R7 – The subject R9 and R7 requirements mandate training for “control room personnel”. Why change the accepted and more common term of “operating personnel”? The NERC term for certification of personnel is “System Operator Certification Program” (TO, BI, BT, & RC). We recommend keeping the identification name consistent with certification program terminology (System Operators) and PER-003 (Operating Personnel Credentials). OSHA also uses the term “system operator” for personnel in charge of the power system lines or equipment. EOP-005-2, R9 & EOP-006-2, R7 – In the existing approved EOP-005-1, the Compliance Monitoring Process requires “annual training of operating personnel” in the implementation of the Transmission Operator’s System Restoration Plans and restoration exercises. EOP-005-2, R9 & EOP-006-2, R7, draft 1, does not identify how often personnel must be trained in the emergency operations topics training program. Is the intent annual? Will this be revealed in draft 2 of these standards with the compliance requirements? There is no compliance monitoring processes in draft 1. |
| <p>Response: The terms used by the SDT were due to the differentiation required between those personnel working in a control room and those personnel designated as field personnel – both of whom must be trained as per FERC Order 693. The SDT believes that the terms used sufficiently describe who is to be trained as part of this standard. FERC Order 693 mandates that restoration training be included in the blackstart standards. <i>“The Commission believes that inclusion of periodic system restoration drills and training and review of restoration plans in a system restoration Reliability Standard is the most effective way of achieving the desired goal of ensuring that all participants are trained in system restoration and that the restoration plans are up to date to deal with system changes.”</i> Since the training cited is within the existing operations training program as defined in the PER-004 standard, the timeframe is included by default.</p> | |

EOP-006 — Comments on Requirement 8:

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| WECC RCCWG | EOP-006 R8 would require two System restoration drills, exercises, or simulations per year. The WECC RCCWG feels a requirement for one such drill, exercise, or simulation per year is sufficient, while two is excessive. The WECC RCCWG feels that this training requirement should be part of PER-005-R3 and should not be part of this standard, which is not a training standard. |
| SPP ORG | R8 - This requirement should be reworded to state that the Reliability Coordinator should request each Transmission Operator and Generator Operator participate at least every two years to make it |

Consideration of Comments on 1st Draft of System Restoration and Blackstart Standards (Project 2006-03)

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| | consistent with R11 and R16 in EOP-005-2. |
| PG&E (1) | EOP-006 R8 Requiring two drills per year for the RC seems more than necessary. The intent seems to be that each TO/GO be included every two years, thus the RC should be able to implement this requirement as necessary to have everyone involved and trained. |
| NPCC RSC | 9) EOP-006 R8 requiring two drills per year is excessive. NPCC participating members feel that the quality of drills conducted is more important than the quantity. In addition, the last sentence in EOP-006 R8 should be a separate requirement R9. |
| HQT | 9) EOP-006 R8 requiring two drills per year is excessive. NPCC participating members feel that the quality of drills conducted is more important than the quantity. In addition, EOP-006 R8 , last sentence, should be a separate requirement (R9) |
| Duke Energy | R8 of EOP-006-2 requires the RC to conduct two drills, exercises or simulations each year, and to include Transmission Operators and Generator Operators with Blackstart Resources at least every two years. We believe the RC should only be required to conduct one annual drill, and to include Transmission Operators and Generator Operators with Blackstart Resources at least every two years. |
| FPL | EOP-006-2 R8 Conducting a System restoration drill twice a year with all Transmission operators and generation operators of the blackstart resources is an overkill. I would recommend that a drill be conducted once a year with only the TOP's and GOP's that play a major role in restoring the BES. |
| Entergy | EOP-006-2 requires the RC to conduct two system restoration drills per year and include TOPs and GOP at least every two years. EOP-006-2 should require the RC to conduct one, not two, system restoration drill per year on the RCs limited scope of interconnecting TOPs. |
| <p>Response: In FERC Order 693, the ERO is directed to identify timeframes for training and review of restoration plan requirements. The SDT believe that two drills each year is appropriate. The RC determines the scope of the drills.</p> | |
| NPCC RSC | 7) Remove the Generator Operator from R8. |
| HQT | 7) Remove the Generator Operator from R8. |
| <p>Response: The SDT disagrees noting the importance of blackstart to the restoration process. Additionally, the SDT notes that in FERC Order 693, the FERC determined that "System restoration requires the participation of not only control room personnel but also those outside of the control room. These include blackstart unit operators and field switching operators in situations where SCADA capability is unavailable."</p> | |
| MISO Stakeholders | R8 in EOP-006-2 only requires each TOP and GOP to participate in drills every two years. No BA participation is required. We believe BA participation should be required and annual participation should be required. |
| <p>Response: The SDT disagrees that the BA has an "applicability" role in the TOP restoration plan or its implementation. Beginning with the system collapse, the TOP restores the Transmission System, restores interconnections, and supplies off-site power to nuclear generating stations. This is accomplished on a command and control basis by the Transmission Operator in conjunction with the GOP. Once interconnections have been reestablished and the Transmission System restored, the restoration of firm Load can begin. The TOP is restoring the System through command and control until a sufficient System has been built where frequency is under control.</p> | |
| KCPL | Requirement R8 should be for "Each Transmission Operator and Generator Operator with Blackstart Resources shall be invited to participate in". It is up to the TO and GO to meet their own participation |

Consideration of Comments on 1st Draft of System Restoration and Blackstart Standards (Project 2006-03)

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| | requirements as dictated in EOP-005-2. It is only necessary for the RC to advertise drills and make them available to the TO's and BA's. |
| Response: The SDT believes that the requirement is correctly placed on the RC. | |
| IESO | <p>15. R8:</p> <p>d) "Drill" needs to be more specific or clarified – whether it is a full scale drill involving actual switching of equipment, or just a simply desk top exercise.</p> <p>(ii) The TOP and GOP with Blackstart Resources are to be include in the drill. However, there might be other entities on the cranking path, and they also need to participate in the drill. The requirements should therefore be revised to include all entities identified on the cranking path.</p> <p>(iii) The way R8 is worded is a bit confusing. The first sentence says the RC shall conduct two restoration drills, exercises or simulations per year with the TOP and GOP with blackstart resources. The second sentence says each TOP and GOP with blackstart resources shall be included in a drill, exercise, or simulation at least every two years. If the first sentence already includes these entities twice a year, why would the second sentence be required? That said, we think twice a year or even once every two year is to frequent. We suggest a drill, exercise or simulations be conducted once every 3 years.</p> |
| ISO/RTO | <p>18. R8:</p> <p>d) "Drill" needs to be more specific or clarified – whether it is a full scale drill involving actual switching of equipment, or just a simply desk top exercise.</p> <p>(ii) The TOP and GOP with Blackstart Resources are to be include in the drill. However, there might be other entities on the cranking path, and they also need to participate in the drill. The requirements should therefore be revised to include all entities identified on the cranking path.</p> <p>(iii) The way R8 is worded is a bit confusing. The first sentence says the RC shall conduct two restoration drills, exercises or simulations per year with the TOP and GOP with blackstart resources. The second sentence says each TOP and GOP with blackstart resources shall be included in a drill, exercise, or simulation at least every two years. If the first sentence already includes these entities twice a year, why would the second sentence be required? We think restoration drills, exercises or simulations should be conducted at the most once very two years.</p> <p>The RC should not be responsible for the following statement: "Each Transmission Operator and Generator Operator with Blackstart Resources shall be included in a drill, exercise, or simulation at least every two years." If a GOP or TOP fails to participate, is the RC non-compliant?</p> |
| <p>Response: The RC determines the scope of the drills.</p> <p>The SDT has revised the drill participants to include entities identified in the RC's restoration plan.</p> <p>The SDT has revised the new R11 to clarify the compliance aspects of the requirement by clarifying that the Reliability Coordinator shall, 'request' each Transmission Operator and Generator Operator identified in its restoration plan to participate.</p> | |
| Madison G&E | <p>d) R8, Transmission Operator's do not own Blackstart Resources, delete from paragraph. Transmission Operator's may have Blackstart Resources within their transmission operating area. Last sentence states the Generator operator shall be included in a drill, exercise, or simulation at least</p> |

Consideration of Comments on 1st Draft of System Restoration and Blackstart Standards (Project 2006-03)

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| | every two years, yet the first sentence requires to test twice a year. The STD needs to reword R8 so it is clear and understandable. |
| Response: The SDT has modified the new R10 to address this concern by clarifying that the Reliability Coordinator shall, 'request' each Transmission Operator and Generator Operator identified in its restoration plan to participate. | |

EOP-006 — Comments on Measures:

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| WECC RCCWG | EOP-006 R1.6 requires "A statement indicating that in situations where the actual conditions do not match the studied conditions, the System Operator shall use professional judgment to modify the System restoration plan." This standard is only applicable to the Reliability Coordinator. The WECC RCCWG requests removal of requirements for other entities. |
| Response: System Operator is a term defined in the NERC Glossary of Terms and includes the RC. | |
| MISO Stakeholders | M4 in EOP-006-2 indicates that the RC shall have the TOP plans in its control center. Can they be electronic? If yes, can the wording be changed to access to the plans? If the plans reside on a central storage device, it technically is not likely in the control center. If only paper copies are acceptable, this should be specified. M6 in EOP-006-2 mentions an isolated area. What is meant by isolated area? Could this be the loss of a single transmission circuit with multiple load taps? Technically, one could argue it is isolated but we do not think that is the intent here. We suggest you consider defining isolated area or provide more detailed explanation in the measure. |
| Response: "Access to" would be acceptable if access was available during a system shutdown. | |
| SPP ORG | M3 - We believe that this measure should be reworded to the following: "Each Reliability Coordinator shall provide evidence, such as a written approval letter, that it has reviewed its Transmission Operator's submitted restoration plan(s) in accordance with Requirement R2." M5 - "A Disturbance" in this measure should be qualified as "A Disturbance in which Blackstart Resources have been utilized in restoring the shut down area of the System to service." M7 - "A Disturbance" in this measure should be qualified as "A Disturbance in which Blackstart Resources have been utilized in restoring the shut down area of the System to service." |
| Response: The Measures have been revised to address these concerns. | |



Standards Announcement: Comment Period Opens

January 7 through February 5, 2008

TO: REGISTERED BALLOT BODY

The Standards Committee (SC) announces the following standards actions:

Second Draft of System Restoration and Blackstart Resources Standards Posted for 30-day Comment Period

The second draft of EOP-005-2 — System Restoration and Blackstart Resources — Operations and EOP-006-2 — System Restoration and Blackstart Resources — Coordination ([Project 2006-03](#)) have been posted for a 30-day comment period from January 7 through February 5, 2008.

The proposed revisions update and move requirements from four standards into two standards as shown below:

| Existing Approved Standards | Proposed Revised Standards |
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| EOP-005-1 — System Restoration Plans | EOP-005-2 — System Restoration and Blackstart Resources – Operations |
| EOP-006-1 — Reliability Coordination — System Restoration | EOP-006-2 — System Restoration and Blackstart Resources – 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.

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.

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. SAR version 1 posted on November 6, 2006.
2. SAR version 1 comment period closed on December 5, 2006.
3. SAR version 2 and comment responses for SAR version 1 posted on February 8, 2007.
4. SAR version 2 comment period closed on March 9, 2007.
5. SAR version 3 and comment responses for SAR version 2 accepted by SC and SDT appointed on April 9, 2007.
6. First posting of revised standards on August 15, 2007 with comment period closed on September 28, 2007.

Proposed Action Plan and Description of Current Draft:

The SDT began meeting in mid-April 2007 immediately following the approval of the SAR by the SC with the goal of completing work in approximately one year's time. The current draft is the second posting of the proposed standards. Only the requirements, violation risk factors, time horizons, and measures have been completed at this time. All compliance elements will be completed after the requirements have been reviewed. Requirements in EOP-007 and EOP-009 have been incorporated into the revised EOP-005 and EOP-006. Therefore, EOP-007 and EOP-009 will be retired when this project is approved and EOP-005-2 and EOP-006-2 go into effect.

Future Development Plan:

| Anticipated Actions | Anticipated Date |
|--|-------------------------|
| 1. Third posting of draft standards. | March 2008 |
| 2. Standards posted for first ballot. | April 2008 |
| 3. Standards posted for second ballot. | May 2008 |
| 4. Standards sent to BOT for approval. | June 2008 |

Definitions of Terms Used in Standard

This section includes all newly defined or revised terms used in the proposed standard. Terms already defined in the Reliability Standards Glossary of Terms are not repeated here. New or revised definitions listed below become approved when the proposed standard is approved. When the standard becomes effective, these defined terms will be removed from the individual standard and added to the Glossary.

Blackstart Capability Plan: Existing definition is retired.

Blackstart Resource: A generation Facility and associated set of equipment which has the ability to be started without support from the System or to remain energized without connection to the remainder of the System, with the ability to energize a dead (de-energized) bus, meeting the Transmission Operator's restoration plan needs for real and reactive power capability, frequency and voltage control, and that has been included in the Transmission Operator's restoration plan.

A. Introduction

1. **Title:** System Restoration from Blackstart Resources — Operations
2. **Number:** EOP-005-2
3. **Purpose:** Ensure plans and Facilities are established, and personnel are in place to enable System restoration from Blackstart Resources to ensure reliability is maintained during restoration and priority is placed on restoring the Interconnection.
4. **Applicability:**
 - 4.1. Transmission Operators.
 - 4.2. Generator Operators.
5. **Proposed Effective Date:** TBD

B. Requirements

- R1. Each Transmission Operator shall have a restoration plan approved by its Reliability Coordinator. The restoration plan shall allow for restoring the Transmission Operator's System following a Disturbance in which one or more areas of the Bulk Electric System (BES) shuts down and the use of Blackstart Resources is required to restore the shut down area to service, to a state whereby the choice of the next Load to be restored is not driven by the need to control frequency or voltage regardless of whether the Blackstart Resource is located within the Transmission Operator's System. The restoration plan shall include: [Violation Risk Factor = High] [Time Horizon = Operations Planning]
 - R1.1. A description of the manner in which all obligations for off-site power requirements of nuclear power plants will be fulfilled.
 - R1.2. Procedures for restoring the integrity of the Interconnection under the direction of the Reliability Coordinator.
 - R1.3. Identification of each Blackstart Resource and its characteristics including the following: the name of the Blackstart Resource, location, megawatt and megavar capacity, and type of unit.
 - R1.4. Identification of Cranking Paths and initial switching requirements between each Blackstart Resource and the unit(s) to be started.
 - R1.5. Identification of acceptable operating voltage and frequency limits during restoration.
 - R1.6. A statement accounting for the possibility that restoration can not be completed as expected indicating that in situations where the actual conditions do not match the studied conditions, the System Operator shall use professional judgment to deviate from the System restoration plan.
 - R1.7. Operating Procedures to reestablish connections within the Transmission Operator's System for areas that have become separated.

- R1.8.** Operating Procedures to restore Loads, such as station service for substations, units to be restarted or stabilized, the Load needed to stabilize generation and frequency, and provide voltage control for restoring the System.
- R2.** Each Transmission Operator, in order to ensure the reliability of the Interconnection, shall distribute its approved restoration plan to the entities identified in its restoration plan, and to its Reliability Coordinator. [Violation Risk Factor = Lower] [Time Horizon = Operations Planning]
- R3.** Each Transmission Operator shall review its restoration plan and submit it to its Reliability Coordinator on an annual (rolling 365 days) basis. [Violation Risk Factor = Medium] [Time Horizon = Operations Planning]

 - R3.1.** If there are no changes to the previously submitted restoration plan, the Transmission Operator shall confirm annually (rolling 365 day basis) to its Reliability Coordinator that it has reviewed its restoration plan and no changes were necessary.
- R4.** Each Transmission Operator shall update its restoration plan within ninety calendar days after identifying any permanent System modifications that would change the implementation of its restoration plan. [Violation Risk Factor = Medium] [Time Horizon = Operations Planning]

 - R4.1.** Each Transmission Operator shall submit its revised restoration plan to its Reliability Coordinator within the same ninety calendar day period.
- R5.** Each Transmission Operator shall have a copy of its latest approved restoration plan within each of its control centers and available to all of its control room personnel. [Violation Risk Factor = Lower] [Time Horizon = Operations Planning]
- R6.** Each Transmission Operator shall verify through a combination of analysis of actual events, steady state and dynamic simulations or testing that its documented restoration plan accomplishes its intended function. This shall be completed every five years at a minimum. Such simulations or testing shall analyze: [Violation Risk Factor = Medium] [Time Horizon = Long-term Planning]

 - R6.1.** The ability of Blackstart Resources to meet the Reactive Power requirements of the Cranking Paths and to supply initial Loads.
 - R6.2.** The Loads required to stabilize the Blackstart Resources and other resources being utilized until the restoration state has ended.
 - R6.3.** The Loads and generating resources required to control voltages and frequency within acceptable operating limits (documented in Requirement R1.5) as the BES is restored.
- R7.** Following a Disturbance in which one or more areas of the BES shuts down and the use of Blackstart Resources is required to restore the shut down area to service, each affected Transmission Operator shall implement its restoration plan. [Violation Risk Factor = High] [Time Horizon = Real-time Operations]

- R7.1.** Each affected Transmission Operator shall work in conjunction with its Reliability Coordinator to determine the extent and condition of the isolated area(s).
- R7.2.** Each affected Transmission Operator shall give high priority to restoration of off-site power to nuclear power plants as directed by the Reliability Coordinator and in agreement with reliability standard NUC-001.
- R7.3.** Each affected Transmission Operator shall notify its Reliability Coordinator of restoration progress as required in the Reliability Coordinator's restoration plan.
- R8.** Following a Disturbance in which one or more areas of the BES shuts down and the use of Blackstart Resources is required to restore the shut down area to service, each affected Transmission Operator shall resynchronize shut down area(s) with neighboring Transmission Operator area(s) only with the authorization of the Reliability Coordinator or in accordance with the established procedures of the Reliability Coordinator. [Violation Risk Factor = Medium] [Time Horizon = Real-time Operations]
- R9.** Each Transmission Operator shall have Blackstart Resource testing requirements to verify that each Blackstart Resource is capable of meeting the requirements of its restoration plan. These Blackstart Resource testing requirements shall include: [Violation Risk Factor = Medium] [Time Horizon = Operations Planning]
 - R9.1.** The frequency of testing such that each Blackstart Resource is tested at least once every three years.
 - R9.2.** A list of required tests including:
 - R9.2.1.** The ability to start the unit when isolated with no support from the BES.
 - R9.2.2.** The ability to energize a dead (de-energized) bus. If it is not possible to energize a dead (de-energized) bus during the test, the testing entity must affirm that the unit has the capability to energize a dead (de-energized) bus such as verifying that the breaker close coil relay can be energized with the voltage and frequency monitors disconnected.
 - R9.3.** The minimum duration of each of the required tests.
- R10.** Each Transmission Operator shall distribute its Blackstart Resource testing requirements to each Generator Operator in its area that operates a Blackstart Resource. [Violation Risk Factor = Lower] [Time Horizon = Operations Planning]
- R11.** Each Transmission Operator shall include within its operations training program, annual System restoration training to its control room personnel to ensure the proper execution of its restoration plan. This training program shall include the following: [Violation Risk Factor = Medium] [Time Horizon = Long-term Planning]
 - R11.1.** System restoration philosophy.
 - R11.2.** Restoration priorities.

- R11.3.** Building of cranking paths.
- R11.4.** Synchronizing (re-energized sections of the System).
- R11.5.** Review of the restoration plan.
- R12.** Each Transmission Operator shall provide a minimum of two hours of System restoration training per year for field switching personnel identified as performing unique tasks associated with its restoration plan and outside of their normal tasks. [Violation Risk Factor = Lower] [Time Horizon = Operations Planning]
- R13.** Each Transmission Operator shall participate in its Reliability Coordinator's restoration drills, exercises, or simulations as requested by its Reliability Coordinator. [Violation Risk Factor = Medium] [Time Horizon = Operations Planning]
- R14.** Each Transmission Operator and Generator Operator with a Blackstart Resource shall have a written Blackstart Resource agreement document specifying the terms and conditions of their arrangement. [Violation Risk Factor = High] [Time Horizon = Operations Planning]
- R15.** Each Generator Operator with a Blackstart Resource shall have documented procedures for starting the Blackstart Resource and energizing a dead (de-energized) bus. [Violation Risk Factor = High] [Time Horizon = Operations Planning]
- R16.** Each Generator Operator of a Blackstart Resource shall notify its Transmission Operator of any known changes to the capabilities of that Blackstart Resource within ninety calendar days following such change. [Violation Risk Factor = Medium] [Time Horizon = Operations Planning]
- R17.** Each Generator Operator of a Blackstart Resource shall perform Blackstart Resource tests, and maintain records of such testing, in accordance with the testing requirements set by the Transmission Operator to verify that the Blackstart Resource can perform as specified in the restoration plan. [Violation Risk Factor = Medium] [Time Horizon = Operations Planning]
 - R17.1.** Testing records shall include at a minimum: name of the Blackstart Resource, unit tested, date of the test, duration of the test, time required to start the unit, an indication of any testing requirements not met under Requirement R6.
 - R17.2.** Each Generator Operator shall provide the blackstart test results within thirty calendar days following a request from its Reliability Coordinator or Transmission Operator.
- R18.** Each Generator Operator of a Blackstart Resource shall provide a minimum of two hours of training per year to each of its operating personnel responsible for the startup and synchronization of its Blackstart Resource generation units. The training program shall include the following: [Violation Risk Factor = Medium] [Time Horizon = Operations Planning]
 - R18.1.** System restoration philosophy including coordination with the Transmission Operator.
 - R18.2.** Special actions required to enable blackstart and synchronization to the System.

- R19.** Each Generator Operator shall participate in the Reliability Coordinator's restoration drills, exercises, or simulations as requested by the Reliability Coordinator. [Violation Risk Factor = Medium] [Time Horizon = Operations Planning]

C. Measures

- M1.** Each Transmission Operator shall have a documented System restoration plan developed in accordance with Requirement R1 that has been approved by its Reliability Coordinator as shown with the written approval letter from its Reliability Coordinator.
- M2.** Each Transmission Operator shall have evidence such as e-mails with receipts or registered mail receipts, that it distributed its restoration plan to the appropriate entities in accordance with Requirement R2.
- M3.** Each Transmission Operator shall have documentation such as a review signature sheet, revision histories, e-mails with receipts, or registered mail receipts, that it has annually reviewed and submitted its restoration plan to its Reliability Coordinator in accordance with Requirement R3.
- M4.** Each Transmission Operator shall have documentation such as a review signature sheet, revision histories, e-mails with receipts, or registered mail receipts, that it has updated its restoration plan with its Reliability Coordinator in accordance with Requirement R4.
- M5.** Each Transmission Operator shall have documentation such as e-mail receipts that it has made the latest approved copy of its restoration plan available in each of its control rooms and to each of its control room personnel in accordance with Requirement R5.
- M6.** Each Transmission Operator shall have documentation such as power flow outputs, that it has verified that its restoration plan accomplishes its intended function in accordance with Requirement R6.
- M7.** If there has been a Disturbance in which Blackstart Resources have been utilized in restoring the shut down area of the System to service, each Transmission Operator involved shall have evidence such as voice recordings, e-mail, or operator logs, that it implemented its restoration plan in accordance with Requirement R7.
- M8.** If there has been a Disturbance in which Blackstart Resources have been utilized in restoring the shut down area of the System to service, each Transmission Operator involved in such an event shall have evidence, such as voice recordings, e-mail, or operator logs, that it resynchronized shut down areas in accordance with Requirement R8.
- M9.** Each Transmission Operator shall have documented Blackstart Resource testing requirements on file in accordance with Requirement R9.
- M10.** Each Transmission Operator shall have evidence, such as e-mails with receipts or registered mail receipts, that it has distributed its Blackstart Resource testing requirements to each Generator Operator in its area that operates a Blackstart Resource in accordance with Requirement R10.

- M11.** Each Transmission Operator shall have a copy of its training records available showing that it has provided training in accordance with Requirements R11 and R12.
- M12.** Each Transmission Operator shall have evidence, such as training records, that it participated in the Reliability Coordinator's restoration drills, exercises, or simulations as requested in accordance with Requirement R13.
- M13.** Each Transmission Operator shall have on file the Blackstart Resource agreements with all Generator Operators with Blackstart Resources included in its restoration plan in accordance with Requirement R14.
- M14.** Each Generator Operator with a Blackstart Resource shall have documented procedures on file for starting the units and energizing a dead bus in accordance with Requirement R15.
- M15.** Each Generator Operator with a Blackstart Resource shall provide evidence, such as e-mails with receipts or registered mail receipts, showing that it notified its Transmission Operator of any known changes to its Blackstart Resource capabilities within ninety calendar days of such changes in accordance with R16.
- M16.** Each Generator Operator shall maintain documentation of its Blackstart Resource test results and shall have evidence such as e-mails with receipts or registered mail receipts, that it provided these records to its Reliability Coordinator and Transmission Operator when requested in accordance with Requirement R17.
- M17.** Each Generator Operator shall have a copy of its training records on file showing that it has provided training in accordance with Requirement R18.
- M18.** Each Generator Operator shall have evidence, such as training records, that it participated in the Reliability Coordinator's restoration drills, exercises, or simulations if requested to do so in accordance with Requirement R19.

Standard Development Roadmap

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2. SAR version 1 comment period closed on December 5, 2006.
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Future Development Plan:

| Anticipated Actions | Anticipated Date |
|--|------------------|
| 1. Third posting of draft standards. | March 2008 |
| 2. Standards posted for first ballot. | April 2008 |
| 3. Standards posted for second ballot. | May 2008 |
| 4. Standards sent to BOT for approval. | June 2008 |

Definitions of Terms Used in Standard

This section includes all newly defined or revised terms used in the proposed standard. Terms already defined in the Reliability Standards Glossary of Terms are not repeated here. New or revised definitions listed below become approved when the proposed standard is approved. When the standard becomes effective, these defined terms will be removed from the individual standard and added to the Glossary.

Blackstart Capability Plan: Existing definition is retired.

Blackstart Resource: A generation Facility and associated set of equipment under which has the ~~control of the Generator Operator with the basic~~ ability to ~~start itself~~be started without support from the System or to ~~automatically~~ remain energized without connection to the remainder of the System, with the ability to energize a dead (de-energized) bus, ~~and~~ meeting the Transmission Operator's restoration plan needs for real and reactive power capability, frequency and voltage control, and that has been included in the Transmission Operator's restoration plan.

A. Introduction

1. **Title:** System Restoration ~~and from~~ Blackstart Resources — Operations
2. **Number:** EOP-005-2
3. **Purpose:** Ensure plans, ~~and~~ Facilities are established, and personnel are available in place to restore the Bulk Electric System (BES) to its normal state following an event that requires the utilization of restoration from Blackstart Resources: to ensure reliability is maintained during restoration and priority is placed on restoring the Interconnection.
4. **Applicability:**
 - 4.1. Transmission Operators.
 - 4.2. Generator Operators ~~with Blackstart Resources.~~
5. **Proposed Effective Date:** TBD

B. Requirements

- R1. Each Transmission Operator shall have a restoration plan approved by its Reliability Coordinator ~~to restore its System to its normal state following an event that requires the utilization of Blackstart Resources.~~ The restoration plan shall have allow for restoring the Transmission Operator's System following a priority of Disturbance in which one or more areas of the Bulk Electric System (BES) shuts down and the use of Blackstart Resources is required to restore the shut down area to service, to a state whereby the choice of the next Load to be restored is not driven by the need to control frequency or voltage regardless of whether the Blackstart Resource is located within the Transmission Operator's System. The restoration plan shall include: [Violation Risk Factor = High] [Time Horizon = Operations Planning]
 - R1.1. A description of the manner in which all obligations for off-site power requirements of nuclear power plants will be fulfilled.
 - R1.2. Procedures for restoring the integrity of the Interconnection under the direction of the Reliability Coordinator.
 - ~~R1.1. Identification of the authority and tasks of the Transmission Operator's control room and field switching personnel assigned to participate in restoration activities including the responsibility of the Transmission Operator to work with its Reliability Coordinator and with other Transmission Operators and the responsibility of the Transmission Operator to coordinate its restoration activities with the entities operating within its area.~~
 - ~~R1.2. Documented coordination with applicable Blackstart Resource Facility Plans (BRFP) to ensure the ability of the Blackstart Resource to control and maintain voltage and frequency within acceptable limits.~~
 - R1.3. Identification of each Blackstart Resource and its characteristics including the following: the name of the Blackstart Resource, location, megawatt and megavar capacity, and type of unit, ~~latest date of test, test results and starting method.~~

- R1.4. Identification of Cranking Paths diagrams, including and initial switching requirements; between each Blackstart Resource and the unit(s) to be started.
- R1.5. Identification of acceptable operating voltage and frequency limits during restoration.
- R1.6. A statement accounting for the possibility that restoration can not be completed as expected indicating that in situations where the actual conditions do not match the studied conditions, the System Operator shall use professional judgment to modify/deviate from the System restoration plan.
- R1.7. Operating Procedures to re-establish connections within the Transmission Operator's System for areas that have become separated.
- R1.8. Operating Procedures to restore Loads, including identification of any critical Load requirements that require high priority including off-site power for nuclear Facilities, and Facilities required to restore the BES, such as station service for substations, units to be restarted or stabilized, the Load needed to stabilize generation and frequency, and provide voltage control for restoring the System.
- ~~R1.8. Procedures to coordinate its restoration plan with the applicable Generator Owners, Generator Operators, Load-Serving Entities, Distribution Providers, and Balancing Authorities within its area, its Reliability Coordinator, and neighboring Transmission Operators and Balancing Authorities. Operating~~
- R2. Each Transmission Operator, in order to ensure the reliability of the Interconnection, shall distribute its approved restoration plan to the entities identified in its restoration plan, and to its Reliability Coordinator. [Violation Risk Factor = Lower] [Time Horizon = Operations Planning]
- ~~R3.— Each Transmission Operator shall review its restoration plan at least annually and update-submit it within ninety calendar days after completing permanent modifications that would change the planned Cranking Paths or after detecting deficiencies in the restoration plan. [Violation Risk Factor = xxx] [Time Horizon = xxx]~~
- R3. The Transmission Operator shall submit to its revised restoration plan to the Reliability Coordinator within the same ninety-day period on an annual (rolling 365 days) basis. [Violation Risk Factor = Medium] [Time Horizon = Operations Planning]
- R4.
- R3.1. ~~Each~~If there are no changes to the previously submitted restoration plan, the Transmission Operator shall confirm annually (rolling 365 day basis) to its Reliability Coordinator that it has reviewed its restoration plan. ~~— and no changes were necessary.~~
- R4. Each Transmission Operator shall update its restoration plan within ninety calendar days after identifying any permanent System modifications that would change the implementation of its restoration plan. [Violation Risk Factor = Medium] [Time Horizon = Operations Planning]

- R4.1. Each Transmission Operator shall submit its revised restoration plan to its Reliability Coordinator within the same ninety calendar day period.
- R5. Each Transmission Operator shall have a copy of its latest approved restoration plan within each of its control centers and available to all of its control room personnel. [Violation Risk Factor = Lower] [Time Horizon = Operations Planning]
- R6. Each Transmission Operator shall verify ~~every five years at a minimum~~ through a combination of analysis of actual events, steady state and dynamic simulations or testing that its documented restoration plan accomplishes its intended function. This shall be completed every five years at a minimum. Such simulations or testing shall ~~include~~analyze: [Violation Risk Factor = ~~xxx~~Medium] [Time Horizon = ~~xxx~~Long-term Planning]
- R6.1. ~~Ability~~The ability of Blackstart Resources to meet the Reactive Power requirements of the Cranking Paths and to supply initial Loads.
- R6.2. The Loads required to stabilize the Blackstart Resources and other resources being utilized until the restoration state has ended.
- R6.3. The Loads and generating resources required to control voltages and frequency within acceptable ~~steady state and dynamic~~operating limits (documented in Requirement R1.45) as the BES is restored.
- R7. Following a Disturbance in which one or more areas of the BES shuts down and the use of Blackstart Resources is required to restore the shut down area to service, each affected Transmission Operator shall implement its restoration plan. [Violation Risk Factor = ~~xxx~~High] [Time Horizon = ~~xxx~~Real-time Operations]
- R7.1. Each affected Transmission Operator shall work in conjunction with its Reliability Coordinator(s) to determine the extent and condition of the isolated area(s).
- R7.2. Each affected Transmission Operator shall give high priority to restoration of off-site power to nuclear ~~stations~~power plants as directed by the Reliability Coordinator and in agreement with reliability standard NUC-001.
- R7.3. Each affected Transmission Operator ~~must~~shall notify its Reliability Coordinator of restoration progress as required in the Reliability Coordinator's restoration plan.
- R8. ~~Each~~Following a Disturbance in which one or more areas of the BES shuts down and the use of Blackstart Resources is required to restore the shut down area to service, each affected Transmission Operator shall resynchronize ~~islanded~~shut down area(s) with neighboring Transmission Operator area(s) only with the authorization of the Reliability Coordinator ~~and/or~~ in accordance with the established procedures of the Reliability Coordinator. [Violation Risk Factor = ~~xxx~~Medium] [Time Horizon = ~~xxx~~Real-time Operations]
- R9. Each Transmission Operator shall have Blackstart Resource testing requirements to verify that each Blackstart Resource is capable of meeting the requirements of its restoration plan. These Blackstart Resource testing requirements shall include: [Violation Risk Factor = ~~xxx~~Medium] [Time Horizon = ~~xxx~~Operations Planning]

- R9.1. ~~Frequency~~The frequency of testing ~~with every~~such that each Blackstart Resource is tested at least once every three years.
- R9.2. ~~Type~~A list of ~~test~~tests required, ~~tests~~ including ~~but not limited to:~~
- R9.2.1. ~~Ability~~The ability to start the unit when isolated with no support from the BES.
- R9.2.2. ~~Ability~~The ability to energize a ~~dead~~dead (de-energized) bus. — If it is not possible to energize a dead (de-energized) bus during the test, the testing entity must affirm that the unit has the capability to energize a dead (de-energized) bus: such as verifying that the breaker close coil relay can be energized with the voltage and frequency monitors disconnected.
- ~~R8.2.3. Ability to remain stable and control voltage as indicated by the restoration plan while isolated from the BES and supplying~~The minimum Load level as defined in the restoration plan.
- ~~R8.2.4. Ability to maintain acceptable frequency during the test as indicated in the restoration plan.~~
- R9.3. ~~Minimum~~ duration of each of the required tests.
- R10. Each Transmission Operator shall distribute its Blackstart Resource testing requirements to each Generator Operator in its area that operates a Blackstart Resource. [Violation Risk Factor = Lower] [Time Horizon = Operations Planning]
- R11. Each Transmission Operator shall ~~provide training~~include within its ~~existing emergency~~operations ~~topic~~training program, annual System restoration training program to its control room personnel ~~identified in its restoration plan~~ to ensure the proper execution of its restoration plan. This training program shall include the following: [Violation Risk Factor = ~~xxx~~Medium] [Time Horizon = ~~xxx~~Long-term Planning]
- R11.1. System restoration philosophy.
- R11.2. Restoration priorities.
- R11.3. Building of cranking paths.
- R11.4. Synchronizing (re-energized sections of the System).
- R11.5. Review of the restoration plan.
- R12. Each Transmission Operator shall provide a minimum of two hours of System restoration training per year for ~~each of its authorized transmission~~field switching personnel ~~for the tasks~~identified in as performing unique tasks associated with its restoration plan: and outside of their normal tasks. [Violation Risk Factor = Lower] [Time Horizon = Operations Planning]
- R13. Each Transmission Operator shall participate in its Reliability Coordinator's restoration drills, exercises, or simulations as requested by its Reliability Coordinator. [Violation Risk Factor = ~~xxx~~Medium] [Time Horizon = ~~xxx~~Operations Planning]

- R14. Each Transmission Operator and Generator Operator with a Blackstart Resource shall have a ~~documented-written~~ Blackstart Resource agreement document specifying the terms and conditions of their arrangement. ~~Within ninety days of a Blackstart Resource's acceptance as such into a Transmission Operator's restoration plan, the Generator Operator with the Blackstart Resource must provide its BRFP to the Transmission Operator. The BRFP shall include at a minimum: the name of the Blackstart Resource, location, megawatt and megavar capacity, type of unit, fuel type, latest date of test, test results, starting method and procedures for the startup of the Blackstart Resource.~~ [Violation Risk Factor = ~~xxx~~High] [Time Horizon = ~~xxx~~Operations Planning]
- R15. ~~Each Generator Operator with a Blackstart Resource included in a Transmission Operator's restoration plan shall review its BRFP at least annually and update, if necessary, within ninety calendar days after completing modifications that would change the BRFP or after detecting deficiencies in the BRFP. Each Generator Operator with a Blackstart Resource shall have documented procedures for starting the Blackstart Resource and energizing a dead (de-energized) bus.~~ [Violation Risk Factor = ~~xxx~~High] [Time Horizon = ~~xxx~~Operations Planning]
- R16. Each Generator Operator ~~of with~~ a Blackstart Resource ~~included in the Transmission Operator's restoration plan shall perform Blackstart Resource tests in accordance with the requirements set by the~~ notify its Transmission Operator of any known changes to verify the capabilities of that ~~that~~ Blackstart Resource ~~can perform as specified in the restoration plan.~~ Blackstart Resource within ninety calendar days following such change. [Violation Risk Factor = ~~xxx~~Medium] [Time Horizon = ~~xxx~~Operations Planning]
- R17. Each Generator Operator ~~shall provide documentation of its~~ a Blackstart Resource ~~test results to its Reliability Coordinator shall perform Blackstart Resource tests, and maintain records of such testing, in accordance with the testing requirements set by the~~ Transmission Operator. ~~to verify that the Blackstart Resource can perform as specified in the restoration plan.~~ [Violation Risk Factor = Medium] [Time Horizon = Operations Planning]
- R17.1. Testing records shall include at a minimum: name of the Blackstart Resource, unit tested, date of the test, duration of the test, time required to start the unit, an indication of any testing requirements not met under Requirement R6, ~~the voltage profile during the test including time correlation to Loads applied (if any), and the unit frequency profile during the test including time correlation to Loads applied (if any).~~
- R17.2. Each Generator Operator shall provide the blackstart test results within thirty calendar days following a request from its Reliability Coordinator or Transmission Operator.
- R18. Each Generator Operator of a Blackstart Resource shall provide a minimum of ~~four~~two hours of training per year to each of its operating personnel responsible for the startup and synchronization of its Blackstart Resource generation units ~~identified in the BRFP~~. The training program shall include the following: [Violation Risk Factor = ~~xxx~~Medium] [Time Horizon = ~~xxx~~Operations Planning]

R18.1. System restoration philosophy including coordination with the Transmission Operator.

R18.2. Special actions required to enable blackstart and synchronization to the System.

~~R16.3. Restoration priorities.~~

R19. Each Generator Operator shall participate in the Reliability Coordinator's restoration drills, exercises, or simulations as requested by the Reliability Coordinator. [Violation Risk Factor = Medium] [Time Horizon = Operations Planning]

C. Measures

M1. Each Transmission Operator shall have a documented System restoration plan developed in accordance with Requirement R1 that has been approved by its Reliability Coordinator as shown with ~~evidence such as a the~~ written approval letter from its Reliability Coordinator.

M2. Each Transmission Operator shall have ~~documentation~~evidence such as e-mails with receipts or registered mail receipts, that it ~~has annually reviewed and updated~~distributed its restoration plan to the appropriate entities in accordance with Requirement R2.

M3. Each Transmission Operator shall have documentation, such as ~~load flow outputs or similar programmatic printouts~~a review signature sheet, revision histories, e-mails with receipts, or registered mail receipts, that it ~~has annually reviewed and submitted its restoration plan to its Reliability Coordinator in accordance with Requirement R3.~~

M4. Each Transmission Operator shall have documentation such as a review signature sheet, revision histories, e-mails with receipts, or registered mail receipts, that it has updated its restoration plan with its Reliability Coordinator in accordance with Requirement R4.

M5. Each Transmission Operator shall have documentation such as e-mail receipts that it has made the latest approved copy of its restoration plan available in each of its control rooms and to each of its control room personnel in accordance with Requirement R5.

M6. Each Transmission Operator shall have documentation such as power flow outputs, that it has verified that its restoration plan accomplishes its intended function in accordance with Requirement ~~R3-R6.~~

M7. If there has been a Disturbance in which Blackstart Resources have been utilized in restoring the shut down area of the System to service, each Transmission Operator involved shall have evidence, ~~that could include, but is not limited to, operator logs, such as~~ voice recordings or transcripts of voice recordings, electronic communications, or computer printouts, e-mail, or operator logs, that it implemented its restoration plan in accordance with Requirement ~~R4-R7.~~

M8. If there has been a Disturbance in which Blackstart Resources have been utilized in restoring the shut down area of the System to service, each Transmission Operator involved in such an event shall have evidence, ~~that could include, but is not limited to,~~ such as voice recordings, e-mail, or operator logs, ~~voice recordings or transcripts of~~

~~voice recordings, electronic communications, or computer printouts,~~ that it resynchronized ~~isolated~~shut down areas in accordance with Requirement ~~R5~~R8.

M9. Each Transmission Operator shall have documented Blackstart Resource testing requirements on file in accordance with Requirement ~~R6~~R9.

~~M7. Each Transmission Operator shall have documentation such as test results showing that all Blackstart Resources included in its restoration plan have met its Blackstart Resource testing requirements in accordance with Requirement R7.~~

M10. Each Transmission Operator shall have evidence, such as e-mails with receipts or registered mail ~~logs~~receipts, that it has distributed its Blackstart Resource testing requirements to each Generator Operator in its area that operates a Blackstart Resource in accordance with Requirement ~~R8~~R10.

M11. Each Transmission Operator shall have a copy of its training records available showing that ~~they have~~it has provided training in accordance with Requirements ~~R9~~R11 and ~~R10~~R12.

M12. Each Transmission Operator shall have evidence, such as training records, that it participated in the Reliability Coordinator's restoration drills, exercises, or simulations as requested in accordance with Requirement ~~R11~~R13.

M13. Each Transmission Operator shall have on file the Blackstart Resource agreements with all Generator ~~Operator's~~Operators with Blackstart Resources included in its restoration plan in accordance with Requirement R14.

~~M14. in accordance with Requirement R14. Each Generator Operator with a Blackstart Resource shall have documented procedures on file for starting the units and energizing a dead bus in accordance with Requirement R15.~~

M15. Each Generator Operator with a Blackstart Resource shall provide evidence, such as e-mails with receipts or registered mail receipts, showing that it notified its Transmission Operator of any known changes to its Blackstart Resource capabilities within ninety calendar days of such changes in accordance with R16.

M16. Each Generator Operator shall maintain documentation of its Blackstart Resource test results and shall have evidence such as e-mails with receipts or registered mail receipts, that it provided these records to its Reliability Coordinator and Transmission Operator when requested in accordance with Requirement R17.

M17. Each Generator Operator shall have a copy of its training records available on file showing that it has provided training in accordance with Requirement ~~R15~~R18.

M18. Each Generator Operator shall have evidence, such as training records, that it participated in the Reliability Coordinator's restoration drills, exercises, or simulations if requested to do so in accordance with Requirement ~~R16~~R19.

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| 4. Standards sent to BOT for approval. | June 2008 |

Definitions of Terms Used in Standard

This section includes all newly defined or revised terms used in the proposed standard. Terms already defined in the Reliability Standards Glossary of Terms are not repeated here. New or revised definitions listed below become approved when the proposed standard is approved. When the standard becomes effective, these defined terms will be removed from the individual standard and added to the Glossary.

None.

A. Introduction

1. **Title:** System Restoration from Blackstart Resources – Coordination
2. **Number:** EOP-006-2
3. **Purpose:** Ensure plans, and Facilities are established and personnel are in place to enable effective coordination of the System restoration from Blackstart Resources process to ensure reliability is maintained during restoration and priority is placed on restoring the Interconnection.
4. **Applicability:**
 - 4.1. Reliability Coordinators.
5. **Proposed Effective Date:** TBD

B. Requirements

- R1. Each Reliability Coordinator shall have a Reliability Coordinator Area restoration plan. The restoration plan shall be written such that it allows for the restoration of its area following a Disturbance in which one or more areas of the Bulk Electric System (BES) shuts down and the use of Blackstart Resources is required to restore the shut down area to service, to a state whereby the choice of the next Load to be restored is not driven by the need to control frequency or voltage for an event that requires the utilization of Blackstart Resources regardless of whether the Blackstart Resource is located within the Reliability Coordinator's Area. The restoration plan shall include: [Violation Risk Factor = High] [Time Horizon = Operations Planning]
 - R1.1. Procedures for restoring the integrity of the Interconnection.
 - R1.2. Descriptions of the elements of coordination between individual Transmission Operator restoration plans.
 - R1.3. Descriptions of the elements of coordination of restoration plans with neighboring Reliability Coordinators.
 - R1.4. Criteria and conditions for reestablishing interconnections between neighboring Transmission Operators and Reliability Coordinator Areas.
 - R1.5. Identification of acceptable voltage and frequency limits during restoration.
 - R1.6. A statement accounting for the possibility that restoration can not be completed as expected indicating that in situations where the actual conditions do not match the studied conditions, the System Operator shall use professional judgment to deviate from the System restoration plan.
 - R1.7. Reporting requirements for the entities within the Reliability Coordinator Area during a restoration event.
- R2. The Reliability Coordinator, to ensure the reliability of the Interconnection, shall distribute its Reliability Coordinator Area restoration plan to its Transmission Operators, Balancing Authorities, and neighboring Reliability Coordinators. [Violation Risk Factor = Lower] [Time Horizon = Operations Planning]

- R3.** Each Reliability Coordinator shall review its restoration plan on an annual (rolling 365 days) basis. [Violation Risk Factor = Medium] [Time Horizon = Operations Planning]
- R4.** Each Reliability Coordinator shall update its restoration plan within ninety calendar days after identifying changes to one of its Transmission Operator's restoration plans or upon reviewing a neighboring Reliability Coordinator's restoration plan that would necessitate a change in their coordination tasks or responsibilities. [Violation Risk Factor = Medium] [Time Horizon = Operations Planning]
- R5.** Each Reliability Coordinator shall review the Transmission Operator restoration plans within its Reliability Coordinator Area. [Violation Risk Factor = Medium] [Time Horizon = Operations Planning]
 - R5.1.** The Reliability Coordinator shall determine whether the Transmission Operator's restoration plan is coordinated with the Reliability Coordinator's restoration plan as well as being compatible with other Transmission Operator restoration plans within its Reliability Coordinator Area.
 - R5.2.** The Reliability Coordinator shall approve or disapprove the Transmission Operator's submitted restoration plan within thirty calendar days following the receipt of the restoration plan from the Transmission Operator.
 - R5.3.** The Reliability Coordinator shall provide written notification to the Transmission Operator of its decision and provide reasons if disapproving a Transmission Operator's restoration plan.
- R6.** Each Reliability Coordinator shall have a copy of the latest approved restoration plan of each Transmission Operator in its Reliability Coordinator Area within each of its control centers and available to all of its control room personnel. [Violation Risk Factor = Lower] [Time Horizon = Operations Planning]
- R7.** Following a Disturbance in which one or more areas of the BES shuts down and the use of Blackstart Resources is required to restore the shut down area to service, each Reliability Coordinator shall work in conjunction with affected Balancing Authorities, Generator Operators, and Transmission Operators as well as neighboring Reliability Coordinators to monitor restoration progress, coordinate restoration, and take actions to restore the BES frequency within acceptable operating limits. Such actions may include but not be limited to adjusting generation, placing additional generators on line, or shedding Load. [Violation Risk Factor = High] [Time Horizon = Real-time Operations]
- R8.** Following a Disturbance in which one or more areas of the BES shuts down and the use of Blackstart Resources is required to restore the shut down area to service, the Reliability Coordinator shall authorize and coordinate resynchronizing isolated areas that bridge boundaries between Transmission Operators or Reliability Coordinators. [Violation Risk Factor = High] [Time Horizon = Real-time Operations]
- R9.** Following a Disturbance in which one or more areas of the BES shuts down and the use of Blackstart Resources is required to restore the shut down area to service, the Reliability Coordinator shall serve as the primary contact for disseminating information regarding restoration to neighboring Reliability Coordinators, and to

Transmission Operators, and Balancing Authorities within its Reliability Coordinator Area. [Violation Risk Factor = Lower] [Time Horizon = Real-time Operations]

R10. Each Reliability Coordinator shall include within its operations training program, annual System restoration training for the control room personnel identified in its restoration plan to ensure the proper execution of its restoration plan. This training program shall include the following: [Violation Risk Factor = Medium] [Time Horizon = Operations Planning]

R10.1. System restoration philosophy including the coordination role of the Reliability Coordinator.

R10.2. Reestablishing the Interconnection.

R11. Each Reliability Coordinator shall conduct two System restoration drills, exercises, or simulations per calendar year, which shall include the Transmission Operators and Generator Operators as dictated by the particular scope of the drill, exercise, or simulation that is being conducted. [Violation Risk Factor = Medium] [Time Horizon = Operations Planning]

R11.1. Each Reliability Coordinator shall request each Transmission Operator and Generator Operator identified in its restoration plan to participate in a drill, exercise, or simulation at least every two calendar years.

C. Measures

M1. Each Reliability Coordinator shall have available a copy of its restoration plan in accordance with Requirement R1.

M2. Each Reliability Coordinator shall provide evidence such as e-mails with receipts or registered mail receipts, that its restoration plan has been distributed in accordance with Requirement R2.

M3. Each Reliability Coordinator shall provide evidence such as a review signature sheet, or revision histories, that it has reviewed its restoration plan in accordance with Requirement R3.

M4. Each Reliability Coordinator shall provide evidence such as a review signature sheet, or revision histories, that it has updated its restoration plan in accordance with Requirement R4.

M5. Each Reliability Coordinator shall provide evidence such as a review signature sheet, that it has reviewed its Transmission Operator's submitted restoration plan(s) in accordance with Requirement R5.

M6. Each Reliability Coordinator shall have documentation such as e-mail receipts that it has made the latest approved copy of its restoration plan available in each of its control rooms and to each of its control room personnel in accordance with Requirement R6.

M7. If there has been a Disturbance in which Blackstart Resources have been utilized, each Reliability Coordinator involved shall have evidence such as voice recordings, e-mail, or operator logs, that it monitored and coordinated restoration progress in accordance with Requirement R7.

- M8.** If there has been a resynchronizing of an isolated area, each Reliability Coordinator involved shall have evidence such as voice recordings, e-mail, or operator logs, that it authorized resynchronizing in accordance with Requirement R8.
- M9.** If there has been a Disturbance in which Blackstart Resources have been utilized, each Reliability Coordinator involved shall have evidence such as voice recordings, e-mail, or operator logs, that it served as the primary contact to disseminate information to neighboring Reliability Coordinators and Transmission Operators and Balancing Authorities within its Reliability Coordinator Area in accordance with Requirement R9.
- M10.** Each Reliability Coordinator shall have a copy of its training records available showing that it has provided training in accordance with Requirement R10.
- M11.** Each Reliability Coordinator shall have evidence such as training records that it conducted two System restoration drills, exercises, or simulations per year that included Transmission Operators and Generator Operators with Blackstart Resources in accordance with Requirement R11.

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. SAR version 1 posted on November 6, 2006.
2. SAR version 1 comment period closed on December 5, 2006.
3. SAR version 2 and comment responses for SAR version 1 posted on February 8, 2007.
4. SAR version 2 comment period closed on March 9, 2007.
5. SAR version 3 and comment responses for SAR version 2 accepted by SC and SDT appointed on April 9, 2007.
6. First posting of revised standards on August 15, 2007 with comment period closed on September 28, 2007.

Proposed Action Plan and Description of Current Draft:

The SDT began meeting in mid-April 2007 immediately following the approval of the SAR by the SC with the goal of completing work in approximately one year's time. The current draft is the first posting of the proposed standards. Only the requirements, violation risk factors, time horizons, and measures have been completed at this time. All compliance elements will be completed after the requirements have been reviewed. Requirements in EOP-007 and EOP-009 have been incorporated into the revised EOP-005 and EOP-006. Therefore, EOP-007 and EOP-009 will be retired when this project is approved and EOP-005-2 and EOP-006-2 go into effect.

Future Development Plan:

| Anticipated Actions | Anticipated Date |
|--|------------------|
| 1. Third posting of draft standards. | March 2008 |
| 2. Standards posted for first ballot. | April 2008 |
| 3. Standards posted for second ballot. | May 2008 |
| 4. Standards sent to BOT for approval. | June 2008 |

Definitions of Terms Used in Standard

This section includes all newly defined or revised terms used in the proposed standard. Terms already defined in the Reliability Standards Glossary of Terms are not repeated here. New or revised definitions listed below become approved when the proposed standard is approved. When the standard becomes effective, these defined terms will be removed from the individual standard and added to the Glossary.

None.

A. Introduction

1. **Title:** System Restoration ~~and from~~ Blackstart Resources – Coordination
2. **Number:** EOP-006-2
3. **Purpose:** Ensure plans, ~~facilities, and Facilities are established~~ and personnel are ~~available for in place to enable~~ effective coordination of the System restoration ~~from~~ Blackstart Resources process to ensure reliability is maintained during restoration and priority is placed on restoring the Interconnection.
4. **Applicability:**
 - 4.1. Reliability Coordinators.
5. **Proposed Effective Date:** TBD

B. Requirements

- R1. ~~The Each~~ Reliability Coordinator shall have a Reliability Coordinator Area restoration plan ~~that has been made available to its Transmission Operators, Balancing Authorities, and neighboring Reliability Coordinators to restore its area to its normal state following an event that requires the utilization of Blackstart Resources. The restoration plan shall have a priority of.~~ The restoration plan shall be written such that it allows for the restoration of its area following a Disturbance in which one or more areas of the Bulk Electric System (BES) shuts down and the use of Blackstart Resources is required to restore the shut down area to service, to a state whereby the choice of the next Load to be restored is not driven by the need to control frequency or voltage for an event that requires the utilization of Blackstart Resources regardless of whether the Blackstart Resource is located within the Reliability Coordinator's Area. The restoration plan shall include: [Violation Risk Factor = High] [Time Horizon = Operations Planning]
 - R1.1. Procedures for restoring the integrity of the Interconnection. ~~The restoration plan shall include the following: [Violation Risk Factor = xxx] [Time Horizon = xxx]~~
 - ~~R1.2. Identification of the authority and tasks of the Reliability Coordinator's control room personnel assigned to participate in restoration activities including the responsibility of the Reliability Coordinator to work with its neighboring Reliability Coordinator and with the Transmission Operators and generation Operators with Blackstart Resources within its area.~~
 - R1.2. ~~Documented~~ Descriptions of the elements of coordination between individual Transmission Operator restoration plans.
 - R1.3. ~~Documented~~ Descriptions of the elements of coordination of restoration plans with neighboring Reliability Coordinators.
 - R1.4. Criteria and conditions for re-establishing interconnections between neighboring Transmission Operators and Reliability Coordinator Areas.
 - R1.5. Identification of acceptable voltage and frequency limits during restoration.
 - R1.6. A statement accounting for the possibility that restoration can not be completed as expected indicating that in situations where the actual conditions do not

match the studied conditions, the System Operator shall use professional judgment to ~~modify~~deviate from the System restoration plan.

- R1.7. ~~Documentation of reporting~~Reporting requirements ~~to~~for the entities within the Reliability Coordinator Area during a restoration event.
- R2. ~~Each~~The Reliability Coordinator, to ensure the reliability of the Interconnection, shall ~~review and approve, if acceptable, the Transmission Operator restoration plans within~~distribute its Reliability Coordinator Area ~~restoration plan to its Transmission Operators, Balancing Authorities, and neighboring Reliability Coordinators.~~ [Violation Risk Factor = ~~xxx~~Lower] [Time Horizon = ~~xxx~~Operations Planning]
- R3. Each Reliability Coordinator shall review its restoration plan on an annual (rolling 365 days) basis. [Violation Risk Factor = Medium] [Time Horizon = Operations Planning]
- R4. Each Reliability Coordinator shall update its restoration plan within ninety calendar days after identifying changes to one of its Transmission Operator's restoration plans or upon reviewing a neighboring Reliability Coordinator's restoration plan that would necessitate a change in their coordination tasks or responsibilities. [Violation Risk Factor = Medium] [Time Horizon = Operations Planning]
- R5. Each Reliability Coordinator shall review the Transmission Operator restoration plans within its Reliability Coordinator Area. [Violation Risk Factor = Medium] [Time Horizon = Operations Planning]
- R5.1. The Reliability Coordinator shall determine whether the Transmission Operator's restoration plan is ~~compatible~~coordinated with the Reliability Coordinator's restoration plan as well as being compatible with other Transmission Operator restoration plans within its Reliability Coordinator Area.
- R5.2. The Reliability Coordinator shall ~~respond to~~approve or disapprove the Transmission Operator's submitted restoration plan within thirty calendar days ~~following the receipt of the restoration plan from the Transmission Operator.~~
- R5.3. The Reliability Coordinator shall provide written notification to the Transmission Operator of its decision and provide reasons ~~for~~if disapproving a Transmission Operator's restoration plan.
- R6. Each Reliability Coordinator shall have a copy of the latest approved restoration plan of each Transmission Operator in its Reliability Coordinator Area within each of its control centers and available to all of its control room personnel. [Violation Risk Factor = ~~xxx~~Lower] [Time Horizon = ~~xxx~~Operations Planning]
- R7. ~~Each~~Following a Disturbance in which one or more areas of the BES shuts down and the use of Blackstart Resources is required to restore the shut down area to service, each Reliability Coordinator shall work in conjunction with affected Balancing Authorities, Generator Operators, and Transmission Operators as well as neighboring Reliability Coordinators to monitor restoration progress, coordinate restoration, and take actions to restore the ~~Bulk Electric System~~BES frequency ~~to normal~~within acceptable operating limits. Such actions ~~would consider~~may include but not be

limited to: adjusting generation, placing additional generators on line, or shedding Load. [Violation Risk Factor = ~~xxx~~High] [Time Horizon = ~~xxx~~Real-time Operations]

R8. ~~The Following a Disturbance in which one or more areas of the BES shuts down and the use of Blackstart Resources is required to restore the shut down area to service, the~~ Reliability Coordinator shall authorize and coordinate re-synchronizing isolated areas ~~that bridge boundaries between Transmission Operators or Reliability Coordinators.~~ [Violation Risk Factor = ~~xxx~~High] [Time Horizon = ~~xxx~~Real-time Operations]

R9. ~~The Following a Disturbance in which one or more areas of the BES shuts down and the use of Blackstart Resources is required to restore the shut down area to service, the~~ Reliability Coordinator shall serve as the primary contact for disseminating information regarding restoration to neighboring Reliability Coordinators, and ~~to~~ Transmission Operators ~~or, and~~ Balancing Authorities within its Reliability Coordinator Area. [Violation Risk Factor = ~~xxx~~Lower] [Time Horizon = ~~xxx~~Real-time Operations]

R10. Each Reliability Coordinator shall ~~provide training~~include within its ~~existing~~ emergency operations training program ~~to its, annual System restoration training for the~~ control room personnel identified in its restoration plan to ensure the proper execution of its restoration plan. This training program shall include the following: [Violation Risk Factor = ~~xxx~~Medium] [Time Horizon = ~~xxx~~Operations Planning]

R10.1. System restoration philosophy including the coordination role of the Reliability Coordinator.

R10.2. Re-establishing the Interconnection.

R11. Each Reliability Coordinator shall conduct two System restoration drills, exercises, or simulations per calendar year, which shall include the Transmission Operators and Generator Operators ~~with Blackstart Resources in their area of responsibility~~ as dictated by the particular scope of the drill, exercise, or simulation that is being conducted. [Violation Risk Factor = Medium] [Time Horizon = Operations Planning]

R11.1. Each Reliability Coordinator shall request each Transmission Operator and Generator Operator ~~with Blackstart Resources shall be included~~ identified in its restoration plan to participate in a drill, exercise, or simulation at least every two calendar years. ~~[Violation Risk Factor = xxx] [Time Horizon = xxx]~~

C. Measures

M1. Each Reliability Coordinator shall have available a copy of its restoration plan in accordance with Requirement R1.

M2. Each Reliability Coordinator shall provide evidence such as e-mails with receipts or registered mail receipts, that its restoration plan has been distributed in accordance with ~~R1-~~Requirement R2.

M3. Each Reliability Coordinator shall provide evidence such as a review signature sheet, or revision histories, that it has reviewed its restoration plan in accordance with Requirement R3.

- M4. Each Reliability Coordinator shall provide evidence such as a review signature sheet, or revision histories, that it has updated its restoration plan in accordance with Requirement R4.
- M5. Each Reliability Coordinator shall provide evidence such as a review signature sheet, that it has reviewed its Transmission Operator's submitted restoration plan(s) in accordance with Requirement ~~R2~~R5.
- M6. Each Reliability Coordinator shall have ~~present in its control centers, a current copy of the documentation such as e-mail receipts that it has made the latest approved copy of its restoration plan of available in each Transmission Operator in its Reliability Coordinator Area of its control rooms and to each of its control room personnel in~~ accordance with Requirement ~~R3-R6~~.
- M7. If there has been a Disturbance in which Blackstart Resources have been utilized, each Reliability Coordinator involved shall have evidence, ~~that could include, but is not limited to, operator logs, such as~~ voice recordings, ~~e-mail, or transcripts of voice recordings, electronic communications, or computer printouts, operator logs,~~ that ~~will be used to determine if the Reliability Coordinator~~it monitored and coordinated restoration progress in accordance with Requirement ~~R4~~R7.
- M8. If there has been a re-synchronizing of an isolated area, each Reliability Coordinator involved shall have evidence, ~~that could include, but is not limited to, such as voice recordings, e-mail, or~~ operator logs, ~~voice recordings or transcripts of voice recordings, electronic communications, or computer printouts,~~ that ~~will be used to determine if~~ it authorized re-synchronizing in accordance with Requirement ~~R5-R8~~.
- M9. If there has been a Disturbance in which Blackstart Resources have been utilized, each Reliability Coordinator involved shall have evidence, ~~that could include, but is not limited to, such as voice recordings, e-mail, or~~ operator logs, ~~voice recordings or transcripts of voice recordings, electronic communications, or computer printouts,~~ that ~~will be used to determine if~~ it served as the primary contact to disseminate information to neighboring Reliability Coordinators and Transmission Operators and Balancing Authorities within its Reliability Coordinator Area in accordance with Requirement ~~R6-R9~~.
- M10. Each Reliability Coordinator shall have a copy of its training records available showing that it has provided training in accordance with Requirement ~~R7-R10~~.
- M11. Each Reliability Coordinator shall have evidence such as training records that it conducted two System restoration drills, exercises, or simulations per year that included Transmission Operators and Generator Operators with Blackstart Resources in accordance with Requirement ~~R8~~R11.

~~D. Compliance~~

~~1. Compliance Monitoring Process~~

~~1.1. Compliance Monitoring Responsibility~~

~~1.2. Compliance Monitoring Period and Reset~~

~~1.3. Data Retention~~

~~1.4. Additional Compliance Information~~

~~2. Violation Severity Levels~~

~~2.1. Lower: —~~

~~2.2. Moderate:~~

~~2.3. High:—~~

~~2.4. Severe: —~~

~~E. Regional Variances~~

~~None.~~

~~F. Associated Documents~~

~~None.~~

| 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 | TBD | Revisions pursuant to Project 2006-03 | Updated Measures and Compliance to match new Requirements Added Associated Standards |

Implementation Plan For EOP-005-2 and EOP-006-2

Prerequisite Approvals

There are no other Reliability Standards or Standard Authorization Requests (SARs), in progress or approved, that must be implemented before this set of standards can be implemented.

EOP-005 – System Restoration from Blackstart Resources — Operations

EOP-006 – System Restoration from Blackstart Resources — Coordination

Revision to Sections of Approved Standards and Definitions

There is one new definition in the proposed set of standards

Blackstart Resource: A generation Facility and associated set of equipment, under the control of the Generator Operator, with the ability to be started without support from the System or to automatically remain energized without connection to the remainder of the System, with the ability to energize a dead bus, meeting the Transmission Operator’s restoration plan needs for real and reactive power capability, frequency and voltage control, and included in the Transmission Operator’s restoration plan

Retire the following definition coincident with the implementation of EOP-005 and EOP-006:

Blackstart Capability Plan

Balloting

The drafting team recommends that this group of two standards be balloted with a single ballot.

Compliance with Standard

| Standard | Functions That Must Comply With the Associated Requirements | | |
|---|---|-----------------------|--------------------|
| | Reliability Coordinator | Transmission Operator | Generator Operator |
| EOP-005 – System Restoration from Blackstart Resources — Operations | | X | X |
| EOP-006 – System Restoration from Blackstart Resources — Coordination | X | | |

Phased-in Compliance

The following table identifies the effective date for each standard.

The effective date is the date entities are expected to meet the performance identified in this standard. Note that entities have been given several months beyond the BOT adoption date (preparation time) to fully comply with the requirements.

| Standard | Effective Date |
|---|--|
| EOP-005 – System Restoration from Blackstart Resources — Operations | Transmission Operators: <ul style="list-style-type: none"> • R1: 21 Months after applicable regulatory approvals. • R7: 6 months after applicable regulatory approvals. • All other TOP requirements: 12 months after applicable regulatory approvals. Generator Operators: <ul style="list-style-type: none"> • R15: 18 months after applicable regulatory approvals. • All other GOP requirements: 12 months after applicable regulatory approvals. |
| EOP-006 – System Restoration from Blackstart Resources — Coordination | All requirements: 18 months after applicable regulatory approvals. |

Comment Form for 2nd Draft of Standards for System Restoration and Blackstart (Project 2006-03)

Please use this form to submit comments on the 2nd draft of the standards for System Restoration and Blackstart (Project 2006-03). Comments must be submitted by **February 5, 2008**. You may submit the completed form by e-mail to sarcomm@nerc.net with the words "SRB Standards" in the subject line. If you have questions please contact Ed Dobrowolski at ed.dobrowolski@nerc.net or by telephone at 609-947-3673.

| 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) |
| <input type="checkbox"/> ERCOT | <input type="checkbox"/> | 1 — Transmission Owners |
| <input type="checkbox"/> FRCC | <input type="checkbox"/> | 2 — RTOs and ISOs |
| <input type="checkbox"/> MRO | <input type="checkbox"/> | 3 — Load-serving Entities |
| <input type="checkbox"/> NPCC | <input type="checkbox"/> | 4 — Transmission-dependent Utilities |
| <input type="checkbox"/> RFC | <input type="checkbox"/> | 5 — Electric Generators |
| <input type="checkbox"/> SERC | <input type="checkbox"/> | 6 — Electricity Brokers, Aggregators, and Marketers |
| <input type="checkbox"/> SPP | <input type="checkbox"/> | 7 — Large Electricity End Users |
| <input type="checkbox"/> WECC | <input type="checkbox"/> | 8 — Small Electricity End Users |
| <input type="checkbox"/> NA – Not Applicable | <input type="checkbox"/> | 9 — Federal, State, Provincial Regulatory or other Government Entities |
| | <input type="checkbox"/> | 10 — Regional Reliability Organizations and Regional Entities |

Comment Form for 2nd Draft of Standards for System Restoration and Blackstart (Project 2006-03)

Background Information:

The System Restoration and Blackstart Drafting Team (SRB SDT) has made significant changes to the first posting of EOP-005-2 and EOP-006-2 based on comments received from the industry.

The draft standards, EOP-005-2 and EOP-006-2, should be reviewed as a set when providing comments.

The System Restoration and Blackstart Drafting Team would like to receive industry comments on this group of standards. Accordingly, we request that you include your comments on this form and e-mail to sarcomm@nerc.net with the subject "SRB Standards" by **February 5, 2008**.

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 SDT has changed the title and purpose of both standards in order to clarify what is meant by restoration in these standards. Does this change sufficiently clarify the intent? If not, please explain in the comment area.

Yes

No

Comments:

2. The SDT has attempted to clarify when restoration ends in both standards as part of R1. Do you agree with this change? If not, please explain in the comment area.

Yes

No

Comments:

3. The SDT has clarified EOP-005-2, R10 to emphasize exactly which field switching personnel need to be trained. Do you agree with this change? If not, please explain in the comment area.

Yes

No

Comments:

4. The SDT has added Violation Risk Factors and Time Horizons to both standards. Do you agree with the assignments made? If not, please explain in the comment area.

Yes

No

Comments:

5. The SDT has added an Implementation Plan. Do you agree with the proposed Implementation Plan? If not, please identify specifically what you feel needs to be modified in the comment area.

Yes

No

Comments:

Comment Form for 2nd Draft of Standards for System Restoration and Blackstart (Project 2006-03)

Please use this form to submit comments on the 2nd draft of the standards for System Restoration and Blackstart (Project 2006-03). Comments must be submitted by **February 5, 2008**. You may submit the completed form by e-mail to sarcomm@nerc.net with the words "SRB Standards" in the subject line. If you have questions please contact Ed Dobrowolski at ed.dobrowolski@nerc.net or by telephone at 609-947-3673.

| Individual Commenter Information | | |
|--|-------------------------------------|---|
| (Complete this page for comments from one organization or individual.) | | |
| Name: | Kirit S. Shah | |
| Organization: | Ameren | |
| Telephone: | (314)554-3542 | |
| E-mail: | kshah@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) |
| <input type="checkbox"/> ERCOT | <input checked="" type="checkbox"/> | 1 — Transmission Owners |
| <input type="checkbox"/> FRCC | <input type="checkbox"/> | 2 — RTOs and ISOs |
| <input type="checkbox"/> MRO | <input checked="" type="checkbox"/> | 3 — Load-serving Entities |
| <input type="checkbox"/> NPCC | <input type="checkbox"/> | 4 — Transmission-dependent Utilities |
| <input checked="" type="checkbox"/> RFC | <input checked="" type="checkbox"/> | 5 — Electric Generators |
| <input checked="" type="checkbox"/> SERC | <input checked="" type="checkbox"/> | 6 — Electricity Brokers, Aggregators, and Marketers |
| <input type="checkbox"/> SPP | <input type="checkbox"/> | 7 — Large Electricity End Users |
| <input type="checkbox"/> WECC | <input type="checkbox"/> | 8 — Small Electricity End Users |
| <input type="checkbox"/> NA – Not Applicable | <input type="checkbox"/> | 9 — Federal, State, Provincial Regulatory or other Government Entities |
| | <input type="checkbox"/> | 10 — Regional Reliability Organizations and Regional Entities |

Comment Form for 2nd Draft of Standards for System Restoration and Blackstart (Project 2006-03)

Background Information:

The System Restoration and Blackstart Drafting Team (SRB SDT) has made significant changes to the first posting of EOP-005-2 and EOP-006-2 based on comments received from the industry.

The draft standards, EOP-005-2 and EOP-006-2, should be reviewed as a set when providing comments.

The System Restoration and Blackstart Drafting Team would like to receive industry comments on this group of standards. Accordingly, we request that you include your comments on this form and e-mail to sarcomm@nerc.net with the subject "SRB Standards" by **February 5, 2008**.

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 SDT has changed the title and purpose of both standards in order to clarify what is meant by restoration in these standards. Does this change sufficiently clarify the intent? If not, please explain in the comment area.

Yes

No

Comments:

2. The SDT has attempted to clarify when restoration ends in both standards as part of R1. Do you agree with this change? If not, please explain in the comment area.

Yes

No

Comments: R1 & R2: In addition to the RC, suggest other major stakeholders involved in the restoration effort such as GOP's be allowed to provide technical review/comment on the restoration plan with a measurement for those comments to be addressed back in some way by the TO and/or RC. This would help make sure everyone is on the "same page" with the expectations and roles of their black-start generators and any concerns/issues are addressed up front in the plan instead of in the field during a restoration event. This could also benefit how we conduct tests and write test procedures, not to mention we may have some useful technical input in general that could help out.

R19: It would be beneficial to require the RC to give ample notice (maybe 90 days) to all participants in the drills.

3. The SDT has clarified EOP-005-2, R10 to emphasize exactly which field switching personnel need to be trained. Do you agree with this change? If not, please explain in the comment area.

Yes

No

Comments: R10 does not involve training.

4. The SDT has added Violation Risk Factors and Time Horizons to both standards. Do you agree with the assignments made? If not, please explain in the comment area.

Yes

No

Comments:

Comment Form for 2nd Draft of Standards for System Restoration and Blackstart (Project 2006-03)

5. The SDT has added an Implementation Plan. Do you agree with the proposed Implementation Plan? If not, please identify specifically what you feel needs to be modified in the comment area.

Yes

No

Comments:

Comment Form for 2nd Draft of Standards for System Restoration and Blackstart (Project 2006-03)

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| Individual Commenter Information | | |
|--|-------------------------------------|---|
| (Complete this page for comments from one organization or individual.) | | |
| Name: | Thad Ness | |
| Organization: | AEP | |
| Telephone: | 614-716-2053 | |
| E-mail: | tkness@aep.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) |
| <input checked="" type="checkbox"/> ERCOT | <input checked="" type="checkbox"/> | 1 — Transmission Owners |
| <input type="checkbox"/> FRCC | <input type="checkbox"/> | 2 — RTOs and ISOs |
| <input type="checkbox"/> MRO | <input checked="" type="checkbox"/> | 3 — Load-serving Entities |
| <input type="checkbox"/> NPCC | <input type="checkbox"/> | 4 — Transmission-dependent Utilities |
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| <input type="checkbox"/> SERC | <input checked="" type="checkbox"/> | 6 — Electricity Brokers, Aggregators, and Marketers |
| <input checked="" type="checkbox"/> SPP | <input type="checkbox"/> | 7 — Large Electricity End Users |
| <input type="checkbox"/> WECC | <input type="checkbox"/> | 8 — Small Electricity End Users |
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| | <input type="checkbox"/> | 10 — Regional Reliability Organizations and Regional Entities |

Comment Form for 2nd Draft of Standards for System Restoration and Blackstart (Project 2006-03)

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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 SDT has changed the title and purpose of both standards in order to clarify what is meant by restoration in these standards. Does this change sufficiently clarify the intent? If not, please explain in the comment area.

Yes

No

Comments:

2. The SDT has attempted to clarify when restoration ends in both standards as part of R1. Do you agree with this change? If not, please explain in the comment area.

Yes

No

Comments: EOP 005-2 R6.2 needs to reference the R1 definition. We suggest "The Loads required to stabilize the Blackstart Resources and other resources being utilized until the restoration state has ended as defined in R1.

3. The SDT has clarified EOP-005-2, R10 to emphasize exactly which field switching personnel need to be trained. Do you agree with this change? If not, please explain in the comment area.

Yes

No

Comments: The field switching training time requirement listed in EOP-005 R12 needs to reflect the training need. The local training coordinator would be a better judge of the time required rather than mandating a fixed number of hours. In fact, all training requirements should be addressed in PER-003 and not in the EOP standard(s).

4. The SDT has added Violation Risk Factors and Time Horizons to both standards. Do you agree with the assignments made? If not, please explain in the comment area.

Yes

No

Comments:

5. The SDT has added an Implementation Plan. Do you agree with the proposed Implementation Plan? If not, please identify specifically what you feel needs to be modified in the comment area.

Yes

No

Comment Form for 2nd Draft of Standards for System Restoration and Blackstart (Project 2006-03)

Comments: We recommend extending the EOP 005-2, R6 implementation time frame to coincide with the R1 implementation time frame since the R6 requirements reference R1.

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| Individual Commenter Information | | |
|--|-------------------------------------|---|
| (Complete this page for comments from one organization or individual.) | | |
| Name: | Jason Shaver | |
| Organization: | American Transmission Co. | |
| Telephone: | 262 506 6885 | |
| E-mail: | shaverj@atcllc.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) |
| <input type="checkbox"/> ERCOT | <input checked="" type="checkbox"/> | 1 — Transmission Owners |
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1. The SDT has changed the title and purpose of both standards in order to clarify what is meant by restoration in these standards. Does this change sufficiently clarify the intent? If not, please explain in the comment area.

Yes

No

Comments:

2. The SDT has attempted to clarify when restoration ends in both standards as part of R1. Do you agree with this change? If not, please explain in the comment area.

Yes

No

Comments:

3. The SDT has clarified EOP-005-2, R10 to emphasize exactly which field switching personnel need to be trained. Do you agree with this change? If not, please explain in the comment area.

Yes

No

Comments: The requirement seems to be a well developed but ATC is not yet convinced that it needs to be included in a standard.

4. The SDT has added Violation Risk Factors and Time Horizons to both standards. Do you agree with the assignments made? If not, please explain in the comment area.

Yes

No

Comments:

5. The SDT has added an Implementation Plan. Do you agree with the proposed Implementation Plan? If not, please identify specifically what you feel needs to be modified in the comment area.

Yes

No

Comments: Other comment

All personnel training requirements should be pulled out of the proposed standards and placed into a new PER standard.

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| Individual Commenter Information | | |
|--|---|---|
| (Complete this page for comments from one organization or individual.) | | |
| Name: | James Burns and Brian Tuck | |
| Organization: | Bonneville Power Administration, Technical Operations | |
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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) |
| <input type="checkbox"/> ERCOT | <input checked="" type="checkbox"/> | 1 — Transmission Owners |
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Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

1. The SDT has changed the title and purpose of both standards in order to clarify what is meant by restoration in these standards. Does this change sufficiently clarify the intent? If not, please explain in the comment area.

Yes

No

Comments:

2. The SDT has attempted to clarify when restoration ends in both standards as part of R1. Do you agree with this change? If not, please explain in the comment area.

Yes

No

Comments:

3. The SDT has clarified EOP-005-2, R10 to emphasize exactly which field switching personnel need to be trained. Do you agree with this change? If not, please explain in the comment area.

Yes

No

Comments: This refers to R12 (not R10)

4. The SDT has added Violation Risk Factors and Time Horizons to both standards. Do you agree with the assignments made? If not, please explain in the comment area.

Yes

No

Comments:

5. The SDT has added an Implementation Plan. Do you agree with the proposed Implementation Plan? If not, please identify specifically what you feel needs to be modified in the comment area.

Yes

No

Comments: There are a lot of requirements and measures. Allow time to get agreements in places.

a. Remove R1.1 is needed, covered by R7.2.

b. Concerned about R2 and the impacts to Critical Infrastructure Security, with the WHOLE restoration plan being sent to Entities participating in the Restoration Plan.

c. R9.1 Change to every five years (due to multiple resource timing coordination)

d. EOP005 R11: Who is included under "control room personnel" is unclear. If the intention is to provide training to certified System Operators, the requirement should identify them in a manner similar to that used in PER002 R4 (identifying the applicability of the 32 hour emergency operations training requirement).

If the intention is broader than System Operators, use the same language used by the SDT in EOP006 R10 "identified in its restoration plan". BPA suggests R11 be changed to: "... annual System restoration training for the control room personnel identified in its restoration plan to ensure proper execution of its restoration plan."

e. EOP005 R13: Saying that the TO must participate in RC drills "as requested" does not leave much flexibility in the TO training program and could be unduly burdensome to TOs that cover a wide geographic area and therefore may receive 'requests' to participate in more than one every two calendar years (see EOP006 R11.1). - The requirement should be re-worded in a manner similar to that used by the SDT in EOP006 R11.1 (e.g. require participation in a RC drill at least once every two years).

BPA suggests R13 be changed to "Each Transmission Operator shall participate in its Reliability Coordinator's restoration drills, exercises, or simulations at least once every two calendar years." -M12 would be changed appropriately.

f. EOP006 R11.1: Says that the RC will conduct drills that includes every TO and GO within their jurisdiction during a two year rotation. Suggest that a longer rotation (3 years) would be sufficient to meet the intent of the requirement.

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| Individual Commenter Information | | |
|--|-------------------------------------|---|
| (Complete this page for comments from one organization or individual.) | | |
| Name: | John Jonte | |
| Organization: | CenterPoint Energy | |
| Telephone: | 713-207-2252 | |
| E-mail: | john.jonte@CenterPoint Energy.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) |
| <input checked="" type="checkbox"/> ERCOT | <input checked="" type="checkbox"/> | 1 — Transmission Owners |
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Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

1. The SDT has changed the title and purpose of both standards in order to clarify what is meant by restoration in these standards. Does this change sufficiently clarify the intent? If not, please explain in the comment area.

Yes

No

Comments: The changes to the title and purpose appear to sufficiently clarify this is restoration that requires utilizing a Blackstart Resource. However, changing the wording from personnel are "available" to personnel are "in place" to enable System restoration does not appear to be a material change. Perhaps the true intent is that personnel are 'prepared' to enable System restoration. An intent, or purpose, involving personnel would be more applicable in a Personnel Performance, Training, and Qualifications standard.

2. The SDT has attempted to clarify when restoration ends in both standards as part of R1. Do you agree with this change? If not, please explain in the comment area.

Yes

No

Comments: The restoration plan should continue until connections are re-established for areas that have become separated. Once shut down area(s) have been resynchronized, restoration to a state whereby 'the choice of the next Generation to be placed on-line is not driven by the need to control frequency or voltage' should be included in addition to restoration "to a state whereby the choice of the next Load to be restored is not driven by the need to control frequency or voltage".

3. The SDT has clarified EOP-005-2, R10 to emphasize exactly which field switching personnel need to be trained. Do you agree with this change? If not, please explain in the comment area.

Yes

No

Comments: In reference to R12, not R10, the wording sufficiently clarifies what field personnel this training requirement would apply. The tasks of field personnel in a blackstart restoration would not differ from tasks performed for storm restoration or other service restoration. However, any personnel training, such as this and in R11 for training of control room personnel, should not be included in this standard but should be in applicable Personnel Performance, Training, and Qualifications standards.

4. The SDT has added Violation Risk Factors and Time Horizons to both standards. Do you agree with the assignments made? If not, please explain in the comment area.

Yes

No

Comment Form for 2nd Draft of Standards for System Restoration and Blackstart (Project 2006-03)

Comments:

5. The SDT has added an Implementation Plan. Do you agree with the proposed Implementation Plan? If not, please identify specifically what you feel needs to be modified in the comment area.

Yes

No

Comments:

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| Individual Commenter Information | | |
|--|-------------------------------------|---|
| (Complete this page for comments from one organization or individual.) | | |
| Name: | Edwin Thompson | |
| Organization: | Consolidated Edison Co. of New York | |
| Telephone: | 212 460-8199 | |
| E-mail: | thompsonedwin@coned.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) |
| <input type="checkbox"/> ERCOT | <input checked="" type="checkbox"/> | 1 — Transmission Owners |
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Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

1. The SDT has changed the title and purpose of both standards in order to clarify what is meant by restoration in these standards. Does this change sufficiently clarify the intent? If not, please explain in the comment area.

Yes

No

Comments: Con Edison commends the SDT for inserting the word "reliability" into the Purpose. However, the statement "to ensure reliability is maintained during restoration" must be expanded to include "ensure black start resources are reliable and maintain reliability during restoration" or the restoration process cannot be initiated.

Con Edison is concerned that the current "blackstart resource" definition includes generation facilities that are extremely unreliable. The definition includes generation facilities that "remain energized without connections to the remainder of the system", or load rejection units. If the SDT wants to include these facilities, then testing requirements in section R17 need to be developed that are specific for load rejection units. Testing requirements must include full load rejection for conditions such as a low frequency disturbance, instability-type disturbance, and a switchyard isolation event. Some of these tests are difficult if not impossible to implement, and therefore, will eliminate "load rejection units" from the standard.

Blackstart units are testable from the batteries used to startup diesel engines, gas turbines or hydro units to the startup of steam units. Un-testable and historically unreliable "load rejection" generation facilities must not be included in this standard. This issue was highlighted in comments on the first draft, however these comments were not addressed by the SDT. Commenter's included IESO, NYISO, NBSO, ISO/RTO, MRO SRC, First Energy, ATC, Southern Transmission, NPCC RSC.

To help address these concerns, please provide responses to the following questions.

1. The SDT did not respond to the NYISO questions concerning reliability of generation islanding schemes (1st draft). Please advise.
2. What testing requirements does the SDT recommend for these load rejection generation facilities?
3. Provide historical reliability data supporting an effort to consider the inclusion of load rejection generation facilities.

2. The SDT has attempted to clarify when restoration ends in both standards as part of R1. Do you agree with this change? If not, please explain in the comment area.

Yes

No

Comments: Restoration ends when all customers have been restored. The current statement "to a state whereby the choice of the next load to be restored is not driven by the need to control frequency or voltage" is confusing. Voltage and frequency control are continuous in restoration and normal operations.

Comment Form for 2nd Draft of Standards for System Restoration and Blackstart (Project 2006-03)

3. The SDT has clarified EOP-005-2, R10 to emphasize exactly which field switching personnel need to be trained. Do you agree with this change? If not, please explain in the comment area.

Yes

No

Comments: I assume this is R11. No, it is not clear. Which personnel? TOP or the GOP?

4. The SDT has added Violation Risk Factors and Time Horizons to both standards. Do you agree with the assignments made? If not, please explain in the comment area.

Yes

No

Comments:

5. The SDT has added an Implementation Plan. Do you agree with the proposed Implementation Plan? If not, please identify specifically what you feel needs to be modified in the comment area.

Yes

No

Comments:

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| Individual Commenter Information | | |
|--|--|---|
| (Complete this page for comments from one organization or individual.) | | |
| Name: | J. Andrew Dodge / William Keagle / Ed Carmen | |
| Organization: | Baltimore Gas and Electric Company | |
| Telephone: | 410-597-7289 | |
| E-mail: | edward.j.carmen@bge.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) |
| <input type="checkbox"/> ERCOT | <input checked="" type="checkbox"/> | 1 — Transmission Owners |
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Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

1. The SDT has changed the title and purpose of both standards in order to clarify what is meant by restoration in these standards. Does this change sufficiently clarify the intent? If not, please explain in the comment area.

Yes

No

Comments: The title "System Restoration from Blackstart Resources" implies that only bottom-up approaches to system restoration should be included in everyone's restoration plan. Restoration Plans have to include the option to restore by utilizing external ties (top-down approach). In addition, many of the requirements are not directly linked to "System Restoration from Blackstart Resources", for example, off-site power for nuclear power plants, operating procedures to re-establish connections, etc. We suggest the following title; "System Restoration Plan & Validation Requirements" to better describe the intent of the standards.

Also, if the title is not changed, there is inconsistency in the page headings (System Restoration and...) and the title (System Restoration from...).

2. The SDT has attempted to clarify when restoration ends in both standards as part of R1. Do you agree with this change? If not, please explain in the comment area.

Yes

No

Comments: Remove the "use of Blackstart Resources" wording from R1. Blackstart Resources may not always be required during a system restoration event. In many cases it may be faster to restore an area using a "top-down" approach. The way that this standard is currently written suggests that Blackstart Resources are always required. Restoration Plans need to include "top-down" and "bottom-up" restoration methods, and need to be flexible to allow the Transmission Operator/Transmission Owner to choose the quickest restoration method, or a combination of the two.

3. The SDT has clarified EOP-005-2, R10 to emphasize exactly which field switching personnel need to be trained. Do you agree with this change? If not, please explain in the comment area.

Yes

No

Comments: R10 does not cover this. If you are referring to R12 we offer the following comments. We think it describes which field switching personnel need to be trained, but we believe that it should also include the unique tasks that they need to be trained on. For example, they need to be trained on the use of a synchroscope, the establishment of cranking paths, restoration priorities, etc.

4. The SDT has added Violation Risk Factors and Time Horizons to both standards. Do you agree with the assignments made? If not, please explain in the comment area.

Comment Form for 2nd Draft of Standards for System Restoration and Blackstart (Project 2006-03)

Yes

No

Comments:

5. The SDT has added an Implementation Plan. Do you agree with the proposed Implementation Plan? If not, please identify specifically what you feel needs to be modified in the comment area.

Yes

No

Comments: R6 states that verification of the restoration plan is required every 5 years. The Implementation Plan states that all other TOP requirements are effective 12 months after regulatory approvals. Will R6 be enforceable within 1 year or 5 years after regulatory approvals?

OTHER COMMENTS

1 - EOP-005-2 R1, the standard requires that the Transmission Operator have their plan reviewed and approved by its Reliability Coordinator. In some cases, the Transmission Operator and the Reliability Coordinator may be the same organization. In this situation the RC may be approving their own plan.

2 - EOP-005-2 R6.1, 6.2, and 6.3: the requirements are not clear. Does this require us to validate cranking paths to energize a dead bus, energize a transformer or circuits to start a steam unit, or complete system restoration?

3 - EOP-005-2 R9.2.2: It would have been clearer if the standard simply required testing the breakers ability to close on a dead bus or simulating the conditions of a dead bus by removing the synchronizing inputs.

4 - EOP-006-2: As written, this requirement does not cover all situations. In some cases, the Transmission Owner also possesses a restoration plan in addition to the Transmission Operator. A simple fix would be to replace "Transmission Operator" with "Transmission Operator / Transmission Owner" throughout the document.

5 - EOP-006-2 R11.1 requires each operator to participate in a restoration drill once every 2 years. However, there is not any corresponding measurement for this requirement.

Comment Form for 2nd Draft of Standards for System Restoration and Blackstart (Project 2006-03)

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| Individual Commenter Information | | |
|--|-------------------------------------|---|
| (Complete this page for comments from one organization or individual.) | | |
| Name: | Mark Paschke | |
| Organization: | Consumers Energy | |
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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) |
| <input type="checkbox"/> ERCOT | <input type="checkbox"/> | 1 — Transmission Owners |
| <input type="checkbox"/> FRCC | <input type="checkbox"/> | 2 — RTOs and ISOs |
| <input type="checkbox"/> MRO | <input checked="" type="checkbox"/> | 3 — Load-serving Entities |
| <input type="checkbox"/> NPCC | <input checked="" type="checkbox"/> | 4 — Transmission-dependent Utilities |
| <input checked="" type="checkbox"/> RFC | <input checked="" type="checkbox"/> | 5 — Electric Generators |
| <input type="checkbox"/> SERC | <input type="checkbox"/> | 6 — Electricity Brokers, Aggregators, and Marketers |
| <input type="checkbox"/> SPP | <input type="checkbox"/> | 7 — Large Electricity End Users |
| <input type="checkbox"/> WECC | <input type="checkbox"/> | 8 — Small Electricity End Users |
| <input type="checkbox"/> NA – Not Applicable | <input type="checkbox"/> | 9 — Federal, State, Provincial Regulatory or other Government Entities |
| | <input type="checkbox"/> | 10 — Regional Reliability Organizations and Regional Entities |

Comment Form for 2nd Draft of Standards for System Restoration and Blackstart (Project 2006-03)

Background Information:

The System Restoration and Blackstart Drafting Team (SRB SDT) has made significant changes to the first posting of EOP-005-2 and EOP-006-2 based on comments received from the industry.

The draft standards, EOP-005-2 and EOP-006-2, should be reviewed as a set when providing comments.

The System Restoration and Blackstart Drafting Team would like to receive industry comments on this group of standards. Accordingly, we request that you include your comments on this form and e-mail to sarcomm@nerc.net with the subject "SRB Standards" by **February 5, 2008**.

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 SDT has changed the title and purpose of both standards in order to clarify what is meant by restoration in these standards. Does this change sufficiently clarify the intent? If not, please explain in the comment area.

Yes

No

Comments:

2. The SDT has attempted to clarify when restoration ends in both standards as part of R1. Do you agree with this change? If not, please explain in the comment area.

Yes

No

Comments: See comments submitted by Midwest ISO Stakeholders Collaborators.

3. The SDT has clarified EOP-005-2, R10 to emphasize exactly which field switching personnel need to be trained. Do you agree with this change? If not, please explain in the comment area.

Yes

No

Comments: See comments submitted by Midwest ISO Stakeholders Collaborators.

Also, Consumers agrees that it is appropriate for the Standard to require the Generator Operator to provide training to its operating personnel. However, the Generator Operator should be allowed flexibility in determining what training is necessary to ensure it meets its obligations for System restoration. (R18) This concern was submitted previously, but the Standard Drafting Team's response did not address adequately our concerns.

4. The SDT has added Violation Risk Factors and Time Horizons to both standards. Do you agree with the assignments made? If not, please explain in the comment area.

Yes

No

Comments: See comments submitted by Midwest ISO Stakeholders Collaborators.

5. The SDT has added an Implementation Plan. Do you agree with the proposed Implementation Plan? If not, please identify specifically what you feel needs to be modified in the comment area.

Yes

No

Comment Form for 2nd Draft of Standards for System Restoration and Blackstart (Project 2006-03)

Comments: See comments submitted by Midwest ISO Stakeholders Collaborators.

In addition, the following concerns are addressed here, as the form did not provide a section for additional concerns, specifically:

(R1.4) The Transmission Operator needs to coordinate with the Generator Operators when identifying acceptable operating voltage and frequency limits during restoration. Generator underfrequency relaying and terminal bus voltage limits will affect the acceptable limits.

(R4.1) The Transmission Operator needs to communicate changes in the restoration plan that affect Generator Operators of the blackstart units and Generator Operators of generating units in the cranking path.

(R9, R10, R17) The Regional Reliability Organization should specify the Blackstart Resource testing requirements rather than the Transmission Operator so the testing requirements follow the RRO Standard Development procedure process (See MOD-024-1, MOD-025-1).

If the Transmission Operator does gain the authority to establish the testing requirements, the testing requirements need to be mutually agreed upon by the generator operator to ensure that (a) the testing requirements are feasible and (b) the testing requirements do not create a significant financial burden on the Generator Operator.

(R14) What occurs if the Transmission Operator and Generator Operator cannot come to agreement on the terms and conditions of a Blackstart Resource Agreement? Is the Generator Operator subject to unreasonable testing requirements and unreasonable financial compensation mandated by the Transmission Operator?

(R17.1) The Generator Operator does not have information relating to testing requirements not met under Requirement R6. Requirement R6 is a Transmission Operator requirement.

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| Individual Commenter Information | | |
|--|-------------------------------------|---|
| (Complete this page for comments from one organization or individual.) | | |
| Name: | Jalal babik | |
| Organization: | Dominion Resources Services, Inc. | |
| Telephone: | 804-273-4109 | |
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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) |
| <input type="checkbox"/> ERCOT | <input type="checkbox"/> | 1 — Transmission Owners |
| <input type="checkbox"/> FRCC | <input type="checkbox"/> | 2 — RTOs and ISOs |
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| | <input type="checkbox"/> | 10 — Regional Reliability Organizations and Regional Entities |

Comment Form for 2nd Draft of Standards for System Restoration and Blackstart (Project 2006-03)

| Group Comments (Complete this page if comments are from a group.) | | | |
|---|---------------------------------------|-------------------------------|-----------------|
| Group Name: | | Dominion Resources | |
| Lead Contact: | | Jalal Babik | |
| Contact Organization: | | | |
| Contact Segment: | | | |
| Contact Telephone: | | 804-273-4109 | |
| Contact E-mail: | | Jalal.Babik@dom.com | |
| Additional Member Name | Additional Member Organization | Region* | Segment* |
| Jalal Babik | Dominion Resources Services Inc. | NPCC, MRO, RFC, SERC | 5 |
| Louis Slade | Dominion Resources Services Inc. | RFC, SERC | 5 |
| Ayad Al-Hamdani | Dominion Resources Services Inc. | SERC | 5 |
| Harold Adams | Dominion Resources Services Inc. | NPCC, MRO, RFC, SERC | 5 |
| Larry Whanger | VA ELECTRIC & POWER CO | SERC | 5 |
| Gibbs Goldman | VA ELECTRIC & POWER CO. | SERC | 5 |
| Roy Beger | Dominion Resources Services Inc. | MRO | 5 |
| Lou Nunez | Dominion Resources Services Inc. | NPCC, MRO | 5 |
| Ronald E Hart | Dominion Resources Services Inc. | NPCC, MRO | 5 |
| Mike Garton | Dominion Resources Services Inc. | SERC | 5 |
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Comment Form for 2nd Draft of Standards for System Restoration and Blackstart (Project 2006-03)

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*If more than one Region or Segment applies, please list all that apply. Regional acronyms and segment numbers are shown on prior page.

Comment Form for 2nd Draft of Standards for System Restoration and Blackstart (Project 2006-03)

Background Information:

The System Restoration and Blackstart Drafting Team (SRB SDT) has made significant changes to the first posting of EOP-005-2 and EOP-006-2 based on comments received from the industry.

The draft standards, EOP-005-2 and EOP-006-2, should be reviewed as a set when providing comments.

The System Restoration and Blackstart Drafting Team would like to receive industry comments on this group of standards. Accordingly, we request that you include your comments on this form and e-mail to sarcomm@nerc.net with the subject "SRB Standards" by **February 5, 2008**.

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 SDT has changed the title and purpose of both standards in order to clarify what is meant by restoration in these standards. Does this change sufficiently clarify the intent? If not, please explain in the comment area.

Yes

No

Comments:

2. The SDT has attempted to clarify when restoration ends in both standards as part of R1. Do you agree with this change? If not, please explain in the comment area.

Yes

No

Comments: We suggest deleting phrase "for an event that requires the utilization of Blackstart Resources". to make it consistent with that used in EOP-005-2 @ R1.

3. The SDT has clarified EOP-005-2, R10 to emphasize exactly which field switching personnel need to be trained. Do you agree with this change? If not, please explain in the comment area.

Yes

No

Comments: R10 does not reference training of field switching personnel. The following comments apply to R11, R12, R13, R18 and R19 of EOP-005-2 and R11 of EOP-006-2. While we support annual training of those who would direct restoration activities such as the Reliability Coordinator, transmission and generator operating personal in control centers, we do not support annual training of field personnel. Even during restoration, field personnel are predominately performing every day functions, although with much closer coordination/direction from operating personnel in the transmission and/or generator control centers. We recommend that the standard be modified to require periodic training of field personnel and that the period be defined in the transmission operator's restoration plan to be approved by the Reliability Coordinator. We support R19 only if it is applicable to operating personal in control centers, not field personnel. Drills involving field personnel should be coordinated with the transmission operator owning the restoration plan and should be concurrent with the testing schedule required in R9.1 and R17 and should only include generator operators of units identified in the transmissison owner's restoration plan.

4. The SDT has added Violation Risk Factors and Time Horizons to both standards. Do you agree with the assignments made? If not, please explain in the comment area.

Yes

No

Comment Form for 2nd Draft of Standards for System Restoration and Blackstart (Project 2006-03)

Comments: We recommend that R14 and R15 of EOP-005 be changed to medium. For the majority of approved standards, written documentation has not warranted a high VRF.

5. The SDT has added an Implementation Plan. Do you agree with the proposed Implementation Plan? If not, please identify specifically what you feel needs to be modified in the comment area.

Yes

No

Comments: The proposed Implementation Plan lacks clarity as to the potential sequence of effective dates relative to development of plans, development of agreements, training of personnel, review and validation of plans, and participation in drills. It is stated that 005-R1 (the restoration plan) will be enforceable 21 months after applicable regulatory approvals. 005-R7 (Disturbance/Shutdown) suggests that TOs be prepared to implement blackstart plans within 6 months after regulatory approvals or be subject to non-compliance. Further, all other TOP requirements are not subject to compliance and enforcement penalty for at least 12 months after applicable regulatory approvals. We believe that it is the intent of these two standards to ensure the necessity to have good communication protocols along with thoroughly disseminated documentation, coordination and training for system restoration. Therefore, the effective dates for compliance of EOP-005 & EOP-006 standards should follow the same systematic process, with the earliest effective date be applied to EOP-005 @ R1 and other effective dates occurring sequentially thereafter. These effective dates need to recognize that transmission operators must be trained before they can be expected to implement and that transmission owner review and validation of plans needs to occur at some later date. The effective dates for generator operator requirements also needs to be applied sequentially. There first needs to be an agreement between transmission operator and generator operator followed by development of generator operator procedures followed by training of generator operators to be followed, at a later date, by drill participation, testing and notification of changes.

We could support effective dates for development of restoration plans and agreements (R1, R2, R9, R10, R14) within 6 months of regulatory approval, followed by an additional 6 months for effective dates for development of generator operating procedures and training of control room operating personnel (R5,R11, R12, R15, R18) followed by an additional 6 months for effective dates for validation/review of plans and implementation (R3,R4,R6,R7,R8,R13,R17)

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| Individual Commenter Information | | |
|--|-------------------------------------|---|
| (Complete this page for comments from one organization or individual.) | | |
| Name: | Jack Kerr | |
| Organization: | Dominion Virginia Power | |
| Telephone: | 804-273-3393 | |
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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) |
| <input type="checkbox"/> ERCOT | <input checked="" type="checkbox"/> | 1 — Transmission Owners |
| <input type="checkbox"/> FRCC | <input type="checkbox"/> | 2 — RTOs and ISOs |
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The draft standards, EOP-005-2 and EOP-006-2, should be reviewed as a set when providing comments.

The System Restoration and Blackstart Drafting Team would like to receive industry comments on this group of standards. Accordingly, we request that you include your comments on this form and e-mail to sarcomm@nerc.net with the subject "SRB Standards" by **February 5, 2008**.

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 SDT has changed the title and purpose of both standards in order to clarify what is meant by restoration in these standards. Does this change sufficiently clarify the intent? If not, please explain in the comment area.

Yes

No

Comments:

2. The SDT has attempted to clarify when restoration ends in both standards as part of R1. Do you agree with this change? If not, please explain in the comment area.

Yes

No

Comments: In EOP-006-2, R1 contains a redundant phrase, "for an event that requires the utilization of Blackstart Resources". Deleting this phrase would make the wording consistent with that of R1 in EOP-005-2.

3. The SDT has clarified EOP-005-2, R10 to emphasize exactly which field switching personnel need to be trained. Do you agree with this change? If not, please explain in the comment area.

Yes

No

Comments: We do not agree that an annual training cycle is necessary. Like many other TOs, our training and recertification program for field switching personnel is on a three year cycle. This switching recertification training is not a requirement in any NERC Reliability Standard yet we provide it because we believe it to be Good Utility Practice. We also believe that specific training on restoration-related switching tasks for field personnel will also be Good Utility Practice, and we intend to incorporate such training into our three year program. This program has proven to be more than adequate, and we see no basis or compelling reason for having to establish an annual training program specifically for restoration-related switching tasks instead of being allowed to incorporate such training into our established three year program. The FERC did not specify in Order 693 that field switching personnel be provided restoration training annually -- they only requested that they be trained. Our switchmen have proven by their performance in the field that our three year recertification program has provided excellent training.

We request that Requirement R10 be revised to read:

R10. Each Transmission Operator shall provide a minimum of 2 hours of System Restoration training at least every three years for field switching personnel identified as performing unique tasks associated with its restoration plan and outside of their normal tasks.

Comment Form for 2nd Draft of Standards for System Restoration and Blackstart (Project 2006-03)

4. The SDT has added Violation Risk Factors and Time Horizons to both standards. Do you agree with the assignments made? If not, please explain in the comment area.

Yes

No

Comments:

5. The SDT has added an Implementation Plan. Do you agree with the proposed Implementation Plan? If not, please identify specifically what you feel needs to be modified in the comment area.

Yes

No

Comments: 1) In general, the Implementation Plan is too long. Most of the requirements in these two standards already exist to some extent in the current standards, so it shouldn't take a year or more after regulatory approval to comply.

2) For EOP-05-2, the requirement to have a plan, R1, is effective 21 months after regulatory approval; however, the requirement to use that plan, R7, is effective 6 months after approval. They should both be effective at the same time -- within 6 months or less.

3) In EOP-005-2, the requirement to have procedures for starting a Blackstart Resource, R15, is effective 12 months after regulatory approval; however, the requirement to start a resource for testing purposes, R17, is effective 6 months after regulatory approval. They should both be effective at the same time -- within 6 months or less.

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| Individual Commenter Information | | |
|--|-------------------------------------|---|
| (Complete this page for comments from one organization or individual.) | | |
| Name: | Greg Rowland | |
| Organization: | Duke Energy | |
| Telephone: | 704-382-5348 | |
| E-mail: | gdrowland@dukeenergy.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) |
| <input type="checkbox"/> ERCOT | <input checked="" type="checkbox"/> | 1 — Transmission Owners |
| <input type="checkbox"/> FRCC | <input type="checkbox"/> | 2 — RTOs and ISOs |
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The draft standards, EOP-005-2 and EOP-006-2, should be reviewed as a set when providing comments.

The System Restoration and Blackstart Drafting Team would like to receive industry comments on this group of standards. Accordingly, we request that you include your comments on this form and e-mail to sarcomm@nerc.net with the subject "SRB Standards" by **February 5, 2008**.

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 SDT has changed the title and purpose of both standards in order to clarify what is meant by restoration in these standards. Does this change sufficiently clarify the intent? If not, please explain in the comment area.

Yes

No

Comments: General comments on EOP-005-2:

1. R1.2 says that the TO's restoration plan must include procedures for restoring the integrity of the Interconnection under the direction of the Reliability Coordinator. It should say under the "oversight" of the RC. As the SDT noted in Consideration of Comments: "Beginning with the system collapse, the TOP restores the Transmission System, restores interconnections, and supplies offsite power to nuclear generating stations. This is accomplished on a command and control basis by the Transmission Operator in conjunction with the GOP. Once interconnections have been reestablished and the Transmission System restored, the restoration of firm Load can begin. The TOP is restoring the System through command and control until a sufficient System has been built where frequency is under control."

2. R2 should be clarified to state that the TO shall distribute its plan to "appropriate" entities identified in the plan. The plan contains highly sensitive critical energy infrastructure information that is not needed by entities such as police, fire, etc.

3. R4 We continue to believe that an annual update is sufficient.

4. R10 states that "Each Transmission Operator shall distribute its Blackstart Resource testing requirements to each Generator Operator in its area that operates a Blackstart Resource." However, TO's and GO's don't communicate directly. The Balancing Authority distributes testing requirements to generators.

5. R13 and R19 should specify that participation in one drill per year is sufficient.

6. R16 states that GO's must inform TO's of any known capability changes. However, the TO's and GO's don't communicate directly. This information is communicated through the BA, and should be reflected in the requirement.

2. The SDT has attempted to clarify when restoration ends in both standards as part of R1. Do you agree with this change? If not, please explain in the comment area.

Yes

No

Comments: Neither standard identifies when restoration ends. Nor do we believe that a standard can accomplish this. We think it can only be determined by the Balancing Authority on a case-specific basis.

3. The SDT has clarified EOP-005-2, R10 to emphasize exactly which field switching personnel need to be trained. Do you agree with this change? If not, please explain in the comment area.

Yes

No

Comments: It is actually R12. We agree with the change.

Comment Form for 2nd Draft of Standards for System Restoration and Blackstart (Project 2006-03)

4. The SDT has added Violation Risk Factors and Time Horizons to both standards. Do you agree with the assignments made? If not, please explain in the comment area.

Yes

No

Comments: We agree with the MISO VRF comments, and repeat them here:
The VRF for EOP-005-02, R1 should be medium. Failure to have a formal restoration plan approved by the RC does not lead directly to a failure of the BES. EOP-005-2, R14 should be Lower. It is a requirement to have a document. Failure to have the document is not a risk to the BES. Failure to have an agreement presents no significant risk to the BES.. An agreement is not necessarily a document though per NERC glossary of terms. EOP-005-2, R15 should be Lower. It is also a requirement to have a document. Failure to have documented procedures does not mean that the GOP is not capable of starting a Blackstart Resource and energizing a dead bus. It simply means they haven't written the procedure down. Failure to document a procedure presents no significant risk to the BES. The VRF for EOP-006-2, R1 should be medium. Failure to have an RC restoration plan does not lead directly to a failure of the BES. The TOP plans will still work but not as efficiently. If this was not the case, how did TOPs ever recover from a blackout prior to the introduction of the RC function. The VRF for EOP-006-2, R5 should be lower. Failure of the RC to review the TOP plans will only result in inefficient restoration.

5. The SDT has added an Implementation Plan. Do you agree with the proposed Implementation Plan? If not, please identify specifically what you feel needs to be modified in the comment area.

Yes

No

Comments: On EOP-005-2, R12, should increase implementation time to 18 months.

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| Individual Commenter Information | | |
|--|-------------------------------------|---|
| (Complete this page for comments from one organization or individual.) | | |
| Name: | Ed Davis | |
| Organization: | Entergy Services, Inc | |
| Telephone: | 504-576-3029 | |
| 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) |
| <input type="checkbox"/> ERCOT | <input checked="" type="checkbox"/> | 1 — Transmission Owners |
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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 SDT has changed the title and purpose of both standards in order to clarify what is meant by restoration in these standards. Does this change sufficiently clarify the intent? If not, please explain in the comment area.

Yes

No

Comments:

2. The SDT has attempted to clarify when restoration ends in both standards as part of R1. Do you agree with this change? If not, please explain in the comment area.

Yes

No

Comments:

We recommend that the following draft:

R1.1 A description of the manner in which all obligations for off-site power requirements of nuclear power plants will be fulfilled.

be revised to:

R1.1 A description of the manner in which obligations for off-site power requirements of nuclear power plants will be fulfilled to ensure safe shut down of the plant and to maintain the plant in a safe condition.

Explanation:

Depending on the operating state of the nuclear plant, typical auxiliary load varies from 60MW to 85MW. However, approximately less than 15MW of safe shut down loads are backed by diesel generator/s. It would be onerous for the transmission operator to supply all auxiliary loads during system restoration compared to safe shut down loads. Additionally, minimum voltage limits for off-site power are typically based on the entire auxiliary load supplied via the Start-up / Reserve Station Service (RSS) transformer. By clarifying this requirement to include only the portion of auxiliary loads necessary for safe shut down, voltage limits can be less restrictive, thus facilitating faster restoration while maintaining safety. Adding the suggested clarification will enhance the intent of this very important requirement.

Comment Form for 2nd Draft of Standards for System Restoration and Blackstart (Project 2006-03)

3. The SDT has clarified EOP-005-2, R10 to emphasize exactly which field switching personnel need to be trained. Do you agree with this change? If not, please explain in the comment area.

Yes

No

Comments:

4. The SDT has added Violation Risk Factors and Time Horizons to both standards. Do you agree with the assignments made? If not, please explain in the comment area.

Yes

No

Comments:

5. The SDT has added an Implementation Plan. Do you agree with the proposed Implementation Plan? If not, please identify specifically what you feel needs to be modified in the comment area.

Yes

No

Comments:

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| Individual Commenter Information | | |
|--|--|---|
| (Complete this page for comments from one organization or individual.) | | |
| Name: | Will Franklin | |
| Organization: | Entergy Services, Inc. System Planning & Operations (Generation & Marketing) | |
| Telephone: | 281-297-3594 | |
| E-mail: | wfrankl@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) |
| <input type="checkbox"/> ERCOT | <input type="checkbox"/> | 1 — Transmission Owners |
| <input type="checkbox"/> FRCC | <input type="checkbox"/> | 2 — RTOs and ISOs |
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Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

1. The SDT has changed the title and purpose of both standards in order to clarify what is meant by restoration in these standards. Does this change sufficiently clarify the intent? If not, please explain in the comment area.

Yes

No

Comments: What is the title for EOP-005? The Header indicates System Restoration and Blackstart Resources - Operations. The "Title" in Section A indicates System Restoration from Blackstart Resources - Operations. Either one is satisfactory, just be consistent. It is still not clear as to whether this standard applies if restoration occurs without the use of a Blackstart Resource (i.e. a neighboring BA instead of a generating facility).

2. The SDT has attempted to clarify when restoration ends in both standards as part of R1. Do you agree with this change? If not, please explain in the comment area.

Yes

No

Comments: It is not apparent from the Requirements in R1 as to when restoration ends.

3. The SDT has clarified EOP-005-2, R10 to emphasize exactly which field switching personnel need to be trained. Do you agree with this change? If not, please explain in the comment area.

Yes

No

Comments: R10 (as drafted) does not address training of field personnel. R12 appears to address training of field personnel. The phrase "outside their normal tasks" just adds confusion and allows for interpretation - this phrase should be deleted.

4. The SDT has added Violation Risk Factors and Time Horizons to both standards. Do you agree with the assignments made? If not, please explain in the comment area.

Yes

No

Comments: The "High" for R1 is not warranted. Not having a plan for restoration does not threaten the reliability of the Interconnection, especially since the affected area is already disconnected. Steps for synchronizing to the Interconnection (EOP-005 R8) should be rated as High however the entire plan should not.

5. The SDT has added an Implementation Plan. Do you agree with the proposed Implementation Plan? If not, please identify specifically what you feel needs to be modified in the comment area.

Yes

Comment Form for 2nd Draft of Standards for System Restoration and Blackstart (Project 2006-03)

No

Comments: The timing of the phased in implementation appears to cause confusion.

How can an entity comply with R 4 and 5 (update its restoration plan, and have a copy of its restoration plan in the control center) if it isn't even required to have one? How can an entity be responsible for implementing its restoration plan (R7) if R1 isn't required for another 15 months?

Suggest making 12 months after regulatory approvals the effective date for all requirements.

Other Comments: R9 still does not address the question as to if there are there any fuel supply requirements for a Blackstart Resource? The test should indicate if the test must be performed on the fuel that would be used during a blackstart. Must the fuel supply be able to support a certain length of operation without support from the BES? Are pipelines acceptable sources, or are their certain requirements that would apply if a pipeline were the fuel supply?

The phrase in EOP-005 & 006 R1.6 regarding the ability for the operator to use judgment is not appropriate. Each entities' procedures and policies should dictate the operator actions when conditions outside of studied conditions occur. Consider changing the statement to read "...the System Operator will follow its entity's policy to deviate from the System restoration plan" or strike it entirely.

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| Individual Commenter Information | | |
|--|-------------------------------------|---|
| (Complete this page for comments from one organization or individual.) | | |
| Name: | Chris Scanlon | |
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| E-mail: | christopher.scanlon@exeloncorp.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) |
| <input type="checkbox"/> ERCOT | <input checked="" type="checkbox"/> | 1 — Transmission Owners |
| <input type="checkbox"/> FRCC | <input type="checkbox"/> | 2 — RTOs and ISOs |
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Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

1. The SDT has changed the title and purpose of both standards in order to clarify what is meant by restoration in these standards. Does this change sufficiently clarify the intent? If not, please explain in the comment area.

Yes

No

Comments: Please clarify EOP-005, R2.

Who are the "entities"? Where is it specified who the restoration plan must be distributed to?

R2. Each Transmission Operator, in order to ensure the reliability of the Interconnection, shall distribute its approved restoration plan to the entities identified in its restoration plan, and to its Reliability Coordinator.

Note that that in EOP-006, R2 says:

R2. The Reliability Coordinator, to ensure the reliability of the Interconnection, shall distribute its Reliability Coordinator Area restoration plan to its Transmission Operators, Balancing Authorities, and neighboring Reliability Coordinators.

Are the "entities" in EOP-005 R2 the Transmission Operators, Balancing Authorities, and neighboring Reliability Coordinators from R2 EOP-006?

Proposed R2. for EOP-005

Each Transmission Operator, in order to ensure the reliability of the Interconnection, shall distribute its approved restoration plan to the Balancing Authorities, Reliability Coordinator and neighboring Reliability Coordinators.

2. The SDT has attempted to clarify when restoration ends in both standards as part of R1. Do you agree with this change? If not, please explain in the comment area.

Yes

No

Comments:

3. The SDT has clarified EOP-005-2, R10 to emphasize exactly which field switching personnel need to be trained. Do you agree with this change? If not, please explain in the comment area.

Yes

No

Comments:

Comment Form for 2nd Draft of Standards for System Restoration and Blackstart (Project 2006-03)

4. The SDT has added Violation Risk Factors and Time Horizons to both standards. Do you agree with the assignments made? If not, please explain in the comment area.

Yes

No

Comments:

5. The SDT has added an Implementation Plan. Do you agree with the proposed Implementation Plan? If not, please identify specifically what you feel needs to be modified in the comment area.

Yes

No

Comments:

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| Individual Commenter Information | | |
|--|-------------------------------------|---|
| (Complete this page for comments from one organization or individual.) | | |
| Name: | Sam Ciccone | |
| Organization: | FirstEnergy Corp. | |
| Telephone: | (330) 252-6383 | |
| E-mail: | sciccone@firstenergycorp.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) |
| <input type="checkbox"/> ERCOT | <input checked="" type="checkbox"/> | 1 — Transmission Owners |
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1. The SDT has changed the title and purpose of both standards in order to clarify what is meant by restoration in these standards. Does this change sufficiently clarify the intent? If not, please explain in the comment area.

Yes

No

Comments:

EOP-005: The purpose should be revised as follows to more accurately reflect the functionality of the standard. "Ensure plans and Facilities are established, and the roles and responsibilities of personnel are clearly defined to enable System restoration from Blackstart Resources to ensure reliability is maintained during restoration and priority is placed on restoring the Interconnection." Comment: A restoration plan does not ensure that personnel are in place. It can only define roles and responsibilities. The operators must ensure the personnel are in place when needed.

EOP-006: The purpose should be revised as follows to more accurately reflect the functionality of the standard. "Ensure plans, and Facilities are established and the roles and responsibilities of personnel are clearly defined to enable effective coordination of the System restoration from Blackstart Resources to ensure reliability is maintained during restoration and priority is placed on restoring the Interconnection." Comment: A restoration plan does not ensure that personnel are in place. It can only define roles and responsibilities. The Reliability Coordinators must ensure the personnel are in place when needed.

2. The SDT has attempted to clarify when restoration ends in both standards as part of R1. Do you agree with this change? If not, please explain in the comment area.

Yes

No

Comments:

EOP-005 & EOP-006: We recommend the latter part of the second sentence of R1 be revised to, "... to a state of Complete Restoration." And we recommend that a definition section be added to EOP-005 and EOP-006 to include the following term specific to these standards:

Complete Restoration – The point in the restoration process whereby the choice of the next Load to be restored is not driven by the need to control frequency or voltage regardless of whether the Blackstart Resource is located within the Transmission Operator's System or an adjacent system"

3. The SDT has clarified EOP-005-2, R10 to emphasize exactly which field switching personnel need to be trained. Do you agree with this change? If not, please explain in the comment area.

Yes

No

Comment Form for 2nd Draft of Standards for System Restoration and Blackstart (Project 2006-03)

Comments:

We believe question 3 above should be referencing "R12" instead of "R10"

R12 Comments:

We do not support this requirement. FE's field switching personnel do not independently perform transmission switching without taking direction from our transmission operations staff. It is FE's view that our field personnel do not need to be trained in the "big picture view" of system restoration and that the tasks required of them would not be significantly different than switching steps performed during normal operations.

If these requirements remain, then we ask the SDT to give examples of system restoration field-switching tasks that would be "unique" and outside of "normal" tasks.

4. The SDT has added Violation Risk Factors and Time Horizons to both standards. Do you agree with the assignments made? If not, please explain in the comment area.

Yes

No

Comments:

5. The SDT has added an Implementation Plan. Do you agree with the proposed Implementation Plan? If not, please identify specifically what you feel needs to be modified in the comment area.

Yes

No

Comments:

At first glance the implementation plan does not seem to flow correctly from a timeline perspective; for example, in EOP-005 it seemed as though implementing a restoration plan after a system disturbance (R7) cannot be accomplished without an approved restoration plan (R1). But after further deliberation, we believe the SDT was merely trying to assure that, per R7, "a" plan is available and in place while the final, fine-tuned, and RC approved plan is still being completed per R1.

6. {WE HAVE ADDED A QUESTION 6 TO CAPTURE OUR ADDITIONAL COMMENTS AND CONCERNS}

EOP-005-2:

Blackstart Resource Definition - Comment: We believe the definition can be more simplistic and still cover the meaning of this term. The present definition is unnecessarily wordy and prescriptive. We suggest the following Definition: "A generation Facility under the control of the Generator Operator with the ability to start itself without support from the System and that meets the obligations of the restoration plan of the Transmission Operator."

R1.1 appears to be a duplication of NPIR information required in NUC-001. Consequently, R1.1. should be revised to state, "A reference to the documents and procedures containing the NPIR information for each Nuclear Plant in the Transmission Operator area of responsibility developed under NUC-001." There should not be any need to duplicate this information in total in the restoration plan under this standard.

R1.3. Comment: Use of the term characteristics is ambiguous and may leave room for interpretation. We suggest removing this term and rewording R1.3 as follows: "Identification of each Blackstart Resource, the name of the Blackstart Resource, location, megawatt and megavar capacity, and type of unit."

R1.6: Should be revised to say, "A statement that the System Operator shall use professional judgment to deviate from the System restoration plan in situations where the actual conditions do not match the studied conditions contained in the restoration plan. Comment: Revised to improve clarity.

R2.0: Comment: This requirement may be problematic in that the restoration plan will contain detailed transmission information and this requirement means that the Transmission Operator must distribute this plan to "entities identified in its restoration plan." These entities may include affiliated merchant function groups. We are concerned that this requirement may violate FERC Code of Conduct rules.

R3.1: Comment: The phrase, "in writing" should be inserted after "confirm annually" to establish and ensure an audit trail for this requirement.

R6.1: Should be revised to say, "The ability of Blackstart Resources to meet the Real and Reactive Power requirements of the Cranking Paths and to supply initial Loads." Comment: Real power requirements in a blackstart situation are every bit as critical as reactive requirements.

R7.1: Should be revised to say, "Each affected Transmission Operator shall reach agreement with its Reliability Coordinator on the extent and condition of the isolated area(s)." Comment: Requirements should have a specific desired outcome identified. Working "in conjunction" with a Reliability Coordinator does not specify the desired outcome.

R7.2 should be revised to say, "Each affected Transmission Operator shall restore off-site power to nuclear power plants in agreement with reliability standard NUC-001 and in accordance with its restoration plan or as directed by the Reliability Coordinator when conditions are not as describe in the restoration plan." Comment: The restoration plans include meeting offsite power requirements of nuclear power plants in accordance with

the NPIR from NUC-001. We should use those plans first and then rely on Reliability Coordinator directives when conditions are not as planned. Also, the phrase, "high priority" has been dropped from the proposed revision to R7.2 because it is ambiguous and lacks clarity of meaning. We feel that the only appropriate place for this phrase is in the purpose of the standard as a whole which is "... to ensure ... that priority is placed on restoring the interconnection."

R8: Should be revised to say, "Following a Disturbance in which one or more areas of the BES shuts down and the use of Blackstart Resources is required to restore the shut down area to service, each affected Transmission Operator shall resynchronize shut down area(s) with neighboring Transmission Operator area(s) only with the authorization of the Reliability Coordinator and the affected neighboring Transmission Operator(s) or in accordance with the established procedures of the Reliability Coordinator." Comment: We should not assume that the Reliability Coordinator has sufficiently communicated with neighboring control areas at a time when the system is weakened and vulnerable. Consequently, a communication with the neighboring control area during synchronization should be required.

R9.2.2.: The phrase "frequency monitors disconnected" should be changed to "frequency monitor controls disconnected" Comment: The controls inhibit energizing actions, not a monitoring system. In fact there may be an advantage to having the voltage monitoring system turned on for use in verifying the bus has indeed been energized.

R19. Should be revised to say, "Each Generator Operator shall participate in the Reliability Coordinator's restoration drills, exercises, or simulations as requested by the Reliability Coordinator or Transmission Operator." Comment: Considering the size of Reliability Coordinator Areas and the number of Generator Operator entities they may contain, it is advantageous to allow the Transmission Operator to extend the invitation to the drill on behalf of the Reliability Coordinator. Also, the Transmission Operator may wish to include an entity in the drill that the Reliability Coordinator had not considered.

EOP-006-2:

R1.6: Should be revised to say, "A statement that the System Operator shall use professional judgment to deviate from the System restoration plan in situations where the actual conditions do not match the studied conditions contained in the restoration plan." Comment: Revised to improve clarity.

R5.3: Should be revised to, "The Reliability Coordinator shall provide written notification to the Transmission Operator of its decision under R5.2 and provide reasons if disapproving a Transmission Operator's restoration plan." Comment: Revised to improve clarity.

R7. Should be revised to, " Following a Disturbance in which one or more areas of the BES shuts down and the use of Blackstart Resources is required to restore the shut down area to service, each Reliability Coordinator shall reach agreement(s) with affected Balancing Authorities, Generator Operators, and Transmission Operators as well as neighboring Reliability Coordinators on the actions to be taken to monitor restoration progress, coordinate restoration activities, and to restore the BES frequency within acceptable operating limits. Such actions may include, but are not limited to, directing the adjustment of generation, the placing of additional generators on line, or the shedding of Load." Comment: Revised to improve clarity and more accurately reflect the

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actions of the Reliability Coordinator. Furthermore, requirements should have a specific desired outcome identified. Working "in conjunction" with a Reliability Coordinator does not specify the desired outcome.

R10: Add requirement R10.3. Review of the restoration plan. Comment: The Reliability Coordinator develops a restoration plan from the plans provided by the Transmission Operators. They should be required to provide training on their plans.

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Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

1. The SDT has changed the title and purpose of both standards in order to clarify what is meant by restoration in these standards. Does this change sufficiently clarify the intent? If not, please explain in the comment area.

Yes

No

Comments: We would recommend some slight simplification of the Purpose statements on both standards:

Purpose: Ensure plans and procedures are in place, and remain current, that enable reliable Interconnection restoration from Blackstart Resources.

2. The SDT has attempted to clarify when restoration ends in both standards as part of R1. Do you agree with this change? If not, please explain in the comment area.

Yes

No

Comments:

3. The SDT has clarified EOP-005-2, R10 to emphasize exactly which field switching personnel need to be trained. Do you agree with this change? If not, please explain in the comment area.

Yes

No

Comments: R12, not R10 identifies training requirements for field switching personnel.

4. The SDT has added Violation Risk Factors and Time Horizons to both standards. Do you agree with the assignments made? If not, please explain in the comment area.

Yes

No

Comments: EOP-005 R1. requires a document. A lack of a document would never lead to cascading outage or prevent restoration (Medium at amost). R3 and R4 should be Lower. R6 should be Lower, any requirement with a 5 year cycle is inherently Lower. R8 is a performance requirement and critical during restoration, therefore should be High. R11 should be Lower as this is an administrative requirement on training. R14 requires an "Agreement" and is therefore administrative and should be Lower. R15 is procedural and should be at most Medium. R18 is an administrative training requirement is should therefore be Lower.

EOP-006, R3, R4 and R5 are all administrative requirements and should therefore all be Lower

Comment Form for 2nd Draft of Standards for System Restoration and Blackstart (Project 2006-03)

5. The SDT has added an Implementation Plan. Do you agree with the proposed Implementation Plan? If not, please identify specifically what you feel needs to be modified in the comment area.

Yes

No

Comments: The Implementation Plan does not address the retirement of EOP-007 and EOP-009 which is a key element of these standard revisions. The Plan will also introduce confusion for Compliance and Enforcement. It may be simpler to make the whole standard effective 21 months after regulatory approval so that all parties involved (entities and compliance) understand which requirements will be audited to, especially during the transition to the revised versions of EOP-005 and 006.

** Additional Comments (not related to question 5): **

EOP-005, R2, suggest removing "to ensure the reliability of the interconnection" from the requirement as extraneous and redundant.

EOP-005 and 006, R3, request that the DT select either "annual" OR "rolling 365 days" since having both establishes a definition for "annual" with wide ranging impacts across various other standards.

EOP-005 R8, has a provision for re-synchronization with established procedures of the RC, while EOP-006 R8 does not have the same provision. We feel this may cause confusion.

EOP-006 R5.2, imposing a 30 day review requirement on the RC will impose a significant administrative and logistical burden on the RCs. we recommend that this be a 90 day review requirement which is consistent with the RC plan review requirement.

Comment Form for 2nd Draft of Standards for System Restoration and Blackstart (Project 2006-03)

Please use this form to submit comments on the 2nd draft of the standards for System Restoration and Blackstart (Project 2006-03). Comments must be submitted by **February 5, 2008**. You may submit the completed form by e-mail to sarcomm@nerc.net with the words "SRB Standards" in the subject line. If you have questions please contact Ed Dobrowolski at ed.dobrowolski@nerc.net or by telephone at 609-947-3673.

| Individual Commenter Information | | |
|--|-------------------------------------|---|
| (Complete this page for comments from one organization or individual.) | | |
| Name: | Alessia Dawes | |
| Organization: | Hydro One Networks | |
| Telephone: | 416-345-5286 | |
| E-mail: | alessia.dawes@hydroone.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) |
| <input type="checkbox"/> ERCOT | <input checked="" type="checkbox"/> | 1 — Transmission Owners |
| <input type="checkbox"/> FRCC | <input type="checkbox"/> | 2 — RTOs and ISOs |
| <input type="checkbox"/> MRO | <input checked="" type="checkbox"/> | 3 — Load-serving Entities |
| <input checked="" type="checkbox"/> NPCC | <input type="checkbox"/> | 4 — Transmission-dependent Utilities |
| <input type="checkbox"/> RFC | <input type="checkbox"/> | 5 — Electric Generators |
| <input type="checkbox"/> SERC | <input type="checkbox"/> | 6 — Electricity Brokers, Aggregators, and Marketers |
| <input type="checkbox"/> SPP | <input type="checkbox"/> | 7 — Large Electricity End Users |
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Comment Form for 2nd Draft of Standards for System Restoration and Blackstart (Project 2006-03)

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The draft standards, EOP-005-2 and EOP-006-2, should be reviewed as a set when providing comments.

The System Restoration and Blackstart Drafting Team would like to receive industry comments on this group of standards. Accordingly, we request that you include your comments on this form and e-mail to sarcomm@nerc.net with the subject "SRB Standards" by **February 5, 2008**.

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 SDT has changed the title and purpose of both standards in order to clarify what is meant by restoration in these standards. Does this change sufficiently clarify the intent? If not, please explain in the comment area.

Yes

No

Comments: EOP-005-2 keep consistent the document header and title.

The definition of Blackstart Resource (EOP-005-2) should be changed to remove the term 'de-energized' as this term is synomous with isolation/clearance procedures and could be misconstrued as the dead bus being grounded. Suggest complete removal of term or replace with 'off-potential'. EOP-006-2 R8 - the use of the term isolated is incorrect. In terms of safety, isolation is defined as seperated from sources of energy using visible devices (switches, valaves, etc.) - suggest using 'stable' or 'islanded' as an alternative.

2. The SDT has attempted to clarify when restoration ends in both standards as part of R1. Do you agree with this change? If not, please explain in the comment area.

Yes

No

Comments: While we agree the standard better clarifies the point at which you are out of true restoration activities and moving toward normal equipment and load operation to restore power, we have a concern with the idea that Blackstart Resources will get you to the point of the next Load being restored is not driven by the need to control frequency or voltage. Blackstart is used to start a unit(s), and energize out from the adjacent station to the next station on the path. The term cranking path is correct in that we are starting the system. Once begun, ensuring reliability is maintained is beyond Blackstart in its purest sense.

3. The SDT has clarified EOP-005-2, R10 to emphasize exactly which field switching personnel need to be trained. Do you agree with this change? If not, please explain in the comment area.

Yes

No

Comments: It is actually R12 in our copy version.

4. The SDT has added Violation Risk Factors and Time Horizons to both standards. Do you agree with the assignments made? If not, please explain in the comment area.

Yes

No

Comments:

Comment Form for 2nd Draft of Standards for System Restoration and Blackstart (Project 2006-03)

EOP-005-2 R11: The Time Horizon should be Operations Planning as this requirement deals with the operator training program.

EOP-005-2 R18: The VRF for this requirement should be the same as the VRF of R12 as both deal with providing training to personnel responsible for critical restoration tasks. Recommend a Medium VRF.

EOP-006-2 R9: The VRF should be Medium for this requirement as being the primary contact for disseminating information is critical in an extreme event.

5. The SDT has added an Implementation Plan. Do you agree with the proposed Implementation Plan? If not, please identify specifically what you feel needs to be modified in the comment area.

Yes

No

Comments:

Requirement comments:

1- EOP-005-2 R1.6 uses the term "System Operator" which is not an entity in the NERC Reliability Functional Model. Suggest changing it to "Transmission Operator" or else clarify the intent of the requirement.

2- EOP-005-2 R11.1 suggest adding "System restoration philosophy including coordination with the Reliability Coordinator and Generator Operators included in the restoration plan.

3- EOP-006-2 R1.6 uses the term "System Operator". Since this is not an entity in the NERC Reliability Functional Model there is a potential for confusion as to who will make the judgment e.g. Transmission Operator or Reliability Coordinator?

4 - We do not agree with the term 'professional judgement' and its implied context (ref. EOP-005-2 R1.6 and EOP-006-2 R1.6). We suggest using the phrase "good utility practise". We also do not agree with the idea that the restoration plan must match studies conditions - this is not the case. What would be more prudent is to identify that the restoration plan is studied to assure viability.

5 - EOP-005-2 M7 and M8 and EOP-006-2 M7, M8, M9 - We do not produce copies of voice recordings due to privacy. We do provide transcripts of the recordings as they pertain to the event, but no actual recordings. Perhaps this should be re-worded in case others have the same philosophy.

6 - EOP-005-2 R6.2: Revise to "The Loads required to stabilize the system or a part of the system to a sustainable operating state where the system exhibits stable frequency within acceptable voltage limits."

7 - EOP-005-2 R16: Reduce the number of days in which a GOP must notify the TOP of known changes to Blackstart Resources. Suggest wording such as "... no more than 24 hours of the Generator Operator becoming aware of the capability change ..."

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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 (check all Regions in which your company operates) | | Registered Ballot Body Segment (check all industry segments in which your company is registered) |
| <input type="checkbox"/> ERCOT | <input type="checkbox"/> | 1 — Transmission Owners |
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Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

1. The SDT has changed the title and purpose of both standards in order to clarify what is meant by restoration in these standards. Does this change sufficiently clarify the intent? If not, please explain in the comment area.

Yes

No

Comments:

EOP-005

We agree with the revision to the purpose but not the title, which should remain as [System Restoration "and" Blackstart Resources], as in the heading but not "from" in the Title.

EOP-006

The Heading and the Title are the same in this case but we believe they both should be changed to "System Restoration and Blackstart Resources" since there are requirements assigned to the operator of the Blackstart Resources. The subject of this standard is not just System Restoration; its testing and readiness of Blackstart Resources as well.

2. The SDT has attempted to clarify when restoration ends in both standards as part of R1. Do you agree with this change? If not, please explain in the comment area.

Yes

No

Comments:

3. The SDT has clarified EOP-005-2, R10 to emphasize exactly which field switching personnel need to be trained. Do you agree with this change? If not, please explain in the comment area.

Yes

No

Comments: If you meant R12.

4. The SDT has added Violation Risk Factors and Time Horizons to both standards. Do you agree with the assignments made? If not, please explain in the comment area.

Yes

No

Comments: We agree with all of the VRFs and Time Horizon except the followings:

EOP-005

R11: The Time Horizon should be Operations Planning since this requirement deals with inclusion of restoration training in the operator training program.

R14: The VRF should be low. Not having a documented agreement on the arrangement of utilizing the Blackstart resource has no higher impact on reliability than its R2, R5 and R10 counterparts.

R18: The VRF for this requirement (Medium) should be consistent with that of R12 (Lower) since both deal with providing 2-hour training to the personnel responsible for performing critical tasks during system restoration.

EOP-006

R9: A Reliability Coordinator serving as the primary contact for disseminating information regarding restoration to neighboring Reliability Coordinators, and to operating entities within its RC area is critical to ensuring consistent and correct information among all parties involved in system restoration. The VRF for this requirement should be a Medium, not a Lower.

5. The SDT has added an Implementation Plan. Do you agree with the proposed Implementation Plan? If not, please identify specifically what you feel needs to be modified in the comment area.

Yes

No

Comments:

(A) We generally agree with the Implementation Plan. However, there are no specific dates proposed in the plan and hence we are unable to fully assess the implementation timeline. Also, the compliance elements have not been developed; this may take some time. Further, implementation dates should not be tied to regulatory approval but rather specific dates defined that will ensure the same implementation dates north –American wide. This is particularly important for jurisdictions that implement standards without regulatory approval being necessary.

(B) Since this form does not provide a question or area for comments on the requirements, we would provide our comments on individual requirements below:

EOP-005

R2: The phrase "in order to ensure the reliability of the Interconnection" is not needed since this is covered by the purpose.

R9.2.2

"Dead" bus is not defined and may be subject to different interpretations. "De-energized", on the other hand, may be interpreted as a grounded bus. We'd therefore suggest replacing the term "dead (de-energized)" to "off-potential".

R12: This requirement holds the TOP responsible for providing 2 hours training annually to field switching personnel identified as performing unique tasks associated with the

restoration plan that are not normally required. Under certain situations (not planned), personnel other than those having received training may need to be called upon to perform switching to restore the system. Would R12 preclude these personnel from being allowed to perform the needed switching? If, under pressing situations, these personnel were indeed called upon to perform switching, would the TOP be deemed violating this standard? If R12 remains as is, the standard needs to be clear on the requirement on who can and cannot perform these switching tasks, and the consequence for the TOP for deploying non-trained personnel to perform switching during restoration.

R16: It is the IESO's view that 90 days is far too long before notifying the TOP of known changes to the capability of a Blackstart Resource. We believe that notifications should be made promptly with a detailed follow-up within 30 calendar days by the GOP. We suggest that the requirement be rewritten as "Each Generator Operator of a Blackstart Resource shall promptly, for all events within five minutes, subject only to delay necessitated by concerns for the safety of equipment, employees, the public or the environment, notify its Transmission Operator of any known changes to the capabilities of that Blackstart Resource. The Generator Operator should provide a detailed report on the change or limitation and a mitigation plan, if one is required, to the Transmission Operator, as soon as possible but not exceeding 30 calendar days from the initial notification. [Violation Risk Factor = Medium] [Time Horizon = Operations Planning]"

R18: Does the time spent performing a black start test, or for that matter a real time event count towards the 2 hour training requirement for generator black start operators? If so, please clarify it in the standard.

EOP-006

R2: The phrase "to ensure the reliability of the Interconnection" is not needed since this is covered by the purpose.

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| Individual Commenter Information | | |
|--|-------------------------------------|---|
| (Complete this page for comments from one organization or individual.) | | |
| Name: | Kathleen Goodman | |
| Organization: | ISO New England Inc. | |
| 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) |
| <input type="checkbox"/> ERCOT | <input type="checkbox"/> | 1 — Transmission Owners |
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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 SDT has changed the title and purpose of both standards in order to clarify what is meant by restoration in these standards. Does this change sufficiently clarify the intent? If not, please explain in the comment area.

Yes

No

Comments:

EOP-005

We believe the title, which should remain as [System Restoration "and" Blackstart Resources].

EOP-006

We believe the Heading and the Title should both be changed to "System Restoration and Blackstart Resources" since there are requirements assigned to the operator of the Blackstart Resources. The subject of this standard is not just System Restoration; it is testing and readiness of Blackstart Resources as well.

2. The SDT has attempted to clarify when restoration ends in both standards as part of R1. Do you agree with this change? If not, please explain in the comment area.

Yes

No

Comments:

The definition in 006 is not exactly the same as the definition in 005. R1 in EOP-006 includes a qualifier "for an event that requires the utilization of Blackstart Resources." This is not in R1 for standard 005. This qualifier seems redundant with what is already provided in the rest of R1. We suggest this qualifier be deleted from R1 of EOP-006.

We also suggest that R1 be revised to describe the end state of a Blackstart, not system restoration, by saying: "...to a state whereby Blackstart Resources have been utilized to build electrical islands that exhibit stable frequency and acceptable voltages, and any remaining load can be restored through normal system restoration practices, regardless of where the Blackstart Resource is located."

3. The SDT has clarified EOP-005-2, R10 to emphasize exactly which field switching personnel need to be trained. Do you agree with this change? If not, please explain in the comment area.

Yes

No

Comments: If you meant R12.

Comment Form for 2nd Draft of Standards for System Restoration and Blackstart (Project 2006-03)

4. The SDT has added Violation Risk Factors and Time Horizons to both standards. Do you agree with the assignments made? If not, please explain in the comment area.

Yes

No

Comments: We agree with all of the VRFs and Time Horizon except the followings:

EOP-005

R1: The VRF should be medium. Failure to have a formal restoration plan approved by the RC does not lead directly to a failure of the BES.

R11: The Time Horizon should be Operations Planning since this requirement deals with inclusion of restoration training in the operator training program.

R14: The VRF should be low. Not having a documented agreement on the arrangement of utilizing the Backstart Resource is not a risk to the BES, and has a lower reliability impact than its R2, R5 and R10 counterparts.

R15: The VRF should be Lower. It is also a requirement to have a document. Failure to have documented procedures does not mean that the GOP is not capable of starting a Blackstart Resource and energizing a dead bus.

R18: The VRF for this requirement (Medium) should be consistent with that of R12 (Lower) since both deal with providing a 2-hour training to the personnel responsible for performing critical tasks during system restoration.

EOP-006

R1: The VRF should be medium. Failure to have an RC restoration plan does not lead directly to a failure of the BES. The TOP plans will still work but not as efficiently. If this was not the case, how did TOPs ever recover from a blackout prior to the introduction of the RC function.

R5: The VRF should be lower. Failure of the RC to review the TOP plans will only result in inefficient restoration.

R9: The VRF for this requirement should be a Medium, not a Lower. A Reliability Coordinator serving as the primary contact for disseminating information regarding restoration to neighboring Reliability Coordinators, and to operating entities within its RC area is critical to ensuring consistent and correct information among all parties involved in system restoration.

5. The SDT has added an Implementation Plan. Do you agree with the proposed Implementation Plan? If not, please identify specifically what you feel needs to be modified in the comment area.

Yes

No

Comments:

(A) We generally agree with the Implementation Plan. However, there are no specific dates proposed in the plan and hence we are unable to fully assess the implementation timeline. Also, the compliance elements have not been developed; this may take some time. Further, implementation dates should not be tied to regulatory approval but rather specific dates defined that will ensure the same implementation dates North American-wide. This is particularly important for jurisdictions that implement standards without requiring regulatory approval.

(B) Since this form does not provide a question or area for comments on specific details in the Standards:

ISO New England believes the BAs needs to be identified in the Applicability of these Standards. The Functional Model identifies the BA tasks as "Must have control of any of the following combinations within a Balancing Authority Area: Load and generation (an isolated system)"..."Operate its Balancing Authority Area to maintain load-interchange-generation balance."...and..."Implement emergency procedures."

EOP-005

R2: The phrase "in order to ensure the reliability of the Interconnection" is not needed since this is already covered by the Purpose.

R6.2: This requirement needs to be revised to reflect the proposed revised description in R1 (see our comments under Q2, above) pertaining to to the end state of blackstart. We suggest R6.2 to be revised to: "The Loads required to stabilize the system or a part of the system until it achieves a sustainable operating state that exhibits stable frequency and acceptable voltages."

R12: This requirement holds the TOP responsible for providing 2 hours training to field switching personnel identified as performing unique tasks associated with the restoration plan that are not normally required. Under certain situations (not planned), personnel other than those trained may need to be called upon to perform switching to restore the system. Would this training requirement preclude these personnel from being allowed to perform the needed switching? If, under pressing situations, these personnel are called upon to perform switching, would the TOP be deemed violating this standard? The standard needs to be clear on the requirement on who can and cannot perform these switching tasks, and the consequence of the TOP asking non-trained personnel to perform switching during restoration.

R16: It is ISO New England's belief that 90 days is far too long before notifying the TOP of known changes to the capability of a Blackstart Resource. We believe that notifications ASAP and within 30 days of the GOP becoming aware of the capability changes is more appropriate.

EOP-006

R11: States "Each Reliability Coordinator shall conduct two System restoration drills, exercises, or simulations per calendar year, which shall include the Transmission Operators and Generator Operators with Blackstart Resources in their area of responsibility as dictated by the particular scope of the drill, exercise, or simulation that is being conducted." Most RCs conduct one very comprehensive restoration exercise every year. It usually takes 3-4 months, if not longer, to prepare for it. We believe that quality should rule over quantity and would like to see this changed to a minimum of once a year. As such, we propose this requirement be revised to: "...Reliability

Comment Form for 2nd Draft of Standards for System Restoration and Blackstart (Project 2006-03)

Coordinator shall conduct at least one restoration drill, exercise, or simulation per calendar year..."

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Comments:

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We agree with the revision to the purpose but not the title, which should remain as [System Restoration "and" Blackstart Resources], as in the heading but not "from" in the Title.

EOP-006

The Heading and the Title are the same in this case but we believe they both should be changed to "System Restoration and Blackstart Resources" since there are requirements assigned to the operator of the Blackstart Resources. The subject of this standard is not just System Restoration; its testing and readiness of Blackstart Resources as well.

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Yes

No

Comments:

The definition in 006 is not exactly the same as the definition in 005. R1 in EOP-006 includes a qualifier "for an event that requires the utilization of Blackstart Resources". This is not in R1 for standard 005. This qualifier seems redundant with what is already provided in the rest of R1. We suggest this qualifier be deleted from R1 of EOP-006.

We also suggest that R1 be revised to describe the end state of a Blackstart, not system restoration, by saying: "...to a state whereby Blackstart Resources have been utilized to build electrical islands that exhibit stable frequency and acceptable voltages, and any remaining load can be restored through normal system restoration practices, regardless of where the Blackstart Resource is located."

3. The SDT has clarified EOP-005-2, R10 to emphasize exactly which field switching personnel need to be trained. Do you agree with this change? If not, please explain in the comment area.

Yes

No

Comments: If you meant R12.

Comment Form for 2nd Draft of Standards for System Restoration and Blackstart (Project 2006-03)

4. The SDT has added Violation Risk Factors and Time Horizons to both standards. Do you agree with the assignments made? If not, please explain in the comment area.

Yes

No

Comments: We agree with all of the VRFs and Time Horizon except the followings:

EOP-005

R1: The VRF should be medium. Failure to have a formal restoration plan approved by the RC does not lead directly to a failure of the BES.

R11: The Time Horizon should be Operations Planning since this requirement deals with inclusion of restoration training in the operator training program.

R14: The VRF should be low. Not having a documented agreement on the arrangement of utilizing the Backstart resource is not a risk to the BES, and has a lower reliability impact than its R2, R5 and R10 counterparts.

R15: The VRF should be Lower. It is also a requirement to have a document. Failure to have documented procedures does not mean that the GOP is not capable of starting a Blackstart Resource and energizing a dead bus.

R18: The VRF for this requirement (Medium) should be consistent with that of R12 (Lower) since both deal with providing a 2-hour training to the personnel responsible for performing critical tasks during system restoration.

EOP-006

R1: The VRF should be medium. Failure to have an RC restoration plan does not lead directly to a failure of the BES. The TOP plans will still work but not as efficiently. If this was not the case, how did TOPs ever recover from a blackout prior to the introduction of the RC function.

R5: The VRF should be lower. Failure of the RC to review the TOP plans will only result in inefficient restoration.

R9: The VRF for this requirement should be a Medium, not a Lower. A Reliability Coordinator serving as the primary contact for disseminating information regarding restoration to neighboring Reliability Coordinators, and to operating entities within its RC area is critical to ensuring consistent and correct information among all parties involved in system restoration.

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Yes

No

Comments:

(A) We generally agree with the Implementation Plan. However, there are no specific dates proposed in the plan and hence we are unable to fully assess the implementation timeline. Also, the compliance elements have not been developed; this may take some time. Further, implementation dates should not be tied to regulatory approval but rather specific dates defined that will ensure the same implementation dates north –American wide. This is particularly important for jurisdictions that implement standards without requiring regulatory approval.

(B) Since this form does not provide a question or area for comments on the requirements, we would provide our comments on individual requirements below:

EOP-005

R2: The phrase "in order to ensure the reliability of the Interconnection" is not needed since this is already covered by the Purpose.

R6.2: This requirement needs to be revised to reflect the proposed revised description in R1 (see our comments under Q2, above) pertaining to to the end state of blackstart. We suggest R6.2 to be revised to: "The Loads required to stabilize the system or a part of the system until it achieves a sustainable operating state that exhibits stable frequency and acceptable voltages."

R12: This requirement holds the TOP responsible for providing 2 hours training to field switching personnel identified as performing unique tasks associated with the restoration plan that are not normally required. Under certain situations (not planned), personnel other than those trained may need to be called upon to perform switching to restore the system. Would this training requirement precludes these personnel from being allowed to perform the needed switching? If, under pressing situations, these personnel are called upoin to perform switching, would the TOP be deemed violating this standard? The standard needs to be clear on the requirement on who can and cannot perform these switching tasks, and the consequence of the TOP asking non-trained personnel to perform switching during restoration.

R16: It is the SRC's view that 90 days is far too long before notifying the TOP of known changes to the capability of a Blackstart Resource. We believe that notifications ASAP and within 30 days of the GOP becoming aware of the capability changes is more appropriate.

EOP-006

R11: It states "Each Reliability Coordinator shall conduct two System restoration drills, exercises, or simulations per calendar year, which shall include the Transmission Operators and Generator Operators with Blackstart Resources in their area of responsibility as dictated by the particular scope of the drill, exercise, or simulation that is being conducted." Most RCs conduct one very comprehensive restoration exercise every year. It usually takes 3-4 months, if not longer, to prepare for it. We believe that quality should rule over quantity and would like to see this changed to a minimum of once a year. As such, we propose this requirement be revised to: "...Reliability Coordinator shall conduct at least one restoration drill, exercise, or simulation per calendar year."

Comment Form for 2nd Draft of Standards for System Restoration and Blackstart (Project 2006-03)

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| 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 (check all Regions in which your company operates) | | Registered Ballot Body Segment (check all industry segments in which your company is registered) |
| <input type="checkbox"/> ERCOT | <input checked="" type="checkbox"/> | 1 — Transmission Owners |
| <input type="checkbox"/> FRCC | <input type="checkbox"/> | 2 — RTOs and ISOs |
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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 SDT has changed the title and purpose of both standards in order to clarify what is meant by restoration in these standards. Does this change sufficiently clarify the intent? If not, please explain in the comment area.

Yes

No

Comments:

2. The SDT has attempted to clarify when restoration ends in both standards as part of R1. Do you agree with this change? If not, please explain in the comment area.

Yes

No

Comments: It is not necessary to establish or define when the restoration efforts end. What is important in these standards is what is required to have effective restoration plans. The language to describe when a restoration effort has ended is out of place and does not fit with the final sentence introducing the elements of effective restoration plans.

3. The SDT has clarified EOP-005-2, R10 to emphasize exactly which field switching personnel need to be trained. Do you agree with this change? If not, please explain in the comment area.

Yes

No

Comments: Field switching personnel may not be the only personnel that may support a restoration effort. Consider generalizing the requirement to allow the entity to identify personnel who perform unique tasks and are appropriate for training in support of simulations of the restoration plan. I think the question was targeted to R12.

4. The SDT has added Violation Risk Factors and Time Horizons to both standards. Do you agree with the assignments made? If not, please explain in the comment area.

Yes

No

Comments:

EOP-005-2:

R2 is Lower so R3 should be Lower.

R8 is Medium and should be High. Resynchronization is no small action and can be fatal to a restoration effort if done improperly and without the approval of the RC who has a regional view. It is High for the RC in EOP-006-2, R8.

R14 is High and should be Lower. This is an administrative requirement and does not have a substantial impact on system operations.

Comment Form for 2nd Draft of Standards for System Restoration and Blackstart (Project 2006-03)

EOP-006-2:

R2 is Lower so R3 should be Lower.

R9 should be High. Dessiminating regional information is an important part of a successful restoration effort and in coordinating a successful restoration effort at a regional level.

5. The SDT has added an Implementation Plan. Do you agree with the proposed Implementation Plan? If not, please identify specifically what you feel needs to be modified in the comment area.

Yes

No

Comments:

Implementation comments:

This is confusing to me. The implementation plan for EOP-005-2 has the final plans coming last with training and modifications before that. I think it would make more sense to develop the plans and complete them first, followed by training, followed by reviewing and modifying the completed plans in appropriate implementation time frames after regulatory approval. EOP-006-2 has all the requirements implemented in 18 months after regulatory approval. I think the implementation plan should be similar to the comments for EOP-005-2 to develop the plans, followed by training, followed by reviewing and modifying in appropriate implementation time frames after regulatory approval. The implementation time frames proposed here may be a bit long considering entities have plans already established. This may be an area where the implementation time frame can be accelerated.

General Comments:

1. In EOP-005-2, requirement R3 clearly states the RC should be provided a copy of an entities emergency restoration plan. R2 also includes the RC as an entity an entity should provide a copy of its emergency restoration plan. I suggest removing the RC reference in R2.

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| Individual Commenter Information | | |
|--|-------------------------------------|---|
| (Complete this page for comments from one organization or individual.) | | |
| Name: | Joseph G. DePoorter | |
| Organization: | Madison Gas and Electric Company | |
| Telephone: | 608-252-1581 | |
| E-mail: | jdepooter@mge.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) |
| <input type="checkbox"/> ERCOT | <input type="checkbox"/> | 1 — Transmission Owners |
| <input type="checkbox"/> FRCC | <input type="checkbox"/> | 2 — RTOs and ISOs |
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Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

1. The SDT has changed the title and purpose of both standards in order to clarify what is meant by restoration in these standards. Does this change sufficiently clarify the intent? If not, please explain in the comment area.

Yes

No

Comments: For standard, EOP-005-2 Title across top of page is "system restoration AND blackstart resources" A.1. TITLE: states "system restoration FROM blackstart resources", this grammatical error needs to be corrected.

2. The SDT has attempted to clarify when restoration ends in both standards as part of R1. Do you agree with this change? If not, please explain in the comment area.

Yes

No

Comments:

3. The SDT has clarified EOP-005-2, R10 to emphasize exactly which field switching personnel need to be trained. Do you agree with this change? If not, please explain in the comment area.

Yes

No

Comments: (R12 contains information on training of field switching personnel) MGE understands the need for training and the need to have a well organized training program. Request that all training requirements be placed in the Personnel Performance, Training, and Qualifications (PER) NERC Standard section. This allows us and all entities who will have to live with the outcome of these Standards to be more organized and have one area to look for all NERC Training Requirements. To be compliant with a NERC Standard you are either in compliance or you are not. Reading FERC Order 693, paragraph 627, FERC sounds like they are placing more emphasis on training within the proposed standard than any other standard. I'm sure a regional entity will not view it that way when a registered entity is audited.

4. The SDT has added Violation Risk Factors and Time Horizons to both standards. Do you agree with the assignments made? If not, please explain in the comment area.

Yes

No

Comments:

Comment Form for 2nd Draft of Standards for System Restoration and Blackstart (Project 2006-03)

5. The SDT has added an Implementation Plan. Do you agree with the proposed Implementation Plan? If not, please identify specifically what you feel needs to be modified in the comment area.

Yes

No

Comments: Other comments:

1. R15 states "Each Generator Operator with a Blackstart Resource shall have documented procedures for starting the Blackstart Resource and energizing a dead (de-energized) bus."

A possible rewrite could be: (cap letter used to help the SDT) "Each Generator Operator with a Blackstart Resource shall have documented procedures for ITS OPERATING PERSONNEL RESPONSIBLE FOR starting the Blackstart Resource and energizing a dead (de-energized) bus."

This would then be complimented by:

R18 states "Each Generator Operator of a Blackstart Resource shall provide a minimum of two hours of training per year to each of its operating personnel responsible for the startup and synchronization of its Blackstart Resource generation units. The training program shall include the following...".

The first requirement sets the procedure then the second requirement sets that you need to train on it.

2. In R15 is the registered entity "Generator Operator" the same or different from R18 the "Generator Operator with operating personnel responsible for start up and synchronization"? R15 implies that the Generator Operator is the registered entity. R18 implies that the Generator Operator is the registered entity that has operating personnel. Clarification is requested.

3. R18.1 should be rewritten to "System restoration philosophy". The operating personnel responsible for the actual strat up of the blackstart unit will take their orders from control center personnel. If a company wants to go into transmission operator coordination then they can.

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| Individual Commenter Information | | |
|--|-------------------------------------|---|
| (Complete this page for comments from one organization or individual.) | | |
| Name: | Craig McLean | |
| Organization: | Manitoba Hydro | |
| Telephone: | 204 487 5517 | |
| E-mail: | cmclean@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) |
| <input type="checkbox"/> ERCOT | <input checked="" type="checkbox"/> | 1 — Transmission Owners |
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1. The SDT has changed the title and purpose of both standards in order to clarify what is meant by restoration in these standards. Does this change sufficiently clarify the intent? If not, please explain in the comment area.

Yes

No

Comments:

2. The SDT has attempted to clarify when restoration ends in both standards as part of R1. Do you agree with this change? If not, please explain in the comment area.

Yes

No

Comments:

3. The SDT has clarified EOP-005-2, R10 to emphasize exactly which field switching personnel need to be trained. Do you agree with this change? If not, please explain in the comment area.

Yes

No

Comments: The question should refer to R12 not R10.

To allow for times when personnel are not available for training, we think this should be changed to every two years.

4. The SDT has added Violation Risk Factors and Time Horizons to both standards. Do you agree with the assignments made? If not, please explain in the comment area.

Yes

No

Comments: EOP-005 and EOP-006 R8 in both standards talk about synchronizing with neighbouring areas but the VRF is different EOP-005 is medium, EOP-006 is high, I believe they should have the same VRF.

5. The SDT has added an Implementation Plan. Do you agree with the proposed Implementation Plan? If not, please identify specifically what you feel needs to be modified in the comment area.

Yes

No

Comments: For the Transmission Operators: It seems odd that the requirement to have a restoration plan would be after the requirement that requires implementation of its

Comment Form for 2nd Draft of Standards for System Restoration and Blackstart (Project 2006-03)

restoration plan. Same with the Generator Operators are required to test their blackstart resources before the requirement to have a documented procedure.

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|--|--------------------------|--|
| (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) |
| <input type="checkbox"/> ERCOT | <input type="checkbox"/> | 1 — Transmission Owners |
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*If more than one Region or Segment applies, please list all that apply. Regional acronyms and segment numbers are shown on prior page.

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1. The SDT has changed the title and purpose of both standards in order to clarify what is meant by restoration in these standards. Does this change sufficiently clarify the intent? If not, please explain in the comment area.

Yes

No

Comments:

2. The SDT has attempted to clarify when restoration ends in both standards as part of R1. Do you agree with this change? If not, please explain in the comment area.

Yes

No

Comments: The language "one or more areas" in Requirement 1 of both standards causes the sentence to be confusing. We recommend the following language for the sentence: "The restoration plan shall allow for restoring a shutdown area of the Functional Entity's System that requires the use of Blackstart Resources to a state ...".

3. The SDT has clarified EOP-005-2, R10 to emphasize exactly which field switching personnel need to be trained. Do you agree with this change? If not, please explain in the comment area.

Yes

No

Comments: EOP-005-2, R10 does not explain which field switching personnel needs to be trained. It explains to "distribute its Blackstart Resource testing requirements to each generator Operator in its area that operates a Blackstart Resource". R12 appears to spell out training requirements and they are satisfactory.

We also notice that R18 identifies training for generator operators of Blackstart Resources. We agree that these GOPs do need training. However, we suggest deleting the two hour requirement in R18 because the content of the training is specified in the subrequirements. As long as the training provided meets the training content requirement in R18, there is no need, and it is inappropriate, to specify a required duration for the training. This content requirement is measurable and there is no need for a training duration to be added just so the requirement can be measured in this manner.

4. The SDT has added Violation Risk Factors and Time Horizons to both standards. Do you agree with the assignments made? If not, please explain in the comment area.

Yes

No

Comment Form for 2nd Draft of Standards for System Restoration and Blackstart (Project 2006-03)

Comments: The VRF for EOP-005-02, R1 should be medium. Failure to have a formal restoration plan approved by the RC does not lead directly to a failure of the BES. EOP-005-2, R14 should be Lower. It is a requirement to have a document. Failure to have the document is not a risk to the BES. Failure to have an agreement presents no significant risk to the BES.. An agreement is not necessarily a document though per NERC glossary of terms. EOP-005-2, R15 should be Lower. It is also a requirement to have a document. Failure to have documented procedures does not mean that the GOP is not capable of starting a Blackstart Resource and energizing a dead bus. It simply means they haven't written the procedure down. Failure to document a procedure presents no significant risk to the BES. The VRF for EOP-006-2, R1 should be medium. Failure to have an RC restoration plan does not lead directly to a failure of the BES. The TOP plans will still work but not as efficiently. If this was not the case, how did TOPs ever recover from a blackout prior to the introduction of the RC function. The VRF for EOP-006-2, R5 should be lower. Failure of the RC to review the TOP plans will only result in inefficient restoration.

5. The SDT has added an Implementation Plan. Do you agree with the proposed Implementation Plan? If not, please identify specifically what you feel needs to be modified in the comment area.

Yes

No

Comments: The implementation plan for the standard EOP-005 is confusing, regardless of the type of entity. For example, a transmission operator has 21 months after regulatory approval of this EOP-005-2 standard to have an approved restoration plan (See R1) but R7 indicates that this transmission operator shall implement its restoration plan 6 months after regulatory approval of this EOP-005-2 standard.

It's our hope that both of the transmission operator and generator operator's restoration plans will be in synch with the associated reliability coordinator's restoration plan and that the reliability coordinator agrees to both of the transmission operator and generator operator restoration plans before they are implemented or utilized in any fashion.

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| Individual Commenter Information | | |
|--|-------------------------------------|---|
| (Complete this page for comments from one organization or individual.) | | |
| Name: | Terry Bilke | |
| Organization: | Midwest ISO | |
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| E-mail: | tbilke@midwestiso.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) |
| <input type="checkbox"/> ERCOT | <input type="checkbox"/> | 1 — Transmission Owners |
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1. The SDT has changed the title and purpose of both standards in order to clarify what is meant by restoration in these standards. Does this change sufficiently clarify the intent? If not, please explain in the comment area.

Yes

No

Comments:

EOP-005

We agree with the revision to the purpose but not the title, which should remain as [System Restoration "and" Blackstart Resources], as in the heading but not "from" in the Title.

EOP-006

The Heading and the Title are the same in this case but we believe they both should be changed to "System Restoration and Blackstart Resources" since there are requirements assigned to the operator of the Blackstart Resources. The subject of this standard is not just System Restoration; its testing and readiness of Blackstart Resources as well.

2. The SDT has attempted to clarify when restoration ends in both standards as part of R1. Do you agree with this change? If not, please explain in the comment area.

Yes

No

Comments:

The definition in 006 is not exactly the same as the definition in 005. R1 in EOP-006 includes a qualifier "for an event that requires the utilization of Blackstart Resources". This is not in R1 for standard 005. This qualifier seems redundant with what is already provided in the rest of R1. I suggest this qualifier be deleted from R1 of EOP-006.

We also suggest that R1 be revised to describe the end state of Black Start, not system restoration, by saying: "...to a state whereby Black Start Resources have been utilized to build electrical islands that exhibit stable frequency and acceptable voltages, and any remaining load can be restored through normal system restoration practices, regardless of whether the Blackstart Resource is located..."

3. The SDT has clarified EOP-005-2, R10 to emphasize exactly which field switching personnel need to be trained. Do you agree with this change? If not, please explain in the comment area.

Yes

No

Comments: If you meant R12.

Comment Form for 2nd Draft of Standards for System Restoration and Blackstart (Project 2006-03)

4. The SDT has added Violation Risk Factors and Time Horizons to both standards. Do you agree with the assignments made? If not, please explain in the comment area.

Yes

No

Comments: We disagree with the following:

R14: The VRF should be low. Not having a documented agreement on the arrangement of utilizing the Backstart resource has no higher impact on reliability than its R2, R5 and R10 counterparts.

R18: The VRF for this requirement (Medium) should be consistent with that of R12 (Lower) since both deal with providing 2-hour training to the personnel responsible for performing critical tasks during system restoration.

5. The SDT has added an Implementation Plan. Do you agree with the proposed Implementation Plan? If not, please identify specifically what you feel needs to be modified in the comment area.

Yes

No

Comments:

R14: This section requires that "Each Transmission Operator and Generator Operator with a Blackstart Resource shall have a written Blackstart Resource agreement document specifying the terms and conditions of their arrangement." Although in many cases TOPs will have such "documents" with GOPs, a vertically integrated TOP would not necessarily have a specific "document" for Blackstart Resources that it operates and owns. In addition, if a Reliability Coordinator develops a Blackstart Tariff schedule that specifies the terms and conditions under which testing and compensation for Blackstart services will occur, a TOP might also not have such an agreement with the GOP because the Reliability Coordinator's Tariff might be superceding. I suggest that the language in R14 be broadened to permit "or appropriate provisions in a Reliability Coordinator Tariff or in another third party agreement", rather than mandating that each TOP have such an agreement with GOPs.

We still have a concern that the drafting team is discounting the role of the Balancing Authority during restoration. During the initial stages of restoration, not only does frequency have to be controlled, but reserves must be distributed, specific generators need to be given frequency following instructions, while others are given load-carrying targets. Once islands are interconnected, one island manages frequency and the other manages flow on the interface. Are we sure that TOPs have the tools to do this?

Comment Form for 2nd Draft of Standards for System Restoration and Blackstart (Project 2006-03)

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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) |
| <input type="checkbox"/> ERCOT | <input type="checkbox"/> | 1 — Transmission Owners |
| <input type="checkbox"/> FRCC | <input type="checkbox"/> | 2 — RTOs and ISOs |
| <input type="checkbox"/> MRO | <input type="checkbox"/> | 3 — Load-serving Entities |
| <input type="checkbox"/> NPCC | <input type="checkbox"/> | 4 — Transmission-dependent Utilities |
| <input type="checkbox"/> RFC | <input type="checkbox"/> | 5 — Electric Generators |
| <input type="checkbox"/> SERC | <input type="checkbox"/> | 6 — Electricity Brokers, Aggregators, and Marketers |
| <input type="checkbox"/> SPP | <input type="checkbox"/> | 7 — Large Electricity End Users |
| <input type="checkbox"/> WECC | <input type="checkbox"/> | 8 — Small Electricity End Users |
| <input type="checkbox"/> NA – Not Applicable | <input type="checkbox"/> | 9 — Federal, State, Provincial Regulatory or other Government Entities |
| | <input type="checkbox"/> | 10 — Regional Reliability Organizations and Regional Entities |

Comment Form for 2nd Draft of Standards for System Restoration and Blackstart (Project 2006-03)

| Group Comments (Complete this page if comments are from a group.) | | | |
|---|---------------------------------------|----------------|-----------------|
| Group Name: | NSRS | | |
| Lead Contact: | Dave Rudolph | | |
| Contact Organization: | BEPC | | |
| Contact Segment: | 1,3,5,6 | | |
| Contact Telephone: | 701-355-5722 | | |
| Contact E-mail: | drudolph@bepc.com | | |
| Additional Member Name | Additional Member Organization | Region* | Segment* |
| Neal Balu | WPS | MRO | 3,4,5,6 |
| Terry Bilke | MISO | MRO | 2 |
| Robert Coish | MHEB | MRO | 1,3,5,6 |
| Carol Gerou | MP | MRO | 1,3,5,6 |
| Jim Haigh | WAPA | MRO | 1,6 |
| Ken Goldsmigh | ALTW | MRO | 4 |
| Tom Mielnik | MEC | MRO | 1,3,5,6 |
| Pam Oreschnick | XCEL | MRO | 1,3,5,6 |
| Eric Ruskamp | LES | MRO | 1,3,5,6 |
| Joseph Knight | GRE | MRO | 1,3,5,6 |
| Larry Brusseau | MRO | MRO | 10 |
| Michael Brytowski | MRO | MRO | 10 |
| 27 additional members | not memntioned above | MRO | 10 |
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*If more than one Region or Segment applies, please list all that apply. Regional acronyms and segment numbers are shown on prior page.

Comment Form for 2nd Draft of Standards for System Restoration and Blackstart (Project 2006-03)

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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 SDT has changed the title and purpose of both standards in order to clarify what is meant by restoration in these standards. Does this change sufficiently clarify the intent? If not, please explain in the comment area.

Yes

No

Comments: EOP-005-02 & EOP-006 - Clarify what "in place" means. The MRO has concerns that this would require additional staffing at substations or remote sites.

2. The SDT has attempted to clarify when restoration ends in both standards as part of R1. Do you agree with this change? If not, please explain in the comment area.

Yes

No

Comments: R1: (for both EOP-005-02 & EOP-006-02) The text is long and the sentence run on. Break the paragraph into shorter, more concise sentences. Throughout the standards, the words 'shut down' was used. The MRO believes an industry appropriate choice of words, like 'de-energized' is more appropriate.

3. The SDT has clarified EOP-005-2, R10 to emphasize exactly which field switching personnel need to be trained. Do you agree with this change? If not, please explain in the comment area.

Yes

No

Comments: EOP-005-02_R11, EOP-006-02_R10 should clarify that the control room personnel referenced are system operations control room personnel.

4. The SDT has added Violation Risk Factors and Time Horizons to both standards. Do you agree with the assignments made? If not, please explain in the comment area.

Yes

No

Comments:

5. The SDT has added an Implementation Plan. Do you agree with the proposed Implementation Plan? If not, please identify specifically what you feel needs to be modified in the comment area.

Yes

No

Comments: The MRO believes the time line for the implementation plan should be a stepped process with the transmission operator and generator operator restoration plan

Comment Form for 2nd Draft of Standards for System Restoration and Blackstart (Project 2006-03)

(EOP-005-02_R1) should be developed first, then training, maintenance, testing (EOP-005-02_R2-R19 & EOP-006-02_R2-R11) should follow, then followed finally by the reliability coordinator area restoration plan (EOP-006-02_R1). The transmission operator and generator operator restoration plans need to be approved prior to the reliability coordinator resotration plan.

General Comments:

EOP-005_R3: What was the SDT reason for using a rolling 365 day timeframe instead of a calendar year? The MRO is concerned that the rolling 365 day schedule will cause encroachment of the timeframe. The MRO suggests using rolling 13 months or 395 days to accomodate scheduling. The MRO is concerned the RC will be continully receiving and updating their restoration plan, causing each transmission operator to update their restoration plan. Due to this continual updating the system operators will find it difficult to train to the latest restoration plan.

EOP-005-02_R12: Please clarify the intent of this requirement. What would be considered "unique tasks" for field switching? The MRO believes that these switching orders are no different than non-restoration switching orders performed on a daily basis. Is the intent for training all field personnel?

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| Individual Commenter Information | | |
|--|-------------------------------------|---|
| (Complete this page for comments from one organization or individual.) | | |
| Name: | Rick White | |
| Organization: | Northeast Utilities | |
| Telephone: | 860-828-5820 | |
| E-mail: | whitefb@nu.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) |
| <input type="checkbox"/> ERCOT | <input checked="" type="checkbox"/> | 1 — Transmission Owners |
| <input type="checkbox"/> FRCC | <input type="checkbox"/> | 2 — RTOs and ISOs |
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Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

1. The SDT has changed the title and purpose of both standards in order to clarify what is meant by restoration in these standards. Does this change sufficiently clarify the intent? If not, please explain in the comment area.

Yes

No

Comments: EOP-005-2, Requirement R2 needs to be evaluated in light of confidentiality and critical energy infrastructure information. Overall plan can be shared, but specifics may need to reside in confidential appendices.

EOP-005-2, Requirement R6; propose re-wording as follows:

R6. Each Transmission Operator shall verify, through analysis, that its documented restoration plan accomplishes its intended function. This analysis can include analysis of actual events, physical testing of the plan, application of relevant technical publications or guidelines, or simulations of steady state, dynamic and switching surge performance. This shall be completed every five years at a minimum. Such analysis shall encompass: R6.1. , R6.2., R6.3., ... as proposed

2. The SDT has attempted to clarify when restoration ends in both standards as part of R1. Do you agree with this change? If not, please explain in the comment area.

Yes

No

Comments:

3. The SDT has clarified EOP-005-2, R10 to emphasize exactly which field switching personnel need to be trained. Do you agree with this change? If not, please explain in the comment area.

Yes

No

Comments: We believe the reference should be to R12 - And recommend it be rewritten as follows:

R12. Each Transmission Operator shall perform a job/task analysis for field switching personnel identified as performing unique tasks associated with its restoration plan and outside their normal task. Required training should be included in initial and continuing training programs for field personnel.

Explanation: NU follows the systematic approach to training, which is a Training industry standard followed by most training organizations and a recommended approach to determine training requirements by other federal agencies, such as the NRC. This approach would evaluate all field employees with field switching responsibilities to determine the knowledge and skills necessary to perform restoration requirements by job position. This process would identify both initial and continuing training requirements for job positions and assist NU in determining if changes are necessary to our apprentice programs, annual retraining programs, and/or any supervisor/manager training

Comment Form for 2nd Draft of Standards for System Restoration and Blackstart (Project 2006-03)

programs. The results of this analysis would also identify the method and setting (classroom/ field/simulator) of the training for each affected position. This approach also allows for differences between each operating company based on past labor practices, current system operating procedures, and adds rigor to the training program recommendations. This documented analysis would be used if job responsibilities for field personnel changed in the future.

4. The SDT has added Violation Risk Factors and Time Horizons to both standards. Do you agree with the assignments made? If not, please explain in the comment area.

Yes

No

Comments:

5. The SDT has added an Implementation Plan. Do you agree with the proposed Implementation Plan? If not, please identify specifically what you feel needs to be modified in the comment area.

Yes

No

Comments:

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| (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) |
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| Group Comments (Complete this page if comments are from a group.) | | | |
|---|--|----------------|-----------------|
| Group Name: | NPCC Regional Standards Committee | | |
| Lead Contact: | Guy V. Zito | | |
| Contact Organization: | NPCC | | |
| Contact Segment: | 10 | | |
| Contact Telephone: | 212-840-1070 | | |
| Contact E-mail: | gzito@npcc.org | | |
| Additional Member Name | Additional Member Organization | Region* | Segment* |
| Kathleen Goodman | ISO-New England | NPCC | 2 |
| Al Adamson | New York State Reliability Council | NPCC | 10 |
| Greg Campoli | New York ISO | NPCC | 2 |
| Roger Champagne | TransEnergie HydroQuebec | NPCC | 2 |
| David Kiguel | Hydro One Networks | NPCC | 1 |
| Mike Ranalli | National Grid US | NPCC | 1 |
| Ralph Rufrano | New York Power Authority | NPCC | 1 |
| Murale Gopinathan | Northeast Utilities | NPCC | 1 |
| Sylvain Clermont | TransEnergie HydroQuebec | NPCC | 1 |
| Donald Nelson | Commonwealth of MA Department of Public Utility | NPCC | 9 |
| Biju Gopi | The Independent Electric System Operator, Ontario | NPCC | 2 |
| Guy V. Zito | Northeast Power Coordinating Council | NPCC | 10 |
| Lee Pedowicz | Northeast Power Coordinating Council | NPCC | 10 |
| Edwin Thompson | Con Edison | NPCC | 1 |
| Randy MacDonald | New Brunswick System Operator | NPCC | 2 |
| Brian Gooder | Ontario Power Generation | NPCC | 5 |
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Comment Form for 2nd Draft of Standards for System Restoration and Blackstart (Project 2006-03)

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Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

1. The SDT has changed the title and purpose of both standards in order to clarify what is meant by restoration in these standards. Does this change sufficiently clarify the intent? If not, please explain in the comment area.

Yes

No

Comments:

EOP-005

We agree with the revision to the purpose but not the title, which should remain as [System Restoration "and" Blackstart Resources], as in the document header but not "from" in the Title. The subject of this standard is not just System Restoration; its testing and readiness of Blackstart Resources. To support the Purpose, plans and facilities need to be in place. There are currently no testing requirements for generation facilities "capable of remaining energized without connection to the remainder of the system". If these requirements are not developed, the Blackstart Resource definition needs to be modified.

EOP-006

The Header and the Title are the same in this case but we believe they both should be changed to "System Restoration and Blackstart Resources" since there are requirements assigned to the operator of the Blackstart Resources.

2. The SDT has attempted to clarify when restoration ends in both standards as part of R1. Do you agree with this change? If not, please explain in the comment area.

Yes

No

Comments:

The explanation of "restoration plan" appears to be a definition appropriate to be included in the NERC Glossary, furthermore the words appearing in EOP-006 are not the same as those in EOP-005, was this intentional because one standard applies to the RC and the other to TOP and GO? Could there be "one" common definition?

3. The SDT has clarified EOP-005-2, R10 to emphasize exactly which field switching personnel need to be trained. Do you agree with this change? If not, please explain in the comment area.

Yes

No

Comments: R12 references training of field personnel.

Comment Form for 2nd Draft of Standards for System Restoration and Blackstart (Project 2006-03)

4. The SDT has added Violation Risk Factors and Time Horizons to both standards. Do you agree with the assignments made? If not, please explain in the comment area.

Yes

No

Comments: We agree with all of the VRFs and Time Horizon except the followings:

EOP-005

R11: The Time Horizon should be Operations Planning since this requirement deals with inclusion of restoration training in the operator training program.

R18: The VRF for this requirement (Medium) should be consistent with that of R12 (Lower) since both deal with providing 2-hour training to the personnel responsible for performing critical tasks during system restoration.

EOP-006

R9: The VRF for this requirement should be a Higher or a Medium, not a Lower.

5. The SDT has added an Implementation Plan. Do you agree with the proposed Implementation Plan? If not, please identify specifically what you feel needs to be modified in the comment area.

Yes

No

Comments:

(A) We generally agree with the Implementation Plan. However, there are no specific dates proposed in the plan and hence we are unable to fully assess the implementation timeline. Also, the compliance elements have not been developed; this may take some time. Further, implementation dates should not be tied to regulatory approval but rather specific dates defined that will ensure the same implementation dates north –American wide. This is particularly important for jurisdictions that implement standards without requiring regulatory approval.

(B) Since this form does not provide a question or area for comments on the requirements, we would provide our comments on individual requirements below:

EOP-005

R6.2: Instead of the use of the phrase "until the restoration state has ended." NPCC participating members suggest R6.2 to be revised to: "The Loads required to stabilize the system or a part of the system until it achieves a sustainable operating state that exhibits stable frequency within acceptable voltages limits." This concept may also appear in the Restoration Plan definition or language in R1

R16: 90 days is far too long before notifying the TOP of known changes to the capability of a Blackstart Resource. We believe that notifications ASAP and in no cases after more than 24 hours of the GOP becoming aware of the capability changes is a more

Comment Form for 2nd Draft of Standards for System Restoration and Blackstart (Project 2006-03)

appropriate timeframe for the TOP to be made aware of a change. Also, would there be any benefit need to notify the RC at the same time the TOP is notified?

EOP-006

R11: It states "Each Reliability Coordinator shall conduct two System restoration drills, exercises, or simulations per calendar year, which shall include the Transmission Operators and Generator Operators as dictated by the particular scope of the drill, exercise, or simulation that is being conducted." Most TOPs conduct one very comprehensive restoration exercise every year. It usually takes 3-4 months, if not longer, to prepare for it. NPCC participating members believe that quality should rule over quantity and would like to see this changed to once a year. The proposal is to revise the requirement to: "...Reliability Coordinator shall conduct at least one system restoration drill, exercise, or simulation per calendar year."

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| Individual Commenter Information | | |
|---|-------------------------------------|---|
| (Complete this page for comments from one organization or individual.) | | |
| Name: | Scott R. Cunningham | |
| Organization: | Ohio Valley Electric Corporation | |
| Telephone: | 740-289-7225 | |
| E-mail: | scunning@ovec.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) |
| <input type="checkbox"/> ERCOT | <input checked="" type="checkbox"/> | 1 — Transmission Owners |
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Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

1. The SDT has changed the title and purpose of both standards in order to clarify what is meant by restoration in these standards. Does this change sufficiently clarify the intent? If not, please explain in the comment area.

Yes

No

Comments: Not sure what is meant by "personnel in place". Does this imply that personnel must be stationed 24X7 at all locations in the event restoration is required? It is also not clear how "reliability is maintained during restoration", since if we are in restoration mode, reliability is shot.

2. The SDT has attempted to clarify when restoration ends in both standards as part of R1. Do you agree with this change? If not, please explain in the comment area.

Yes

No

Comments: While the statement declaring that "restoration ends when the choice to add the next load is not based on the need to control frequency or voltage" is good, there are other sub requirements of R1 that are not addressed elsewhere in this comment form. R1.3 states that blackstart resources must be indentified by unit name. The definition of blackstart resource also includes any unit that is capable of remaining energized without connection to the system. This assumes that such a unit is on line at the time of the event, since not all such units are capable of being started without external sources of power. Thus the list of blackstart resources could change with the change in status of such a unit. This would require modification of the plan and submission to the RC for approval for every such change of status. This could happen very frequently, thus creating a great deal of work updating the plan and resubmitting it for RC approval.

3. The SDT has clarified EOP-005-2, R10 to emphasize exactly which field switching personnel need to be trained. Do you agree with this change? If not, please explain in the comment area.

Yes

No

Comments: This is R12, not R10. This requirement could apply to all field personnel since restoration activities would be considered to be "unique tasks" and "outside of their normal tasks", since (we hope) restoration is not something done routinely. It could be extremely burdensome to provide training to every individual who might concievablely be involved in restoration. Also, the language from FERC Order 693 cited by the SDT states, "System restoration requires the participation of not only control room personnel but also those outside of the control room. These include blackstart unit operators and field switching operators in situations where SCADA capability is unavailable. As such, the Commission believes that inclusion of periodic system restoration drills and training and review of restoration plans in a system restoration Reliability Standard is the most effective way of achieving the desired goal of ensuring

Comment Form for 2nd Draft of Standards for System Restoration and Blackstart (Project 2006-03)

that all participants are trained in system restoration and that the restoration plans are up to date to deal with system changes." This citation can be interpreted as a statement of the collective beliefs of the Commission, but there is no requirement language present in this citation.

4. The SDT has added Violation Risk Factors and Time Horizons to both standards. Do you agree with the assignments made? If not, please explain in the comment area.

Yes

No

Comments:

5. The SDT has added an Implementation Plan. Do you agree with the proposed Implementation Plan? If not, please identify specifically what you feel needs to be modified in the comment area.

Yes

No

Comments:

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| Individual Commenter Information | | |
|--|-------------------------------------|---|
| (Complete this page for comments from one organization or individual.) | | |
| Name: Stan Southers / Ellis Rankin | | |
| Organization: Oncor Electric Delivery Company LLC | | |
| Telephone: 214-486-2084 / 214-743-6825 | | |
| E-mail: stan.southers@oncor.com / erankin@oncor.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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| <input type="checkbox"/> SPP | <input type="checkbox"/> | 7 — Large Electricity End Users |
| <input type="checkbox"/> WECC | <input type="checkbox"/> | 8 — Small Electricity End Users |
| <input type="checkbox"/> NA – Not Applicable | <input type="checkbox"/> | 9 — Federal, State, Provincial Regulatory or other Government Entities |
| | <input type="checkbox"/> | 10 — Regional Reliability Organizations and Regional Entities |

Comment Form for 2nd Draft of Standards for System Restoration and Blackstart (Project 2006-03)

Background Information:

The System Restoration and Blackstart Drafting Team (SRB SDT) has made significant changes to the first posting of EOP-005-2 and EOP-006-2 based on comments received from the industry.

The draft standards, EOP-005-2 and EOP-006-2, should be reviewed as a set when providing comments.

The System Restoration and Blackstart Drafting Team would like to receive industry comments on this group of standards. Accordingly, we request that you include your comments on this form and e-mail to sarcomm@nerc.net with the subject "SRB Standards" by **February 5, 2008**.

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 SDT has changed the title and purpose of both standards in order to clarify what is meant by restoration in these standards. Does this change sufficiently clarify the intent? If not, please explain in the comment area.

Yes

No

Comments: Oncor endorses the changes made by the SRB SDT to the previous versions of the draft standards.

2. The SDT has attempted to clarify when restoration ends in both standards as part of R1. Do you agree with this change? If not, please explain in the comment area.

Yes

No

Comments:

3. The SDT has clarified EOP-005-2, R10 to emphasize exactly which field switching personnel need to be trained. Do you agree with this change? If not, please explain in the comment area.

Yes

No

Comments:

4. The SDT has added Violation Risk Factors and Time Horizons to both standards. Do you agree with the assignments made? If not, please explain in the comment area.

Yes

No

Comments:

5. The SDT has added an Implementation Plan. Do you agree with the proposed Implementation Plan? If not, please identify specifically what you feel needs to be modified in the comment area.

Yes

No

Comments:

Comment Form for 2nd Draft of Standards for System Restoration and Blackstart (Project 2006-03)

Please use this form to submit comments on the 2nd draft of the standards for System Restoration and Blackstart (Project 2006-03). Comments must be submitted by **February 5, 2008**. You may submit the completed form by e-mail to sarcomm@nerc.net with the words "SRB Standards" in the subject line. If you have questions please contact Ed Dobrowolski at ed.dobrowolski@nerc.net or by telephone at 609-947-3673.

| Individual Commenter Information | | |
|--|-------------------------------------|---|
| (Complete this page for comments from one organization or individual.) | | |
| Name: | Lauri Jones | |
| Organization: | Pacific Gas and Electric Company | |
| Telephone: | 415-973-0918 | |
| E-mail: | llj8@pge.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) |
| <input type="checkbox"/> ERCOT | <input checked="" type="checkbox"/> | 1 — Transmission Owners |
| <input type="checkbox"/> FRCC | <input type="checkbox"/> | 2 — RTOs and ISOs |
| <input type="checkbox"/> MRO | <input checked="" type="checkbox"/> | 3 — Load-serving Entities |
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Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

1. The SDT has changed the title and purpose of both standards in order to clarify what is meant by restoration in these standards. Does this change sufficiently clarify the intent? If not, please explain in the comment area.

Yes

No

Comments: In the EOP-005 title it is not the same as the header, caused a little discusstion.

2. The SDT has attempted to clarify when restoration ends in both standards as part of R1. Do you agree with this change? If not, please explain in the comment area.

Yes

No

Comments: Our concern is the clarification from when blackstart ends versus when restoration is complete. The standard only address when blackstart ends and should have further explanation on restoration.

3. The SDT has clarified EOP-005-2, R10 to emphasize exactly which field switching personnel need to be trained. Do you agree with this change? If not, please explain in the comment area.

Yes

No

Comments: The numbering seems to be off, so if you are referring to R12 then we agree, however, is R12 only associated with blackstart versus completion of restoration?

4. The SDT has added Violation Risk Factors and Time Horizons to both standards. Do you agree with the assignments made? If not, please explain in the comment area.

Yes

No

Comments:

5. The SDT has added an Implementation Plan. Do you agree with the proposed Implementation Plan? If not, please identify specifically what you feel needs to be modified in the comment area.

Yes

No

Comments: EOP-005-2 R12 for the TO should be changed to align with the RC and GO - 18months.

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| Individual Commenter Information | | |
|--|-------------------------------------|---|
| (Complete this page for comments from one organization or individual.) | | |
| Name: | David Thorne | |
| Organization: | Pepco | |
| Telephone: | 301-469-5211 | |
| E-mail: | dkthorne@pepco.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) |
| <input type="checkbox"/> ERCOT | <input checked="" type="checkbox"/> | 1 — Transmission Owners |
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1. The SDT has changed the title and purpose of both standards in order to clarify what is meant by restoration in these standards. Does this change sufficiently clarify the intent? If not, please explain in the comment area.

Yes

No

Comments: M2--Requires evidence such as emails with receipts or registered mail receipts. Suggest that it also specify that acknowledgement of receipt by the entity is acceptable evidence.

2. The SDT has attempted to clarify when restoration ends in both standards as part of R1. Do you agree with this change? If not, please explain in the comment area.

Yes

No

Comments:

3. The SDT has clarified EOP-005-2, R10 to emphasize exactly which field switching personnel need to be trained. Do you agree with this change? If not, please explain in the comment area.

Yes

No

Comments:

4. The SDT has added Violation Risk Factors and Time Horizons to both standards. Do you agree with the assignments made? If not, please explain in the comment area.

Yes

No

Comments:

5. The SDT has added an Implementation Plan. Do you agree with the proposed Implementation Plan? If not, please identify specifically what you feel needs to be modified in the comment area.

Yes

No

Comments:

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| Individual Commenter Information | | |
|--|-------------------------------------|---|
| (Complete this page for comments from one organization or individual.) | | |
| Name: | Annette M. Bannon | |
| Organization: | PPL Generation, LLC | |
| Telephone: | 610-774-2064 | |
| E-mail: | ambannon@pplweb.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) |
| <input type="checkbox"/> ERCOT | <input type="checkbox"/> | 1 — Transmission Owners |
| <input type="checkbox"/> FRCC | <input type="checkbox"/> | 2 — RTOs and ISOs |
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| | <input type="checkbox"/> | 10 — Regional Reliability Organizations and Regional Entities |

Comment Form for 2nd Draft of Standards for System Restoration and Blackstart (Project 2006-03)

| Group Comments (Complete this page if comments are from a group.) | | | |
|---|---------------------------------------|----------------|-----------------|
| Group Name: | PPL Supply | | |
| Lead Contact: | Annette Bannon | | |
| Contact Organization: | PPL Generation | | |
| Contact Segment: | 5, 6 | | |
| Contact Telephone: | 610-774-2064 | | |
| Contact E-mail: | ambannon@pplweb.com | | |
| Additional Member Name | Additional Member Organization | Region* | Segment* |
| Bill Roeder | PPL Eastern Fossil & Hydro | RFC | 5 |
| | | NPCC | 5 |
| Joe Kisela | PPL Eastern Fossil & Hydro | RFC | 5 |
| | | NPCC | 5 |
| David Gladey | PPL Susquehanna | RFC | 5 |
| Tom Olson | PPL Montana | WECC | 5 |
| Mark Heimbach | PPL EnergyPlus | RFC | 6 |
| | | NPCC | 6 |
| | | MRO | 6 |
| | | SERC | 6 |
| | | SPP | 6 |
| Jon Williamson | PPL EnergyPlus | WECC | 6 |
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*If more than one Region or Segment applies, please list all that apply. Regional acronyms and segment numbers are shown on prior page.

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Background Information:

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Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

1. The SDT has changed the title and purpose of both standards in order to clarify what is meant by restoration in these standards. Does this change sufficiently clarify the intent? If not, please explain in the comment area.

Yes

No

Comments: The changes made to the title and purpose of these standards has improved the clarity but PPL believes that the present title and purpose are still confusing. PPL recommends the title for EOP-006 be changed to Reliability Coordinator Plan for System Restoration using Blackstart Resources. PPL Recommends the title of EOP-005 be changed to Implementation of the System Restoration Plan using Blackstart Resources. Adding to the confusion is that EOP-005 is meant to implement the plan identified in EOP-006 but numerically comes before the standard. If possible, we suggest renumbering the standards so that the standard requiring the TO/GO to implement the System Restoration Plan comes after the standard that requires the RC to provide the plan.

2. The SDT has attempted to clarify when restoration ends in both standards as part of R1. Do you agree with this change? If not, please explain in the comment area.

Yes

No

Comments: PPL Supply basically agrees with the changes made by the SDT to R1 that clarify the end of restoration. During our discussion of this question, we noted that there is no guidance that provides for clarity of initiating events for entry into the restoration plan. PPL recommends that the SDT consider adding the criteria for an initiating event or reference where that criteria is found that is a different standard.

3. The SDT has clarified EOP-005-2, R10 to emphasize exactly which field switching personnel need to be trained. Do you agree with this change? If not, please explain in the comment area.

Yes

No

Comments: This question references R10 however, R12 is the requirement for training field switching personnel. The training described in R12 applies to the TO. PPL requests that additional clarification be added to the standard concerning this requirement that further specifies what training is required and specifically what personnel need the training.

4. The SDT has added Violation Risk Factors and Time Horizons to both standards. Do you agree with the assignments made? If not, please explain in the comment area.

Yes

No

Comment Form for 2nd Draft of Standards for System Restoration and Blackstart (Project 2006-03)

Comments: PPL Supply is not clear on the purpose of the Time Horizons as defined here.

5. The SDT has added an Implementation Plan. Do you agree with the proposed Implementation Plan? If not, please identify specifically what you feel needs to be modified in the comment area.

Yes

No

Comments: PPL Supply does not agree with the phased-in criteria identified for Generator Operators. The criteria in this version of the Implementation Plan is based on regulatory approval. However, the generator requirements cannot be satisfied until the GO has received the approved restoration plan and understands the content of the agreement in R14. PPL recommends that the Implementation Plan for GO's should be based on the date when the RC has provided an approved restoration plan and established the agreement with the TO as referenced in R14.

Additional comments - PPL Supply provides these additional comments on EOP-005 not related to the questions above.

R9.2: PPL Supply suggests that the SDT use the word facility in place of the word unit in Requirement R9.2 to provide clarity and consistency with other requirements in the standard.

R14: PPL suggests that NERC provide guidance to aid in the development of the agreements. Also, provide clarification specifying if the agreement must be a separate document or if existing tariff agreements are sufficient.

R19: PPL requests more clarification of what level of participation is required to meet this action.

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| Individual Commenter Information | | |
|--|-------------------------------------|---|
| (Complete this page for comments from one organization or individual.) | | |
| Name: | Thomas Bradish | |
| Organization: | Reliant Energy | |
| Telephone: | 724-597-8593 | |
| E-mail: | tbradish@reliant.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) |
| <input checked="" type="checkbox"/> ERCOT | <input type="checkbox"/> | 1 — Transmission Owners |
| <input checked="" type="checkbox"/> FRCC | <input type="checkbox"/> | 2 — RTOs and ISOs |
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1. The SDT has changed the title and purpose of both standards in order to clarify what is meant by restoration in these standards. Does this change sufficiently clarify the intent? If not, please explain in the comment area.

Yes

No

Comments:

2. The SDT has attempted to clarify when restoration ends in both standards as part of R1. Do you agree with this change? If not, please explain in the comment area.

Yes

No

Comments:

3. The SDT has clarified EOP-005-2, R10 to emphasize exactly which field switching personnel need to be trained. Do you agree with this change? If not, please explain in the comment area.

Yes

No

Comments: I could not find any reference to field switching personnel in R10 of EOP-005-2 so I am assuming that the SDT means R12

4. The SDT has added Violation Risk Factors and Time Horizons to both standards. Do you agree with the assignments made? If not, please explain in the comment area.

Yes

No

Comments: We would like to offer comments on R18 and R19 of EOP-005. R18.1 states System restoration philosophy including coordination with the Transmission Operator. R18.2 states Special actions required to enable blackstart and synchronization to the System.

Comment: R18.1 is vague and confusing. What would an auditor be looking for as the "restoration philosophy" when measuring compliance? The requirement in R18.2 is redundant since special action would be covered in the training in R18. A special action to one generator may be routine to another. It is unit dependent. It is recommended that the SDT drop R18.1 and 18.2 from the standard.

R19 states Each Generator Operator shall participate in the Reliability Coordinator's restoration drills, exercises, or simulations as requested by the Reliability Coordinator.

Comment: R19 requires a generator to participate but M18 states that "Each Generator Operator shall have evidence, such as training records, that it participated in the Reliability Coordinator's restoration drills, exercises, or simulations IF requested to do so

Comment Form for 2nd Draft of Standards for System Restoration and Blackstart (Project 2006-03)

in accordance with Requirement R19. If the GO is not requested to participate is the GO in compliance with R19. At times it appears that a TO is very reluctant to include the GO for fears of being in violation of FERC requirements of separation of merchant generation functions and transmission functions.

5. The SDT has added an Implementation Plan. Do you agree with the proposed Implementation Plan? If not, please identify specifically what you feel needs to be modified in the comment area.

Yes

No

Comments:

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| Individual Commenter Information | | |
|--|-------------------------------------|---|
| (Complete this page for comments from one organization or individual.) | | |
| Name: | Scott Peterson | |
| Organization: | San Diego Gas & Electric | |
| Telephone: | (619) 990-4420 | |
| 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) |
| <input type="checkbox"/> ERCOT | <input checked="" type="checkbox"/> | 1 — Transmission Owners |
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Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

1. The SDT has changed the title and purpose of both standards in order to clarify what is meant by restoration in these standards. Does this change sufficiently clarify the intent? If not, please explain in the comment area.

Yes

No

Comments: Not sure how you have reliability during a restoration. That is why you are restoring the system. There's been a loss of reliability. Suggested revision below:

Purpose: Ensure plans, Facilities, and personnel are in place to enable reliable System restoration from Blackstart Resources and to ensure priority is placed on restoring the Interconnection.

2. The SDT has attempted to clarify when restoration ends in both standards as part of R1. Do you agree with this change? If not, please explain in the comment area.

Yes

No

Comments: This is not clear or accurate. Quite often, a black start unit is used to only start the restoration by restarting non-blackstart units. It's those non-blackstart units then quite often will continue to control frequency or voltage until they are interconnected to a larger system. Suggested revision below:

Each Transmission Operator shall have a restoration plan approved by its Reliability Coordinator. The restoration plan shall enable the restoration of the Transmission Operator's System following a Disturbance in which one or more areas of its Bulk Electric System (BES) shuts down and the use of Blackstart Resources is required to restore the shut down area(s) to service. The restoration plan shall end at the point when those shut down areas are again interconnected with the Interconnection. The restoration plan shall include: [Violation Risk Factor = High] [Time Horizon = Operations Planning]

3. The SDT has clarified EOP-005-2, R10 to emphasize exactly which field switching personnel need to be trained. Do you agree with this change? If not, please explain in the comment area.

Yes

No

Comments: In the latest version, this is R12. Change "and" to "that are" in the end of sentence. See below:

Each Transmission Operator shall provide a minimum of two hours of System restoration training per year for field switching personnel identified as performing unique tasks associated with its restoration plan that are outside of their normal tasks. [Violation Risk Factor = Lower] [Time Horizon = Operations Planning]

Comment Form for 2nd Draft of Standards for System Restoration and Blackstart (Project 2006-03)

4. The SDT has added Violation Risk Factors and Time Horizons to both standards. Do you agree with the assignments made? If not, please explain in the comment area.

Yes

No

Comments:

5. The SDT has added an Implementation Plan. Do you agree with the proposed Implementation Plan? If not, please identify specifically what you feel needs to be modified in the comment area.

Yes

No

Comments:

Additional comments on EOP-005-2

Blackstart Resource: There are generators that are not blackstart, but play an integral part in the restoration plan after being restarted by a smaller blackstart unit. This should be modified to include generators that are not necessarily a blackstart resource, but play an integral part in the restoration plan.

Requirement 2 seems redundant to requirement 10. . There should also be a requirement that those entities that receive the plan treat it as confidential information and protect it against further distribution.

Requirement 3: For simplicity, do not say use rolling 365 days. Simply say at least every 12 months.

Requirement 4: Change to ". . . after identifying that a permanent System modifications has changed the implementation . . ."

Requirement 11: It would seem that we should use a consistent term "operating personnel" as is used in the PER standards rather than introduce a new term "control room personnel".

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|--|--------------------------|--|
| (Complete this page for comments from one organization or individual.) | | |
| Name: | | |
| Organization: | | |
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| 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) |
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| <input type="checkbox"/> FRCC | <input type="checkbox"/> | 2 — RTOs and ISOs |
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| | <input type="checkbox"/> | 10 — Regional Reliability Organizations and Regional Entities |

Comment Form for 2nd Draft of Standards for System Restoration and Blackstart (Project 2006-03)

Background Information:

The System Restoration and Blackstart Drafting Team (SRB SDT) has made significant changes to the first posting of EOP-005-2 and EOP-006-2 based on comments received from the industry.

The draft standards, EOP-005-2 and EOP-006-2, should be reviewed as a set when providing comments.

The System Restoration and Blackstart Drafting Team would like to receive industry comments on this group of standards. Accordingly, we request that you include your comments on this form and e-mail to sarcomm@nerc.net with the subject "SRB Standards" by **February 5, 2008**.

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 SDT has changed the title and purpose of both standards in order to clarify what is meant by restoration in these standards. Does this change sufficiently clarify the intent? If not, please explain in the comment area.

Yes

No

Comments: Could the SDT clarify the meaning of "personnel are in place" that is included in the purpose of both standards? How is that different from "personnel are available"?

2. The SDT has attempted to clarify when restoration ends in both standards as part of R1. Do you agree with this change? If not, please explain in the comment area.

Yes

No

Comments: It is not clear that R1 is defining the end of restoration. We recommend changing R1 to read as follows:

Each Transmission Operator shall have a restoration plan approved by its Reliability Coordinator. The restoration plan shall allow for restoring the Transmission Operator's System following a Disturbance in which one or more areas of the Bulk Electric System (BES) shuts down and the use of Blackstart Resources is required to restore the shut down area to service. The restoration plan shall include:

If there's a valid reason to define the end of restoration then we recommend adding it as R1.9 in EOP-005-2 and R1.8 in EOP-006-1 and to read as follows:

Blackstart Restoration is complete when the choice of the next Load to be restored is not driven by the need to control frequency or voltage regardless of whether the Blackstart Resource is located within the Transmission Operator's System.

We also agree that the RC should be involved in development and approval of the plan, but we do not agree that the RC have approval of the plan. This can be accomplished by allowing the RC to have input to the plan through formal comments. Approval should be left to the entity that will be held accountable for compliance to the requirements in the standard. Recommend changing R5.2 (EOP-006-2) to read: "The RC shall provide comments to the Transmission Operator's submitted....".

3. The SDT has clarified EOP-005-2, R10 to emphasize exactly which field switching personnel need to be trained. Do you agree with this change? If not, please explain in the comment area.

Yes

No

Comments: While we believe training of these personnel is appropriate, we believe training required in NERC Standards should remain focused on System Operators and

Comment Form for 2nd Draft of Standards for System Restoration and Blackstart (Project 2006-03)

not be extended to other personnel such as unit operators, field personnel, marketing personnel, engineering staff, etc.

4. The SDT has added Violation Risk Factors and Time Horizons to both standards. Do you agree with the assignments made? If not, please explain in the comment area.

Yes

No

Comments:

5. The SDT has added an Implementation Plan. Do you agree with the proposed Implementation Plan? If not, please identify specifically what you feel needs to be modified in the comment area.

Yes

No

Comments:

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| Individual Commenter Information | | |
|--|-------------------------------------|---|
| (Complete this page for comments from one organization or individual.) | | |
| Name: | John Ciza | |
| Organization: | Southern Company - Generation | |
| Telephone: | 205-257-5879 | |
| E-mail: | jiciza1@southernco.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) |
| <input type="checkbox"/> ERCOT | <input type="checkbox"/> | 1 — Transmission Owners |
| <input type="checkbox"/> FRCC | <input type="checkbox"/> | 2 — RTOs and ISOs |
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The System Restoration and Blackstart Drafting Team would like to receive industry comments on this group of standards. Accordingly, we request that you include your comments on this form and e-mail to sarcomm@nerc.net with the subject "SRB Standards" by **February 5, 2008**.

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 SDT has changed the title and purpose of both standards in order to clarify what is meant by restoration in these standards. Does this change sufficiently clarify the intent? If not, please explain in the comment area.

Yes

No

Comments: Since the drafting team did not allocate a place for general comments, Southern Company Generation is including our specific comments as follows:

1. Definition: The definition of a Black Start Resource (BSR) states that a Black Start (BS) unit must have the ability to start without system support, with the ability to energize a dead bus and in the TOPs plan to qualify as a BSR. For several of our BS units, we do not plan on connecting the BS unit to the grid. For these facilities, our current plans are to use the BS unit to energize station service for other units at the plant, start the additional units and connect them to the grid as required. By the current definition, the other units at the facility would not be considered BS units.

2. R16: The scope of this requirement is not clear. Is it asking for updates on design related items (unit rating changes, etc) or is it asking for outage information?

3. R17: Does this requirement replace EOP-009 or is it in addition to EOP-009?

4. R17.1: This requirement includes a list of data that the GOP must record and maintain for each BS tests. The modified list includes two different times. The first is the duration of the test (what we currently record) and the second is a new requirement - time required to black start the unit. This latter term is not defined. What is the definition of the start and finish times?

5. M1-5: These measures cover documentation of the distribution of the TOP's BSR plan to various parties. However, the GOP is not included. It appears that the GOP needs some level of knowledge regarding the BSR plan since in most cases, it is a GOP facility providing the source to start another GOP facility.

2. The SDT has attempted to clarify when restoration ends in both standards as part of R1. Do you agree with this change? If not, please explain in the comment area.

Yes

No

Comments:

3. The SDT has clarified EOP-005-2, R10 to emphasize exactly which field switching personnel need to be trained. Do you agree with this change? If not, please explain in the comment area.

Yes

No

Comments:

4. The SDT has added Violation Risk Factors and Time Horizons to both standards. Do you agree with the assignments made? If not, please explain in the comment area.

Comment Form for 2nd Draft of Standards for System Restoration and Blackstart (Project 2006-03)

Yes

No

Comments: It is not apparent why R14 and R15 are ranked higher than most of the other requirements. Thus, a medium risk factor is recommended for both.

5. The SDT has added an Implementation Plan. Do you agree with the proposed Implementation Plan? If not, please identify specifically what you feel needs to be modified in the comment area.

Yes

No

Comments: No effective date has been projected. Ample time between approval and implementation should be included to allow TOP's and GOP's to implement or modify existing practices and procedures to comply with these modified requirements.

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| Telephone: | | |
| E-mail: | | |
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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 SDT has changed the title and purpose of both standards in order to clarify what is meant by restoration in these standards. Does this change sufficiently clarify the intent? If not, please explain in the comment area.

Yes

No

Comments: The SDT has not provided Industry an appropriate means to discuss other deficiencies of the standard separate from the 5 specific questions being asked. Therefore, we have provided our concerns and comments here in question #1 of this comment form to ensure the SDT can see our concerns.

In our response to the initial draft of EOP-005, we indicated that applicability to the BA function was missing. In its response, the SDT disagreed even though Southern Company Transmission was not the only entity to point it out. We respectfully disagree with the SDT's response and suggest the concern represented by the large footprint and load of the entities voicing similar concerns about the BA omission is too much of the Eastern Interconnection to be ignored. We feel that those Requirements in EOP-005-1 applying to the BA (e.g. R5, R6, and R11.3) are still appropriate.

It appears as if the SDT in its re-titling (i.e. changing "and" to "from") and text changes to the Purpose and Requirements is limiting the need for system restoration plans and training to those events that only require the use of Blackstart Resources to establish islands internal to the TOP area. This is often referred to as an "inside-out" strategy. This restriction would seem to imply no applicability of the standards to other restoration schemes where, for example, sources external to the shutdown area are used for cranking power (i.e. outside-in strategy). Such a limitation of applicability would not seem appropriate since both strategies require similar actions by the TOP to control voltage and restore service the critical locations as the SDT indicates in EOP-005, R1.8. The "outside-in" scenario would most likely involve a relatively normal operating area and thus some applicability to the associated BA. This is because a mechanism/plan to manage/coordinate frequency control needs to exist between the operating BA and restoring TOP as the shutdown area is restored.

Even if the Standard is indeed limited to "inside-out" restoration, there needs to be applicability to the BA such that the transition state where the BA assumes responsibility for frequency, reserves and interchange from the TOP is done reliability and effectively per the other standards. In simple terms, the restoration is much like a two segment relay race. The first runner (TOP) with the baton (power system operation) is responsible for a rapid yet accurate (i.e. stay within the lane/limits) movement of the baton. The second runner (BA) must remain aware of the pace and location of the first in order to effectively assume responsibility of the baton from the first. If the second runner is not allowed to coordinate their steps with the first runner (ignore first runner), the results can be undesirable. Similarly, the first runner (TOP) cannot ignore the readiness of the second to assume responsibility. They can not just "throw" the baton at the second or just lay it on the ground at whatever point it desires and hope they pick it up. The first must place it in "hand" of the second runner prepared to receive it. In system restoration, as in the relay race, responsibility does not start for the BA and end for the TOP at the transition state but begins (albeit at different levels which evolve) for

Comment Form for 2nd Draft of Standards for System Restoration and Blackstart (Project 2006-03)

both at the initiation of the restoration. This is particularly true since the exact state where, as the SDT defines it, "the choice of the next Load to be restored is not driven by the need to control frequency" is not a unique state and both parties must acknowledge it's been reached before responsibility is transferred. The responsibilities of the TOP and BA are not the same responsibilities but there are responsibilities linking the two during restoration that should not be overlooked or dismissed.

As noted previously in our comments, specific requirements for TOP training in the topics of frequency control and capacity reserve management must be included in R11 since the SDT has taken the position that those activities are in the command-and-control purview of the TOP "until sufficient System has been built where frequency is under control".

2. The SDT has attempted to clarify when restoration ends in both standards as part of R1. Do you agree with this change? If not, please explain in the comment area.

Yes

No

Comments:

3. The SDT has clarified EOP-005-2, R10 to emphasize exactly which field switching personnel need to be trained. Do you agree with this change? If not, please explain in the comment area.

Yes

No

Comments:

4. The SDT has added Violation Risk Factors and Time Horizons to both standards. Do you agree with the assignments made? If not, please explain in the comment area.

Yes

No

Comments:

5. The SDT has added an Implementation Plan. Do you agree with the proposed Implementation Plan? If not, please identify specifically what you feel needs to be modified in the comment area.

Yes

No

Comments: The implementation plan excludes the BA function. We strongly urge the SDT to include the BA as applicable to this standard.

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| Individual Commenter Information | | |
|--|--|---|
| (Complete this page for comments from one organization or individual.) | | |
| Name: | Operating Reliability Working Group (ORWG) | |
| 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) |
| <input type="checkbox"/> ERCOT | <input checked="" type="checkbox"/> | 1 — Transmission Owners |
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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 SDT has changed the title and purpose of both standards in order to clarify what is meant by restoration in these standards. Does this change sufficiently clarify the intent? If not, please explain in the comment area.

Yes

No

Comments: We recommend the following to replace the draft purposes.

EOP-005-2: Ensure plans and Facilities are established and personnel are in place to enable System restoration from Blackstart Resources in order to maintain reliability during restoration and assign priority to restoring the Interconnection.

EOP-006-2: Ensure plans and Facilities are established and personnel are in place to enable effective coordination of the System restoration from Blackstart Resources process in order to maintain reliability during restoration and assign priority to restoring the Interconnection.

2. The SDT has attempted to clarify when restoration ends in both standards as part of R1. Do you agree with this change? If not, please explain in the comment area.

Yes

No

Comments: While we don't believe a definition of the end of the restoration period is needed, if it was determined that a definition is desired, that definition should be in the definitions section of the standard and not in the requirements.

To eliminate the multi-part requirements in R1 of both standards, we suggest breaking R1 in each standard into two separate requirements. We propose the following:

EOP-005-2

R1. Each Transmission Operator shall have a restoration plan approved by its Reliability Coordinator.

R2. A Transmission Operator's restoration plan shall include:

R2.1 A description...

R2.2 Procedures for...

R2.3 Identification of...

R2.4 Identification of...

R2.5 Identification of...

R2.6 A statement...

R2.7 Operating Procedures...

R2.8 Operating Procedures...

EOP-006-2

Comment Form for 2nd Draft of Standards for System Restoration and Blackstart (Project 2006-03)

R1. Each Reliability Coordinator shall have a Reliability Coordinator Area restoration plan.

R2. A Reliability Coordinator's restoration plan shall include:

- R2.1 Procedures for...
- R2.2 Descriptions of...
- R2.3 Descriptions of...
- R2.4 Criteria and conditions...
- R2.5 Identification of...
- R2.6 A statement accounting...
- R2.7 Reporting requirements...

3. The SDT has clarified EOP-005-2, R10 to emphasize exactly which field switching personnel need to be trained. Do you agree with this change? If not, please explain in the comment area.

Yes

No

Comments: We feel that this training should not be restricted to field switching personnel. We suggest removing the 'field switching' qualifier in the standard and then let the Transmission Operator determine who falls into the category of needing training on unique tasks performed during restoration.

4. The SDT has added Violation Risk Factors and Time Horizons to both standards. Do you agree with the assignments made? If not, please explain in the comment area.

Yes

No

Comments: EOP-005-2, R.3 - We believe this multi-part requirement is correct in assigning a medium VRF to the review of the plan but feel that a medium VRF is too high for the administrative task of submitting the plan to the RC.

EOP-005-2, R.5 - Having a copy, written or electronic, of the plan available to the operator in the control center is critical. This VRF should be 'High'.

EOP-005-2, R.8 - Should be a 'High' VRF to be consistent with R.8 of EOP-006-2.

EOP-005-2, R.12 - Training of personnel is important to a successful restoration. For consistency with R.18, this VRF should be 'Medium'.

EOP-005-2, R.14 - This requirement is administrative and should have a 'Low' VRF.

EOP-006-2, R.9 - This is a real-time operational function that is critical to restoration. The VRF should be 'High'.

5. The SDT has added an Implementation Plan. Do you agree with the proposed Implementation Plan? If not, please identify specifically what you feel needs to be modified in the comment area.

Yes

No

Comment Form for 2nd Draft of Standards for System Restoration and Blackstart (Project 2006-03)

Comments: The proposed Plan is very confusing with the multiple dates associated with different requirements in EOP-005-2. The sequencing of the implementation doesn't appear to be logical. For example, the TOP is required to implement a plan within 6 months of approval, but R1, which requires the plan, isn't effective for 21 months after approval. Also, there is inconsistency between implementation of EOP-005-2 and EOP-006-2.

General Comments:

Did the SDT consider combining EOP-005 and EOP-006? They are so similar and closely related, it appears there may be some advantages to combining the two.

Would the SDT please provide clarification on R.14 of EOP-005-2? If the Transmission Operator entity and the Generator Operator entity are the same entity, is an agreement necessary? Would the inclusion of that particular generation in the TOP's plan be sufficient for the agreement?

There is duplication between R.2 and R.3 in EOP-005-2 regarding the submittal of the plan to the RC. To eliminate the duplication, delete the phrase '..., and to its Reliability Coordinator' in R.2.

In EOP-006-2, R6, the Reliability Coordinator is required to have a copy of the latest approved restoration plans of each Transmission Operator within each control center and available to its control room personnel. Shouldn't this same requirement be applied to the Reliability Coordinator's restoration plan?

There is a typo in R2 of EOP-005-2. Replace "it's" with "its".

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| Individual Commenter Information | | |
|--|-------------------------------------|---|
| (Complete this page for comments from one organization or individual.) | | |
| Name: | Stephen Joseph | |
| Organization: | Tampa Electric Company | |
| Telephone: | 8136306510 | |
| E-mail: | sjoseph@tecoenergy.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) |
| <input type="checkbox"/> ERCOT | <input checked="" type="checkbox"/> | 1 — Transmission Owners |
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Yes

No

Comments:

2. The SDT has attempted to clarify when restoration ends in both standards as part of R1. Do you agree with this change? If not, please explain in the comment area.

Yes

No

Comments: I understand from reading R1 when restoration ends, however it seems there is a better more effective way to word this. The second sentence is 7 lines long.

3. The SDT has clarified EOP-005-2, R10 to emphasize exactly which field switching personnel need to be trained. Do you agree with this change? If not, please explain in the comment area.

Yes

No

Comments: EOP-005-2 R10 does not address this.

4. The SDT has added Violation Risk Factors and Time Horizons to both standards. Do you agree with the assignments made? If not, please explain in the comment area.

Yes

No

Comments:

5. The SDT has added an Implementation Plan. Do you agree with the proposed Implementation Plan? If not, please identify specifically what you feel needs to be modified in the comment area.

Yes

No

Comments:

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Comment Form for 2nd Draft of Standards for System Restoration and Blackstart (Project 2006-03)

Background Information:

The System Restoration and Blackstart Drafting Team (SRB SDT) has made significant changes to the first posting of EOP-005-2 and EOP-006-2 based on comments received from the industry.

The draft standards, EOP-005-2 and EOP-006-2, should be reviewed as a set when providing comments.

The System Restoration and Blackstart Drafting Team would like to receive industry comments on this group of standards. Accordingly, we request that you include your comments on this form and e-mail to sarcomm@nerc.net with the subject "SRB Standards" by **February 5, 2008**.

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 SDT has changed the title and purpose of both standards in order to clarify what is meant by restoration in these standards. Does this change sufficiently clarify the intent? If not, please explain in the comment area.

Yes

No

Comments: The RCCWG feels the scope of restoration is much too restrictive in this draft standard. Disturbances that cause islanding in the system and require restoration of islands, etc. are much more common than events that require use of blackstart resources. The RCCWG believes that a standard to be followed in assessing, stabilizing, and restoring the system, from less than a blackstart situation with requirements for functional entity protocol and procedure needs to remain. The WECC RCCWG believes that blackstart can be included in requirements in this standard as it is today or that another standard should be drafted to solely address blackstart.

Additionally, the WECC RCCWG believes that wording regarding the purpose and/or term definitions have now been placed into R1 in both EOP-005 and EOP-006. The group recommends that language referring to the purpose and/or definitions be removed from the standard requirements and placed into other sections of the standard. The R1 Requirement (not addressing the sub-requirements) should simply be to have a restoration plan.

2. The SDT has attempted to clarify when restoration ends in both standards as part of R1. Do you agree with this change? If not, please explain in the comment area.

Yes

No

Comments: The WECC RCCWG believes that restoration is not complete until the Bulk Electric System is stabilized and all Bulk Electric System islands have been tied together. A standard with requirements addressing procedure and protocol to be followed should remain in use until the above conditions have been met. Additionally, the WECC RCCWG believes that a description of the end of a restoration effort should be placed elsewhere in the standard, such as in a definition or in the purpose, rather than in the standard requirements.

3. The SDT has clarified EOP-005-2, R10 to emphasize exactly which field switching personnel need to be trained. Do you agree with this change? If not, please explain in the comment area.

Yes

No

Comments: The WECC RCCWG is unclear as to which requirement, EOP-005-d2 R11 or EOP-006-d2 R10, question 3 refers to because the reference in the question to R10 in EOP-005-d2 refers to personnel requiring training, while R10 of the draft standard addresses distribution of Transmission Operator "Blackstart Resource testing requirements". R10 of EOP-006-d2 does refer to training of personnel. The WECC

Comment Form for 2nd Draft of Standards for System Restoration and Blackstart (Project 2006-03)

RCCWG recognizes concerns with the standard requirements referencing training in both of these documents, and addresses each, below:

In EOP-005d2 R11 it is not clear what personnel the term "control room personnel" refers to. What control room? Does this refer only to positions that are certified system operators?

In EOP-006-d2 R10 the RC is required to include control room personnel identified in its restoration plan. Again, the intention of the extent of the personnel to be trained is not clear. It is unclear whether there is an expectation that each and every control room operator from every company is expected to be trained. The RCCWG does not believe it is reasonable to believe that the Reliability Coordinator will train every person in every control room that is identified in the Reliability Coordinator restoration plan.

4. The SDT has added Violation Risk Factors and Time Horizons to both standards. Do you agree with the assignments made? If not, please explain in the comment area.

Yes

No

Comments: The Time Horizon for EOP-005-d2 R11 the requirement to hold annual System restoration training for control room personnel is listed as "Long-term Planning" and is a requirement of the operations training program. The EOP-006-d2 R10 requirement that Reliability Coordinator annual System restoration training be included within its training program is identified as "Operations Planning". The WECC RCCWG believes that both requirements should have the same Time Horizon and believes that "Operations Planning" is appropriate.

Additionally, the group believes that the Violation Risk Factor for EOP-005-d2 R14 should be "low". There does not seem to be more impact on system reliability from violation of this requirement than from violation of requirements 2, 5, or 10. The Violation Risk Factor on EOP-005-d2 R18 should be "low", giving consistency with R12 of the same document.

5. The SDT has added an Implementation Plan. Do you agree with the proposed Implementation Plan? If not, please identify specifically what you feel needs to be modified in the comment area.

Yes

No

Comments: The Implementation Plan lists times up to 21 months after applicable regulatory approvals for R1 in EOP-005-d2. All requirements for the Reliability Coordinator are listed as effective 18 months after applicable regulatory approvals. With the requirement that the Transmission Operator restoration plan is coordinated with the Reliability Coordinator plan, the WECC RCCWG believes that the effective date for EOP-006 should be changed to 27 months (6 months following the effective date of EOP-005 R1) to give the Reliability Coordinator time to initially assess the plans, and make or coordinate any necessary revisions.

The WECC RCCWG has further comments to submit on the draft standards. As there is no suitable space on this comment form, the following comments are submitted outside of the specific questions asked:

EOP-005-d2 R2 and EOP-006 R2 state "in order to ensure the reliability of the Interconnection". This wording is philosophical and does not belong in a requirement.

The concept is already properly placed in the purpose of the standard. Please remove the wording from the requirements.

The wording of EOP-005-d2 R8 seems awkward. The Transmission Operators will be resynchronizing energized islanded area(s), not resynchronizing "shut down area(s)". EOP-006-d2 R1.2 and 1.3 refer to "descriptions of the elements of coordination". It is not clear what this actually means. What are elements of coordination?

EOP-006-d2 R6 requires the Reliability Coordinator have a copy of the latest approved restoration plans. Is a hard copy be specified or will an electronic copy suffice? If a hard copy is required, that requirement needs to be clearly stated.

EOP-006-d2 R11.1 states that "Each Reliability Coordinator shall request each Transmission Operator and Generator Operator identified in its restoration plan to participate in a drill, exercise, or simulation at least every two calendar years." The WECC RCCWG agrees that the Reliability Coordinator can, and should, invite; but cannot enforce that employees outside of the Reliability Coordinator organization attend this training. The WECC RCCWG is confused why EOP-006-d2 M11 states "Each Reliability Coordinator shall have evidence such as training records that its conducted two System restoration drills, exercises, or simulations per year THAT INCLUDED (emphasis added) Transmission Operators and Generator Operators with Blackstart Resources in accordance with Requirement R11." The WECC RCCWG suggests that evidence should be required that the Reliability Coordinator conducted two System restoration drills, exercises, or simulations per year; and that further evidence that Transmission Operators and Generator Operators with Black Start Resources were INVITED TO ATTEND/PARTICIPATE (emphasis added) in accordance with Requirement R11.

Comment Form for 2nd Draft of Standards for System Restoration and Blackstart (Project 2006-03)

Please use this form to submit comments on the 2nd draft of the standards for System Restoration and Blackstart (Project 2006-03). Comments must be submitted by **February 5, 2008**. You may submit the completed form by e-mail to sarcomm@nerc.net with the words "SRB Standards" in the subject line. If you have questions please contact Ed Dobrowolski at ed.dobrowolski@nerc.net or by telephone at 609-947-3673.

| 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) |
| <input type="checkbox"/> ERCOT | <input type="checkbox"/> | 1 — Transmission Owners |
| <input type="checkbox"/> FRCC | <input type="checkbox"/> | 2 — RTOs and ISOs |
| <input type="checkbox"/> MRO | <input checked="" type="checkbox"/> | 3 — Load-serving Entities |
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| <input checked="" type="checkbox"/> RFC | <input checked="" type="checkbox"/> | 5 — Electric Generators |
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Background Information:

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The draft standards, EOP-005-2 and EOP-006-2, should be reviewed as a set when providing comments.

The System Restoration and Blackstart Drafting Team would like to receive industry comments on this group of standards. Accordingly, we request that you include your comments on this form and e-mail to sarcomm@nerc.net with the subject "SRB Standards" by **February 5, 2008**.

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 SDT has changed the title and purpose of both standards in order to clarify what is meant by restoration in these standards. Does this change sufficiently clarify the intent? If not, please explain in the comment area.

Yes

No

Comments: Under the 'Purpose' section, both standards read: "... ensure reliability is maintained during restoration ..." Should read something like: "... ensure restoration plans accommodate reliability concepts ..." It is not reasonable to assume that "reliability" can be maintained throughout every restoration.

2. The SDT has attempted to clarify when restoration ends in both standards as part of R1. Do you agree with this change? If not, please explain in the comment area.

Yes

No

Comments: Conceptually, the idea that the plan extends to a point in time when load is no longer used as a tool for restoration is good. But during restoration, load is not typically added to maintain frequency. Dropping load could be used for frequency control, but the definitions are specific to restoring load. Would it make sense to say that the plan extends to the point where load restoration becomes priority over other restoration objectives?

3. The SDT has clarified EOP-005-2, R10 to emphasize exactly which field switching personnel need to be trained. Do you agree with this change? If not, please explain in the comment area.

Yes

No

Comments: R10 relates to the TOP providing the plan to the GOP. R11 relates to training for TOP personnel. R12 relates to training field personnel. The assumption here is we're primarily after training on synchronizing scopes. Suggest that any specific training desired be called out here.

4. The SDT has added Violation Risk Factors and Time Horizons to both standards. Do you agree with the assignments made? If not, please explain in the comment area.

Yes

No

Comments:

Comment Form for 2nd Draft of Standards for System Restoration and Blackstart (Project 2006-03)

5. The SDT has added an Implementation Plan. Do you agree with the proposed Implementation Plan? If not, please identify specifically what you feel needs to be modified in the comment area.

Yes

No

Comments: Since no specific area is provided for additional comments, they are placed here:

The standards appear to be drafted from the perspective of a vertically integrated utility, not in terms of the NERC functional model entities. The conspicuous absence of the NERC functional entity "Balancing Authority" in both EOP-005-2 and EOP-006-2 produces doubt as to the value of the standards. The BA should be intimately involved in all aspects of the system restoration plan and the execution thereof.

The argument that the BA role is prescribed for all operating conditions in the Balancing Authority standards is fallacious. Below are extracts from BAL-001 through BAL-006 with comments regarding the applicability during the restoration process.

A. Introduction

1. Title: Real Power Balancing Control Performance

2. Number: BAL-001-0

3. Purpose: To maintain Interconnection steady-state frequency within defined limits by balancing real power demand and supply in real-time.

4. Applicability:

4.1. Balancing Authorities

5. Effective Date: April 1, 2005

The purview of BAL-001 is limited to interconnection steady state frequency, and does not pertain to island frequency during system restoration efforts. During island scenarios ACE is irrelevant as are the control performance criteria – the frequencies of the various islands will not be equal and there will be no scheduled interchange.

EOP-005 R1.5 requires identification of acceptable operating frequency limits during restoration efforts. Since BAL-001 does not apply to restoration scenarios, and the Balancing Authority is responsible for maintaining frequency, the NERC functional entity "Balancing Authority" should be included in the EOP-005-2 standard.

A. Introduction

1. Title: Disturbance Control Performance

2. Number: BAL-002-0

3. Purpose:

The purpose of the Disturbance Control Standard (DCS) is to ensure the Balancing Authority

is able to utilize its Contingency Reserve to balance resources and demand and return Interconnection frequency within defined limits following a Reportable Disturbance.

Because

generator failures are far more common than significant losses of load and because Contingency Reserve activation does not typically apply to the loss of load, the application of

DCS is limited to the loss of supply and does not apply to the loss of load.

4. Applicability:

4.1. Balancing Authorities

Comment Form for 2nd Draft of Standards for System Restoration and Blackstart (Project 2006-03)

- 4.2. Reserve Sharing Groups (Balancing Authorities may meet the requirements of Standard 002 through participation in a Reserve Sharing Group.)
- 4.3. Regional Reliability Organizations
5. Effective Date: April 1, 2005

Again, interconnection frequency has no meaning in an island scenario.

A. Introduction

1. Title: Frequency Response and Bias
2. Number: BAL-003-0
3. Purpose:

This standard provides a consistent method for calculating the Frequency Bias component of ACE.

4. Applicability:

- 4.1. Balancing Authorities
5. Effective Date: April 1, 2005

During island scenarios, ACE is irrelevant.

A. Introduction

1. Title: Time Error Correction
2. Number: BAL-004-0
3. Purpose:

The purpose of this standard is to ensure that Time Error Corrections are conducted in a manner that does not adversely affect the reliability of the Interconnection.

4. Applicability:

- 4.1. Reliability Coordinators
- 4.2. Balancing Authorities
5. Effective Date: April 1, 2005

No RC will initiate a Time Error Correction during island scenarios.

A. Introduction

1. Title: Automatic Generation Control
2. Number: BAL-005-0
3. Purpose:

This standard establishes requirements for Balancing Authority Automatic Generation Control

(AGC) necessary to calculate Area Control Error (ACE) and to routinely deploy the Regulating Reserve. The standard also ensures that all facilities and load electrically synchronized to the Interconnection are included within the metered boundary of a Balancing

Area so that balancing of resources and demand can be achieved.

4. Applicability:

- 4.1. Balancing Authorities
- 4.2. Generator Operators
- 4.3. Transmission Operators
- 4.4. Load Serving Entities
5. Effective Date: April 1, 2005

AGC will be useless until system conditions are near to normal interconnection status.

A. Introduction

1. Title: Inadvertent Interchange

2. Number: BAL-006-1

3. Purpose:

This standard defines a process for monitoring Balancing Authorities to ensure that, over the

long term, Balancing Authority Areas do not excessively depend on other Balancing Authority

Areas in the Interconnection for meeting their demand or Interchange obligations.

4. Applicability:

4.1. Balancing Authorities.

5. Effective Date: May 1, 2006

There will be no inadvertent flows out from or into an island.

In summary, the existing NERC Balancing Authority Standards BAL-001 through BAL-006 do not apply during system restoration efforts. Further, the proposed standards EOP-005-2 and EOP-006-2 do not address the operations of the Balancing Authority during system restoration events.

Comments specific to EOP-005

No training is specified for the BA system operators. The system restoration scenario is very unique and challenging in terms of balancing resources to load. Load behavior will be very dynamic – cold load pick up and loss of diversity will be significant factors during the restoration process. Since the BA is ultimately responsible for balancing under all conditions, it is imperative for the BA to be involved in the training for restoration and the implementation during an event.

The LSE has no requirements in this standard. Is there value including the LSE in terms of load used as a tool? What load profiles are expected? What impact does that have on the generator stability, system voltages and island frequency?

R1.5 – Specifies voltage and frequency limits. Without the BA involvement, how do you control frequency? Who determines the frequency limits? The BAL Standards apply for normal operations with bias control, but system restoration scenarios are totally different.

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| Individual Commenter Information | | |
|--|-------------------------------------|---|
| (Complete this page for comments from one organization or individual.) | | |
| Name: | Robert Temple | |
| Organization: | Western Area Power Administration | |
| Telephone: | 720-962-7431 | |
| E-mail: | temple@wapa.gov | |
| NERC Region (check all Regions in which your company operates) | | Registered Ballot Body Segment (check all industry segments in which your company is registered) |
| <input type="checkbox"/> ERCOT | <input checked="" type="checkbox"/> | 1 — Transmission Owners |
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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 SDT has changed the title and purpose of both standards in order to clarify what is meant by restoration in these standards. Does this change sufficiently clarify the intent? If not, please explain in the comment area.

Yes

No

Comments:

2. The SDT has attempted to clarify when restoration ends in both standards as part of R1. Do you agree with this change? If not, please explain in the comment area.

Yes

No

Comments:

3. The SDT has clarified EOP-005-2, R10 to emphasize exactly which field switching personnel need to be trained. Do you agree with this change? If not, please explain in the comment area.

Yes

No

Comments: R12 not R10

4. The SDT has added Violation Risk Factors and Time Horizons to both standards. Do you agree with the assignments made? If not, please explain in the comment area.

Yes

No

Comments: EOP-005-2, R16 allows a GO ninety calendar days to report a change to blackstart unit capability. Notification to the TO within thirty calendar days seems more appropriate.

5. The SDT has added an Implementation Plan. Do you agree with the proposed Implementation Plan? If not, please identify specifically what you feel needs to be modified in the comment area.

Yes

No

Comments: EOP-005-2, R8 The last part of the requirement states "or in accordance with the established procedures of the RC" Would it be better to say "or in accordance with the pre-approved restoration plan".

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| Individual Commenter Information | | |
|--|-------------------------------------|---|
| (Complete this page for comments from one organization or individual.) | | |
| Name: | Terri Eaton | |
| Organization: | Xcel Energy | |
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| E-mail: | terri.k.eaton@xcelenergy.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) |
| <input type="checkbox"/> ERCOT | <input checked="" type="checkbox"/> | 1 — Transmission Owners |
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The draft standards, EOP-005-2 and EOP-006-2, should be reviewed as a set when providing comments.

The System Restoration and Blackstart Drafting Team would like to receive industry comments on this group of standards. Accordingly, we request that you include your comments on this form and e-mail to sarcomm@nerc.net with the subject "SRB Standards" by **February 5, 2008**.

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 SDT has changed the title and purpose of both standards in order to clarify what is meant by restoration in these standards. Does this change sufficiently clarify the intent? If not, please explain in the comment area.

Yes

No

Comments: The titles and purpose do little to clarify what "restoration" means as that term is used in the standards. Rather, it appears that the definition of restoration is embedded in R1 of EOP-005. Xcel Energy is concerned that in general the proposed standards do little to clarify expectations for either TOs or GOs. For example:

-EOP-005 R1 requires that the RC approve the TO's restoration plan, but provides no criteria for that approval;

-EOP-005 R1.7 requires that the TO have operating procedures to reestablish connections within the TOs system for areas that have become separated while EOP-006, R1.1 requires that RC s have procedures for restoring the integrity of the interconnection. Arguably, both situations involve integrity of the interconnection yet it is not clear where the RC's authority begins and ends

-EOP-005 R1.5 gives the TO the responsibility to identify acceptable operating voltage and frequency limits during restoration, while EOP-006 R1.5 gives the same responsibility to the RC

Other provisions of the standard are confusing. For example, EOP-005 R1.1 requires the TO to provide "A description of the manner in which all obligations for off-site power requirements of nuclear power plants will be fulfilled." What is the difference between obligations and requirements in this provision, and what exactly is expected of the TO here? Further, issues relating to off-site power for nuclear facilities are already addressed in NUC-001 R9.3.5. Duplication of substance in multiple standards can lead to confusion and should be avoided.

What is the value of a requirement that says that a plan must include "A statement accounting for the possibility that restoration cannot be completed....?" Wouldn't it be better to require the plan to include contingency measures in the event the system cannot be properly restored rather than just having "a statement" that a contingency might arise?

What is the objective behind requiring updates on a 365-day rolling basis? Xcel Energy believes that plans are durable enough to support revision on an annual basis and there is no need to control and direct the manner in which entities undertake plan revisions by requiring updates on a rolling 365-day basis.

The measures set out in the standard appear to serve little purpose in enhancing reliability. Xcel Energy sees little value in requiring an entity to provide receipts proving it provided documentation to its RC when the RC will know whether or not it received a particular update. This emphasis on retention of arguably trivial pieces of data detracts

Comment Form for 2nd Draft of Standards for System Restoration and Blackstart (Project 2006-03)

from what should be the objective of the standard--to ensure comprehensive and integrated restoration planning and operations.

Xcel Energy believes that a fundamentally different approach to development requirements relating to planning and operations during system restoration may be needed. For example, both standards could benefit from a clear delineation of the roles and responsibilities of TOs and GOs on the one hand and RCs on the other hand. With roles and responsibilities more clearly defined, more clear direction on expectations regarding system restoration could be developed. Further, required periodic planning and coordination sessions (potentially every 5 years) could provide much greater opportunities for coordinated integration of plans than passing plans back and forth every year. As part of the planning effort, a list of key elements of plans could be developed and then implemented rather than driving structures of plans on the basis of specific listed elements that may or may not adequately cover all situations.

2. The SDT has attempted to clarify when restoration ends in both standards as part of R1. Do you agree with this change? If not, please explain in the comment area.

- Yes
 No

Comments: It appears that the standards attempt to indicate when restoration ends, but do it within the context of a specific obligation imposed upon the TO. It would be preferable to simply provide a definition.

3. The SDT has clarified EOP-005-2, R10 to emphasize exactly which field switching personnel need to be trained. Do you agree with this change? If not, please explain in the comment area.

- Yes
 No

Comments:

4. The SDT has added Violation Risk Factors and Time Horizons to both standards. Do you agree with the assignments made? If not, please explain in the comment area.

- Yes
 No

Comments: There seem like an inordinante number of requirements (and hence VRFs) in these standards.

5. The SDT has added an Implementation Plan. Do you agree with the proposed Implementation Plan? If not, please identify specifically what you feel needs to be modified in the comment area.

- Yes
 No

Comments: The relationships and timing between elements of the standards need to be reexamined. For example, does it make sense to have EOP-005 R2 (relating to distribution of restoration plans) take effect before R1 (relating to development of the restoration plan)?

Comment Report for 2nd Draft of Standards for System Restoration and Blackstart (Project 2006-03)

The System Restoration and Blackstart Standard Drafting Team thanks all commenters who submitted comments on the 2nd draft of the SRB Standard. This standard was posted for a 30-day public comment period from January 7 through February 5, 2008. The standard drafting team asked stakeholders to provide feedback on the standard through a special Standard Comment Form. There were 44 sets of comments, including comments from more than 130 different people from more than 60 companies representing 9 of the 10 Industry Segments as shown in the table on the following pages.

Based on the comments received, and due to the fact that compliance elements are just being added, the drafting team is recommending that the standards be posted for a third time. Major changes to the standards include the change to EOP-006-2 to allow for RC coordination with and without Blackstart Resources, reducing the training burden for field switching personnel and Generator Operator personnel, and the Implementation Plan has been completely re-written to emphasize milestones and an orderly transition. Changes to the third posting include the following specific text:

- EOP-005-2: Heading, Definition, Purpose, R1.1, R1.6 (deleted), R2, R3, R6, R6.1, R6.2, R7.2 (deleted), R7.3, R8, R8 (VRF), R9.2.1, R9.2.2, R11, R11 (Time Horizon), R12, R14, R14 (VRF), R15 (VRF), R16, and R18.
- EOP-006-2: Title, Purpose, R1, R1.6 (deleted), R2, R3, R6, R7, R7.1, R8, R8.1, R9, R10, R10.3, M7, M9, and M11.

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 SAR can be viewed in their original format at:

http://www.nerc.com/~filez/standards/System_Restoration_Blackstart.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 Process Manual: <http://www.nerc.com/standards/newstandardsprocess.html>.

Comment Report for 2nd Draft of Standards for System Restoration and Blackstart (Project 2006-03)

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. | Scott Lockwood (G13) | AEP | ✓ | | ✓ | | ✓ | | | | | | | |
| 2. | Anita Lee (G5) | AESO | | ✓ | | | | | | | | | | |
| 3. | Kirit S. Shah (I) (G6) | Ameren | ✓ | | ✓ | | ✓ | ✓ | | | | | | |
| 4. | Thad K. Ness | American Electric Power | ✓ | | ✓ | | ✓ | ✓ | | | | | | |
| 5. | Jason Shaver | American Transmission Co. LLC | ✓ | | | | | | | | | | | |
| 6. | Dave Rudolph (G7) | BEPC | ✓ | | ✓ | | ✓ | ✓ | | | | | | |
| 7. | James Burns/Brian Tuck | Bonneville Power Administration | ✓ | | ✓ | | ✓ | ✓ | | | | | | |
| 8. | Brent Kingsford (G5) | California ISO | | ✓ | | | | | | | | | | |
| 9. | John Jonte | CenterPoint Energy | ✓ | | | | | | | | | | | |
| 10. | Paul Lampe (G13) | City of Independence | ✓ | | ✓ | | ✓ | | | | | | | |
| 11. | Alan Gale (G3) | City of Tallahassee | | | | | ✓ | | | | | | | |
| 12. | Danny McDaniel (G13) | CLECO | ✓ | | ✓ | | ✓ | | | | | | | |
| 13. | Paul Bleuss (G14) | CMRC | | | | | | | | | | | | ✓ |
| 14. | Greg Tillitson (G14) | CMRC | | | | | | | | | | | | ✓ |
| 15. | Edwin Thompson (I) (G8) | Con Edison | ✓ | | ✓ | | | ✓ | | | | | | |
| 16. | J. Andrew Dodge/William Keagle/Ed Carmen | Constellation | ✓ | | | | | | | | | | | |
| 17. | Mark Paschke | Consumers Energy Company | | | ✓ | ✓ | ✓ | | | | | | | |
| 18. | Jeanne Kurzynowski (G6) | Consumers Energy Company | | | ✓ | ✓ | ✓ | | | | | | | |
| 19. | Roy Beger (G1) | Dominion Resources Services Inc. | | | | | ✓ | | | | | | | |
| 20. | Lou Nunez (G1) | Dominion Resources | | | | | ✓ | | | | | | | |

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| | Commenter | Organization | Industry Segment | | | | | | | | | | | |
|-----|-------------------------|-----------------------------------|------------------|---|---|---|---|---|---|---|---|----|--|---|
| | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | | |
| | | Services Inc. | | | | | | | | | | | | |
| 21. | Ronald E Hart (G1) | Dominion Resources Services Inc. | | | | | | ✓ | | | | | | |
| 22. | Mike Garton (G1) | Dominion Resources Services Inc. | | | | | | ✓ | | | | | | |
| 23. | Jalil Babik (G1) | Dominion Resources Services, Inc. | | | | | | ✓ | | | | | | |
| 24. | Louis Slade (G1) | Dominion Resources Services, Inc. | | | | | | ✓ | | | | | | |
| 25. | Ayad Al-Hamdani (G1) | Dominion Resources Services, Inc. | | | | | | ✓ | | | | | | |
| 26. | Harold Adams (G1) | Dominion Resources Services, Inc. | | | | | | ✓ | | | | | | |
| 27. | Jack Kerr | Dominion Virginia Power | ✓ | | | | | | | | | | | |
| 28. | Gregory D. Rowland | Duke Energy | ✓ | | ✓ | | | | | | | | | |
| 29. | Greg Mason (G6) | Dynegy | | | | | | ✓ | | | | | | |
| 30. | Edward J. Davis (1) | Entergy Services, Inc. | ✓ | | | | | | | | | | | |
| 31. | William L. Franklin (2) | Entergy Services, Inc. | | | | | | | ✓ | | | | | |
| 32. | Steve Myers (G5) | ERCOT | | ✓ | | | | | | | | | | |
| 33. | Chris Scanlon | Exelon Corp. | ✓ | | | | | | | | | | | |
| 34. | Sam Ciccone | FirstEnergy Corp. | ✓ | | ✓ | | | ✓ | ✓ | | | | | |
| 35. | Doug Hohlbaugh (G2) | FirstEnergy Corp. | ✓ | | ✓ | | | ✓ | ✓ | | | | | |
| 36. | Dave Folk (G2) | FirstEnergy Corp. | ✓ | | ✓ | | | ✓ | ✓ | | | | | |
| 37. | Jerry Sanicky (G2) | FirstEnergy Corp. | ✓ | | ✓ | | | ✓ | ✓ | | | | | |
| 38. | John Reed (G2) | FirstEnergy Corp. | ✓ | | ✓ | | | ✓ | ✓ | | | | | |
| 39. | John Wenrich (G2) | FirstEnergy Corp. | ✓ | | ✓ | | | ✓ | ✓ | | | | | |
| 40. | Dave Huff (G2) | FirstEnergy Corp. | ✓ | | ✓ | | | ✓ | ✓ | | | | | |
| 41. | Ken Dresner (G2) | FirstEnergy Corp. | ✓ | | ✓ | | | ✓ | ✓ | | | | | |
| 42. | Ed Baznik (G2) | FirstEnergy Corp. | ✓ | | ✓ | | | ✓ | ✓ | | | | | |
| 43. | Eric Senkowicz | FRCC | | | | | | | | | | | | ✓ |
| 44. | Joseph Knight (G7) | GRE | ✓ | | ✓ | | | ✓ | ✓ | | | | | |
| 45. | Alessia Dawes | Hydro One Networks, Inc. | ✓ | | ✓ | | | | | | | | | |
| 46. | Chris Cooper (G4) | Hydro One Networks, Inc. | ✓ | | | | | | | | | | | |
| 47. | David Kiguel (G4) (G8) | Hydro One Networks, Inc. | ✓ | | | | | | | | | | | |
| 48. | Roger Champagne (G8) | Hydro Québec TransÉnergie | ✓ | | | | | | | | | | | |
| 49. | Sylvain Clermont (G8) | Hydro Québec TransÉnergie | ✓ | | | | | | | | | | | |
| 50. | Ron Falsetti (I) | IESO | | ✓ | | | | | | | | | | |

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| | Commenter | Organization | Industry Segment | | | | | | | | | | | |
|-----|------------------------------|---------------------------------|------------------|---|---|---|---|---|---|---|---|----|---|---|
| | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | | |
| | (G5) | | | | | | | | | | | | | |
| 51. | Biju Gopi (G8) | IESO | | ✓ | | | | | | | | | | |
| 52. | Matt Goldberg (G5) | ISO New England, Inc. | | ✓ | | | | | | | | | | |
| 53. | Kathleen M. Goodman (I) (G8) | ISO New England, Inc. | | ✓ | | | | | | | | | | |
| 54. | Charles Yeung (G5) | ISO/RTO Council | | ✓ | | | | | | | | | | |
| 55. | Jim Cyrulewski (G6) | JDRJC Associates | | | | | | | | | ✓ | | | |
| 56. | Mike Gammon | Kansas City Power & Light | ✓ | | | | | | | | | | | |
| 57. | Mike Gammon (G13) | KCPL | ✓ | | ✓ | | ✓ | | | | | | | |
| 58. | Jim Useldinger (G13) | KCPL | ✓ | | ✓ | | ✓ | | | | | | | |
| 59. | Clark Hawkins (G3) | Lee County Electric Cooperative | | | ✓ | | | | | | | | | |
| 60. | Eric Ruskamp (G7) | LES | ✓ | | ✓ | | ✓ | ✓ | | | | | | |
| 61. | Donald Nelson (G8) | MA Dept of Public Utility | | | | | | | | | | | ✓ | |
| 62. | Joseph DePoorter (I) (G6) | Madison Gas and Electric | | | | ✓ | | | | | | | | |
| 63. | Craig McLean | Manitoba Hydro Energy Board | ✓ | | ✓ | | ✓ | ✓ | | | | | | |
| 64. | Tom Mielnik (G7) | MEC | ✓ | | ✓ | | ✓ | ✓ | | | | | | |
| 65. | Robert Coish | MHEB | ✓ | | ✓ | | ✓ | ✓ | | | | | | |
| 66. | Marie Knox (G6) | Midwest ISO | | ✓ | | | | | | | | | | |
| 67. | Terry Bilke (I) (G7) | Midwest ISO | | ✓ | | | | | | | | | | |
| 68. | Bill Phillips (G5) | Midwest ISO | | ✓ | | | | | | | | | | |
| 69. | Jason Marshall (G6) | Midwest ISO | | ✓ | | | | | | | | | | |
| 70. | Carol Gerou (G6) (G7) | Minnesota Power | ✓ | | ✓ | | ✓ | | | | | | | |
| 71. | Larry Brusseau (G7) | MRO | | | | | | | | | | | | ✓ |
| 72. | Michael Brytowski (G7) | MRO | | | | | | | | | | | | ✓ |
| 73. | Mike Ranalli (G8) | National Grid US | ✓ | | | | | | | | | | | |
| 74. | Randy McDonald (G8) | NBSO | | ✓ | | | | | | | | | | |
| 75. | Lee Pedowicz (G8) | NCC | | | | | | | | | | | | ✓ |
| 76. | Jim Castle (G5) | New York ISO | | ✓ | | | | | | | | | | |
| 77. | Greg Campoli (G8) | New York ISO | | ✓ | | | | | | | | | | |
| 78. | Ralph Rufrano | New York Power Authority | ✓ | | | | | | | | | | | |

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| | Commenter | Organization | Industry Segment | | | | | | | | | | | |
|------|----------------------------|----------------------------------|------------------|---|---|---|---|---|---|---|---|----|--|---|
| | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | | |
| | (G8) | | | | | | | | | | | | | |
| 79. | Rick White | Northeast Utilities | ✓ | | | | | | | | | | | |
| 80. | Murale Gopinathan (G8) | Northeast Utilities | ✓ | | | | | | | | | | | |
| 81. | Guy V. Zito (I) (G8) | NPCC | | | | | | | | | | | | ✓ |
| 82. | Al Adamson (G8) | NY State Reliability Council | | | | | | | | | | | | ✓ |
| 83. | Pete Kuebeck (G13) | OG&E | ✓ | | ✓ | | | ✓ | | | | | | |
| 84. | Scott R. Cunningham | Ohio Valley Electric Corporation | ✓ | | | | | | | | | | | |
| 85. | Stan Southers/Ellis Rankin | Oncor | ✓ | | | | | | | | | | | |
| 86. | Brian Gooder (G8) | Ontario Power Generation | | | | | | ✓ | | | | | | |
| 87. | Lauri Jones | Pacific Gas & Electric | ✓ | | ✓ | | | ✓ | | | | | | |
| 88. | Patrick Brown (G5) | PJM Interconnection | | ✓ | | | | | | | | | | |
| 89. | Jack Bernhardsen (G14) | PNSC | | | | | | | | | | | | ✓ |
| 90. | David K. Thorne | Potomac Electric Power Company | ✓ | | ✓ | | | | | | | | | |
| 91. | Bill Roeder (G9) | PPL Eastern Fossil & Hydro | | | | | | ✓ | | | | | | |
| 92. | Joe Kisela (G9) | PPL Eastern Fossil & Hydro | | | | | | ✓ | | | | | | |
| 93. | Mark Heimbach (G9) | PPL EnergyPlus | | | | | | | ✓ | | | | | |
| 94. | Jon Williamson (G9) | PPL EnergyPlus | ✓ | | | | | | ✓ | | | | | |
| 95. | Annette M. Bannon | PPL Generation LLC | | | | | | ✓ | ✓ | | | | | |
| 96. | David Gladey (G9) | PPL Susquehanna | | | | | | ✓ | | | | | | |
| 97. | Tom Bradish | Reliant Energy | | | ✓ | | | ✓ | ✓ | | | | | |
| 98. | Scott Peterson | San Diego Gas and Electric | ✓ | | ✓ | | | | | | | | | |
| 99. | Terry L. Blackwell (G10) | Santee Cooper | ✓ | | | | | | | | | | | |
| 100. | S. Tom Abrams (G10) | Santee Cooper | ✓ | | | | | | | | | | | |
| 101. | Glenn Stephens (G10) | Santee Cooper | ✓ | | | | | | | | | | | |
| 102. | Rene Free (G10) | Santee Cooper | ✓ | | | | | | | | | | | |
| 103. | Kristi Boland (G10) | Santee Cooper | ✓ | | | | | | | | | | | |
| 104. | Jim Peterson (G10) | Santee Cooper | ✓ | | | | | | | | | | | |
| 105. | Wayne Ahl (G10) | Santee Cooper | ✓ | | | | | | | | | | | |
| 106. | John Ciza (G12) | Southern Company Generation | | | | | | | ✓ | | | | | |
| 107. | Roman Carter (G11) | Southern Company Transmission | ✓ | | | | | | | | | | | |

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| Commenter | | Organization | Industry Segment | | | | | | | | | | | |
|-----------|------------------------|-------------------------|------------------|---|---|---|---|---|---|---|---|----|--|---|
| | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | | |
| 108. | Tom Higgins (G12) | Southern Generation | | | | | | ✓ | | | | | | |
| 109. | Marc Butts (G11) | Southern Transmission | ✓ | | | | | | | | | | | |
| 110. | J.T. Wood (G11) | Southern Transmission | ✓ | | | | | | | | | | | |
| 111. | Jim Busbin (G11) | Southern Transmission | ✓ | | | | | | | | | | | |
| 112. | Mike Oatts (G11) | Southern Transmission | ✓ | | | | | | | | | | | |
| 113. | Jim Griffith (G11) | Southern Transmission | ✓ | | | | | | | | | | | |
| 114. | Raymond Vice (G11) | Southern Transmission | ✓ | | | | | | | | | | | |
| 115. | Doug McLaughlin (G11) | Southern Transmission | ✓ | | | | | | | | | | | |
| 116. | Robert C. Rhodes (G13) | SPP | ✓ | ✓ | ✓ | | | ✓ | | | | | | |
| 117. | Jason Smith (G13) | SPP | | ✓ | | | | | | | | | | |
| 118. | Kyle McMenamin (G13) | SPS | ✓ | | ✓ | | | ✓ | | | | | | |
| 119. | Stephen Joseph | Tampa Electric Company | ✓ | | ✓ | | | ✓ | | | | | | |
| 120. | Art Nordlinger (G3) | Tampa Electric Company | ✓ | | | | | | | | | | | |
| 121. | Larry Whanger (G1) | VA ELECTRIC & POWER CO. | | | | | | ✓ | | | | | | |
| 122. | Gibbs Goldman (G1) | VA ELECTRIC & POWER CO. | | | | | | ✓ | | | | | | |
| 123. | Nancy Bellows (G14) | WAPA | | | | | | | | | | | | ✓ |
| 124. | Robert Temple | WAPA | ✓ | | | | | | ✓ | | | | | |
| 125. | Jim Haigh (G7) | WAPA | ✓ | | | | | | ✓ | | | | | |
| 126. | Howard Rulf | We Energies | | | ✓ | ✓ | ✓ | | | | | | | |
| 127. | Linda Perez (G14) | WECC | | | | | | | | | | | | ✓ |
| 128. | Jim Medford (G13) | Westar | ✓ | | ✓ | | | ✓ | | | | | | |
| 129. | Neal Balu (G7) | WPS | | | ✓ | ✓ | ✓ | ✓ | | | | | | |
| 130. | Pam Oreschnick | XCEL | ✓ | | ✓ | | | ✓ | ✓ | | | | | |
| 131. | Terri K. Eaton | Xcel Energy | ✓ | | ✓ | | | ✓ | ✓ | | | | | |

I – Individual

G1 – Dominion Resources Services, Inc.

G2 – FirstEnergy Corp.

G3 – Florida Reliability Coordinating Council

G4 – Hydro One Networks, Inc.

G5 – ISO/RTO Council

G6 – Midwest ISO (1)

G7 – Midwest Reliability Organization

G8 – NPCC Regional Standards Committee

G9 – PPL Generation

G10 – Santee Cooper

G11 – Southern Transmission

G12 – Southern Generation

G13 – SPP Operating Reliability Working Group

G14 – WECC Reliability Coordination Comments Work Group

Index to Questions, Comments, and Responses

1. The SDT has changed the title and purpose of both standards in order to clarify what is meant by restoration in these standards. Does this change sufficiently clarify the intent? If not, please explain in the comment area. 8
2. The SDT has attempted to clarify when restoration ends in both standards as part of R1. Do you agree with this change? If not, please explain in the comment area..... 25
3. The SDT has clarified EOP-005-2, R10 to emphasize exactly which field switching personnel need to be trained. Do you agree with this change? If not, please explain in the comment area. 35
4. The SDT has added Violation Risk Factors and Time Horizons to both standards. Do you agree with the assignments made? If not, please explain in the comment area.. 44
5. The SDT has added an Implementation Plan. Do you agree with the proposed Implementation Plan? If not, please identify specifically what you feel needs to be modified in the comment area. 51

1. The SDT has changed the title and purpose of both standards in order to clarify what is meant by restoration in these standards. Does this change sufficiently clarify the intent? If not, please explain in the comment area.

Summary Consideration: The comments received were mainly for clarification purposes. Appropriate changes have been made to the text to accomplish those clarifications. In addition, the SDT has clarified its intent in EOP-006-2 to accommodate restoration coordination by the RC with and without Blackstart Resources. Text was changed as follows:

EOP-005-2:

- **Title:** System Restoration ~~and from~~ Blackstart Resources
- **Definition: Blackstart Resource:** A generation Facility and associated set of equipment which has the ability to be started without support from the System or ~~is designed~~ to remain energized without connection to the remainder of the System, with the ability to energize a ~~dead (de-energized)~~ bus, meeting the Transmission Operator's restoration plan needs for real and reactive power capability, frequency and voltage control, and that has been included in the Transmission Operator's restoration plan.
- **Purpose:** Ensure plans and Facilities are established, and personnel are ~~prepared in place~~ to enable System restoration from Blackstart Resources to ensure reliability is maintained during restoration and priority is placed on restoring the Interconnection.
- **R1.1:** A description of the manner in which ~~obligations Agreements~~ for off-site power requirements of nuclear power plants will be fulfilled ~~during System restoration~~.
- **R1.6:** ~~A statement accounting for the possibility that restoration can not be completed as expected indicating that in situations where the actual conditions do not match the studied conditions, the System Operator shall use professional judgment to deviate from the System restoration plan.~~ (this refers to R1.6 in the second posting).
- **R2:** Each Transmission Operator, ~~in order to ensure the reliability of the Interconnection~~, shall distribute its approved restoration plan to the ~~reliability-related operational~~ entities identified in its restoration plan, ~~and to its Reliability Coordinator within thirty calendar days of having received approval from its Reliability Coordinator.~~
- **R3:** Each Transmission Operator shall review its restoration plan and submit it to its Reliability Coordinator ~~on an annual (rolling 365 days) basis~~ annually ~~on a mutually agreed predetermined schedule.~~
- **R6:** Each Transmission Operator shall verify through ~~a combination of~~ analysis of actual events, steady state and dynamic simulations, or testing, that its documented restoration plan accomplishes its intended function. This shall be completed every five years at a minimum. Such simulations or testing shall analyze:
- **R7.2:** ~~Each affected Transmission Operator shall give high priority to restoration of off-site power to nuclear power plants as directed by the Reliability Coordinator and in agreement with reliability standard NUC-001.~~ deleted (this refers to R7.2 in the second posting).
- **R7.4:** If the restoration plan cannot be completed as expected because actual conditions do not match the studied conditions, the Transmission Operator shall utilize its restoration plan philosophies to implement alternative measures for achieving System restoration.
- **R9.2.1:** The ability to start the unit when isolated with no support from the BES ~~or when designed to remain energized without connection to the remainder of the System.~~

- **R9.2.2:** The ability to energize a ~~dead (de-energized)~~ bus. If it is not possible to energize a ~~dead (de-energized)~~ bus during the test, the testing entity must affirm that the unit has the capability to energize a ~~dead (de-energized)~~ bus such as verifying that the breaker close coil relay can be energized with the voltage and frequency monitors ~~controls~~ disconnected.

EOP-006-2:

- **Title:** System Restoration ~~from Blackstart Resources~~ – Coordination
- **Purpose:** Ensure plans, ~~and Facilities~~ are established and personnel are ~~in place~~ prepared to enable effective coordination of the System restoration ~~from Blackstart Resources~~ process to ensure reliability is maintained during restoration and priority is placed on restoring the Interconnection.
- **R1:** Each Reliability Coordinator shall have a Reliability Coordinator Area restoration plan. The scope of the Reliability Coordinator's restoration plan starts when Blackstart Resources are utilized to re-energize a shut down area of the BES, or separation has occurred between neighboring Reliability Coordinators, or an energized island has been formed on the BES within the Reliability Coordinator Area. The scope of the Reliability Coordinator's restoration plan ends when all of its Transmission Operators are interconnected and it is connected to all of its neighboring Reliability Coordinators. ~~The restoration plan shall be written such that it allows for the restoration of its area following a Disturbance in which one or more areas of the Bulk Electric System (BES) shuts down and the use of Blackstart Resources is required to restore the shut down area to service, to a state whereby the choice of the next Load to be restored is not driven by the need to control frequency or voltage for an event that requires the utilization of Blackstart Resources regardless of whether the Blackstart Resource is located within the Reliability Coordinator's Area.~~ The restoration plan shall include:
 - **R1.8:** Identification of the Reliability Coordinator as the primary contact for disseminating information regarding restoration to neighboring Reliability Coordinators, and to Transmission Operators, and Balancing Authorities within its Reliability Coordinator Area.
 - **R7:** ~~Following a Disturbance in which one or more areas of the BES shuts down and the use of Blackstart Resources is required to restore the shut down area to service, each~~ Each Reliability Coordinator shall work ~~in conjunction~~ with affected Balancing Authorities, Generator Operators, and Transmission Operators as well as neighboring Reliability Coordinators to monitor restoration progress, coordinate restoration, and take actions to restore the BES frequency within acceptable operating limits. Such actions may include but not be limited to adjusting generation, placing additional generators on line, or shedding Load.
 - **R7.1:** If the restoration plan cannot be completed as expected because actual conditions do not match the studied conditions, the Reliability Coordinator shall utilize its restoration plan philosophies to implement alternative measures for achieving System restoration.
 - **R8:** ~~Following a Disturbance in which one or more areas of the BES shuts down and the use of Blackstart Resources is required to restore the shut down area to service, the~~ The Reliability Coordinator shall authorize and coordinate resynchronizing ~~isolated~~ islanded areas that bridge boundaries between Transmission Operators or Reliability Coordinators.
 - **R8.1:** If the restoration plan cannot be completed as expected because actual conditions do not match the studied conditions, the Reliability Coordinator shall utilize its restoration plan philosophies to implement alternative measures for achieving System restoration.

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- o **R9:** (This requirement was moved to R1.8.)
- o **M7:** ~~If there has been a Disturbance in which Blackstart Resources have been utilized, each~~ Each Reliability Coordinator involved shall have evidence such as voice recordings, e-mail, **dated computer printouts**, or operator logs, that it monitored and coordinated restoration progress in accordance with Requirement R7.
- o **M10:** Each Reliability Coordinator shall have evidence ~~such as training records~~ that it conducted two System restoration drills, exercises, or simulations per year **and that included** Transmission Operators and Generator Operators ~~with Blackstart Resources included in the restoration plan were invited~~ in accordance with Requirement R11.

| #1 – Commenter | Yes | No | Comment |
|--|-----|----|---|
| Constellation | | X | <p>The title "System Restoration from Blackstart Resources" implies that only bottom-up approaches to system restoration should be included in everyone's restoration plan. Restoration Plans have to include the option to restore by utilizing external ties (top-down approach). In addition, many of the requirements are not directly linked to "System Restoration from Blackstart Resources", for example, off-site power for nuclear power plants, operating procedures to re-establish connections, etc. We suggest the following title; "System Restoration Plan & Validation Requirements" to better describe the intent of the standards.</p> <p>Also, if the title is not changed, there is inconsistency in the page headings (System Restoration and...) and the title (System Restoration from...).</p> |
| <p>Response: The intent of the SDT is that EOP-005-2 only applies to restoration when utilizing Blackstart Resources by the TOP and GOP. Restoration from a partial shutdown is addressed in other standards including the revised EOP-006-2, TOP-001, TOP-004, and EOP-001. Modifications have been made to EOP-006-2 to reflect the potential for restoration with or without the use of Blackstart Resources.</p> <p>The SDT believes that the items listed in your comment are part of the restoration plan required by these standards and therefore are applicable under the title.</p> <p>The heading has been modified to match the title.</p> | | | |
| Entergy Services (2) | | X | <p>What is the title for EOP-005? The Header indicates System Restoration and Blackstart Resources - Operations. The "Title" in Section A indicates System Restoration from Blackstart Resources - Operations. Either one is satisfactory, just be consistent.</p> <p>It is still not clear as to whether this standard applies if restoration occurs without the use of a Blackstart Resource (i.e. a neighboring BA instead of a generating facility).</p> |

Consideration of Comments on 2nd Draft of Standards for System Restoration and Blackstart (Project 2006-03)

| #1 – Commenter | Yes | No | Comment |
|---|----------|----------|--|
| <p>Response: The heading has been modified to match the title.</p> <p>The intent of the SDT is that EOP-005-2 only applies to restoration when utilizing Blackstart Resources by the TOP and GOP. Restoration from a partial shutdown is addressed in other standards including the revised EOP-006-2, TOP-001, TOP-004, and EOP-001. Modifications have been made to EOP-006-2 to reflect the potential for restoration with or without the use of Blackstart Resources.</p> | | | |
| <p>IESO ISO New England ISO/RTO Council MISO (2)</p> | <p>X</p> | <p>X</p> | <p>EOP-005 We agree with the revision to the purpose but not the title, which should remain as [System Restoration "and" Blackstart Resources], as in the heading but not "from" in the Title.</p> <p>EOP-006 The Heading and the Title are the same in this case but we believe they both should be changed to "System Restoration and Blackstart Resources" since there are requirements assigned to the operator of the Blackstart Resources. The subject of this standard is not just System Restoration; its testing and readiness of Blackstart Resources as well.</p> |
| <p>Response: The heading has been modified to match the title.</p> <p>The standard covers the readiness to restore the system from a blackout condition utilizing Blackstart Resources and addresses all aspects of what it takes to be a Blackstart Resource.</p> <p>The intent of the SDT is that EOP-005-2 only applies to restoration when utilizing Blackstart Resources by the TOP and GOP. Restoration from a partial shutdown is addressed in other standards including the revised EOP-006-2, TOP-001, TOP-004, and EOP-001. Modifications have been made to EOP-006-2 to reflect the potential for restoration with or without the use of Blackstart Resources.</p> | | | |
| <p>NPCC RSC</p> | <p>X</p> | <p>X</p> | <p>EOP-005 We agree with the revision to the purpose but not the title, which should remain as [System Restoration "and" Blackstart Resources], as in the document header but not "from" in the Title. The subject of this standard is not just System Restoration; its testing and readiness of Blackstart Resources. To support the Purpose, plans and facilities need to be in place. There are currently no testing requirements for generation facilities "capable of remaining energized without connection to the remainder of the system". If these requirements are not developed, the Blackstart Resource definition needs to be modified.</p> <p>EOP-006 The Header and the Title are the same in this case but we believe they</p> |

Consideration of Comments on 2nd Draft of Standards for System Restoration and Blackstart (Project 2006-03)

| #1 – Commenter | Yes | No | Comment |
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| | | | both should be changed to "System Restoration and Blackstart Resources" since there are requirements assigned to the operator of the Blackstart Resources. |
| Madison Gas and Electric | X | | For standard, EOP-005-2 Title across top of page is "system restoration AND blackstart resources" A.1. TITLE: states "system restoration FROM blackstart resources", this grammatical error needs to be corrected. |
| Pacific Gas and Electric | X | | In the EOP-005 title it is not the same as the header, caused a little discussion. |
| <p>Response: The heading has been modified to match the title.</p> <p>The standard covers the plans to restore the system from a blackout condition utilizing Blackstart Resources. Testing is part of the determination of a unit being a Blackstart Resource. The testing requirements for units that are designed to remain energized without connection to the remainder of the System have been added to R9.2.1.</p> <p>The intent of the SDT is that EOP-005-2 only applies to restoration when utilizing Blackstart Resources by the TOP and GOP. Restoration from a partial shutdown is addressed in other standards including the revised EOP-006-2, TOP-001, TOP-004, and EOP-001. Modifications have been made to EOP-006-2 to reflect the potential for restoration with or without the use of Blackstart Resources.</p> | | | |
| FirstEnergy | | X | <p>EOP-005: The purpose should be revised as follows to more accurately reflect the functionality of the standard. "Ensure plans and Facilities are established, and the roles and responsibilities of personnel are clearly defined to enable System restoration from Blackstart Resources to ensure reliability is maintained during restoration and priority is placed on restoring the Interconnection." Comment: A restoration plan does not ensure that personnel are in place. It can only define roles and responsibilities. The operators must ensure the personnel are in place when needed.</p> <p>EOP-006: The purpose should be revised as follows to more accurately reflect the functionality of the standard. "Ensure plans, and Facilities are established and the roles and responsibilities of personnel are clearly defined to enable effective coordination of the System restoration from Blackstart Resources to ensure reliability is maintained during restoration and priority is placed on restoring the Interconnection." Comment: A restoration plan does not ensure that personnel are in place. It can only define roles and responsibilities. The Reliability Coordinators must ensure the personnel are in place when needed.</p> |
| FRCC | X | X | We would recommend some slight simplification of the Purpose statements on both standards: |

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| #1 – Commenter | Yes | No | Comment |
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| | | | Purpose: Ensure plans and procedures are in place, and remain current, that enable reliable Interconnection restoration from Blackstart Resources. |
| San Diego Gas and Electric | | X | <p>Not sure how you have reliability during a restoration. That is why you are restoring the system. There's been a loss of reliability. Suggested revision below:</p> <p>Purpose: Ensure plans, Facilities, and personnel are in place to enable reliable System restoration from Blackstart Resources and to ensure priority is placed on restoring the Interconnection.</p> |
| SPP ORWG | | X | <p>We recommend the following to replace the draft purposes.</p> <p>EOP-005-2: Ensure plans and Facilities are established and personnel are in place to enable System restoration from Blackstart Resources in order to maintain reliability during restoration and assign priority to restoring the Interconnection.</p> <p>EOP-006-2: Ensure plans and Facilities are established and personnel are in place to enable effective coordination of the System restoration from Blackstart Resources process in order to maintain reliability during restoration and assign priority to restoring the Interconnection.</p> |
| We Energies | | X | Under the 'Purpose' section, both standards read: "... ensure reliability is maintained during restoration ..." Should read something like: "... ensure restoration plans accommodate reliability concepts ..." It is not reasonable to assume that "reliability" can be maintained throughout every restoration. |
| <p>Response: In the Purpose of both standards, "in place" has been changed to "prepared". During restoration, maintaining reliability is paramount to making sure that the restored system does not black out again.</p> | | | |
| CenterPoint Energy | X | X | The changes to the title and purpose appear to sufficiently clarify this is restoration that requires utilizing a Blackstart Resource. However, changing the wording from personnel are "available" to personnel are "in place" to enable System restoration does not appear to be a material change. Perhaps the true intent is that personnel are 'prepared' to enable System restoration. An intent, or purpose, involving personnel would be more applicable in a Personnel Performance, Training, and Qualifications standard. |
| MRO | | X | EOP-005-02 & EOP-006 - Clarify what "in place" means. The MRO has concerns that this would require additional staffing at substations or |

Consideration of Comments on 2nd Draft of Standards for System Restoration and Blackstart (Project 2006-03)

| #1 – Commenter | Yes | No | Comment |
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| | | | remote sites. |
| OVEC | | X | Not sure what is meant by "personnel in place". Does this imply that personnel must be stationed 24X7 at all locations in the event restoration is required? It is also not clear how "reliability is maintained during restoration", since if we are in restoration mode, reliability is shot. |
| Santee Cooper | | X | Could the SDT clarify the meaning of "personnel are in place" that is included in the purpose of both standards? How is that different from "personnel are available"? |
| Response: In the Purpose of both standards, "in place" has been changed to "prepared". | | | |
| PPL Generation LLC | | X | The changes made to the title and purpose of these standards has improved the clarity but PPL believes that the present title and purpose are still confusing. PPL recommends the title for EOP-006 be changed to Reliability Coordinator Plan for System Restoration using Blackstart Resources. PPL Recommends the title of EOP-005 be changed to Implementation of the System Restoration Plan using Blackstart Resources. Adding to the confusion is that EOP-005 is meant to implement the plan identified in EOP-006 but numerically comes before the standard. If possible, we suggest renumbering the standards so that the standard requiring the TO/GO to implement the System Restoration Plan comes after the standard that requires the RC to provide the plan. |
| Response: EOP-005 describes the TOP and Blackstart GOPs their requirements for plans and implementation of restoration plans. EOP-006 describes the RC's functions when EOP-005 is complete. | | | |
| Southern Company Transmission Southern Company Generation | | X | <p>The SDT has not provided Industry an appropriate means to discuss other deficiencies of the standard separate from the 5 specific questions being asked. Therefore, we have provided our concerns and comments here in question #1 of this comment form to ensure the SDT can see our concerns.</p> <p>1. In our response to the initial draft of EOP-005, we indicated that applicability to the BA function was missing. In its response, the SDT disagreed even though Southern Company Transmission was not the only entity to point it out. We respectfully disagree with the SDT's response and suggest the concern represented by the large footprint and load of the entities voicing similar concerns about the BA omission is too much of the Eastern Interconnection to be ignored. We feel that those Requirements in EOP-005-1 applying to the BA (e.g. R5, R6, and R11.3) are still appropriate.</p> |

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| #1 – Commenter | Yes | No | Comment |
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| | | | <p>2. It appears as if the SDT in its re-titling (i.e. changing “and” to “from”) and text changes to the Purpose and Requirements is limiting the need for system restoration plans and training to those events that only require the use of Blackstart Resources to establish islands internal to the TOP area. This is often referred to as an “inside-out” strategy. This restriction would seem to imply no applicability of the standards to other restoration schemes where, for example, sources external to the shutdown area are used for cranking power (i.e. outside-in strategy). Such a limitation of applicability would not seem appropriate since both strategies require similar actions by the TOP to control voltage and restore service the critical locations as the SDT indicates in EOP-005, R1.8. The “outside-in” scenario would most likely involve a relatively normal operating area and thus some applicability to the associated BA. This is because a mechanism/plan to manage/coordinate frequency control needs to exist between the operating BA and restoring TOP as the shutdown area is restored.</p> <p>3. Even if the Standard is indeed limited to “inside-out” restoration, there needs to be applicability to the BA such that the transition state where the BA assumes responsibility for frequency, reserves and interchange from the TOP is done reliability and effectively per the other standards. In simple terms, the restoration is much like a two segment relay race. The first runner (TOP) with the baton (power system operation) is responsible for a rapid yet accurate (i.e. stay within the lane/limits) movement of the baton. The second runner (BA) must remain aware of the pace and location of the first in order to effectively assume responsibility of the baton from the first. If the second runner is not allowed to coordinate their steps with the first runner (ignore first runner), the results can be undesirable. Similarly, the first runner (TOP) cannot ignore the readiness of the second to assume responsibility. They can not just “throw” the baton at the second or just lay it on the ground at whatever point it desires and hope they pick it up. The first must place it in “hand” of the second runner prepared to receive it. In system restoration, as in the relay race, responsibility does not start for the BA and end for the TOP at the transition state but begins (albeit at different levels which evolve) for both at the initiation of the restoration. This is particularly true since the exact state where, as the SDT defines it, “the choice of the next Load to be restored is not driven by the need to control frequency” is not a unique state and both parties must acknowledge</p> |

Consideration of Comments on 2nd Draft of Standards for System Restoration and Blackstart (Project 2006-03)

| #1 – Commenter | Yes | No | Comment |
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| | | | <p>it's been reached before responsibility is transferred. The responsibilities of the TOP and BA are not the same responsibilities but there are responsibilities linking the two during restoration that should not be overlooked or dismissed.</p> <p>4. As noted previously in our comments, specific requirements for TOP training in the topics of frequency control and capacity reserve management must be included in R11 since the SDT has taken the position that those activities are in the command-and-control purview of the TOP "until sufficient System has been built where frequency is under control".</p> |
| <p>Response:</p> <p>1. Balancing is not a function in restoration. A restoration area acts like an island with no balancing until restoration described in this standard is complete. Once this standard's requirements are complete the BA functionality can be put in place.</p> <p>2. The intent of the SDT is that EOP-005-2 only applies to restoration when utilizing Blackstart Resources by the TOP and GOP. Restoration from a partial shutdown is addressed in other standards including the revised EOP-006-2, TOP-001, TOP-004, and EOP-001. Modifications have been made to EOP-006-2 to reflect the potential for restoration with or without the use of Blackstart Resources.</p> <p>3. The SDT intends that the "relay runner" hand off be to the RC instead of the BA. The RC can involve the BA as the standard allows it (see EOP-006-2, R7).</p> <p>4. The SDT believes that the statement indicating that the restoration plan shall include acceptable frequency and voltage limits in R1 essentially mandates that frequency control and capacity reserve management are included as part of EOP-005-2 R11.1 (system restoration philosophy).</p> | | | |
| WECC RCCWG | | X | <p>The RCCWG feels the scope of restoration is much too restrictive in this draft standard. Disturbances that cause islanding in the system and require restoration of islands, etc. are much more common than events that require use of blackstart resources. The RCCWG believes that a standard to be followed in assessing, stabilizing, and restoring the system, from less than a blackstart situation with requirements for functional entity protocol and procedure needs to remain. The WECC RCCWG believes that blackstart can be included in requirements in this standard as it is today or that another standard should be drafted to solely address blackstart.</p> |

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| #1 – Commenter | Yes | No | Comment |
|--|-----|----|---|
| | | | <p>Additionally, the WECC RCCWG believes that wording regarding the purpose and/or term definitions have now been placed into R1 in both EOP-005 and EOP-006. The group recommends that language referring to the purpose and/or definitions be removed from the standard requirements and placed into other sections of the standard. The R1 Requirement (not addressing the sub-requirements) should simply be to have a restoration plan.</p> |
| <p>Response: The intent of the SDT is that EOP-005-2 only applies to restoration when utilizing Blackstart Resources by the TOP and GOP. Restoration from a partial shutdown is addressed in other standards including the revised EOP-006-2, TOP-001, TOP-004, and EOP-001. Modifications have been made to EOP-006-2 to reflect the potential for restoration with or without the use of Blackstart Resources.</p> | | | |
| <p>The additional words in R1 help define when the standard applies and more importantly when the standard no longer applies.</p> | | | |
| Xcel Energy | | X | <p>The titles and purpose do little to clarify what "restoration" means as that term is used in the standards. Rather, it appears that the definition of restoration is embedded in R1 of EOP-005. Xcel Energy is concerned that in general the proposed standards do little to clarify expectations for either TOs or GOs. For example:</p> <ul style="list-style-type: none"> -EOP-005 R1 requires that the RC approve the TO's restoration plan, but provides no criteria for that approval; Response: The RC approves the plan per EOP-006-2, R5. -EOP-005 R1.7 requires that the TO have operating procedures to reestablish connections within the TOs system for areas that have become separated while EOP-006, R1.1 requires that RC s have procedures for restoring the integrity of the interconnection. Arguably, both situations involve integrity of the interconnection yet it is not clear where the RC's authority begins and ends Response: EOP-005-2, R1.7 strictly deals with areas under the control of the TOP. EOP-006-2, R1.1 deals with a much higher level of establishing the integrity of the Interconnection. -EOP-005 R1.5 gives the TO the responsibility to identify acceptable operating voltage and frequency limits during restoration, while EOP-006 R1.5 gives the same responsibility to the RC Response: EOP-005-2, R1 helps define when the standard applies and more importantly when the standard no longer applies. EOP-006-2 would take precedence then. <p>Other provisions of the standard are confusing. For example, EOP-005 R1.1 requires the TO to provide "A description of the manner in which all</p> |

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| #1 – Commenter | Yes | No | Comment |
|----------------|-----|----|--|
| | | | <p>obligations for off-site power requirements of nuclear power plants will be fulfilled." What is the difference between obligations and requirements in this provision, and what exactly is expected of the TO here? Further, issues relating to off-site power for nuclear facilities are already addressed in NUC-001 R9.3.5. Duplication of substance in multiple standards can lead to confusion and should be avoided. Response: EOP-005, R1.1 has been re-worded and R7.2 has been removed because of coordination with R9.3.5 in NUC-001.</p> <p>What is the value of a requirement that says that a plan must include "A statement accounting for the possibility that restoration cannot be completed....?" Wouldn't it be better to require the plan to include contingency measures in the event the system cannot be properly restored rather than just having "a statement" that a contingency might arise? Response: EOP-005-2, R1.6 has been removed and the concept added to R7.3.</p> <p>What is the objective behind requiring updates on a 365-day rolling basis? Xcel Energy believes that plans are durable enough to support revision on an annual basis and there is no need to control and direct the manner in which entities undertake plan revisions by requiring updates on a rolling 365-day basis. Response: The rolling 365-day basis has been removed from EOP-005-2, R3. The submittal must now occur annually on a mutually agreed predetermined schedule.</p> <p>The measures set out in the standard appear to serve little purpose in enhancing reliability. Xcel Energy sees little value in requiring an entity to provide receipts proving it provided documentation to its RC when the RC will know whether or not it received a particular update. This emphasis on retention of arguably trivial pieces of data detracts from what should be the objective of the standard--to ensure comprehensive and integrated restoration planning and operations. Response: Documentation receipts are used to determine if actions required by the standards are being performed and help with compliance monitoring.</p> <p>Xcel Energy believes that a fundamentally different approach to development requirements relating to planning and operations during</p> |

Consideration of Comments on 2nd Draft of Standards for System Restoration and Blackstart (Project 2006-03)

| #1 – Commenter | Yes | No | Comment |
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| | | | <p>system restoration may be needed. For example, both standards could benefit from a clear delineation of the roles and responsibilities of TOs and GOs on the one hand and RCs on the other hand. With roles and responsibilities more clearly defined, more clear direction on expectations regarding system restoration could be developed. Further, required periodic planning and coordination sessions (potentially every 5 years) could provide much greater opportunities for coordinated integration of plans than passing plans back and forth every year. As part of the planning effort, a list of key elements of plans could be developed and then implemented rather than driving structures of plans on the basis of specific listed elements that may or may not adequately cover all situations.</p> <p>Response: The SDT strives to delineate the roles of TOPs and GOPs in the EOP-005 standard and the role of RCs in the EOP-006 standard. Documentation serves as a basis for training and reference. The SDT encourages Xcel to utilize whatever means necessary to achieve readiness for restoration. Again, it also serves as evidence for use in compliance monitoring.</p> |
| <p>Response: See the in-line responses.</p> | | | |
| <p>Duke Energy</p> | <p>X</p> | <p>X</p> | <p>General comments on EOP-005-2:</p> <p>1. R1.2 says that the TO's restoration plan must include procedures for restoring the integrity of the Interconnection under the direction of the Reliability Coordinator. It should say under the "oversight" of the RC. As the SDT noted in Consideration of Comments: "Beginning with the system collapse, the TOP restores the Transmission System, restores interconnections, and supplies offsite power to nuclear generating stations. This is accomplished on a command and control basis by the Transmission Operator in conjunction with the GOP. Once interconnections have been reestablished and the Transmission System restored, the restoration of firm Load can begin. The TOP is restoring the System through command and control until a sufficient System has been built where frequency is under control."</p> <p>Response: The SDT believes that EOP-005-2, R1.2 is correct as stated since the RC has the responsibility for the Interconnection (defined term).</p> <p>2. R2 should be clarified to state that the TO shall distribute its plan to "appropriate" entities identified in the plan. The plan contains highly sensitive critical energy infrastructure information that is not needed by</p> |

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| #1 – Commenter | Yes | No | Comment |
|----------------|-----|----|---|
| | | | <p>entities such as police, fire, etc. Response: The entities mentioned in EOP-005-2, R2 are functional entities as described in the NERC Functional Model. R2 has been modified to use the phrase, "reliability-related operational entities" to clarify this point.</p> <p>3. R4 We continue to believe that an annual update is sufficient. Response: The rolling 365-days basis has been removed from EOP-005-2, R3. The submittal must occur annually on a mutually agreed predetermined schedule.</p> <p>4. R10 states that "Each Transmission Operator shall distribute its Blackstart Resource testing requirements to each Generator Operator in its area that operates a Blackstart Resource." However, TO's and GO's don't communicate directly. The Balancing Authority distributes testing requirements to generators. Response: This communication is special for restoration purposes only. It is important that TOPs communicate directly to the GOPs with Blackstart units and the SDT has provided for this in EOP-005-2, R14.</p> <p>5. R13 and R19 should specify that participation in one drill per year is sufficient. Response: R13 applies to TOPs and R19 applies to GOPs. It is likely that both TOPs and GOPs will be included in the same drills, but the possibility does exist that drills will cover one function, whereby attendance at more than one drill may be required. Additionally RCs may elect to perform more than one drill each year and attendance at all required drills is required. EOP-006, R11 limits the RC to 2 drills per year. The SDT believes that this is a reasonable number.</p> <p>6. R16 states that GO's must inform TO's of any known capability changes. However, the TO's and GO's don't communicate directly. This information is communicated through the BA, and should be reflected in the requirement. Response: This communication is special for restoration purposes only. It is important that TOPs communicate directly to the GOPs with Blackstart units and the SDT has provided for this in EOP-005-2, R14.</p> |

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| #1 – Commenter | Yes | No | Comment |
|---|-----|----|--|
| <p>Response: See the in-line responses.</p> | | | |
| Hydro One Networks | X | X | <p>EOP-005-2 keep consistent the document header and title.</p> <p>The definition of Blackstart Resource (EOP-005-2) should be changed to remove the term 'de-energized' as this term is synomous with isolation/clearance procedures and could be misconstrued as the dead bus being grounded. Suggest complete removal of term or replace with 'off-potential'. EOP-006-2 R8 - the use of the term isolated is incorrect. In terms of safety, isolation is defined as seperated from sources of energy using visible devices (switches, valaves, etc.) - suggest using 'stable' or 'islanded' as an alternative.</p> |
| <p>Response: The heading has been modified to match the title.</p> <p>The term de-energized seems to be a well accepted industry term that does not necessarily include grounding but in order to avoid possible confusion, the terms dead and de-energized have been removed from the definition as well as from EOP-005-2, R9.2.2.</p> <p>R8 in EOP-006-2 has been modified according to the comment - "isolated" was replaced with "islanded."</p> | | | |
| Exelon Corp. | | | <p>Please clarify EOP-005, R2.</p> <p>Who are the "entities"? Where is it specified who the restoration plan must be distributed to?</p> <p>R2. Each Transmission Operator, in order to ensure the reliability of the Interconnection, shall distribute its approved restoration plan to the entities identified in its restoration plan, and to it's Reliability Coordinator.</p> <p>Note that that in EOP-006, R2 says: R2. The Reliability Coordinator, to ensure the reliability of the Interconnection, shall distribute its Reliability Coordinator Area restoration plan to its Transmission Operators, Balancing Authorities, and neighboring Reliability Coordinators.</p> <p>Are the "entities" in EOP-005 R2 the Transmission Operators, Balancing Authorities, and neighboring Reliability Coordinators from R2 EOP-006?</p> <p>Proposed R2. for EOP-005 Each Transmission Operator, in order to ensure the reliability of the</p> |

Consideration of Comments on 2nd Draft of Standards for System Restoration and Blackstart (Project 2006-03)

| #1 – Commenter | Yes | No | Comment |
|---|-----|----|---|
| | | | Interconnection, shall distribute its approved restoration plan to the Balancing Authorities, Reliability Coordinator and neighboring Reliability Coordinators. |
| <p>Response: The entities mentioned in EOP-005-2, R2 are reliability-related operational entities as described in the NERC Functional Model. R2 has been modified to clarify this point. The true listing of the functional entities that must be on the distribution list depend on the plan itself and which entities are included.</p> | | | |
| Con Edison | X | | <p>Con Edison commends the SDT for inserting the word "reliability" into the Purpose. However, the statement "to ensure reliability is maintained during restoration" must be expanded to include "ensure black start resources are reliable and maintain reliability during restoration" or the restoration process cannot be initiated.</p> <p>Con Edison is concerned that the current "blackstart resource" definition includes generation facilities that are extremely unreliable. The definition includes generation facilities that "remain energized without connections to the remainder of the system", or load rejection units. If the SDT wants to include these facilities, then testing requirements in section R17 need to be developed that are specific for load rejection units. Testing requirements must include full load rejection for conditions such as a low frequency disturbance, instability-type disturbance, and a switchyard isolation event. Some of these tests are difficult if not impossible to implement, and therefore, will eliminate "load rejection units" from the standard.</p> <p>Blackstart units are testable from the batteries used to startup diesel engines, gas turbines or hydro units to the startup of steam units. Un-testable and historically unreliable "load rejection" generation facilities must not be included in this standard. This issue was highlighted in comments on the first draft, however these comments were not addressed by the SDT. Commenter's included IESO, NYISO, NBSO, ISO/RTO, MRO SRC, First Energy, ATC, Southern Transmission, NPCC RSC.</p> <p>To help address these concerns, please provide responses to the following questions.</p> <ol style="list-style-type: none"> 1. The SDT did not respond to the NYISO questions concerning reliability of generation islanding schemes (1st draft). Please advise. 2. What testing requirements does the SDT recommend for these load rejection generation facilities? |

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| #1 – Commenter | Yes | No | Comment |
|--|-----|----|--|
| | | | 3. Provide historical reliability data supporting an effort to consider the inclusion of load rejection generation facilities. |
| <p>Response: During restoration, maintaining reliability is paramount to making sure that the restored system does not black out again. This is such a cornerstone of restoration operations that it seemed redundant to the SDT to write it in.</p> | | | |
| <p>Generator load rejection reliability has been reported to be similar to other blackstart units. The results of a survey conducted by the Power Generation Committee as reported in the IEEE Transactions on Power Apparatus & Systems, vol. PAS-100, May 1981, mention rejection tests. According to this survey "Rejection tests are, in general, carried out from full load to unit auxiliaries or no load. However, one utility reported that tests are carried out at three different generator load levels ranging from 20% to 100% of full load." The SDT believes that the additional testing mentioned is already handled in the PRC standards. The SDT does not want to prohibit these types of schemes as long as the TOP and RC are satisfied with the testing that is done.</p> | | | |
| <p>The testing requirements for units that remain energized without connection to the remainder of the System have been added to EOP-005-2, R9.2.1.</p> | | | |
| Northeast Utilities | X | | <p>EOP-005-2, Requirement R2 needs to be evaluated in light of confidentiality and critical energy infrastructure information. Overall plan can be shared, but specifics may need to reside in confidential appendices.</p> <p>EOP-005-2, Requirement R6; propose re-wording as follows: R6. Each Transmission Operator shall verify, through analysis, that its documented restoration plan accomplishes its intended function. This analysis can include analysis of actual events, physical testing of the plan, application of relevant technical publications or guidelines, or simulations of steady state, dynamic and switching surge performance. This shall be completed every five years at a minimum. Such analysis shall encompass: R6.1. , R6.2., R6.3., ... as proposed</p> |
| <p>Response: The entities mentioned in EOP-005-2, R2 are reliability-related operational entities as described in the NERC Functional Model. R2 has been modified to clarify this point.</p> <p>EOP-005-2, R6 has been modified to clarify the SDT's intent. The SDT does not believe that introducing relevant technical publications is a valid criterion as 'relevant' is a subjective term and lacks specifics with regard to an entity's unique characteristics.</p> | | | |
| Potomac Electric Power Company | X | | M2--Requires evidence such as emails with receipts or registered mail receipts. Suggest that it also specify that acknowledgement of receipt by the entity is acceptable evidence. |
| <p>Response: Items mentioned in M2 are examples. The key word is evidence and e-mail replies are considered as evidence in standards.</p> | | | |

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| #1 – Commenter | Yes | No | Comment |
|---|-----|----|---|
| Ameren | X | | |
| American Electric Power | X | | |
| ATC LLC | X | | |
| Bonneville Power Administration | X | | |
| Consumers Energy | X | | |
| Dominion Resources Services | X | | |
| Dominion Virginia Power | X | | |
| Entergy Services (1) | X | | |
| KCPL | X | | |
| MHEB | X | | |
| MISO (1) | X | | |
| Oncor | X | | Oncor endorses the changes made by the SRB SDT to the previous versions of the draft standards. |
| Reliant Energy | X | | |
| Tampa Electric Company | X | | |
| Western Area Power Administration | X | | |
| Response: Thank you for your comment. | | | |

2. The SDT has attempted to clarify when restoration ends in both standards as part of R1. Do you agree with this change? If not, please explain in the comment area.

Summary Consideration: The comments received were mainly for clarification purposes. Appropriate changes have been made to the text to accomplish those clarifications. Text was changed as follows:

EOP-005-2:

- **R1.1:** A description of the manner in which ~~obligations~~ **Agreements** for off-site power requirements of nuclear power plants will be fulfilled **during System restoration.**
- **R6.2:** The ~~location and magnitude of~~ **Loads required to control voltages and frequency within acceptable limits. required to stabilize the Blackstart Resources and other resources being utilized until the restoration state has ended.**

EOP-006-2:

- **Title: System Restoration ~~from Blackstart Resources~~– Coordination**
- **Purpose:** Ensure plans, ~~and Facilities~~ are established and personnel are ~~in place~~ **prepared** to enable effective coordination of the System restoration ~~from Blackstart Resources~~ process to ensure reliability is maintained during restoration and priority is placed on restoring the Interconnection.
- **R1:** Each Reliability Coordinator shall have a Reliability Coordinator Area restoration plan. ~~The scope of the Reliability Coordinator’s restoration plan starts when Blackstart Resources are utilized to re-energize a shut down area of the BES, or separation has occurred between neighboring Reliability Coordinators, or an energized island has been formed on the BES within the Reliability Coordinator Area. The scope of the Reliability Coordinator’s restoration plan ends when all of its Transmission Operators are interconnected and it is connected to all of its neighboring Reliability Coordinators. The restoration plan shall be written such that it allows for the restoration of its area following a Disturbance in which one or more areas of the Bulk Electric System (BES) shuts down and the use of Blackstart Resources is required to restore the shut down area to service, to a state whereby the choice of the next Load to be restored is not driven by the need to control frequency or voltage for an event that requires the utilization of Blackstart Resources regardless of whether the Blackstart Resource is located within the Reliability Coordinator’s Area.~~ The restoration plan shall include:
 - **R1.8:** Identification of the Reliability Coordinator as the primary contact for disseminating information regarding restoration to neighboring Reliability Coordinators, and to Transmission Operators, and Balancing Authorities within its Reliability Coordinator Area.
 - **R7:** ~~Following a Disturbance in which one or more areas of the BES shuts down and the use of Blackstart Resources is required to restore the shut down area to service, each~~ Each Reliability Coordinator shall work ~~in conjunction~~ with affected Balancing Authorities, Generator Operators, and Transmission Operators as well as neighboring Reliability Coordinators to monitor restoration progress, coordinate restoration, and take actions to restore the BES frequency within acceptable operating limits. Such actions may include but not be limited to adjusting generation, placing additional generators on line, or shedding Load.
 - **R8:** ~~Following a Disturbance in which one or more areas of the BES shuts down and the use of Blackstart Resources is required to restore the shut down area to service, the~~ The Reliability Coordinator shall authorize and coordinate resynchronizing ~~isolated~~ **islanded** areas that bridge boundaries between Transmission Operators or Reliability Coordinators.

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- **R9:** This requirement was moved to R1.8.
- **M7:** ~~If there has been a Disturbance in which Blackstart Resources have been utilized, each~~ Each Reliability Coordinator involved shall have evidence such as voice recordings, e-mail, **dated computer printouts**, or operator logs, that it monitored and coordinated restoration progress in accordance with Requirement R7.

| #2 – Commenter | Yes | No | Comment |
|--|-----|----|---|
| Ameren | | X | <p>R1 & R2: In addition to the RC, suggest other major stakeholders involved in the restoration effort such as GOP's be allowed to provide technical review/comment on the restoration plan with a measurement for those comments to be addressed back in some way by the TO and/or RC. This would help make sure everyone is on the "same page" with the expectations and roles of their black-start generators and any concerns/issues are addressed up front in the plan instead of in the field during a restoration event. This could also benefit how we conduct tests and write test procedures, not to mention we may have some useful technical input in general that could help out.</p> <p>R19: It would be beneficial to require the RC to give ample notice (maybe 90 days) to all participants in the drills.</p> |
| <p>Response: The SDT believes that a formal review and approval cycle for other entities such as GOPs does not add to reliability. The GOP or any other entity that receives the distributed, approved plan always has the opportunity to discuss concerns with the TOP.</p> <p>Given the time that it takes to set up a drill, the SDT believes that 'notice' will have effectively been given in ample time for all intended participants and that therefore, a formal requirement is not necessary.</p> | | | |
| American Electric Power | | X | <p>EOP 005-2 R6.2 needs to reference the R1 definition. We suggest "The Loads required to stabilize the Blackstart Resources and other resources being utilized until the restoration state has ended as defined in R1.</p> |
| <p>Response: The SDT appreciates the comment and has added wording to EOP-005-2, R6.2 to provide clarity.</p> | | | |
| Constellation | | X | <p>Remove the "use of Blackstart Resources" wording from R1. Blackstart Resources may not always be required during a system restoration event. In many cases it may be faster to restore an area using a "top-down" approach. The way that this standard is currently written suggests that Blackstart Resources are always required. Restoration Plans need to include "top-down" and "bottom-up" restoration methods, and need to be flexible to allow the Transmission Operator/Transmission Owner to choose the quickest restoration method, or a combination of the two.</p> |

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| #2 – Commenter | Yes | No | Comment |
|---|-----|----|--|
| Dominion Resources Services | | X | We suggest deleting phrase "for an event that requires the utilization of Blackstart Resources" to make it consistent with that used in EOP-005-2 @ R1. |
| Dominion Virginia Power | | X | In EOP-006-2, R1 contains a redundant phrase, "for an event that requires the utilization of Blackstart Resources". Deleting this phrase would make the wording consistent with that of R1 in EOP-005-2. |
| <p>Response: The intent of the SDT is that EOP-005-2 only applies to restoration when utilizing Blackstart Resources by the TOP and GOP. Restoration from a partial shutdown is addressed in other standards including the revised EOP-006-2, TOP-001, TOP-004, and EOP-001. Modifications have been made to EOP-006-2 to reflect the potential for restoration with or without the use of Blackstart Resources.</p> <p>Changes have been made to EOP-006-2, R1 to clean up the redundancy that was pointed out here. .</p> | | | |
| CenterPoint Energy | | X | The restoration plan should continue until connections are re-established for areas that have become separated. Once shut down area(s) have been resynchronized, restoration to a state whereby 'the choice of the next Generation to be placed on-line is not driven by the need to control frequency or voltage' should be included in addition to restoration "to a state whereby the choice of the next Load to be restored is not driven by the need to control frequency or voltage". |
| Con Edison | | X | Restoration ends when all customers have been restored. The current statement "to a state whereby the choice of the next load to be restored is not driven by the need to control frequency or voltage" is confusing. Voltage and frequency control are continuous in restoration and normal operations. |
| Duke Energy | | X | Neither standard identifies when restoration ends. Nor do we believe that a standard can accomplish this. We think it can only be determined by the Balancing Authority on a case-specific basis. |
| Entergy Services (2) | | X | It is not apparent from the Requirements in R1 as to when restoration ends. |
| FirstEnergy | | X | <p>EOP-005 & EOP-006: We recommend the latter part of the second sentence of R1 be revised to, "... to a state of Complete Restoration." And we recommend that a definition section be added to EOP-005 and EOP-006 to include the following term specific to these standards:</p> <p>Complete Restoration – The point in the restoration process whereby the choice of the next Load to be restored is not driven by the need to control frequency or voltage regardless of whether the Blackstart Resource is located within the Transmission Operator’s System or an adjacent system”</p> |

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| #2 – Commenter | Yes | No | Comment |
|--------------------------|-----|----|---|
| Hydro One Networks | X | X | While we agree the standard better clarifies the point at which you are out of true restoration activities and moving toward normal equipment and load operation to restore power, we have a concern with the idea that Blackstart Resources will get you to the point of the next Load being restored is not driven by the need to control frequency or voltage. Blackstart is used to start a unit(s), and energize out from the adjacent station to the next station on the path. The term cranking path is correct in that we are starting the system. Once begun, ensuring reliability is maintained is beyond Blackstart in its purest sense. |
| KCPL | | X | It is not necessary to establish or define when the restoration efforts end. What is important in these standards is what is required to have effective restoration plans. The language to describe when a restoration effort has ended is out of place and does not fit with the final sentence introducing the elements of effective restoration plans. |
| Pacific Gas and Electric | | X | Our concern is the clarification from when blackstart ends versus when restoration is complete. The standard only address when blackstart ends and should have further explanation on restoration. |
| Tampa Electric Company | | X | I understand from reading R1 when restoration ends, however it seems there is a better more effective way to word this. The second sentence is 7 lines long. |
| We Energies | | X | Conceptually, the idea that the plan extends to a point in time when load is no longer used as a tool for restoration is good. But during restoration, load is not typically added to maintain frequency. Dropping load could be used for frequency control, but the definitions are specific to restoring load. Would it make sense to say that the plan extends to the point where load restoration becomes priority over other restoration objectives? |
| WECC RCCWG | | X | The WECC RCCWG believes that restoration is not complete until the Bulk Electric System is stabilized and all Bulk Electric System islands have been tied together. A standard with requirements addressing procedure and protocol to be followed should remain in use until the above conditions have been met. Additionally, the WECC RCCWG believes that a description of the end of a restoration effort should be placed elsewhere in the standard, such as in a definition or in the purpose, rather than in the standard requirements. |
| Xcel Energy | | X | It appears that the standards attempt to indicate when restoration ends, but do it within the context of a specific obligation imposed upon the TO. It would be preferable to simply provide a definition. |

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| #2 – Commenter | Yes | No | Comment |
|--|-----|----------|--|
| <p>Response: The intent of the SDT is that EOP-005-2 only applies to restoration when utilizing Blackstart Resources by the TOP and GOP. Restoration from a partial shutdown is addressed in other standards including the revised EOP-006-2, TOP-001, TOP-004, and EOP-001. Modifications have been made to EOP-006-2 to reflect the potential for restoration with or without the use of Blackstart Resources.</p> | | | |
| <p>Entergy Services (1)</p> | | <p>X</p> | <p>We recommend that the following draft:</p> <p style="padding-left: 40px;">R1.1 A description of the manner in which all obligations for off-site power requirements of nuclear power plants will be fulfilled.</p> <p>be revised to:</p> <p style="padding-left: 40px;">R1.1 A description of the manner in which obligations for off-site power requirements of nuclear power plants will be fulfilled to ensure safe shut down of the plant and to maintain the plant in a safe condition.</p> <p>Explanation:</p> <p>Depending on the operating state of the nuclear plant, typical auxiliary load varies from 60MW to 85MW. However, approximately less than 15MW of safe shut down loads are backed by diesel generator/s. It would be onerous for the transmission operator to supply all auxiliary loads during system restoration compared to safe shut down loads. Additionally, minimum voltage limits for off-site power are typically based on the entire auxiliary load supplied via the Start-up / Reserve Station Service (RSS) transformer. By clarifying this requirement to include only the portion of auxiliary loads necessary for safe shut down, voltage limits can be less restrictive, thus facilitating faster restoration while maintaining safety. Adding the suggested clarification will enhance the intent of this very important requirement.</p> |
| <p>Response: EOP-005, R1.1 has been revised to clarify the intent of the SDT.</p> | | | |
| <p>ISO New England ISO/RTO Council MISO (2)</p> | | <p>X</p> | <p>The definition in 006 is not exactly the same as the definition in 005. R1 in EOP-006 includes a qualifier "for an event that requires the utilization of Blackstart Resources." This is not in R1 for standard 005. This qualifier seems redundant with what is already provided in the rest of R1. We suggest this qualifier be deleted from R1 of EOP-006.</p> <p>We also suggest that R1 be revised to describe the end state of a Blackstart, not system restoration, by saying: "...to a state whereby</p> |

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| #2 – Commenter | Yes | No | Comment |
|---|-----|----|---|
| | | | Blackstart Resources have been utilized to build electrical islands that exhibit stable frequency and acceptable voltages, and any remaining load can be restored through normal system restoration practices, regardless of where the Blackstart Resource is located." |
| NPCC RSC | | X | The explanation of "restoration plan" appears to be a definition appropriate to be included in the NERC Glossary, furthermore the words appearing in EOP-006 are not the same as those in EOP-005, was this intentional because one standard applies to the RC and the other to TOP and GO? Could there be "one" common definition? |
| <p>Response: EOP-006-2 has changed R1 to match the wording in EOP-005-2. EOP-006-2, R1 has been changed to clarify the start and end points of restoration for an RC and believes that this is a better solution than supplying a formal definition.</p> | | | |
| Consumers Energy MISO (1) | | X | The language "one or more areas" in Requirement 1 of both standards causes the sentence to be confusing. We recommend the following language for the sentence: "The restoration plan shall allow for restoring a shutdown area of the Functional Entity's System that requires the use of Blackstart Resources to a state ...". |
| <p>Response: The SDT believes that the current wording is clear and sufficiently implies the intent of the SDT.</p> | | | |
| MRO | | X | R1: (for both EOP-005-02 & EOP-006-02) The text is long and the sentence run on. Break the paragraph into shorter, more concise sentences. Throughout the standards, the words 'shut down' was used. The MRO believes an industry appropriate choice of words, like 'de-energized' is more appropriate. |
| <p>Response: The SDT discussed the use of the term de-energized instead of shut down. The SDT believes the term shut down better defines the requirement to use Blackstart Resources rather than just closing breakers to re-energize from existing sources.</p> | | | |
| San Diego Gas and Electric | | X | <p>This is not clear or accurate. Quite often, a black start unit is used to only start the restoration by restarting non-blackstart units. It's those non-blackstart units then quite often will continue to control frequency or voltage until they are interconnected to a larger system. Suggested revision below:</p> <p>Each Transmission Operator shall have a restoration plan approved by its Reliability Coordinator. The restoration plan shall enable the restoration of the Transmission Operator's System following a Disturbance in which one or more areas of its Bulk Electric System (BES) shuts down and the use of Blackstart Resources is required to restore the shut down area(s) to</p> |

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| #2 – Commenter | Yes | No | Comment |
|--|-----|----|---|
| | | | service. The restoration plan shall end at the point when those shut down areas are again interconnected with the Interconnection. The restoration plan shall include: [Violation Risk Factor = High] [Time Horizon = Operations Planning] |
| <p>Response: The SDT believes the end point described in EOP-005-2 is correct. The SDT has addressed the scope of continuing restoration in the revised EOP-006-2.</p> | | | |
| Santee Cooper | | X | <p>It is not clear that R1 is defining the end of restoration. We recommend changing R1 to read as follows:</p> <p>Each Transmission Operator shall have a restoration plan approved by its Reliability Coordinator. The restoration plan shall allow for restoring the Transmission Operator's System following a Disturbance in which one or more areas of the Bulk Electric System (BES) shuts down and the use of Blackstart Resources is required to restore the shut down area to service. The restoration plan shall include:</p> <p>If there's a valid reason to define the end of restoration then we recommend adding it as R1.9 in EOP-005-2 and R1.8 in EOP-006-1 and to read as follows:</p> <p>Blackstart Restoration is complete when the choice of the next Load to be restored is not driven by the need to control frequency or voltage regardless of whether the Blackstart Resource is located within the Transmission Operator's System.</p> <p>We also agree that the RC should be involved in development and approval of the plan, but we do not agree that the RC have approval of the plan. This can be accomplished by allowing the RC to have input to the plan through formal comments. Approval should be left to the entity that will be held accountable for compliance to the requirements in the standard. Recommend changing R5.2 (EOP-006-2) to read: "The RC shall provide comments to the Transmission Operator's submitted....".</p> |
| <p>Response: The SDT believes that the existing context needs to be retained so that there is a clear indication of when restoration ends.</p> <p>FERC Order 693 defined the ultimate authority for restoration as the Reliability Coordinator. The approval process by the Reliability Coordinator flows from this requirement.</p> | | | |
| SPP ORWG | | X | While we don't believe a definition of the end of the restoration period is needed, if it was determined that a definition is desired, that definition should be in the definitions section of the standard and not in the |

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| #2 – Commenter | Yes | No | Comment |
|--|-----|----|---|
| | | | <p>requirements.</p> <p>To eliminate the multi-part requirements in R1 of both standards, we suggest breaking R1 in each standard into two separate requirements. We propose the following:</p> <p>EOP-005-2 R1. Each Transmission Operator shall have a restoration plan approved by its Reliability Coordinator. R2. A Transmission Operator's restoration plan shall include: R2.1 A description... R2.2 Procedures for... R2.3 Identification of... R2.4 Identification of... R2.5 Identification of... R2.6 A statement... R2.7 Operating Procedures... R2.8 Operating Procedures...</p> <p>EOP-006-2 R1. Each Reliability Coordinator shall have a Reliability Coordinator Area restoration plan. R2. A Reliability Coordinator's restoration plan shall include: R2.1 Procedures for... R2.2 Descriptions of... R2.3 Descriptions of... R2.4 Criteria and conditions... R2.5 Identification of... R2.6 A statement accounting... R2.7 Reporting requirements...</p> |
| <p>Response: The SDT believes that the referenced definition is not a true definition but rather a statement of scope and has retained it.</p> <p>The proposed formatting change does not seem to add any clarity in the opinion of the SDT and the existing format has been retained. Each requirement is intended to describe a “deliverable” performance or product – if we subdivide R1 into two separate requirements; we are essentially duplicating the requirement to have a restoration plan.</p> | | | |
| OVEC | | | <p>While the statement declaring that "restoration ends when the choice to add the next load is not based on the need to control frequency or voltage" is good, there are other sub requirements of R1 that are not addressed</p> |

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| #2 – Commenter | Yes | No | Comment |
|--|-----|----|--|
| | | | elsewhere in this comment form. R1.3 states that blackstart resources must be indentified by unit name. The definition of blackstart resource also includes any unit that is capable of remaining energized without connection to the system. This assumes that such a unit is on line at the time of the event, since not all such units are capable of being started without external sources of power. Thus the list of blackstart resources could change with the change in status of such a unit. This would require modification of the plan and submission to the RC for approval for every such change of status. This could happen very frequently, thus creating a great deal of work updating the plan and resubmitting it for RC approval. |
| <p>Response: The SDT believes that you are confusing the plan with actual status during a restoration event. The plan must be flexible enough to allow for the change of status in Blackstart Resources.</p> | | | |
| PPL Generation LLC | X | | PPL Supply basically agrees with the changes made by the SDT to R1 that clarify the end of restoration. During our discusion of this question, we noted that there is no guidance that provides for clarity of initiating events for entry into the restoration plan. PPL recommends that the SDT consider adding the critieria for an initiating event or reference where that criteria is found that is a different standard. |
| <p>Response: The SDT has changed EOP-006-2, R1 to clarify this point. .</p> | | | |
| Exelon Corp. | | | No comment. |
| Northeast Utilities | | | No comment. |
| Southern Company Generation | | | No comment. |
| ATC LLC | X | | |
| Bonneville Power Administration | X | | |
| FRCC | X | | |
| IESO | X | | |
| Madison Gas and Electric | X | | |
| MHEB | X | | |
| Oncor | X | | |
| Potomac Electric Power Company | X | | |
| Reliant Energy | X | | |
| Southern Company Transmission | X | | |
| Western Area Power | X | | |

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| #2 – Commenter | Yes | No | Comment |
|---------------------------------------|-----|----|---------|
| Administration | | | |
| Response: Thank you for your comment. | | | |

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3. The SDT has clarified EOP-005-2, R10 to emphasize exactly which field switching personnel need to be trained. Do you agree with this change? If not, please explain in the comment area.

Summary Consideration: The comments received were mainly for clarification purposes. Appropriate changes have been made to the text to accomplish those clarifications. In addition, some yearly training requirements for field switching personnel and Generator Operator personnel have been pushed back to two year cycles. Text was changed as follows:

EOP-005-2:

- o **R11:** Each Transmission Operator shall include within its operations training program, annual System restoration training to its ~~control room personnel~~ **System Operators** to ensure the proper execution of its restoration plan. This training program shall include the following:
- o **R12:** Each Transmission Operator shall provide a minimum of two hours of System restoration training ~~per year every two years for~~ to field switching personnel identified as performing unique tasks associated with its restoration plan ~~and that are~~ outside of their normal tasks.
- o **R18:** Each Generator Operator of a Blackstart Resource shall provide a minimum of two hours of training ~~per year every two years~~ to each of its operating personnel responsible for the startup and synchronization of its Blackstart Resource generation units. The training program shall include the following:

EOP-006-2:

- o **R10:** Each Reliability Coordinator shall include within its operations training program, annual System restoration training for ~~the control room personnel identified in its restoration plan~~ its System Operators to ensure the proper execution of its restoration plan. This training program shall include the following:

| #3 – Commenter | Yes | No | Comment |
|---|-----|----|--|
| Ameren | | X | R10 does not involve training. |
| FRCC | | | R12, not R10 identifies training requirements for field switching personnel. |
| Tampa Electric Company | | X | EOP-005-2 R10 does not address this. |
| Response: The requirement in question was R12. The SDT apologizes for any confusion. | | | |
| American Electric Power | | X | The field switching training time requirement listed in EOP-005 R12 needs to reflect the training need. The local training coordinator would be a better judge of the time required rather than mandating a fixed number of hours. In fact, all training requirements should be addressed in PER-003 and not in the EOP standard(s). |
| ATC LLC | | X | The requirement seems to be a well developed but ATC is not yet convinced that it needs to be included in a standard. |
| CenterPoint Energy | X | X | In reference to R12, not R10, the wording sufficiently clarifies what field personnel this training requirement would apply. The tasks of field personnel in a blackstart restoration would not differ from tasks performed for storm restoration or other service restoration. However, any personnel |

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| #3 – Commenter | Yes | No | Comment |
|--------------------------|-----|----|---|
| | | | training, such as this and in R11 for training of control room personnel, should not be included in this standard but should be in applicable Personnel Performance, Training, and Qualifications standards. |
| Con Edison | | X | I assume this is R11. No, it is not clear. Which personnel? TOP or the GOP? |
| Constellation | | X | R10 does not cover this. If you are referring to R12 we offer the following comments. We think it describes which field switching personnel need to be trained, but we believe that it should also include the unique tasks that they need to be trained on. For example, they need to be trained on the use of a synchroscope, the establishment of cranking paths, restoration priorities, etc. |
| FirstEnergy | | X | <p>We believe question 3 above should be referencing "R12" instead of "R10"</p> <p>R12 Comments: We do not support this requirement. FE's field switching personnel do not independently perform transmission switching without taking direction from our transmission operations staff. It is FE's view that our field personnel do not need to be trained in the "big picture view" of system restoration and that the tasks required of them would not be significantly different than switching steps performed during normal operations.</p> <p>If these requirements remain, then we ask the SDT to give examples of system restoration field-switching tasks that would be "unique" and outside of "normal" tasks.</p> |
| Madison Gas and Electric | | X | (R12 contains information on training of field switching personnel) MGE understands the need for training and the need to have a well organized training program. Request that all training requirements be placed in the Personnel Performance, Training, and Qualifications (PER) NERC Standard section. This allows us and all entities who will have to live with the outcome of these Standards to be more organized and have one area to look for all NERC Training Requirements. To be compliant with a NERC Standard you are either in compliance or you are not. Reading FERC Order 693, paragraph 627, FERC sounds like they are placing more emphasis on training within the proposed standard than any other standard. I'm sure a regional entity will not view it that way when a registered entity is audited. |
| Santee Cooper | | X | While we believe training of these personnel is appropriate, we believe training required in NERC Standards should remain focused on System Operators and not be extended to other personnel such as unit operators, field personnel, marketing personnel, engineering staff, etc. |

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| #3 – Commenter | Yes | No | Comment |
|--|-----|----|--|
| <p>Response: The SDT has attempted to be completely clear in EOP-005, R12. If there are no tasks for field switching personnel that are different from their normal tasks, then no system restoration training is required. It is completely within the TOP's control in developing their restoration plan to define those field switching personnel tasks that are different (unique) to system restoration. As an example, if field personnel do not normally use synchroscopes except in restoration, then this would be a unique task. Switching field equipment during system restoration that is no different from normal field switching is not a unique task and no additional training would be required.</p> | | | |
| Consumers Energy | | X | <p>See comments submitted by Midwest ISO Stakeholders Collaborators.</p> <p>Also, Consumers agrees that it is appropriate for the Standard to require the Generator Operator to provide training to its operating personnel. However, the Generator Operator should be allowed flexibility in determining what training is necessary to ensure it meets its obligations for System restoration. (R18) This concern was submitted previously, but the Standard Drafting Team's response did not address adequately our concerns.</p> |
| <p>Response: The SDT believes that familiarity with the overall restoration philosophy and of the specific tasks for blackstart is valuable for operators of Blackstart Resources and that the requirements are not unduly burdensome. The SDT notes that in FERC Order 693, the FERC determined that "System restoration requires the participation of not only control room personnel but also those outside of the control room. These include blackstart unit operators and field switching operators in situations where SCADA capability is unavailable." In FERC Order 693, the ERO is directed to identify time frames for training and review of restoration plan requirements.</p> | | | |
| Dominion Resources Services | | X | <p>R10 does not reference training of field switching personnel.</p> <p>The following comments apply to R11, R12, R13, R18 and R19 of EOP-005-2 and R11 of EOP-006-2. While we support annual training of those who would direct restoration activities such as the Reliability Coordinator, transmission and generator operating personal in control centers, we do not support annual training of field personnel. Even during restoration, field personnel are predominately performing every day functions, although with much closer coordination/direction from operating personnel in the transmission and/or generator control centers. We recommend that the standard be modified to require periodic training of field personnel and that the period be defined in the transmission operator's restoration plan to be approved by the Reliability Coordinator. We support R19 only if it is applicable to operating personal in control centers, not field personnel. Drills involving field personnel should be coordinated with the transmission operator owning the restoration plan and should be concurrent with the testing schedule required in R9.1 and R17 and should only include generator operators of units identified in the transmissison owner's restoration plan.</p> |
| <p>Response: The requirement in question was R12. The SDT apologizes for any confusion.</p> | | | |

Consideration of Comments on 2nd Draft of Standards for System Restoration and Blackstart (Project 2006-03)

| #3 – Commenter | Yes | No | Comment |
|--|-----|----|---|
| <p>The SDT has attempted to be completely clear in EOP-005, R12. If there are no tasks for field switching personnel that are different from their normal tasks, then no system restoration training is required. It is completely within the TOP's control in developing their restoration plan to define those field switching personnel tasks that are different (unique) to system restoration. As an example, if field personnel do not normally use synchroscopes except in restoration, then this would be a unique task. Switching field equipment during system restoration that is no different from normal field switching is not a unique task and no additional training would be required.</p> <p>The SDT notes that in FERC Order 693, the FERC determined that <i>“System restoration requires the participation of not only control room personnel but also those outside of the control room. These include blackstart unit operators and field switching operators in situations where SCADA capability is unavailable.”</i> In FERC Order 693, the ERO is directed to identify time frames for training and review of restoration plan requirements.</p> | | | |
| Dominion Virginia Power | | X | <p>We do not agree that an annual training cycle is necessary. Like many other TOs, our training and recertification program for field switching personnel is on a three year cycle. This switching recertification training is not a requirement in any NERC Reliability Standard yet we provide it because we believe it to be Good Utility Practice. We also believe that specific training on restoration-related switching tasks for field personnel will also be Good Utility Practice, and we intend to incorporate such training into our three year program. This program has proven to be more than adequate, and we see no basis or compelling reason for having to establish an annual training program specifically for restoration-related switching tasks instead of being allowed to incorporate such training into our established three year program. The FERC did not specify in Order 693 that field switching personnel be provided restoration training annually -- they only requested that they be trained. Our switchmen have proven by their performance in the field that our three year recertification program has provided excellent training.</p> <p>We request that Requirement R10 be revised to read:</p> <p>R10. Each Transmission Operator shall provide a minimum of 2 hours of System Restoration training at least every three years for field switching personnel identified as performing unique tasks associated with its restoration plan and outside of their normal tasks.</p> |
| <p>Response: The SDT believes that familiarity with the overall restoration philosophy and of the specific tasks for blackstart is valuable for operators of Blackstart Resources and that the requirements are not unduly burdensome. The SDT has reviewed the yearly requirement and has changed the requirement to every 2 years in EOP-005-2, & R12.</p> | | | |
| Entergy Services (2) | | X | R10 (as drafted) does not address training of field personnel. R12 appears |

Consideration of Comments on 2nd Draft of Standards for System Restoration and Blackstart (Project 2006-03)

| #3 – Commenter | Yes | No | Comment |
|---|-----|----|---|
| | | | to address training of field personnel. The phrase "outside their normal tasks" just adds confusion and allows for interpretation - this phrase should be deleted. |
| <p>Response: The requirement in question was R12. The SDT apologizes for any confusion. The SDT has attempted to be completely clear in EOP-005, R12. If there are no tasks for field switching personnel that are different from their normal tasks, then no system restoration training is required. It is completely within the TOP's control in developing their restoration plan to define those field switching personnel tasks that are different (unique) to system restoration. As an example, if field personnel do not normally use synchroscopes except in restoration, then this would be a unique task. Switching field equipment during system restoration that is no different from normal field switching is not a unique task and no additional training would be required.</p> | | | |
| KCPL | | X | Field switching personnel may not be the only personnel that may support a restoration effort. Consider generalizing the requirement to allow the entity to identify personnel who perform unique tasks and are appropriate for training in support of simulations of the restoration plan. I think the question was targeted to R12. |
| SPP ORWG | X | | We feel that this training should not be restricted to field switching personnel. We suggest removing the 'field switching' qualifier in the standard and then let the Transmission Operator determine who falls into the category of needing training on unique tasks performed during restoration. |
| <p>Response: The SDT notes that in FERC Order 693, the FERC determined that "System restoration requires the participation of not only control room personnel but also those outside of the control room. These include blackstart unit operators and field switching operators in situations where SCADA capability is unavailable." An entity can always go beyond the standard and provide training to others.</p> | | | |
| MISO (1) | | X | <p>EOP-005-2, R10 does not explain which field switching personnel needs to be trained. It explains to "distribute its Blackstart Resource testing requirements to each generator Operator in its area that operates a Blackstart Resource". R12 appears to spell out training requirements and they are satisfactory.</p> <p>We also notice that R18 identifies training for generator operators of Blackstart Resources. We agree that these GOPs do need training. However, we suggest deleting the two hour requirement in R18 because the content of the training is specified in the subrequirements. As long as the training provided meets the training content requirement in R18, there is no need, and it is inappropriate, to specify a required duration for the training. This content requirement is measurable and there is no need for a training duration to be added just so the requirement can be measured in this</p> |

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| #3 – Commenter | Yes | No | Comment |
|---|-----|----|--|
| | | | manner. |
| <p>Response: The requirement in question was R12. The SDT apologizes for any confusion. The SDT believes that familiarity with the overall restoration philosophy and of the specific tasks for blackstart is valuable for operators of Blackstart Resources and that the requirements are not unduly burdensome. The SDT has reviewed the yearly requirement and has changed the requirement to every 2 years in EOP-005-2, R12 & R18. The SDT believes that a minimum duration for this training is appropriate as it is not covered in the current training standards.</p> | | | |
| Northeast Utilities | | X | <p>We believe the reference should be to R12 - And recommend it be rewritten as follows: R12. Each Transmission Operator shall perform a job/task analysis for field switching personnel identified as performing unique tasks associated with its restoration plan and outside their normal task. Required training should be included in initial and continuing training programs for field personnel.</p> <p>Explanation: NU follows the systematic approach to training, which is a Training industry standard followed by most training organizations and a recommended approach to determine training requirements by other federal agencies, such as the NRC. This approach would evaluate all field employees with field switching responsibilities to determine the knowledge and skills necessary to perform restoration requirements by job position. This process would identify both initial and continuing training requirements for job positions and assist NU in determining if changes are necessary to our apprentice programs, annual retraining programs, and/or any supervisor/manager training programs. The results of this analysis would also identify the method and setting (classroom/ field/simulator) of the training for each affected position. This approach also allows for differences between each operating company based on past labor practices, current system operating procedures, and adds rigor to the training program recommendations. This documented analysis would be used if job responsibilities for field personnel changed in the future.</p> |
| <p>Response: The requirement in question was R12. The SDT apologizes for any confusion. The SDT believes that to require a JTA would be unduly burdensome and not required in this situation.</p> | | | |
| OVEC | | X | <p>This is R12, not R10. This requirement could apply to all field personnel since restoration activities would be considered to be "unique tasks" and "outside of their normal tasks", since (we hope) restoration is not something done routinely. It could be extremely burdensome to provide training to every individual who might conceivably be involved in restoration. Also, the language from FERC Order 693 cited by the SDT states, "System restoration requires the participation of not only control room personnel but also those</p> |

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| #3 – Commenter | Yes | No | Comment |
|---|-----|----|---|
| | | | outside of the control room. These include blackstart unit operators and field switching operators in situations where SCADA capability is unavailable. As such, the Commission believes that inclusion of periodic system restoration drills and training and review of restoration plans in a system restoration Reliability Standard is the most effective way of achieving the desired goal of ensuring that all participants are trained in system restoration and that the restoration plans are up to date to deal with system changes." This citation can be interpreted as a statement of the collective beliefs of the Commission, but there is no requirement language present in this citation. |
| PPL Generation LLC | | X | This question references R10 however, R12 is the requirement for training field switching personnel. The training described in R12 applies to the TO. PPL requests that additional clarification be added to the standard concerning this requirement that further specifies what training is required and specifically what personnel need the training. |
| We Energies | X | X | R10 relates to the TOP providing the plan to the GOP. R11 relates to training for TOP personnel. R12 relates to training field personnel. The assumption here is we're primarily after training on synchronizing scopes. Suggest that any specific training desired be called out here. |
| <p>Response: The requirement in question was R12. The SDT apologizes for any confusion. The SDT has attempted to be completely clear in EOP-005, R12. If there are no tasks for field switching personnel that are different from their normal tasks, then no system restoration training is required. It is completely within the TOP's control in developing their restoration plan to define those field switching personnel tasks that are different (unique) to system restoration. As an example, if field personnel do not normally use synchroscopes except in restoration, then this would be a unique task. Switching field equipment during system restoration that is no different from normal field switching is not a unique task and no additional training would be required.</p> | | | |
| San Diego Gas and Electric | | X | <p>In the latest version, this is R12. Change "and" to "that are" in the end of sentence. See below:</p> <p>Each Transmission Operator shall provide a minimum of two hours of System restoration training per year for field switching personnel identified as performing unique tasks associated with its restoration plan that are outside of their normal tasks.</p> <p>[Violation Risk Factor = Lower] [Time Horizon = Operations Planning]</p> |
| <p>Response: The requirement in question was R12. The SDT apologizes for any confusion. The SDT made the suggested change.</p> | | | |
| WECC RCCWG | | X | The WECC RCCWG is unclear as to which requirement, EOP-005-d2 R11 or EOP-006-d2 R10, question 3 refers to because the reference in the question |

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| #3 – Commenter | Yes | No | Comment |
|---|-----|----|--|
| | | | <p>to R10 in EOP-005-d2 refers to personnel requiring training, while R10 of the draft standard addresses distribution of Transmission Operator "Blackstart Resource testing requirements". R10 of EOP-006-d2 does refer to training of personnel. The WECC RCCWG recognizes concerns with the standard requirements referencing training in both of these documents, and addresses each, below:</p> <p>In EOP-005d2 R11 it is not clear what personnel the term "control room personnel" refers to. What control room? Does this refer only to positions that are certified system operators?</p> <p>In EOP-006-d2 R10 the RC is required to include control room personnel identified in its restoration plan. Again, the intention of the extent of the personnel to be trained is not clear. It is unclear whether there is an expectation that each and every control room operator from every company is expected to be trained. The RCCWG does not believe it is reasonable to believe that the Reliability Coordinator will train every person in every control room that is identified in the Reliability Coordinator restoration plan.</p> |
| <p>Response: The requirement in question was R12. The SDT apologizes for any confusion. The SDT has changed EOP-005-2, R11 to clarify that the intent is to train the System Operators. Certification is beyond the scope of the SDT.</p> <p>A similar change was made to EOP-006-2, R10.</p> | | | |
| Pacific Gas and Electric | X | X | The numbering seems to be off, so if you are referring to R12 then we agree, however, is R12 only associated with blackstart versus completion of restoration? |
| <p>Response: The requirement in question was R12. The SDT apologizes for any confusion. The unique tasks identified in the restoration plan are not necessarily related to blackstart versus completion of restoration.</p> | | | |
| MHEB | X | | <p>The question should refer to R12 not R10.</p> <p>To allow for times when personnel are not available for training, we think this should be changed to every two years.</p> |
| <p>Response: The requirement in question was R12. The SDT apologizes for any confusion. The SDT has changed the requirements in question to every two years.</p> | | | |
| MRO | X | | EOP-005-02_R11, EOP-006-02_R10 should clarify that the control room personnel referenced are system operations control room personnel. |
| <p>Response: The SDT has changed the reference to System Operator as suggested.</p> | | | |
| Exelon Corp. | | | No comment. |

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| #3 – Commenter | Yes | No | Comment |
|---|-----|----|--|
| Southern Company Generation | | | No comment. |
| Duke Energy | X | X | It is actually R12. We agree with the change. |
| Bonneville Power Administration | X | | This refers to R12 (not R10) |
| Entergy Services (1) | X | | |
| Hydro One Networks | X | | It is actually R12 in our copy version. |
| IESO | X | | If you meant R12. |
| ISO New England | X | | If you meant R12. |
| ISO/RTO Council | X | | If you meant R12. |
| MISO (2) | X | | If you meant R12. |
| NPCC RSC | X | | R12 references training of field personnel. |
| Oncor | X | | |
| Potomac Electric Power Company | X | | |
| Reliant Energy | X | | I could not find any reference to field switching personnel in R10 of EOP-005-2 so I am assuming that the SDT means R12. |
| Southern Company Transmission | X | | |
| Western Area Power Administration | X | | R12 not R10 |
| Xcel Energy | X | | |
| <p>Response: The requirement in question was R12. The SDT apologizes for any confusion and thanks you for your comment.</p> | | | |

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4. The SDT has added Violation Risk Factors and Time Horizons to both standards. Do you agree with the assignments made? If not, please explain in the comment area.

Summary Consideration: The SDT has revised the VRFs in EOP-005-2 based on the collective input of the industry comments as follows:

- o R8: Medium to High
- o R14: High to Medium
- o R15: High to Medium

In addition, the SDT revised the Time Horizon for EOP-005-2, R11 from Long-term Planning to Operations Planning based on industry comments. EOP-005-2, R16 has been changed to a 24 hour timeframe.

| #4 – Commenter | Yes | No | Comment |
|---|-----|----|--|
| Consumers Energy Duke Energy MISO (1) | | X | The VRF for EOP-005-02, R1 should be medium. Failure to have a formal restoration plan approved by the RC does not lead directly to a failure of the BES. EOP-005-2, R14 should be Lower. It is a requirement to have a document. Failure to have the document is not a risk to the BES. Failure to have an agreement presents no significant risk to the BES.. An agreement is not necessarily a document though per NERC glossary of terms. EOP-005-2, R15 should be Lower. It is also a requirement to have a document. Failure to have documented procedures does not mean that the GOP is not capable of starting a Blackstart Resource and energizing a dead bus. It simply means they haven't written the procedure down. Failure to document a procedure presents no significant risk to the BES. The VRF for EOP-006-2, R1 should be medium. Failure to have an RC restoration plan does not lead directly to a failure of the BES. The TOP plans will still work but not as efficiently. If this was not the case, how did TOPs ever recover from a blackout prior to the introduction of the RC function. The VRF for EOP-006-2, R5 should be lower. Failure of the RC to review the TOP plans will only result in inefficient restoration. |
| <p>Response: Commenters are looking at the plan as a simple document and thus an administrative requirement. The SDT agreed that this was not the case. The plan represents the planning function that goes into creating the document and thus has a much greater impact than a simple piece of paper. If the planning hasn't been done correctly, major problems will ensue on the BES during restoration. Therefore, the SDT did not change the VRF.</p> <p>EOP-005-2, R14 & R15, have been changed.</p> | | | |
| Dominion Resources Services | | X | We recommend that R14 and R15 of EOP-005 be changed to medium. For the majority of approved standards, written documentation has not warranted a high VRF. |
| Southern Company Generation | | X | It is not apparent why R14 and R15 are ranked higher than most of the |

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| #4 – Commenter | Yes | No | Comment |
|---|-----|----|--|
| | | | other requirements. Thus, a medium risk factor is recommended for both. |
| <p>Response: The VRF for EOP-005-2, R14 & R15 have been changed based on industry input.</p> | | | |
| Entergy Services (2) | | X | <p>The "High" for R1 is not warranted. Not having a plan for restoration does not threaten the reliability of the Interconnection, especially since the affected area is already disconnected. Steps for synchronizing to the Interconnection (EOP-005 R8) should be rated as High however the entire plan should not.</p> |
| <p>Response: The VRF for EOP-005-2, R8 has been changed based on industry input. The SDT believes that the VRF for EOP-005-2, R1 is assigned correctly. Commenters are looking at the plan as a simple document and thus an administrative requirement. The SDT agreed that this was not the case. The plan represents the planning function that goes into creating the document and thus has a much greater impact than a simple piece of paper. If the planning hasn't been done correctly, major problems will ensue on the BES during restoration. Therefore, the SDT did not change the VRF.</p> | | | |
| FRCC | | X | <p>EOP-005 R1. requires a document. A lack of a document would never lead to cascading outage or prevent restoration (Medium at amost). R3 and R4 should be Lower. R6 should be Lower, any requirement with a 5 year cycle is inherently Lower. R8 is a performance requirement and critical during restoration, therefore should be High. R11 should be Lower as this is an administrative requirement on training. R14 requires an "Agreement" and is therefore administrative and should be Lower. R15 is procedural and should be at most Medium. R18 is an administrative training requirement is should therefore be Lower.</p> <p>EOP-006, R3, R4 and R5 are all administrative requirements and should therefore all be Lower.</p> |
| <p>Response: EOP-005-2, R1: The SDT believes that the VRF for EOP-005-2, R1 is assigned correctly. Commenters are looking at the plan as a simple document and thus an administrative requirement. The SDT agreed that this was not the case. The plan represents the planning function that goes into creating the document and thus has a much greater impact than a simple piece of paper. If the planning hasn't been done correctly, major problems will ensue on the BES during restoration. Therefore, the SDT did not change the VRF.</p> <p>The VRF for EOP-005-2, R8, R14, and R15 have been changed based on industry input.</p> <p>The SDT reviewed the other suggested changes and does not believe that there is any reason to change the currently assigned VRF.</p> | | | |
| KCPL | | X | <p>EOP-005-2: R2 is Lower so R3 should be Lower. R8 is Medium and should be High. Resynchronization is no small action and can be fatal to a restoration effort if done improperly and without the</p> |

Consideration of Comments on 2nd Draft of Standards for System Restoration and Blackstart (Project 2006-03)

| #4 – Commenter | Yes | No | Comment |
|--|-----|----|---|
| | | | <p>approval of the RC who has a regional view. It is High for the RC in EOP-006-2, R8.</p> <p>R14 is High and should be Lower. This is an administrative requirement and does not have a substantial impact on system operations.</p> <p>EOP-006-2: R2 is Lower so R3 should be Lower.</p> <p>R9 should be High. Dessiminating regional information is an important part of a successful restoration effort and in coordinating a successful restoration effort at a regional level.</p> |
| <p>Response: The SDT reviewed the suggested changes and does not believe that there is any reason to change the currently assigned VRF.</p> | | | |
| PPL Generation LLC | | X | PPL Supply is not clear on the purpose of the Time Horizons as defined here. |
| <p>Response: As per the NERC Reliability Standards Guidelines, the SDT is required to provide a Time Horizon for each requirement. From the Sanctions Guidelines, page 9: <i>“Penalties levied for the violation of a reliability standard shall consider the time horizon of the standard violated; violations of standards involving more immediate or real-time activities will generally incur larger penalties than violations of standards with longer or broader horizons.”</i></p> | | | |
| SPP ORWG | | X | <p>EOP-005-2, R.3 - We believe this multi-part requirement is correct in assigning a medium VRF to the review of the plan but feel that a medium VRF is too high for the administrative task of submitting the plan to the RC.</p> <p>EOP-005-2, R.5 - Having a copy, written or electronic, of the plan available to the operator in the control center is critical. This VRF should be 'High'.</p> <p>EOP-005-2, R.8 - Should be a 'High' VRF to be consistent with R.8 of EOP-006-2.</p> <p>EOP-005-2, R.12 - Training of personnel is important to a successful restoration. For consistency with R.18, this VRF should be 'Medium'.</p> <p>EOP-005-2, R.14 - This requirement is administrative and should have a 'Low' VRF.</p> <p>EOP-006-2, R.9 - This is a real-time operational function that is critical to restoration. The VRF should be 'High'.</p> |
| <p>Response: VRFs for EOP-005-2, R8 and R14, have been changed based on industry input. The SDT reviewed the other suggested changes and does not believe that there is any reason to change the currently assigned VRF.</p> | | | |

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| #4 – Commenter | Yes | No | Comment |
|--|-----|----|---|
| WECC RCCWG | | X | <p>The Time Horizon for EOP-005-d2 R11 the requirement to hold annual System restoration training for control room personnel is listed as "Long-term Planning" and is a requirement of the operations training program. The EOP-006-d2 R10 requirement that Reliability Coordinator annual System restoration training be included within its training program is identified as "Operations Planning". The WECC RCCWG believes that both requirements should have the same Time Horizon and believes that "Operations Planning" is appropriate.</p> <p>Additionally, the group believes that the Violation Risk Factor for EOP-005-d2 R14 should be "low". There does not seem to be more impact on system reliability from violation of this requirement than from violation of requirements 2, 5, or 10. The Violation Risk Factor on EOP-005-d2 R18 should be "low", giving consistency with R12 of the same document.</p> |
| <p>Response: The Time Horizon for EOP-005-2 R11 Time Horizon has been changed to "Operations Planning". VRF for EOP-005-2, R14, has been changed based on industry input. The SDT reviewed the other suggested changes and does not believe that there is any reason to change the currently assigned VRF.</p> | | | |
| Western Area Power Administration | | X | <p>EOP-005-2, R16 allows a GO ninety calendar days to report a change to blackstart unit capability. Notification to the TO within thirty calendar days seems more appropriate.</p> |
| <p>Response: Language has been changed to 24 hours to reflect the reliability-related need for the information</p> | | | |
| Xcel Energy | | X | <p>There seem like an inordinante number of requirements (and hence VRFs) in these standards.</p> |
| <p>Response: The SDT believes that the number of requirements is what is needed to sufficiently describe the reliability standard. As per the NERC Reliability Standards Guidelines, the SDT has assigned one VRF to each requirement.</p> | | | |
| Hydro One Networks IESO ISO New England ISO/RTO Council NPCC RSC | X | X | <p>We agree with all of the VRFs and Time Horizon except the followings:</p> <p>EOP-005 R1: The VRF should be medium. Failure to have a formal restoration plan approved by the RC does not lead directly to a failure of the BES.</p> <p>R11: The Time Horizon should be Operations Planning since this requirement deals with inclusion of restoration training in the operator training program.</p> <p>R14: The VRF should be low. Not having a documented agreement on the arrangement of utilizing the Backstart Resource is not a risk to the BES, and has a lower reliability impact than its R2, R5 and R10 counterparts.</p> |

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| #4 – Commenter | Yes | No | Comment |
|---|-----|----|--|
| | | | <p>R15: The VRF should be Lower. It is also a requirement to have a document. Failure to have documented procedures does not mean that the GOP is not capable of starting a Blackstart Resource and energizing a dead bus.</p> <p>R18: The VRF for this requirement (Medium) should be consistent with that of R12 (Lower) since both deal with providing a 2-hour training to the personnel responsible for performing critical tasks during system restoration.</p> <p>EOP-006 R1: The VRF should be medium. Failure to have an RC restoration plan does not lead directly to a failure of the BES. The TOP plans will still work but not as efficiently. If this was not the case, how did TOPs ever recover from a blackout prior to the introduction of the RC function.</p> <p>R5: The VRF should be lower. Failure of the RC to review the TOP plans will only result in inefficient restoration.</p> <p>R9: The VRF for this requirement should be a Medium, not a Lower. A Reliability Coordinator serving as the primary contact for disseminating information regarding restoration to neighboring Reliability Coordinators, and to operating entities within its RC area is critical to ensuring consistent and correct information among all parties involved in system restoration</p> |
| <p>Response: The Time Horizon for EOP-005-2 R11 Time Horizon has been changed. VRF for EOP-005-2, R14 & R15, has been changed based on industry input. The SDT reviewed the other suggested changes and does not believe that there is any reason to change the currently assigned VRF.</p> | | | |
| MHEB | X | X | <p>EOP-005 and EOP-006 R8 in both standards talk about synchronizing with neighbouring areas but the VRF is different EOP-005 is medium, EOP-006 is high, I believe they should have the same VRF.</p> |
| <p>Response: VRF for EOP-005-2, R8, has been changed based on industry input</p> | | | |
| MISO (2) | X | X | <p>We disagree with the following:</p> <p>R14: The VRF should be low. Not having a documented agreement on the arrangement of utilizing the Backstart resource has no higher impact on reliability than its R2, R5 and R10 counterparts.</p> <p>R18: The VRF for this requirement (Medium) should be consistent with that</p> |

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| #4 – Commenter | Yes | No | Comment |
|---|-----|----|--|
| | | | of R12 (Lower) since both deal with providing 2-hour training to the personnel responsible for performing critical tasks during system restoration. |
| <p>Response: VRF for EOP-005-2, R14, has been changed based on industry input. The SDT believes that R18 has been assigned correctly.</p> | | | |
| Reliant Energy | X | | <p>We would like to offer comments on R18 and R19 of EOP-005. R18.1 states System restoration philosophy including coordination with the Transmission Operator. R18.2 states Special actions required to enable blackstart and synchronization to the System.</p> <p>Comment: R18.1 is vague and confusing. What would an auditor be looking for as the “restoration philosophy” when measuring compliance? The requirement in R18.2 is redundant since special action would be covered in the training in R18. A special action to one generator may be routine to another. It is unit dependent. It is recommended that the SDT drop R18.1 and 18.2 from the standard.</p> <p>R19 states Each Generator Operator shall participate in the Reliability Coordinator’s restoration drills, exercises, or simulations as requested by the Reliability Coordinator.</p> <p>Comment: R19 requires a generator to participate but M18 states that “Each Generator Operator shall have evidence, such as training records, that it participated in the Reliability Coordinator’s restoration drills, exercises, or simulations IF requested to do so in accordance with Requirement R19. If the GO is not requested to participate is the GO in compliance with R19. At times it appears that a TO is very reluctant to include the GO for fears of being in violation of FERC requirements of separation of merchant generation functions and transmission functions.</p> |
| <p>Response: EOP-005-2, R18: The requirements here parallel those for the TOP. The SDT believes that they are measurable and enforceable.</p> | | | |
| <p>EOP-005-2, R19: The GOP only has to participate if requested by the TOP and therefore can only be found to be non-compliant if it does not participate when requested. The SDT has written the requirements in such a way as to encourage the TOP to invite the GOP. That is as far as the scope of the SDT can go in this matter.</p> | | | |
| Ameren | | | No comment. |
| American Electric Power | | | No comment. |
| ATC LLC | X | | |

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| #4 – Commenter | Yes | No | Comment |
|---|------------|-----------|----------------|
| Bonneville Power Administration | | | No comment. |
| CenterPoint Energy | | | No comment. |
| Con Edison | | | No comment. |
| Constellation | X | | |
| Dominion Virginia Power | X | | |
| Entergy Services (1) | X | | |
| Exelon Corp. | | | No comment. |
| FirstEnergy | X | | |
| Madison Gas and Electric | X | | |
| MRO | X | | |
| Northeast Utilities | | | No comment. |
| OVEC | | | No comment. |
| Oncor | X | | |
| Pacific Gas and Electric | X | | |
| Potomac Electric Power Company | X | | |
| San Diego Gas and Electric | | | No comment. |
| Santee Cooper | X | | |
| Southern Company Transmission | X | | |
| Tampa Electric Company | X | | |
| We Energies | X | | |
| Response: Thank you for your comment. | | | |

5. The SDT has added an Implementation Plan. Do you agree with the proposed Implementation Plan? If not, please identify specifically what you feel needs to be modified in the comment area.

Summary Consideration: Due to industry comments, the Implementation Plan has been completely re-written to emphasize milestones and an orderly transition.

EOP-005-2:

- **R1.1:** A description of the manner in which ~~obligations~~ **Agreements** for off-site power requirements of nuclear power plants will be fulfilled **during System restoration**.
- **R1.6:** ~~A statement accounting for the possibility that restoration can not be completed as expected indicating that in situations where the actual conditions do not match the studied conditions, the System Operator shall use professional judgment to deviate from the System restoration plan.~~ (this refers to R1.6 in the second posting).
- **R2:** Each Transmission Operator, ~~in order to ensure the reliability of the Interconnection~~, shall distribute its approved restoration plan to the **reliability-related operational** entities identified in its restoration plan, ~~and to its Reliability Coordinator within thirty calendar days of having received approval from its Reliability Coordinator.~~
- **R3:** Each Transmission Operator shall review its restoration plan and submit it to its Reliability Coordinator ~~on an annual (rolling 365 days) basis annually on a mutually agreed predetermined schedule.~~
- **R6.1:** The **ability capability** of Blackstart Resources to meet the **Real and** Reactive Power requirements of the Cranking Paths and to supply initial Loads.
- **R6.2:** The location and magnitude of Loads required to control voltages and frequency within acceptable limits ~~required to stabilize the Blackstart Resources and other resources being utilized until the restoration state has ended.~~
- **R6.3:** The ~~Loads and capability of~~ generating resources required to control voltages and frequency within acceptable limits ~~(documented in Requirement R1.5) as the BES is restored.~~
- **R7.2:** ~~Each affected Transmission Operator shall give high priority to restoration of off-site power to nuclear power plants as directed by the Reliability Coordinator and in agreement with reliability standard NUC-001.~~ deleted (this refers to R7.2 in the second posting).
- **R7.4:** ~~If the restoration plan cannot be completed as expected because actual conditions do not match the studied conditions, the Transmission Operator shall utilize its restoration plan philosophies to implement alternative measures for achieving System restoration.~~
- **R8:** Following a Disturbance in which one or more areas of the BES shuts down and the use of Blackstart Resources is required to restore the shut down area to service, **the Transmission** Operator shall resynchronize ~~shut down~~ area(s) with neighboring Transmission Operator area(s) only with the authorization of the Reliability Coordinator or in accordance with the established procedures of the Reliability Coordinator.
- **R9.2.2:** The ability to energize a ~~dead (de-energized)~~ bus. If it is not possible to energize a ~~dead (de-energized)~~ bus during the test, the testing entity must affirm that the unit has the capability to energize a ~~dead (de-energized)~~ bus such as verifying that the breaker close coil relay can be energized with the voltage and frequency monitors **controls** disconnected.

- **R11:** Each Transmission Operator shall include within its operations training program, annual System restoration training to its ~~control room personnel~~ **System Operators** to ensure the proper execution of its restoration plan. This training program shall include the following:
 - **R11.1:** System restoration philosophy **including coordination with the Reliability Coordinator and Generator Operators included in the restoration plan.**
 - **R14:** Each Transmission Operator and Generator Operator with a Blackstart Resource shall have a written Blackstart Resource ~~a~~ **Agreement document** specifying the terms and conditions of their arrangement. **Such Agreements shall include references to the blackstart testing requirements.**
 - **R16:** Each Generator Operator of a Blackstart Resource shall notify its Transmission Operator of any known changes to the capabilities of that Blackstart Resource within ~~ninety calendar days~~ **twenty-four hours** following such change.
 - **R18** Each Generator Operator of a Blackstart Resource shall provide a minimum of two hours of training ~~per year~~ **every two years** to each of its operating personnel responsible for the startup and synchronization of its Blackstart Resource generation units. The training program shall include the following:

EOP-006-2:

- **R1.6:** A statement accounting for the possibility that restoration can not be completed as expected indicating that in situations where the actual conditions do not match the studied conditions, the System Operator shall use professional judgment to deviate from the System restoration plan. ~~deleted (this refers to R1.6 in the second posting).~~
- **R2:** The Reliability Coordinator, ~~to ensure the reliability of the Interconnection,~~ shall distribute its Reliability Coordinator Area restoration plan to its Transmission Operators, Balancing Authorities, and neighboring Reliability Coordinators.
- **R3:** Each Reliability Coordinator shall review its restoration plan ~~every twelve months on an annual (rolling 365 days) basis.~~
- **R6:** Each Reliability Coordinator shall have a copy its **latest** restoration plan and a copy of the latest approved restoration plan of each Transmission Operator in its Reliability Coordinator Area within each of its control centers and available to all of its control room personnel.
- **R7:** ~~Following a Disturbance in which one or more areas of the BES shuts down and the use of Blackstart Resources is required to restore the shut down area to service, each~~ Each Reliability Coordinator shall work ~~in conjunction~~ with affected Balancing Authorities, Generator Operators, and Transmission Operators as well as neighboring Reliability Coordinators to monitor restoration progress, coordinate restoration, and take actions to restore the BES frequency within acceptable operating limits. Such actions may include but not be limited to adjusting generation, placing additional generators on line, or shedding Load.
- **R7.1:** ~~If the restoration plan cannot be completed as expected because actual conditions do not match the studied conditions, the Reliability Coordinator shall utilize its restoration plan philosophies to implement alternative measures for achieving System restoration.~~
- **M11:** Each Reliability Coordinator shall have evidence that it conducted two System restoration drills, exercises, or simulations per year ~~and that included~~ Transmission Operators and Generator Operators ~~with Blackstart resources included in the restoration plan were invited~~ in accordance with Requirement R11.

Consideration of Comments on 2nd Draft of Standards for System Restoration and Blackstart (Project 2006-03)

| #5 – Commenter | Yes | No | Comment |
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| American Electric Power | | X | |
| <p>Response: Thank you for your comment but without specific objections, no changes can be made.</p> | | | |
| Constellation | | X | <p>R6 states that verification of the restoration plan is required every 5 years. The Implementation Plan states that all other TOP requirements are effective 12 months after regulatory approvals. Will R6 be enforceable within 1 year or 5 years after regulatory approvals?</p> <p>OTHER COMMENTS</p> <p>1 - EOP-005-2 R1, the standard requires that the Transmission Operator have their plan reviewed and approved by its Reliability Coordinator. In some cases, the Transmission Operator and the Reliability Coordinator may be the same organization. In this situation the RC may be approving their own plan.</p> <p>2 - EOP-005-2 R6.1, 6.2, and 6.3: the requirements are not clear. Does this require us to validate cranking paths to energize a dead bus, energize a transformer or circuits to start a steam unit, or complete system restoration?</p> <p>3 - EOP-005-2 R9.2.2: It would have been clearer if the standard simply required testing the breakers ability to close on a dead bus or simulating the conditions of a dead bus by removing the synchronizing inputs.</p> <p>4 - EOP-006-2: As written, this requirement does not cover all situations. In some cases, the Transmission Owner also possesses a restoration plan in addition to the Transmission Operator. A simple fix would be to replace "Transmission Operator" with "Transmission Operator / Transmission Owner" throughout the document.</p> <p>5 - EOP-006-2 R11.1 requires each operator to participate in a restoration drill once every 2 years. However, there is not any corresponding measurement for this requirement.</p> |
| <p>Response:</p> <p>Due to industry comments, the SDT has revised the Implementation Plan that goes into greater detail and includes a phased-in transition over a 720 day period after regulatory approval. A new question on the detailed Implementation Plan has been posted with the third draft.</p> <ol style="list-style-type: none"> 1. The intent is to assure that the RC has had input to the TOP's restoration plan. If a RC is also a TOP, they are permitted to approve their own plan. 2. The SDT believes that the requirements are sufficiently clear on this issue. What needs to be done has been identified. The standards do not mandate how things need to be done. The measure provides a suitable example of required evidence. 3. The SDT considers the current language to be the equivalent of what was suggested and no change has been made. | | | |

Consideration of Comments on 2nd Draft of Standards for System Restoration and Blackstart (Project 2006-03)

| #5 – Commenter | Yes | No | Comment |
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| <p>4. The standard applies to the TOP. If a TOP has delegated tasks to the TO, the TOP needs to assure that the TO has properly executed the tasks to assure that the TOP is compliant.</p> <p>5. EOP-006-2, R11.1 is the requirement to request participation. EOP-005-2, R12 & R18 are the requirements for TOP & GOP participation.</p> | | | |
| <p>Consumers Energy</p> | | <p>X</p> | <p>See comments submitted by Midwest ISO Stakeholders Collaborators.</p> <p>In addition, the following concerns are addressed here, as the form did not provide a section for additional concerns, specifically:</p> <p>(R1.4) The Transmission Operator needs to coordinate with the Generator Operators when identifying acceptable operating voltage and frequency limits during restoration. Generator underfrequency relaying and terminal bus voltage limits will affect the acceptable limits.</p> <p>(R4.1) The Transmission Operator needs to communicate changes in the restoration plan that affect Generator Operators of the blackstart units and Generator Operators of generating units in the cranking path.</p> <p>(R9, R10, R17) The Regional Reliability Organization should specify the Blackstart Resource testing requirements rather than the Transmission Operator so the testing requirements follow the RRO Standard Development procedure process (See MOD-024-1, MOD-025-1).</p> <p>If the Transmission Operator does gain the authority to establish the testing requirements, the testing requirements need to be mutually agreed upon by the generator operator to ensure that (a) the testing requirements are feasible and (b) the testing requirements do not create a significant financial burden on the Generator Operator.</p> <p>(R14) What occurs if the Transmission Operator and Generator Operator cannot come to agreement on the terms and conditions of a Blackstart Resource Agreement? Is the Generator Operator subject to unreasonable testing requirements and unreasonable financial compensation mandated by the Transmission Operator?</p> <p>(R17.1) The Generator Operator does not have information relating to testing requirements not met under Requirement R6. Requirement R6 is a Transmission Operator requirement.</p> |
| <p>Response: R1.4: EOP-005-2, R14 provides a mechanism for the TOP and GOP to coordinate the restoration plan with the</p> | | | |

Consideration of Comments on 2nd Draft of Standards for System Restoration and Blackstart (Project 2006-03)

| #5 – Commenter | Yes | No | Comment |
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| | | | <p>capabilities of the generators.</p> <p>R 4.1: EOP-005-2, R2 and R14 provide for the notification of any changes in the restoration plan to affected parties.</p> <p>R9, R10, and R17: The SDT does not believe that uniform testing requirements can be set across North America. There are too many regional and geographic variables involved. Therefore, it seems to make more sense to allow the TOP to set these requirements. If the TOP testing requirements are too stringent, then they will be unable to attract GOPs as Blackstart Resources. Common sense will prevail.</p> <p>R14 - If the TOP and the GOP cannot agree, then the GOP resource will not sign the Agreement and they will not be a Blackstart Resource and the TOP must make other arrangements.</p> <p>R17.1 – EOP-005-2, R6 is not the correct reference. It should have been EOP-005-2, R9. The correction has been made and this should clarify the issue.</p> |
| <p>Dominion Resources Services</p> | | <p>X</p> | <p>The proposed Implementation Plan lacks clarity as to the potential sequence of effective dates relative to development of plans, development of agreements, training of personnel, review and validation of plans, and participation in drills. It is stated that 005-R1 (the restoration plan) will be enforceable 21 months after applicable regulatory approvals. 005-R7 (Disturbance/Shutdown) suggests that TOs be prepared to implement blackstart plans within 6 months after regulatory approvals or be subject to non-compliance. Further, all other TOP requirements are not subject to compliance and enforcement penalty for at least 12 months after applicable regulatory approvals. We believe that it is the intent of these two standards to ensure the necessity to have good communication protocols along with thoroughly disseminated documentation, coordination and training for system restoration. Therefore, the effective dates for compliance of EOP-005 & EOP-006 standards should follow the same systematic process, with the earliest effective date be applied to EOP-005 @ R1 and other effective dates occurring sequentially thereafter. These effective dates need to recognize that transmission operators must be trained before they can be expected to implement and that transmission owner review and validation of plans needs to occur at some later date. The effective dates for generator operator requirements also needs to be applied sequentially. There first needs to be an agreement between transmission operator and generator operator followed by development of generator operator procedures followed by training of generator operators to be followed, at a later date, by drill participation, testing and notification of changes.</p> <p>We could support effective dates for development of restoration plans and agreements (R1, R2, R9, R10, R14) within 6 months of regulatory approval, followed by an additional 6 months for effective dates for</p> |

Consideration of Comments on 2nd Draft of Standards for System Restoration and Blackstart (Project 2006-03)

| #5 – Commenter | Yes | No | Comment |
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| | | | development of generator operating procedures and training of control room operating personnel (R5,R11, R12, R15, R18) followed by an additional 6 months for effective dates for validation/review of plans and implementation (R3,R4,R6,R7,R8,R13,R17) |
| <p>Response: Due to industry comments, the SDT has revised the Implementation Plan that goes into greater detail and includes a phased-in transition after regulatory approval. A new question on the detailed Implementation Plan has been posted with the third draft.</p> | | | |
| Dominion Virginia Power | | X | <p>1) In general, the Implementation Plan is too long. Most of the requirements in these two standards already exist to some extent in the current standards, so it shouldn't take a year or more after regulatory approval to comply.</p> <p>2) For EOP-05-2, the requirement to have a plan, R1, is effective 21 months after regulatory approval; however, the requirement to use that plan, R7, is effective 6 months after approval. They should both be effective at the same time -- within 6 months or less.</p> <p>3) In EOP-005-2, the requirement to have procedures for starting a Blackstart Resource, R15, is effective 12 months after regulatory approval; however, the requirement to start a resource for testing purposes, R17, is effective 6 months after regulatory approval. They should both be effective at the same time -- within 6 months or less.</p> |
| <p>Response: Due to industry comments, the SDT has revised the Implementation Plan that goes into greater detail and includes a phased-in transition after regulatory approval. A new question on the detailed Implementation Plan has been posted with the third draft.</p> | | | |
| Duke Energy | | X | On EOP-005-2, R12, should increase implementation time to 18 months. |
| <p>Response: Due to industry comments, the SDT has revised the Implementation Plan that goes into greater detail and includes a phased-in transition after regulatory approval. A new question on the detailed Implementation Plan has been posted with the third draft.</p> | | | |
| Entergy Services (2) | | X | <p>The timing of the phased in implementation appears to cause confusion.</p> <p>How can an entity comply with R 4 and 5 (update its restoration plan, and have a copy of its restoration plan in the control center) if it isn't even required to have one? How can an entity be responsible for implementing it's restoration plan (R7) if R1 isn't required for another 15 months?</p> <p>Suggest making 12 months after regulatory approvals the effective date for all requirements.</p> |

Consideration of Comments on 2nd Draft of Standards for System Restoration and Blackstart (Project 2006-03)

| #5 – Commenter | Yes | No | Comment |
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| | | | <p>Other Comments: R9 still does not address the question as to if there are there any fuel supply requirements for a Blackstart Resource? The test should indicate if the test must be performed on the fuel that would be used during a blackstart. Must the fuel supply be able to support a certain length of operation without support from the BES? Are pipelines acceptable sources, or are their certain requirements that would apply if a pipeline were the fuel supply?</p> <p>The phrase in EOP-005 & 006 R1.6 regarding the ability for the operator to use judgment is not appropriate. Each entities' procedures and policies should dictate the operator actions when conditions outside of studied conditions occur. Consider changing the statement to read "...the System Operator will follow it's entity's policy to deviate from the System restoration plan" or strike it entirely.</p> |
| <p>Response: Due to industry comments, the SDT has revised the Implementation Plan that goes into greater detail and includes a phased-in transition after regulatory approval. A new question on the detailed Implementation Plan has been posted with the third draft.</p> <p>R9: The SDT believes that each TOP should have the authority and flexibility to determine fuel capability requirements on an individual Blackstart Resource basis and that it should be included in the terms and conditions of the Blackstart Resource Agreement (R14). These terms and conditions should be addressed in plan review (R3) and verification (R6) of the restoration plan, i.e., Blackstart Resources must be shown as being able to support the intended function.</p> <p>R1.6: This requirement has been deleted in both EOP-005-2 and EOP-006-2 and added to R7 to address industry concerns.</p> | | | |
| FRCC | | X | <p>The Implementation Plan does not address the retirement of EOP-007 and EOP-009 which is a key element of these standard revisions. The Plan will also introduce confusion for Compliance and Enforcement. It may be simpler to make the whole standard effective 21 months after regulatory approval so that all parties involved (entities and compliance) understand which requirements will be audited to, especially during the transition to the revised versions of EOP-005 and 006.</p> <p>** Additional Comments (not related to question 5): **</p> <p>EOP-005, R2, suggest removing "to ensure the reliability of the interconnection" from the requirement as extraneous and redundant.</p> <p>EOP-005 and 006, R3, request that the DT select either "annual" OR "rolling 365 days" since having both establishes a definition for "annual" with wide ranging impacts across various other standards.</p> |

Consideration of Comments on 2nd Draft of Standards for System Restoration and Blackstart (Project 2006-03)

| #5 – Commenter | Yes | No | Comment |
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| | | | <p>EOP-005 R8, has a provision for re-synchronization with established procedures of the RC, while EOP-006 R8 does not have the same provision. We feel this may cause confusion.</p> <p>EOP-006 R5.2, imposing a 30 day review requirement on the RC will impose a significant administrative and logistical burden on the RCs. we recommend that this be a 90 day review requirement which is consistent with the RC plan review requirement.</p> |
| <p>Response: Due to industry comments, the SDT has revised the Implementation Plan that goes into greater detail and includes a phased-in transition after regulatory approval. A new question on the detailed Implementation Plan has been posted with the third draft.</p> <p>EOP-005-2, R2 - the language has been deleted</p> <p>EOP-005-2 & EOP-006-2, R3: the language has been changed - "rolling 365 days" was deleted.</p> <p>EOP-006-2, R8: EOP-006-2, R1.4 already requires the RC to establish the conditions for resynchronization.</p> <p>EOP-006-2, R5.2: The SDT believes that 30 days is sufficient time to approve or disapprove the TOP plan. Sequential steps with considerable times will delay the implementation of an approved restoration plan.</p> | | | |
| KCPL | | X | <p>Implementation comments:</p> <p>This is confusing to me. The implementation plan for EOP-005-2 has the final plans coming last with training and modifications before that. I think it would make more sense to develop the plans and complete them first, followed by training, followed by reviewing and modifying the completed plans in appropriate implementation time frames after regulatory approval. EOP-006-2 has all the requirements implemented in 18 months after regulatory approval. I think the implementation plan should be similar to the comments for EOP-005-2 to develop the plans, followed by training, followed by reviewing and modifying in appropriate implementation time frames after regulatory approval. The implementation time frames proposed here may be a bit long considering entities have plans already established. This may be an area where the implementation time frame can be accelerated.</p> <p>General Comments:</p> <p>1. In EOP-005-2, requirement R3 clearly states the RC should be provided a copy of an entities emergency restoration plan. R2 also includes the RC as an entity an entity should provide a copy of its emergency restoration plan. I suggest removing the RC reference in R2.</p> |
| <p>Response: Due to industry comments, the SDT has revised the Implementation Plan that goes into greater detail and includes a phased-in transition after regulatory approval. A new question on the detailed Implementation Plan has been posted with the</p> | | | |

Consideration of Comments on 2nd Draft of Standards for System Restoration and Blackstart (Project 2006-03)

| #5 – Commenter | Yes | No | Comment |
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| <p>third draft. EOP-005-2, R3: The SDT agrees that this appears redundant at first glance but the 2 requirements are somewhat different – one is for submittal to gain approval of the RC and the other is distribution of that approved plan.</p> | | | |
| MISO (1) | | X | <p>The implementation plan for the standard EOP-005 is confusing, regardless of the type of entity. For example, a transmission operator has 21 months after regulatory approval of this EOP-005-2 standard to have an approved restoration plan (See R1) but R7 indicates that this transmission operator shall implement its restoration plan 6 months after regulatory approval of this EOP-005-2 standard.</p> <p>It's our hope that both of the transmission operator and generator operator's restoration plans will be in synch with the associated reliability coordinator's restoration plan and that the reliability coordinator agrees to both of the transmission operator and generator operator restoration plans before they are implemented or utilized in any fashion.</p> |
| <p>Response: Due to industry comments, the SDT has revised the Implementation Plan that goes into greater detail and includes a phased-in transition after regulatory approval. A new question on the detailed Implementation Plan has been posted with the third draft.</p> | | | |
| MRO | | X | <p>The MRO believes the time line for the implementation plan should be a stepped process with the transmission operator and generator operator restoration plan (EOP-005-02_R1) should be developed first, then training, maintenance, testing (EOP-005-02_R2-R19 & EOP-006-02_R2-R11) should follow, then followed finally by the reliability coordinator area restoration plan (EOP-006-02_R1). The transmission operator and generator operator restoration plans need to be approved prior to the reliability coordinator resotration plan.</p> <p>General Comments: EOP-005_R3: What was the SDT reason for using a rolling 365 day timeframe instead of a calendar year? The MRO is concerned that the rolling 365 day schedule will cause encroachment of the timeframe. The MRO suggests using rolling 13 months or 395 days to accommodate scheduling. The MRO is concerned the RC will be continually receiving and updating their restoration plan, causing each transmission operator to update their restoration plan. Due to this continual updating the system operators will find it difficult to train to the latest restoration plan.</p> <p>EOP-005-02_R12: Please clarify the intent of this requirement. What would be considered "unique tasks" for field switching? The MRO believes</p> |

Consideration of Comments on 2nd Draft of Standards for System Restoration and Blackstart (Project 2006-03)

| #5 – Commenter | Yes | No | Comment |
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| | | | that these switching orders are no different than non-restoration switching orders performed on a daily basis. Is the intent for training all field personnel? |
| <p>Response: Due to industry comments, the SDT has revised the Implementation Plan that goes into greater detail and includes a phased-in transition after regulatory approval. A new question on the detailed Implementation Plan has been posted with the third draft.</p> <p>EOP-005-2, R3: Language has been changed and the phrase, “rolling 365 days” has been deleted.</p> <p>EOP-005-2, R12 - The SDT has attempted to be completely clear in EOP-005, R12. If there are no tasks for field switching personnel that are different from their normal tasks, then no system restoration training is required. It is completely within the TOP's control in developing their restoration plan to define those field switching personnel tasks that are different (unique) to system restoration. As an example, if field personnel do not normally use synchroscopes except in restoration, then this would be a unique task. Switching field equipment during system restoration that is no different from normal field switching is not a unique task and no additional training would be required.</p> | | | |
| PPL Generation LLC | | X | <p>PPL Supply does not agree with the phased-in criteria identified for Generator Operators. The criteria in this version of the Implementation Plan is based on regulatory approval. However, the generator requirements cannot be satisfied until the GO has received the approved restoration plan and understands the content of the agreement in R14. PPL recommends that the Implementation Plan for GO's should be based on the date when the RC has provided an approved restoration plan and established the agreement with the TO as referenced in R14.</p> <p>Additional comments - PPL Supply provides these additional comments on EOP-005 not related to the questions above.</p> <p>R9.2: PPL Supply suggests that the SDT use the word facility in place of the word unit in Requirement R9.2 to provide clarity and consistency with other requirements in the standard.</p> <p>R14: PPL suggests that NERC provide guidance to aid in the development of the agreements. Also, provide clarification specifying if the agreement must be a separate document or if existing tariff agreements are sufficient.</p> <p>R19: PPL requests more clarification of what level of participation is required to meet this action.</p> |
| <p>Response: Due to industry comments, the SDT has revised the Implementation Plan that goes into greater detail and includes a phased-in transition after regulatory approval. A new question on the detailed Implementation Plan has been posted with the third draft.</p> | | | |

Consideration of Comments on 2nd Draft of Standards for System Restoration and Blackstart (Project 2006-03)

| #5 – Commenter | Yes | No | Comment |
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| <p>EOP-005-2, R9.2: The SDT believes that unit is the correct wording. EOP-005-2, R14: Language has been changed to 'Agreement' which is a defined term and thus clarifies what needs to be done. EOP-005-2, R19: The SDT believes that the RC should have the flexibility and authority to invite the personnel that they feel are needed and that this is current practice.</p> | | | |
| Southern Company Transmission | | X | The implementation plan excludes the BA function. We strongly urge the SDT to include the BA as applicable to this standard. |
| <p>Response: Due to industry comments, the SDT has revised the Implementation Plan that goes into greater detail and includes a phased-in transition after regulatory approval. A new question on the detailed Implementation Plan has been posted with the third draft.</p> <p>The SDT believes that the BA does not have an “applicability” role in the TOP restoration plan or its implementation. Beginning with the system collapse, the TOP restores the Transmission System, restores Interconnections, and supplies off-site power to nuclear generating stations. This is accomplished on a command and control basis by the Transmission Operator in conjunction with the GOP. Once Interconnections have been reestablished and the Transmission System restored, the restoration of firm Load can begin. The TOP is restoring the System through command and control until a sufficient System has been built where frequency is under control.</p> | | | |
| Southern Company Generation | | X | No effective date has been projected. Ample time between approval and implementation should be included to allow TOP's and GOP's to implement or modify existing practices and procedures to comply with these modified requirements. |
| <p>Response: Due to industry comments, the SDT has revised the Implementation Plan that goes into greater detail and includes a phased-in transition after regulatory approval. A new question on the detailed Implementation Plan has been posted with the third draft.</p> | | | |
| SPP ORWG | | X | <p>The proposed Plan is very confusing with the multiple dates associated with different requirements in EOP-005-2. The sequencing of the implementation doesn't appear to be logical. For example, the TOP is required to implement a plan within 6 months of approval, but R1, which requires the plan, isn't effective for 21 months after approval. Also, there is inconsistency between implementation of EOP-005-2 and EOP-006-2.</p> <p>General Comments:</p> <p>Did the SDT consider combining EOP-005 and EOP-006? They are so similar and closely related, it appears there may be some advantages to combining the two.</p> <p>Would the SDT please provide clarification on R.14 of EOP-005-2? If the Transmission Operator entity and the Generator Operator entity are the</p> |

Consideration of Comments on 2nd Draft of Standards for System Restoration and Blackstart (Project 2006-03)

| #5 – Commenter | Yes | No | Comment |
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| | | | <p>same entity, is an agreement necessary? Would the inclusion of that particular generation in the TOP's plan be sufficient for the agreement?</p> <p>There is duplication between R.2 and R.3 in EOP-005-2 regarding the submittal of the plan to the RC. To eliminate the duplication, delete the phrase '..., and to it's Reliability Coordinator' in R.2.</p> <p>In EOP-006-2, R6, the Reliability Coordinator is required to have a copy of the latest approved restoration plans of each Transmission Operator within each control center and available to its control room personnel. Shouldn't this same requirement be applied to the Reliability Coordinator's restoration plan?</p> <p>There is a typo in R2 of EOP-005-2. Replace "it's" with "its".</p> |
| <p>Response: Due to industry comments, the SDT has revised the Implementation Plan that goes into greater detail and includes a phased-in transition after regulatory approval. A new question on the detailed Implementation Plan has been posted with the third draft.</p> <p>The SDT considered combining all the standards, but believes it is useful to separate the “Operations” from the “Coordination.”</p> <p>EOP-005-2, R14: If the TOP and GOP are the same entity, you could still have an Agreement or Service Level Agreement that would cover this requirement.</p> <p>EOP-005-2, R2: The SDT agrees that this appears redundant at first glance but the 2 requirements are somewhat different – one is for submittal to gain approval of the RC and the other is distribution of that approved plan.</p> <p>EOP-006-2, R6: The language has been changed to include the RC plan.</p> <p>EOP-005-2, R2: The revised standard does not use this word.</p> | | | |
| WECC RCCWG | | X | <p>The Implementation Plan lists times up to 21 months after applicable regulatory approvals for R1 in EOP-005-d2. All requirements for the Reliability Coordinator are listed as effective 18 months after applicable regulatory approvals. With the requirement that the Transmission Operator restoration plan is coordinated with the Reliability Coordinator plan, the WECC RCCWG believes that the effective date fore EOP-006 should be changed to 27 months (6 months following the effective date of EOP-005 R1) to give the Reliability Coordinator time to initially assess the plans, and make or coordinate any necessary revisions.</p> <p>The WECC RCCWG has further comments to submit on the draft standards. As there is no suitable space on this comment form, the following comments are submitted outside of the specific questions asked:</p> |

Consideration of Comments on 2nd Draft of Standards for System Restoration and Blackstart (Project 2006-03)

| #5 – Commenter | Yes | No | Comment |
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| | | | <p>EOP-005-d2 R2 and EOP-006 R2 state "in order to ensure the reliability of the Interconnection". This wording is philosophical and does not belong in a requirement. The concept is already properly placed in the purpose of the standard. Please remove the wording from the requirements.</p> <p>The wording of EOP-005-d2 R8 seems awkward. The Transmission Operators will be resynchronizing energized islanded area(s), not resynchronizing "shut down area(s).</p> <p>EOP-006-d2 R1.2 and 1.3 refer to "descriptions of the elements of coordination". It is not clear what this actually means. What are elements of coordination?</p> <p>EOP-006-d2 R6 requires the Reliability Coordinator have a copy of the latest approved restoration plans. Is a hard copy be specified or will an electronic copy suffice? If a hard copy is required, that requirement needs to be clearly stated.</p> <p>EOP-006-d2 R11.1 states that "Each Reliability Coordinator shall request each Transmission Operator and Generator Operator identified in its restoration plan to participate in a drill, exercise, or simulation at least every two calendar years." The WECC RCCWG agrees that the Reliability Coordinator can, and should, invite; but cannot enforce that employees outside of the Reliability Coordinator organization attend this training. The WECC RCCWG is confused why EOP-006-d2 M11 states "Each Reliability Coordinator shall have evidence such as training records that its conducted two System restoration drills, exercises, or simulations per year THAT INCLUDED (emphasis added) Transmission Operators and Generator Operators with Blackstart Resources in accordance with Requirement R11." The WECC RCCWG suggests that evidence should be required that the Reliability Coordinator conducted two System restoration drills, exercises, or simulations per year; and that further evidence that Transmission Operators and Generator Operators with Black Start Resources were INVITED TO ATTEND/PARTICIPATE (emphasis added) in accordance with Requirement R11.</p> |
| <p>Response: Due to industry comments, the SDT has revised the Implementation Plan that goes into greater detail and includes a phased-in transition after regulatory approval. A new question on the detailed Implementation Plan has been posted with the third draft.</p> <p>EOP-005-2, R2: Language has been deleted as proposed.</p> <p>EOP-005-2, R8: Language has been changed to omit the phrase, "shut down."</p> | | | |

Consideration of Comments on 2nd Draft of Standards for System Restoration and Blackstart (Project 2006-03)

| #5 – Commenter | Yes | No | Comment |
|---|-----|----|--|
| EOP-006-2, R6: The type of copy required has been left to the discretion of the RC. EOP-006-2, R11.1: M11 has been changed to address both elements of the requirement | | | |
| Western Area Power Administration | | X | EOP-005-2, R8 The last part of the requirement states "or in accordance with the established procedures of the RC" Would it be better to say "or in accordance with the pre-approved restoration plan". |
| Response: The SDT believes the language describes what is required. A plan may not have the capability to describe the exact resynchronization sequence. | | | |
| Xcel Energy | | X | The relationships and timing between elements of the standards need to be reexamined. For example, does it make sense to have EOP-005 R2 (relating to distribution of restoration plans) take effect before R1 (relating to development of the restoration plan)? |
| Response: Due to industry comments, the SDT has revised the Implementation Plan that goes into greater detail and includes a phased-in transition after regulatory approval. A new question on the detailed Implementation Plan has been posted with the third draft. | | | |
| Bonneville Power Administration | X | X | <p>There are a lot of requirements and measures. Allow time to get agreements in places.</p> <p>a. Remove R1.1 is needed, covered by R7.2. Response: EOP-005-2, R1.1: Language has been changed. R1.1 was modified and R7.2 was deleted to eliminate the duplication.</p> <p>b. Concerned about R2 and the impacts to Critical Infrastructure Security, with the WHOLE restoration plan being sent to Entities participating in the Restoration Plan. Response: EOP-005-2, R2: Language has been changed and specifies that the plan needs to be distributed to NERC Functional entities.</p> <p>c. R9.1 Change to every five years (due to multiple resource timing coordination) Response: EOP-005-2, R9.1: The SDT determined that most existing RRO BCPs require testing at least on a three year basis. Therefore, this is not a 'new' requirement and shouldn't be unduly burdensome.</p> <p>d. EOP005 R11: Who is included under "control room personnel" is unclear. If the intention is to provide training to certified System Operators, the requirement should identify them in a manner similar to that used in PER002 R4 (identifying the applicability of the 32 hour emergency operations training requirement). If the intention is broader than System Operators, use the same language</p> |

Consideration of Comments on 2nd Draft of Standards for System Restoration and Blackstart (Project 2006-03)

| #5 – Commenter | Yes | No | Comment |
|--|-----|----|---|
| | | | <p>used by the SDT in EOP006 R10 "identified in its restoration plan". BPA suggests R11 be changed to: "... annual System restoration training for the control room personnel identified in its restoration plan to ensure proper execution of its restoration plan." Response: EOP-005-2, R11; Language has been changed from "control room personel" to "System Operators."</p> <p>e. EOP005 R13: Saying that the TO must participate in RC drills "as requested" does not leave much flexibility in the TO training program and could be unduely burdensome to TOs that cover a wide geographic area and therefore may receive 'requests' to participate in more than one every two calendar years (see EOP006 R11.1). - The requirement should be re-worded in a manner similar to that used by the SDT in EOP006 R11.1 (e.g. require participation in a RC drill at least once every two years). BPA suggests R13 be changed to "Each Transmission Operator shall participate in its Reliability Coordinator's restoration drills, exercises, or simulations at least once every two calendar years." -M12 would be changed appropriately. Response: EOP-005-2, R13: A TOP that operaties in multiple RC areas should reasonably be expected to participate in all its RC drills. It would be expected that different personnel would be involved. Note that TOP is a Registered Entity, not an employee.</p> <p>f. EOP006 R11.1: Says that the RC will conduct drills that includes every TO and GO within their jurisdiction during a two year rotation. Suggest that a longer rotation (3 years) would be sufficient to meet the intent of the requirement. Response: EOP-006-2, R11.1: In FERC Order 693, the ERO is directed to identify time frames for training and review of restoration plan requirements. Most industry comments agree with every two years.</p> |
| <p>Response: See in-line responses.</p> | | | |
| IESO | X | X | <p>(A) We generally agree with the Implementation Plan. However, there are no specific dates proposed in the plan and hence we are unable to fully assess the implementation timeline. Also, the compliance elements have not been developed; this may take some time. Further, implementation dates should not be tied to regulatory approval but rather specific dates defined that will ensure the same implementation dates north –American wide. This is particularly important for jurisdictions that implement standards without regulatory approval being necessary.</p> |

Consideration of Comments on 2nd Draft of Standards for System Restoration and Blackstart (Project 2006-03)

| #5 – Commenter | Yes | No | Comment |
|----------------|-----|----|---|
| | | | <p>(B) Since this form does not provide a question or area for comments on the requirements, we would provide our comments on individual requirements below:</p> <p>EOP-005</p> <p>R2: The phrase "in order to ensure the reliability of the Interconnection" is not needed since this is covered by the purpose.</p> <p>R9.2.2</p> <p>"Dead" bus is not defined and may be subject to different interpretations. "De-energized", on the other hand, may be interpreted as a grounded bus. We'd therefore suggest replacing the term "dead (de-energized)" to "off-potential".</p> <p>R12: This requirement holds the TOP responsible for providing 2 hours training annually to field switching personnel identified as performing unique tasks associated with the restoration plan that are not normally required. Under certain situations (not planned), personnel other than those having received training may need to be called upon to perform switching to restore the system. Would R12 preclude these personnel from being allowed to perform the needed switching? If, under pressing situations, these personnel were indeed called upon to perform switching, would the TOP be deemed violating this standard? If R12 remains as is, the standard needs to be clear on the requirement on who can and cannot perform these switching tasks, and the consequence for the TOP for deploying non-trained personnel to perform switching during restoration.</p> <p>R16: It is the IESO's view that 90 days is far too long before notifying the TOP of known changes to the capability of a Blackstart Resource. We believe that notifications should be made promptly with a detailed follow-up within 30 calendar days by the GOP. We suggest that the requirement be rewritten as "Each Generator Operator of a Blackstart Resource shall promptly, for all events within five minutes, subject only to delay necessitated by concerns for the safety of equipment, employees, the public or the environment, notify its Transmission Operator of any known changes to the capabilities of that Blackstart Resource. The Generator Operator should provide a detailed report on the change or limitation and a</p> |

Consideration of Comments on 2nd Draft of Standards for System Restoration and Blackstart (Project 2006-03)

| #5 – Commenter | Yes | No | Comment |
|--|----------|----------|--|
| | | | <p>mitigation plan, if one is required, to the Transmission Operator, as soon as possible but not exceeding 30 calendar days from the initial notification. [Violation Risk Factor = Medium] [Time Horizon = Operations Planning]"</p> <p>R18: Does the time spent performing a black start test, or for that matter a real time event count towards the 2 hour training requirement for generator black start operators? If so, please clarify it in the standard.</p> <p>EOP-006</p> <p>R2: The phrase "to ensure the reliability of the Interconnection" is not needed since this is covered by the purpose.</p> |
| <p>Response: Due to industry comments, the SDT has revised the Implementation Plan that goes into greater detail and includes a phased-in transition after regulatory approval. A new question on the detailed Implementation Plan has been posted with the third draft.</p> <p>EOP-005-2, R2: Language has been deleted as proposed</p> <p>EOP-005-2, R9.2.2: language has been changed and now says, "to energize a bus."</p> <p>EOP-005-2, R12: This requirement only covers training and violations will be incurred only if the required training is not supplied.</p> <p>EOP-005-2, R16: The SDT agrees that 90 days is excessive but 5 minutes is unreasonable. Language has been changed to 24 hours.</p> <p>EOP-005-2, R18: The SDT does not believe any change to wording is required. The training plan of the GOP can address whether a blackstart test is part of the training. The training must address both subrequirements.</p> <p>EOP-006 R2: The SDT has revised the standard to omit the suggested language.</p> | | | |
| <p>ISO New England ISO/RTO Council NPCC RSC</p> | <p>X</p> | <p>X</p> | <p>(A) We generally agree with the Implementation Plan. However, there are no specific dates proposed in the plan and hence we are unable to fully assess the implementation timeline. Also, the compliance elements have not been developed; this may take some time. Further, implementation dates should not be tied to regulatory approval but rather specific dates defined that will ensure the same implementation dates North American-wide. This is particularly important for jurisdictions that implement standards without requiring regulatory approval.</p> <p>(B) Since this form does not provide a question or area for comments on specific details in the Standards:</p> <p>ISO New England believes the BAs needs to be identified in the Applicability of these Standards. The Functional Model identifies the BA</p> |

Consideration of Comments on 2nd Draft of Standards for System Restoration and Blackstart (Project 2006-03)

| #5 – Commenter | Yes | No | Comment |
|----------------|-----|----|---|
| | | | <p>tasks as "Must have control of any of the following combinations within a Balancing Authority Area: Load and generation (an isolated system)"..."Operate its Balancing Authority Area to maintain load-interchange-generation balance."...and..."Implement emergency procedures."</p> <p>EOP-005 R2: The phrase "in order to ensure the reliability of the Interconnection" is not needed since this is already covered by the Purpose.</p> <p>R6.2: This requirement needs to be revised to reflect the proposed revised description in R1 (see our comments under Q2, above) pertaining to to the end state of blackstart. We suggest R6.2 to be revised to: "The Loads required to stabilize the system or a part of the system until it achieves a sustainable operating state that exhibits stable frequency and acceptable voltages."</p> <p>R12: This requirement holds the TOP responsible for providing 2 hours training to field switching personnel identified as performing unique tasks associated with the restoration plan that are not normally required. Under certain situations (not planned), personnel other than those trained may need to be called upon to perform switching to restore the system. Would this training requirement preclude these personnel from being allowed to perform the needed switching? If, under pressing situations, these personnel are called upon to perform switching, would the TOP be deemed violating this standard? The standard needs to be clear on the requirement on who can and cannot perform these switching tasks, and the consequence of the TOP asking non-trained personnel to perform switching during restoration.</p> <p>R16: It is ISO New England's belief that 90 days is far too long before notifying the TOP of known changes to the capability of a Blackstart Resource. We believe that notifications ASAP and within 30 days of the GOP becoming aware of the capability changes is more appropriate.</p> <p>EOP-006 R11: States "Each Reliability Coordinator shall conduct two System restoration drills, exercises, or simulations per calendar year, which shall include the Transmission Operators and Generator Operators with Blackstart Resources in their area of responsibility as dictated by the</p> |

Consideration of Comments on 2nd Draft of Standards for System Restoration and Blackstart (Project 2006-03)

| #5 – Commenter | Yes | No | Comment |
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| | | | <p>particular scope of the drill, exercise, or simulation that is being conducted." Most RCs conduct one very comprehensive restoration exercise every year. It usually takes 3-4 months, if not longer, to prepare for it. We believe that quality should rule over quantity and would like to see this changed to a minimum of once a year. As such, we propose this requirement be revised to: "...Reliability Coordinator shall conduct at least one restoration drill, exercise, or simulation per calendar year..."</p> |
| <p>Response: Due to industry comments, the SDT has revised the Implementation Plan that goes into greater detail and includes a phased-in transition after regulatory approval. A new question on the detailed Implementation Plan has been posted with the third draft.</p> <p>The SDT believes that the BA does not have an "applicability" role in the TOP restoration plan or its implementation. Beginning with the system collapse, the TOP restores the Transmission System, restores Interconnections, and supplies off-site power to nuclear generating stations. This is accomplished on a command and control basis by the Transmission Operator in conjunction with the GOP. Once Interconnections have been reestablished and the Transmission System restored, the restoration of firm Load can begin. The TOP is restoring the System through command and control until a sufficient System has been built where frequency is under control.</p> <p>EOP-005-2, R2: The SDT has revised the standard to delete the phrase, "in order to ensure the reliability of the Interconnection" as proposed.</p> <p>EOP-005, R6.2: The SDT has revised the subrequirement so that it simply states, "The location and magnitude of Loads required to control voltages and frequency within acceptable limits".</p> <p>EOP-005-2, R12: This requirement only covers training and violations will be incurred only if the required training is not supplied.</p> <p>EOP-005-2, R16 – The SDT agrees that 90 days is excessive. There were different stakeholder suggestions on a more appropriate time frame, and the SDT is proposing 24 hours in the revised standard.</p> <p>EOP-006 R11 - Other RCs have not voiced this concern. The SDT therefore believes that the RC can control the scope of restoration drills to meet its needs and that 2 drills per year is the correct number.</p> | | | |
| MHEB | X | X | <p>For the Transmission Operators: It seems odd that the requirement to have a restoration plan would be after the requirement that requires implementation of its restoration plan. Same with the Generator Operators are required to test their blackstart resources before the requirement to have a documented procedure.</p> |
| <p>Response: Due to industry comments, the SDT has revised the Implementation Plan that goes into greater detail and includes a phased-in transition after regulatory approval. A new question on the detailed Implementation Plan has been posted with the third draft.</p> | | | |
| O | X | X | <p>R14: This section requires that "Each Transmission Operator and Generator Operator with a Blackstart Resource shall have a written Blackstart Resource agreement document specifying the terms and conditions of their arrangement." Although in many cases TOPs will have such "documents"</p> |

Consideration of Comments on 2nd Draft of Standards for System Restoration and Blackstart (Project 2006-03)

| #5 – Commenter | Yes | No | Comment |
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| | | | <p>with GOPs, a vertically integrated TOP would not necessarily have a specific "document" for Blackstart Resources that it operates and owns. In addition, if a Reliability Coordinator develops a Blackstart Tariff schedule that specifies the terms and conditions under which testing and compensation for Blackstart services will occur, a TOP might also not have such an agreement with the GOP because the Reliability Coordinator's Tariff might be superceding. I suggest that the language in R14 be broadened to permit "or appropriate provisions in a Reliability Coordinator Tariff or in another third party agreement", rather than mandating that each TOP have such an agreement with GOPs.</p> <p>We still have a concern that the drafting team is discounting the role of the Balancing Authority during restoration. During the initial stages of restoration, not only does frequency have to be controlled, but reserves must be distributed, specific generators need to be given frequency following instructions, while others are given load-carrying targets. Once islands are interconnected, one island manages frequency and the other manages flow on the interface. Are we sure that TOPs have the tools to do this?</p> |
| <p>Response: EOP-005-2, R14: The SDT has changed the wording to 'Agreement' that is a defined term and addresses this issue. The SDT believes that the BA does not have an "applicability" role in the TOP restoration plan or its implementation. Beginning with the system collapse, the TOP restores the Transmission System, restores Interconnections, and supplies off-site power to nuclear generating stations. This is accomplished on a command and control basis by the Transmission Operator in conjunction with the GOP. Once Interconnections have been reestablished and the Transmission System restored, the restoration of firm Load can begin. The TOP is restoring the System through command and control until a sufficient System has been built where frequency is under control.</p> <p>No TOP has expressed this concern.</p> | | | |
| Pacific Gas and Electric | X | X | EOP-005-2 R12 for the TO should be changed to align with the RC and GO – 18 months. |
| <p>Response: TOP and RC already have annual training requirements and these standards do not change those requirements. GOP training has been set to every 2 years (EOP-005-2, R18).</p> | | | |
| San Diego Gas and Electric | | | <p>Additional comments on EOP-005-2</p> <p>Blackstart Resource: There are generators that are not blackstart, but play an integral part in the restoration plan after being restarted by a smaller blackstart unit. This should be modified to include generators that are not necessarily a blackstart resource, but play an integral part in the restoration plan.</p> |

Consideration of Comments on 2nd Draft of Standards for System Restoration and Blackstart (Project 2006-03)

| #5 – Commenter | Yes | No | Comment |
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| | | | <p>Requirement 2 seems redundant to requirement 10. . . There should also be a requirement that those entities that receive the plan treat it as confidential information and protect it against further distribution.</p> <p>Requirement 3: For simplicity, do not say use rolling 365 days. Simply say at least every 12 months.</p> <p>Requirement 4: Change to ". . . after identifying that a permanent System modifications has changed the implementation . . ."</p> <p>Requirement 11: It would seem that we should use a consistent term "operating personnel" as is used in the PER standards rather than introduce a new term "control room personnel".</p> |
| <p>Response: While the TOP's plan must include cranking paths to "next units," the plan (with verification) may include more detail. The scope of the standards does not address next units to be started.</p> <p>EOP-005-2, R2: R2 refers to the restoration plan; R10 refers to the Blackstart Resource testing requirements, therefore there is no redundancy.</p> <p>EOP-005-2, R3: Language has been changed and the phrase, "rolling 365 days" is no longer used.</p> <p>EOP-005-2, R4: The SDT believes that the wording is equivalent.</p> <p>EOP-005-2, R11: Language has been changed – the defined word, "System Operator" is used in the revised standard</p> | | | |
| ATC LLC | X | | <p>Other comment personnel training requirements should be pulled out of the proposed standards and placed into a new PER standard.</p> |
| <p>Response: The SDT supports FERC's recommendation that inclusion of periodic system restoration drills and training requirements in the EOP standards as the most effective way of achieving the desired level of system restoration training.</p> | | | |
| FirstEnergy | X | | <p>At first glance the implementation plan does not seem to flow correctly from a timeline perspective; for example, in EOP-005 it seemed as though implementing a restoration plan after a system disturbance (R7) cannot be accomplished without an approved restoration plan (R1). But after further deliberation, we believe the SDT was merely trying to assure that, per R7, "a" plan is available and in place while the final, fine-tuned, and RC approved plan is still being completed per R1.</p> <p>Response: Due to industry comments, the SDT has revised the Implementation Plan that goes into greater detail and includes a phased-in transition after regulatory approval. A new question on the detailed Implementation Plan has been posted with the third draft.</p> <p>6. {WE HAVE ADDED A QUESTION 6 TO CAPTURE OUR ADDITIONAL</p> |

Consideration of Comments on 2nd Draft of Standards for System Restoration and Blackstart (Project 2006-03)

| #5 – Commenter | Yes | No | Comment |
|----------------|-----|----|---|
| | | | <p>COMMENTS AND CONCERNS}</p> <p>EOP-005-2: Blackstart Resource Definition - Comment: We believe the definition can be more simplistic and still cover the meaning of this term. The present definition is unnecessarily wordy and prescriptive. We suggest the following Definition: "A generation Facility under the control of the Generator Operator with the ability to start itself without support from the System and that meets the obligations of the restoration plan of the Transmission Operator." EOP-005-2, Definition: The SDT believes that the current definition correctly states the intent of the SDT and has not changed the wording.</p> <p>R1.1 appears to be a duplication of NPIR information required in NUC-001. Consequently, R1.1. should be revised to state, "A reference to the documents and procedures containing the NPIR information for each Nuclear Plant in the Transmission Operator area of responsibility developed under NUC-001." There should not be any need to duplicate this information in total in the restoration plan under this standard. Response: EOP-005-2, R1.1: Language has been changed and R7.2 has been deleted to eliminate the duplication with NUC-001</p> <p>R1.3. Comment: Use of the term characteristics is ambiguous and may leave room for interpretation. We suggest removing this term and rewording R1.3 as follows: "Identification of each Blackstart Resource, the name of the Blackstart Resource, location, megawatt and megavar capacity, and type of unit." Response: EOP-005-2, R1.3: The SDT believes the current wording is equivalent.</p> <p>R1.6: Should be revised to say, "A statement that the System Operator shall use professional judgment to deviate from the System restoration plan in situations where the actual conditions do not match the studied conditions contained in the restoration plan. Comment: Revised to improve clarity. Response: EOP-005-2, R1.6 – This requirement was deleted.</p> <p>R2.0: Comment: This requirement may be problematic in that the restoration plan will contain detailed transmission information and this</p> |

Consideration of Comments on 2nd Draft of Standards for System Restoration and Blackstart (Project 2006-03)

| #5 – Commenter | Yes | No | Comment |
|----------------|-----|----|--|
| | | | <p>requirement means that the Transmission Operator must distribute this plan to “entities identified in its restoration plan.” These entities may include affiliated merchant function groups. We are concerned that this requirement may violate FERC Code of Conduct rules. Response: EOP-005-2, R2: Language has been changed and only requires distribution to NERC Functional entities identified in the plan.</p> <p>R3.1: Comment: The phrase, “in writing” should be inserted after “confirm annually” to establish and ensure an audit trail for this requirement. Response: EOP-005-2, R3.1: The Measure for R3 provides for the documentation.</p> <p>R6.1: Should be revised to say, “The ability of Blackstart Resources to meet the Real and Reactive Power requirements of the Cranking Paths and to supply initial Loads.” Comment: Real power requirements in a blackstart situation are every bit as critical as reactive requirements. Response: EOP-005-2, R6.1: The SDT has revised the sub-requirement in support of your suggestion.</p> <p>R7.1: Should be revised to say, “Each affected Transmission Operator shall reach agreement with its Reliability Coordinator on the extent and condition of the isolated area(s).” Comment: Requirements should have a specific desired outcome identified. Working “in conjunction” with a Reliability Coordinator does not specify the desired outcome. Response: EOP-005-2, R7.1: The SDT believes that the wording is equivalent.</p> <p>R7.2 should be revised to say, “Each affected Transmission Operator shall restore off-site power to nuclear power plants in agreement with reliability standard NUC-001 and in accordance with its restoration plan or as directed by the Reliability Coordinator when conditions are not a describe in the restoration plan.” Comment: The restoration plans include meeting offsite power requirements of nuclear power plants in accordance with the NPIR from NUC-001. We should use those plans first and then rely on Reliability Coordinator directives when conditions are not as planned. Also, the phrase, “high priority” has been dropped from the proposed revision to R7.2 because it is ambiguous and lacks clarity of meaning. We feel that the only appropriate place for this phrase is in the purpose of the standard as a whole which is “... to ensure ... that priority is placed on restoring the</p> |

Consideration of Comments on 2nd Draft of Standards for System Restoration and Blackstart (Project 2006-03)

| #5 – Commenter | Yes | No | Comment |
|----------------|-----|----|--|
| | | | <p>interconnection." Response: The SDT has revised its method of addressing nuclear plants in R1.1.</p> <p>R8: Should be revised to say, "Following a Disturbance in which one or more areas of the BES shuts down and the use of Blackstart Resources is required to restore the shut down area to service, each affected Transmission Operator shall resynchronize shut down area(s) with neighboring Transmission Operator area(s) only with the authorization of the Reliability Coordinator and the affected neighboring Transmission Operator(s) or in accordance with the established procedures of the Reliability Coordinator." Comment: We should not assume that the Reliability Coordinator has sufficiently communicated with neighboring control areas at a time when the system is weakened and vulnerable. Consequently, a communication with the neighboring control area during synchronization should be required. Response: EOP-005-2, R8: The SDT believes that the RC is in command at this point in time and will coordinate with other RC's if boundaries are crossed as pointed out in EOP-006.</p> <p>R9.2.2.: The phrase "frequency monitors disconnected" should be changed to "frequency monitor controls disconnected" Comment: The controls inhibit energizing actions, not a monitoring system. In fact there may be an advantage to having the voltage monitoring system turned on for use in verifying the bus has indeed been energized. Response: EOP-005-2, R9.2.2: The SDT has used the suggested wording.</p> <p>R19. Should be revised to say, "Each Generator Operator shall participate in the Reliability Coordinator's restoration drills, exercises, or simulations as requested by the Reliability Coordinator or Transmission Operator." Comment: Considering the size of Reliability Coordinator Areas and the number of Generator Operator entities they may contain, it is advantageous to allow the Transmission Operator to extend the invitation to the drill on behalf of the Reliability Coordinator. Also, the Transmission Operator may wish to include an entity in the drill that the Reliability Coordinator had not considered. Response: EOP-005-2, R19: The RC is free to use its TOPs (and other Entities) to determine who should be invited to its drills.</p> |

Consideration of Comments on 2nd Draft of Standards for System Restoration and Blackstart (Project 2006-03)

| #5 – Commenter | Yes | No | Comment |
|----------------|-----|----|--|
| | | | <p>EOP-006-2: R1.6: Should be revised to say, "A statement that the System Operator shall use professional judgment to deviate from the System restoration plan in situations where the actual conditions do not match the studied conditions contained in the restoration plan." Comment: Revised to improve clarity. Response: EOP-006-2, R1.6 – Language was deleted. Note that a new sub-requirement was added to support the intent that in real-time, if conditions don't match the plan, the TOP must follow the the concepts in its restoration philosophy in restoring the system.</p> <p>R5.3: Should be revised to, "The Reliability Coordinator shall provide written notification to the Transmission Operator of its decision under R5.2 and provide reasons if disapproving a Transmission Operator's restoration plan." Comment: Revised to improve clarity. Response: EOP-006-2, R5.3: It is not clear what is being requested. R5.3 already requires written notification of reasons for disapproval.</p> <p>R7. Should be revised to, " Following a Disturbance in which one or more areas of the BES shuts down and the use of Blackstart Resources is required to restore the shut down area to service, each Reliability Coordinator shall reach agreement(s) with affected Balancing Authorities, Generator Operators, and Transmission Operators as well as neighboring Reliability Coordinators on the actions to be taken to monitor restoration progress, coordinate restoration activities, and to restore the BES frequency within acceptable operating limits. Such actions may include, but are not limited to, directing the adjustment of generation, the placing of additional generators on line, or the shedding of Load." Comment: Revised to improve clarity and more accurately reflect the actions of the Reliability Coordinator. Furthermore, requirements should have a specific desired outcome identified. Working "in conjunction" with a Reliability Coordinator does not specify the desired outcome. Response: EOP-006-2, R7: The SDT has changed the wording of this requirement to clarify the position. See the summary of changes for this question.</p> <p>R10: Add requirement R10.3. Review of the restoration plan. Comment: The Reliability Coordinator develops a restoration plan from the plans</p> |

Consideration of Comments on 2nd Draft of Standards for System Restoration and Blackstart (Project 2006-03)

| #5 – Commenter | Yes | No | Comment |
|---|----------|----|--|
| | | | <p>provided by the Transmission Operators. They should be required to provide training on their plans.</p> <p>Response: EOP-006-2, R10.3: The SDT believes inclusion of system restoration philosophy covers this concern.</p> |
| <p>Response: See in-line responses.</p> | | | |
| <p>Hydro One Networks</p> | <p>X</p> | | <p>Requirement comments:</p> <p>1- EOP-005-2 R1.6 uses the term "System Operator" which is not an entity in the NERC Reliability Functional Model. Suggest changing it to "Transmission Operator" or else clarify the intent of the requirement.</p> <p>2- EOP-005-2 R11.1 suggest adding "System restoration philosophy including coordination with the Reliability Coordinator and Generator Operators included in the restoration plan.</p> <p>3- EOP-006-2 R1.6 uses the term "System Operator". Since this is not an entity in the NERC Reliability Functional Model there is a potential for confusion as to who will make the judgment e.g. Transmission Operator or Reliability Coordinator?</p> <p>4 - We do not agree with the term 'professional judgement' and its implied context (ref. EOP-005-2 R1.6 and EOP-006-2 R1.6). We suggest using the phrase "good utility practise". We also do not agree with the idea that the restoration plan must match studies conditions - this is not the case. What would be more prudent is to identify that the restoration plan is studied to assure viability.</p> <p>5 - EOP-005-2 M7 and M8 and EOP-006-2 M7, M8, M9 - We do not produce copies of voice recordings due to privacy. We do provide transcripts of the recordings as they pertain to the event, but no actual recordings. Perhaps this should be re-worded in case others have the same philosophy.</p> <p>6 - EOP-005-2 R6.2: Revise to "The Loads required to stabilize the system or a part of the system to a sustainable operating state where the system exhibits stable frequency within acceptable voltage limits."</p> <p>7 - EOP-005-2 R16: Reduce the number of days in which a GOP must notify the TOP of known changes to Blackstart Resources. Suggest wording such as "... no more than 24 hours of the Generator Operator becoming</p> |

Consideration of Comments on 2nd Draft of Standards for System Restoration and Blackstart (Project 2006-03)

| #5 – Commenter | Yes | No | Comment |
|---|-----|----|--|
| | | | aware of the capability change ..." |
| <p>Response: EOP-005-2, R1.6: This subrequirement was deleted. EOP-005-2, R11.1: The suggested change was made to R11.1. EOP-006, R1.6: This subrequirement was deleted. EOP-005-2, R1.6 & EOP-006-2, R1.6: The subrequirement was deleted from both standards. EOP-005-2, M7 & EOP-006-2, M7, 8, and 9: The measure describes types of evidence and is not a complete list. No changes are necessary. EOP-005-2 R6.2: Changes have been made to the sub-requirements of R6 to provide clarity. EOP-005-2 R16: Language has been changed to 24 hours in support of your suggestion</p> | | | |
| Madison Gas and Electric | X | | <p>Other comments:</p> <p>1. R15 states "Each Generator Operator with a Blackstart Resource shall have documented procedures for starting the Blackstart Resource and energizing a dead (de-energized) bus."</p> <p>A possible rewrite could be: (cap letter used to help the SDT) "Each Generator Operator with a Blackstart Resource shall have documented procedures for ITS OPERATING PERSONNEL RESPONSIBLE FOR starting the Blackstart Resource and energizing a dead (de-energized) bus."</p> <p>This would then be complimented by:</p> <p>R18 states "Each Generator Operator of a Blackstart Resource shall provide a minimum of two hours of training per year to each of its operating personnel responsible for the startup and synchronization of its Blackstart Resource generation units. The training program shall include the following...".</p> <p>The first requirement sets the procedure then the second requirement sets that you need to train on it.</p> <p>2. In R15 is the registered entity "Generator Operator" the same or different from R18 the "Generator Operator with operating personnel responsible for start up and synchronization"? R15 implies that the Generator Operator is the registered entity. R18 implies that the Generator Operator is the registered entity that has operating personnel. Clarification is requested.</p> <p>3. R18.1 should be rewritten to "System restoration philosophy". The</p> |

Consideration of Comments on 2nd Draft of Standards for System Restoration and Blackstart (Project 2006-03)

| #5 – Commenter | Yes | No | Comment |
|---|-----|----|---|
| | | | operating personnel responsible for the actual strat up of the blackstart unit will take their orders from control center personnel. If a company wants to go into transmission operator coordination then they can. |
| Response: The SDT has specifically limited the applicability to GOPs with Blackstart Resources. Generator Operator refers to the Functional Model entity. | | | |
| We Energies | X | | <p>Since no specific area is provided for additional comments, they are placed here:</p> <p>The standards appear to be drafted from the perspective of a vertically integrated utility, not in terms of the NERC functional model entities. The conspicuous absence of the NERC functional entity “Balancing Authority” in both EOP-005-2 and EOP-006-2 produces doubt as to the value of the standards. The BA should be intimately involved in all aspects of the system restoration plan and the execution thereof.</p> <p>The argument that the BA role is prescribed for all operating conditions in the Balancing Authority standards is fallacious. Below are extracts from BAL-001 thorough BAL-006 with comments regarding the applicability during the restoration process.</p> <p>A. Introduction 1. Title: Real Power Balancing Control Performance 2. Number: BAL-001-0 3. Purpose: To maintain Interconnection steady-state frequency within defined limits by balancing real power demand and supply in real-time. 4. Applicability: 4.1. Balancing Authorities 5. Effective Date: April 1, 2005</p> <p>The purview of BAL-001 is limited to interconnection steady state frequency, and does not pertain to island frequency during system restoration efforts. During island scenarios ACE is irrelevant as are the control performance criteria – the frequencies of the various islands will not be equal and there will be no scheduled interchange.</p> <p>EOP-005 R1.5 requires identification of acceptable operating frequency limits during restoration efforts. Since BAL-001 does not apply to restoration scenarios, and the Balancing Authority is responsible for maintaining frequency, the NERC functional entity “Balancing Authority” should be included in the EOP-005-2 standard.</p> |

Consideration of Comments on 2nd Draft of Standards for System Restoration and Blackstart (Project 2006-03)

| #5 – Commenter | Yes | No | Comment |
|----------------|-----|----|---|
| | | | <p>A. Introduction 1. Title: Disturbance Control Performance 2. Number: BAL-002-0 3. Purpose: The purpose of the Disturbance Control Standard (DCS) is to ensure the Balancing Authority is able to utilize its Contingency Reserve to balance resources and demand and return interconnection frequency within defined limits following a Reportable Disturbance. Because generator failures are far more common than significant losses of load and because Contingency Reserve activation does not typically apply to the loss of load, the application of DCS is limited to the loss of supply and does not apply to the loss of load.</p> <p>4. Applicability: 4.1. Balancing Authorities 4.2. Reserve Sharing Groups (Balancing Authorities may meet the requirements of Standard 002 through participation in a Reserve Sharing Group.) 4.3. Regional Reliability Organizations 5. Effective Date: April 1, 2005</p> <p>Again, interconnection frequency has no meaning in an island scenario.</p> <p>A. Introduction 1. Title: Frequency Response and Bias 2. Number: BAL-003-0 3. Purpose: This standard provides a consistent method for calculating the Frequency Bias component of ACE. 4. Applicability: 4.1. Balancing Authorities 5. Effective Date: April 1, 2005</p> <p>During island scenarios, ACE is irrelevant.</p> |

Consideration of Comments on 2nd Draft of Standards for System Restoration and Blackstart (Project 2006-03)

| #5 – Commenter | Yes | No | Comment |
|----------------|-----|----|---|
| | | | <p>A. Introduction 1. Title: Time Error Correction 2. Number: BAL-004-0 3. Purpose: The purpose of this standard is to ensure that Time Error Corrections are conducted in a manner that does not adversely affect the reliability of the Interconnection. 4. Applicability: 4.1. Reliability Coordinators 4.2. Balancing Authorities 5. Effective Date: April 1, 2005</p> <p>No RC will initiate a Time Error Correction during island scenarios.</p> <p>A. Introduction 1. Title: Automatic Generation Control 2. Number: BAL-005-0 3. Purpose: This standard establishes requirements for Balancing Authority Automatic Generation Control (AGC) necessary to calculate Area Control Error (ACE) and to routinely deploy the Regulating Reserve. The standard also ensures that all facilities and load electrically synchronized to the Interconnection are included within the metered boundary of a Balancing Area so that balancing of resources and demand can be achieved. 4. Applicability: 4.1. Balancing Authorities 4.2. Generator Operators 4.3. Transmission Operators 4.4. Load Serving Entities 5. Effective Date: April 1, 2005</p> <p>AGC will be useless until system conditions are near to normal interconnection status.</p> <p>A. Introduction 1. Title: Inadvertent Interchange</p> |

Consideration of Comments on 2nd Draft of Standards for System Restoration and Blackstart (Project 2006-03)

| #5 – Commenter | Yes | No | Comment |
|------------------|-----|----|---|
| | | | <p>2. Number: BAL-006-1</p> <p>3. Purpose: This standard defines a process for monitoring Balancing Authorities to ensure that, over the long term, Balancing Authority Areas do not excessively depend on other Balancing Authority Areas in the Interconnection for meeting their demand or Interchange obligations.</p> <p>4. Applicability: 4.1. Balancing Authorities.</p> <p>5. Effective Date: May 1, 2006</p> <p>There will be no inadvertent flows out from or into an island.</p> <p>In summary, the existing NERC Balancing Authority Standards BAL-001 through BAL-006 do not apply during system restoration efforts. Further, the proposed standards EOP-005-2 and EOP-006-2 do not address the operations of the Balancing Authority during system restoration events.</p> <p>Comments specific to EOP-005 No training is specified for the BA system operators. The system restoration scenario is very unique and challenging in terms of balancing resources to load. Load behavior will be very dynamic – cold load pick up and loss of diversity will be significant factors during the restoration process. Since the BA is ultimately responsible for balancing under all conditions, it is imperative for the BA to be involved in the training for restoration and the implementation during an event.</p> <p>The LSE has no requirements in this standard. Is there value including the LSE in terms of load used as a tool? What load profiles are expected? What impact does that have on the generator stability, system voltages and island frequency?</p> <p>R1.5 – Specifies voltage and frequency limits. Without the BA involvement, how do you control frequency? Who determines the frequency limits? The BAL Standards apply for normal operations with bias control, but system restoration scenarios are totally different.</p> |
| <p>Response:</p> | | | |

Consideration of Comments on 2nd Draft of Standards for System Restoration and Blackstart (Project 2006-03)

| #5 – Commenter | Yes | No | Comment |
|--|-----|----|-------------|
| <p>The SDT continues to believe that the BA does not have an “applicability” role in the TOP restoration plan or its implementation. Beginning with the system collapse, the TOP restores the Transmission System, restores Interconnections, and supplies off-site power to nuclear generating stations. This is accomplished on a command and control basis by the Transmission Operator in conjunction with the GOP. Once Interconnections have been reestablished and the Transmission System restored, the restoration of firm Load can begin. The TOP is restoring the System through command and control until a sufficient System has been built where frequency is under control. The standard requires the TOP to have agreements with GOPs (with Blackstart Resources)</p> <p>The SDT believes that existing agreements/arrangements between TOP and GOP cover the indicated concerns.</p> <p>The TOP needs to coordinate with LSEs for load needed during restoration. R2 provides for the distribution of the TOP’s restoration plan to entities identified in its restoration plan. Language changes have been made to EOP-005-2, R2 to address the security issues.</p> | | | |
| Ameren | | | No comment. |
| CenterPoint Energy | | | No comment. |
| Con Edison | | | No comment. |
| Entergy Services (1) | X | | |
| Exelon Corp. | | | No comment. |
| Northeast Utilities | | | No comment. |
| OVEC | | | No comment. |
| Oncor | X | | |
| Potomac Electric Power Company | X | | |
| Reliant Energy | X | | |
| Santee Cooper | X | | |
| Tampa Electric Company | X | | |
| <p>Response: Thank you for your comment.</p> | | | |



Standards Announcement

Comment Period Opens

April 15–May 29, 2008

Now available at:

http://www.nerc.com/~filez/standards/System_Restoration_Blackstart.html

Third Draft of System Restoration from Blackstart Resources Standard Posted for 45-day Comment Period

The third draft of EOP-005-2 — System Restoration from Blackstart Resources and EOP-006-2 — System Restoration – Coordination ([Project 2006-03](#)) have been posted for a 45-day comment period from April 15 through May 29, 2008.

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 from Blackstart Resources |
| EOP-006-1 — Reliability Coordination — System Restoration | EOP-006-2 — System Restoration – 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 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.”

The latest drafts of the standards include revisions to the titles and purpose statements, revisions to several requirements and measures, and the addition of all compliance elements.

Please use this [comment form](#) to submit comments on EOP-005-2 and EOP-006-2.

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.

For more information or assistance, please contact Maureen Long, Standards Process Manager, at maureen.long@nerc.net or at (813) 468-5998.

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. SAR version 1 posted on November 6, 2006.
2. SAR version 1 comment period closed on December 5, 2006.
3. SAR version 2 and comment responses for SAR version 1 posted on February 8, 2007.
4. SAR version 2 comment period closed on March 9, 2007.
5. SAR version 3 and comment responses for SAR version 2 accepted by SC and SDT appointed on April 9, 2007.
6. First posting of revised standards on August 15, 2007 with comment period closed on September 28, 2007.
7. Second posting of revised standards on January 7, 2008 with comment period closed on February 5, 2008.

Proposed Action Plan and Description of Current Draft:

The SDT began meeting in mid-April 2007 immediately following the approval of the SAR by the SC with the goal of completing work in approximately one year's time. The current draft is the third posting of the proposed standards. Requirements in EOP-007 and EOP-009 have been incorporated into the revised EOP-005 and EOP-006. Therefore, EOP-007 and EOP-009 will be retired when this project is approved and EOP-005-2 and EOP-006-2 go into effect.

Future Development Plan:

| Anticipated Actions | Anticipated Date |
|--|-------------------------|
| 1. Third posting of draft standards. | April 2008 |
| 2. Fourth posting of draft standards. | September 2008 |
| 3. Standards posted for first ballot. | January 2009 |
| 4. Standards posted for second ballot. | March 2009 |
| 5. Standards sent to BOT for approval. | March 2009 |

Definitions of Terms Used in Standard

This section includes all newly defined or revised terms used in the proposed standard. Terms already defined in the Reliability Standards Glossary of Terms are not repeated here. New or revised definitions listed below become approved when the proposed standard is approved. When the standard becomes effective, these defined terms will be removed from the individual standard and added to the Glossary.

Blackstart Capability Plan: Existing definition is retired.

Blackstart Resource: A generation Facility and associated set of equipment which has the ability to be started without support from the System or is designed to remain energized without connection to the remainder of the System, with the ability to energize a bus, meeting the Transmission Operator's restoration plan needs for real and reactive power capability, frequency and voltage control, and that has been included in the Transmission Operator's restoration plan.

A. Introduction

1. **Title:** System Restoration from Blackstart Resources
2. **Number:** EOP-005-2
3. **Purpose:** Ensure plans and Facilities are established, and personnel are prepared to enable System restoration from Blackstart Resources to ensure reliability is maintained during restoration and priority is placed on restoring the Interconnection.
4. **Applicability:**
 - 4.1. Transmission Operators.
 - 4.2. Generator Operators.
5. **Proposed Effective Date:** TBD

B. Requirements

- R1. Each Transmission Operator shall have a restoration plan approved by its Reliability Coordinator. The restoration plan shall allow for restoring the Transmission Operator's System following a Disturbance in which one or more areas of the Bulk Electric System (BES) shuts down and the use of Blackstart Resources is required to restore the shut down area to service, to a state whereby the choice of the next Load to be restored is not driven by the need to control frequency or voltage regardless of whether the Blackstart Resource is located within the Transmission Operator's System. The restoration plan shall include: [Violation Risk Factor = High] [Time Horizon = Operations Planning]
 - R1.1. A description of the manner in which all Agreements for off-site power requirements of nuclear power plants will be fulfilled during System restoration.
 - R1.2. Procedures for restoring the integrity of the Interconnection under the direction of the Reliability Coordinator.
 - R1.3. Identification of each Blackstart Resource and its characteristics including the following: the name of the Blackstart Resource, location, megawatt and megavar capacity, and type of unit.
 - R1.4. Identification of Cranking Paths and initial switching requirements between each Blackstart Resource and the unit(s) to be started.
 - R1.5. Identification of acceptable operating voltage and frequency limits during restoration.
 - R1.6. Operating Procedures to reestablish connections within the Transmission Operator's System for areas that have become separated.
 - R1.7. Operating Procedures to restore Loads, such as station service for substations, units to be restarted or stabilized, the Load needed to stabilize generation and frequency, and provide voltage control for restoring the System.
- R2. Each Transmission Operator shall distribute its approved restoration plan to the reliability-related operational entities identified in its restoration plan within thirty

- calendar days of having received approval from its Reliability Coordinator. [Violation Risk Factor = Lower] [Time Horizon = Operations Planning]
- R3.** Each Transmission Operator shall review its restoration plan and submit it to its Reliability Coordinator annually on a mutually agreed predetermined schedule. [Violation Risk Factor = Medium] [Time Horizon = Operations Planning]
- R3.1.** If there are no changes to the previously submitted restoration plan, the Transmission Operator shall confirm annually on a predetermined schedule to its Reliability Coordinator that it has reviewed its restoration plan and no changes were necessary.
- R4.** Each Transmission Operator shall update its restoration plan within ninety calendar days after identifying any permanent System modifications that would change the implementation of its restoration plan. [Violation Risk Factor = Medium] [Time Horizon = Operations Planning]
- R4.1.** Each Transmission Operator shall submit its revised restoration plan to its Reliability Coordinator within the same ninety calendar day period.
- R5.** Each Transmission Operator shall have a copy of its latest approved restoration plan within each of its control centers and available to all of its control room personnel. [Violation Risk Factor = Lower] [Time Horizon = Operations Planning]
- R6.** Each Transmission Operator shall verify through analysis of actual events, steady state and dynamic simulations, or testing that its documented restoration plan accomplishes its intended function. This shall be completed every five years at a minimum. Such simulations or testing shall analyze: [Violation Risk Factor = Medium] [Time Horizon = Long-term Planning]
- R6.1.** The capability of Blackstart Resources to meet the Real and Reactive Power requirements of the Cranking Paths and to supply initial Loads.
- R6.2.** The location and magnitude of Loads required to control voltages and frequency within acceptable operating limits.
- R6.3.** The capability of generating resources required to control voltages and frequency within acceptable operating limits.
- R7.** Following a Disturbance in which one or more areas of the BES shuts down and the use of Blackstart Resources is required to restore the shut down area to service, each affected Transmission Operator shall implement its restoration plan. [Violation Risk Factor = High] [Time Horizon = Real-time Operations]
- R7.1.** Each affected Transmission Operator shall work in conjunction with its Reliability Coordinator to determine the extent and condition of the isolated area(s).
- R7.2.** Each affected Transmission Operator shall notify its Reliability Coordinator of restoration progress as required in the Reliability Coordinator's restoration plan.
- R7.3.** If the restoration plan cannot be completed as expected because actual conditions do not match the studied conditions, the Transmission Operator

shall utilize its restoration plan philosophies to implement alternative measures for achieving System restoration.

- R8.** Following a Disturbance in which one or more areas of the BES shuts down and the use of Blackstart Resources is required to restore the shut down area to service, the Transmission Operator shall resynchronize area(s) with neighboring Transmission Operator area(s) only with the authorization of the Reliability Coordinator or in accordance with the established procedures of the Reliability Coordinator. [Violation Risk Factor = High] [Time Horizon = Real-time Operations]
- R9.** Each Transmission Operator shall have Blackstart Resource testing requirements to verify that each Blackstart Resource is capable of meeting the requirements of its restoration plan. These Blackstart Resource testing requirements shall include: [Violation Risk Factor = Medium] [Time Horizon = Operations Planning]
- R9.1.** The frequency of testing such that each Blackstart Resource is tested at least once every three years.
- R9.2.** A list of required tests including:
- R9.2.1.** The ability to start the unit when isolated with no support from the BES or when designed to remain energized without connection to the remainder of the System.
- R9.2.2.** The ability to energize a bus. If it is not possible to energize a bus during the test, the testing entity must affirm that the unit has the capability to energize a bus such as verifying that the breaker close coil relay can be energized with the voltage and frequency monitor controls disconnected.
- R9.3.** The minimum duration of each of the required tests.
- R10.** Each Transmission Operator shall post its Blackstart Resource testing requirements in a freely accessible public forum. [Violation Risk Factor = Lower] [Time Horizon = Operations Planning]
- R11.** Each Transmission Operator shall include within its operations training program, annual System restoration training to its System Operators to ensure the proper execution of its restoration plan. This training program shall include the following: [Violation Risk Factor = Medium] [Time Horizon = Operations Planning]
- R11.1.** System restoration philosophy including coordination with the Reliability Coordinator and Generator Operators included in the restoration plan.
- R11.2.** Restoration priorities.
- R11.3.** Building of cranking paths.
- R11.4.** Synchronizing (re-energized sections of the System).
- R11.5.** Review of the restoration plan.
- R12.** Each Transmission Operator shall provide a minimum of two hours of System restoration training every two years to field switching personnel identified as

- performing unique tasks associated with its restoration plan that are outside of their normal tasks. [Violation Risk Factor = Lower] [Time Horizon = Operations Planning]
- R13.** Each Transmission Operator shall participate in its Reliability Coordinator's restoration drills, exercises, or simulations as requested by its Reliability Coordinator. [Violation Risk Factor = Medium] [Time Horizon = Operations Planning]
- R14.** Each Transmission Operator and Generator Operator with a Blackstart Resource shall have a written Blackstart Resource Agreement specifying the terms and conditions of their arrangement. Such Agreements shall include references to the blackstart testing requirements. [Violation Risk Factor = Medium] [Time Horizon = Operations Planning]
- R15.** Each Generator Operator with a Blackstart Resource shall have documented procedures for starting the Blackstart Resource and energizing a bus. [Violation Risk Factor = Medium] [Time Horizon = Operations Planning]
- R16.** Each Generator Operator of a Blackstart Resource shall notify its Transmission Operator of any known changes to the capabilities of that Blackstart Resource within twenty-four hours following such change. [Violation Risk Factor = Medium] [Time Horizon = Operations Planning]
- R17.** Each Generator Operator of a Blackstart Resource shall perform Blackstart Resource tests, and maintain records of such testing, in accordance with the testing requirements set by the Transmission Operator to verify that the Blackstart Resource can perform as specified in the restoration plan. [Violation Risk Factor = Medium] [Time Horizon = Operations Planning]
- R17.1.** Testing records shall include at a minimum: name of the Blackstart Resource, unit tested, date of the test, duration of the test, time required to start the unit, an indication of any testing requirements not met under Requirement R9.
- R17.2.** Each Generator Operator shall provide the blackstart test results within thirty calendar days following a request from its Reliability Coordinator or Transmission Operator.
- R18.** Each Generator Operator of a Blackstart Resource shall provide a minimum of two hours of training every two years to each of its operating personnel responsible for the startup and synchronization of its Blackstart Resource generation units. The training program shall include the following: [Violation Risk Factor = Medium] [Time Horizon = Operations Planning]
- R18.1.** System restoration philosophy including coordination with the Transmission Operator.
- R18.2.** Special actions required to enable blackstart and synchronization to the System.
- R19.** Each Generator Operator shall participate in the Reliability Coordinator's restoration drills, exercises, or simulations as requested by the Reliability Coordinator. [Violation Risk Factor = Medium] [Time Horizon = Operations Planning]

C. Measures

- M1.** Each Transmission Operator shall have a dated, documented System restoration plan developed in accordance with Requirement R1 that has been approved by its Reliability Coordinator as shown with the written approval letter from its Reliability Coordinator.
- M2.** Each Transmission Operator shall have evidence such as e-mails with receipts or registered mail receipts, that it distributed its approved restoration plan to the appropriate entities in accordance with Requirement R2.
- M3.** Each Transmission Operator shall have documentation such as a review signature sheet, revision histories, e-mails with receipts, or registered mail receipts, that it has annually reviewed and submitted its restoration plan to its Reliability Coordinator in accordance with Requirement R3.
- M4.** Each Transmission Operator shall have documentation such as dated review signature sheets, revision histories, e-mails with receipts, or registered mail receipts, that it has updated its restoration plan with its Reliability Coordinator in accordance with Requirement R4.
- M5.** Each Transmission Operator shall have documentation such as e-mail receipts that it has made the latest approved copy of its restoration plan available in each of its control rooms and to each of its control room personnel in accordance with Requirement R5.
- M6.** Each Transmission Operator shall have documentation such as power flow outputs, that it has verified that its restoration plan accomplishes its intended function in accordance with Requirement R6.
- M7.** If there has been a Disturbance in which Blackstart Resources have been utilized in restoring the shut down area of the System to service, each Transmission Operator involved shall have evidence such as voice recordings, e-mail, dated computer printouts, or operator logs, that it implemented its restoration plan in accordance with Requirement R7.
- M8.** If there has been a Disturbance in which Blackstart Resources have been utilized in restoring the shut down area of the System to service, each Transmission Operator involved in such an event shall have evidence, such as voice recordings, e-mail, dated computer printouts, or operator logs, that it resynchronized shut down areas in accordance with Requirement R8.
- M9.** Each Transmission Operator shall have documented Blackstart Resource testing requirements in accordance with Requirement R9.
- M10.** Each Transmission Operator shall have evidence that it has posted its Blackstart Resource testing requirements in accordance with Requirement R10.
- M11.** Each Transmission Operator shall have an electronic or hard copy of the training program material provided to its System Operators for System restoration training in accordance with Requirement R11.
- M12.** Each Transmission Operator shall have an electronic or hard copy of the training program material provided to its field switching personnel for System restoration

training and the corresponding training records including training dates and duration in accordance with Requirement R12.

- M13.** Each Transmission Operator shall have evidence, such as training records, that it participated in the Reliability Coordinator's restoration drills, exercises, or simulations as requested in accordance with Requirement R13.
- M14.** Each Transmission Operator shall have the dated Blackstart Resource Agreements with all Generator Operators with Blackstart Resources included in its restoration plan in accordance with Requirement R14.
- M15.** Each Generator Operator with a Blackstart Resource shall have dated documented procedures on file for starting the unit and energizing a bus in accordance with Requirement R15.
- M16.** Each Generator Operator with a Blackstart Resource shall provide evidence, such as e-mails with receipts or registered mail receipts, showing that it notified its Transmission Operator of any known changes to its Blackstart Resource capabilities within twenty-four hours of such changes in accordance with Requirement R16.
- M17.** Each Generator Operator shall maintain dated documentation of its Blackstart Resource test results and shall have evidence such as e-mails with receipts or registered mail receipts, that it provided these records to its Reliability Coordinator and Transmission Operator when requested in accordance with Requirement R17.
- M18.** Each Generator Operator shall have a copy of its dated training records including training dates and durations showing that it has provided training in accordance with Requirement R18.
- M19.** Each Generator Operator shall have evidence, such as dated training records, that it participated in the Reliability Coordinator's restoration drills, exercises, or simulations if requested to do so in accordance with Requirement R19.

D. Compliance

1. Compliance Monitoring Process

1.1. Compliance Enforcement Authority

Regional Entity.

1.2. Compliance Monitoring Period and Reset Time Frame

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

The 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:

- Approved restoration plan and any restoration plans in force since the last compliance audit for Requirement R1, Measure M1.
- Distribution of its approved restoration plan and any restoration plans in force for the current year and three prior calendar years for Requirement R2, Measure M2.
- Submission of its annually reviewed restoration plan to its Reliability Coordinator for the current year and three prior calendar years for Requirement R3, Measure M3.
- Submission of an updated restoration plan to its Reliability Coordinator for all versions for the current year and the prior three years for Requirement R4, Measure M4.
- The current, approved restoration plan and any restoration plans in force for the last three calendar years was made available in its control rooms for Requirement R5, Measure M5.
- The verification results for the current, approved restoration plan and the previous approved restoration plan for Requirement R6, Measure M6.
- Implementation of its restoration plan on any occasion for three calendar years if there has been a Disturbance in which Blackstart Resources have been utilized in restoring the shut down area of the System to service for Requirement R7, Measure M7.
- Resynchronization of shut down areas on any occasion over three calendar years if there has been a Disturbance in which Blackstart Resources have been utilized in restoring the shut down area of the System to service for Requirement R8, Measure M8.
- The verification process and results for the current Blackstart Resource testing requirements and the last previous Blackstart Resource testing requirements for Requirement R9, Measure M9.
- Posting of its current Blackstart Resource testing requirements and any Blackstart Resource testing requirements in force during the last three years for Requirement R10, Measure M10.
- Actual training program materials or descriptions for three calendar years for Requirement R11, Measure M11.
- Actual training program materials or descriptions and actual training records for three calendar years for Requirement R12, Measure M12.

- Records of participation in all requested Reliability Coordinator restoration drills, exercises, or simulations since its last compliance audit as well as one previous compliance audit period for Requirement R13, Measure M13.
- Current Blackstart Resource Agreements and any Blackstart Resource Agreements in force since its last compliance audit for Requirement R14, Measure M14.

If a Transmission Operator is found non-compliant for any requirement, it shall keep information related to the non-compliance until found compliant.

The Generator 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:

- Current documentation and any documentation in force since its last compliance audit on procedures to start its Blackstart Resources and for energizing a bus for Requirement R15, Measure M15.
- Notification to its Transmission Operator of any known changes to its Blackstart Resource capabilities over the last three years for Requirement R16, Measure M16.
- The verification test results for the current set of requirements and one previous set for its Blackstart Resources for Requirement R17, Measure M17.
- Actual training program materials or descriptions and actual training records for three calendar years for Requirement R18, Measure M18.
- Records of participation in all requested Reliability Coordinator restoration drills, exercises, or simulations since its last compliance audit for Requirement R19, Measure M19.

If a Generation Operator is found non-compliant for any requirement, 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. | The Transmission Operator failed to comply with less than 25% of the number of sub-components within the requirement. | The Transmission Operator failed to comply with 25% or more and less than 50% of the number of sub-components within the requirement. | The Transmission Operator has failed to comply with 50% or more and less than 75% of the number of sub-components within the requirement. | The Transmission Operator has failed to comply with 75% or more of the number of sub-components. |
| R2. | The Transmission Operator failed to distribute the information to an entity identified within the restoration plan within the required timeframe. Or, the Transmission Operator distributed the information to all entities but was thirty days late in doing so. | The Transmission Operator failed to distribute the information to two entities identified within the restoration plan within the required timeframe. Or, the Transmission Operator distributed the information to all entities but was sixty days late in doing so. | The Transmission Operator failed to distribute the information to three entities identified within the restoration plan within the required timeframe. Or, the Transmission Operator distributed the information to all entities but was ninety days late in doing so. | The Transmission Operator failed to distribute the information to four or more entities identified within the restoration plan within the required timeframe. Or, the Transmission Operator distributed the information to all entities but was 120 days late in doing so. |
| R3. | The Transmission Operator did not submit the required information within the pre-determined schedule. Or, the Transmission Operator did not complete the review within thirty days of the pre-determined schedule. | The Transmission Operator did not submit the required information within thirty calendar days of the pre-determined schedule. Or, the Transmission Operator did not complete the review within sixty days of the pre-determined schedule. | The Transmission Operator did not submit the required information within sixty calendar days of the pre-determined schedule. Or, the Transmission Operator did not complete the review within ninety days of the pre-determined schedule. | The Transmission Operator did not submit the required information within ninety calendar days of the pre-determined schedule. Or, the Transmission Operator did not complete the review within 120 days of the pre-determined schedule. |
| R4. | The Transmission Operator failed to comply within ninety calendar days. | The Transmission Operator failed to comply within 120 calendar days of the change. | The Transmission Operator has failed to comply within 150 calendar days of the change. . | The Transmission Operator has failed to comply within 180 calendar days of the change. |
| R5. | The Transmission Operator did not make the latest approved restoration plan available in its | The Transmission Operator did not make the latest approved restoration plan | The Transmission Operator did not make the latest approved restoration plan | The Transmission Operator did not make the latest approved restoration plan |

Standard EOP-005-2 — System Restoration from Blackstart Resources

| R# | Lower VSL | Moderate VSL | High VSL | Severe VSL |
|-------------|---|---|---|---|
| | control rooms within fifteen calendar days of its approval. | available in its control rooms within twenty calendar days of its approval. | available in its control rooms within twenty-five calendar days of its approval. | available in its control rooms within thirty calendar days of its approval. |
| R6. | N/A | N/A | N/A | The Transmission Operator did not perform the verification within the prescribed timeframe. |
| R7. | N/A | N/A | N/A | The Transmission Operator did not implement its restoration plan following a Disturbance in which Blackstart Resources have been utilized in restoring the shut down area of the System. |
| R8. | N/A | N/A | N/A | The Transmission Operator resynchronized without approval of the Reliability Coordinator or in accordance with the established procedures of the Reliability Coordinator following a Disturbance in which Blackstart Resources have been utilized in restoring the shut down area of the System to service. |
| R9. | The Transmission Operator's testing requirements do not address one of the subrequirements. | N/A. | The Transmission Operator's testing requirements do not address two of the subrequirements. | The Transmission Operator does not have the testing requirements. |
| R10. | N/A | N/A | N/A | The Transmission Operator failed to post the Blackstart Resource testing requirements. |

Standard EOP-005-2 — System Restoration from Blackstart Resources

| R# | Lower VSL | Moderate VSL | High VSL | Severe VSL |
|-------------|---|--|--|---|
| R11. | The Transmission Operator’s training is missing one of the topics mentioned in the sub-requirements. . | The Transmission Operator’s training is missing two of the topics mentioned in the sub-requirements. | The Transmission Operator’s training is missing three or more of the topics mentioned in the sub-requirements. | The Transmission Operator has not included System restoration training in its operations training program. |
| R12. | The Transmission Operator only supplied 1.5 hours of training within a two year period. | N/A | The Transmission Operator only supplied one hour of training within a two year period. | The Transmission Operator did not supply any training within a two year period. |
| R13. | N/A. | N/A | N/A | The Transmission Operator has failed to comply with a request for their participation from the Reliability Coordinator. |
| R14. | The Transmission Operator does not have a Blackstart Resource Agreement for one of its Blackstart Resources. | The Transmission Operator does not have Blackstart Resource Agreements for 25% of Blackstart Resources. | The Transmission Operator does not have Blackstart Resource Agreements for 50% of Blackstart Resources. | The Transmission Operator does not have Blackstart Resource Agreements for more than 50% of Blackstart Resources. |
| R15. | The Generator Operator does not have dated documented procedures for one Blackstart Resource or the procedures do not contain both elements specified in the requirement. | The Generator Operator does not have dated documented procedures for two Blackstart Resources. | The Generator Operator does not have dated documented procedures for three Blackstart Resources. | The Generator Operator does not have dated documented procedures for any of its Blackstart Resources. |
| R16. | The Generator Operator did not notify the Transmission Operator within twenty-four hours. | The Generator Operator did not notify the Transmission Operator within three days. | The Generator Operator did not notify the Transmission Operator within four days. | The Generator Operator did not notify the Transmission Operator for more than four days. |
| R17. | The Generator Operator did not maintain testing records for one of the requirements for a Blackstart Resource or did not | The Generator Operator did not maintain testing records for two of the requirements for a Blackstart Resource or did not | The Generator Operator did not maintain testing records for three of the requirements for a Blackstart Resource or did not | The Generator Operator did not maintain testing records for a Blackstart Resource or did not supply them as requested for |

Standard EOP-005-2 — System Restoration from Blackstart Resources

| R# | Lower VSL | Moderate VSL | High VSL | Severe VSL |
|-------------|--|---|---|--|
| | supply them as requested within the required timeframe. | supply them as requested for sixty days after the required timeframe. | supply them as requested for ninety days after required timeframe. | 120 days or more after the required timeframe. . |
| R18. | The Generator Operator only supplied 1.5 hours of training within a two year period. | N/A | The Generator Operator only supplied one hour of training within a two year period. | The Generator Operator did not supply any training within a two year period. |
| R19. | N/A. | N/A | N/A | The Generator Operator has failed to comply with a request for their participation from the Reliability Coordinator. |

E. Regional Variances

None.

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 | May 2, 2007 | Approved by Board of Trustees | Revised |
| 2 | TBD | Revisions pursuant to Project 2006-03 | Updated testing requirements Incorporated Attachment 1 into the requirements Updated Measures and Compliance to match new Requirements |

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. SAR version 1 posted on November 6, 2006.
2. SAR version 1 comment period closed on December 5, 2006.
3. SAR version 2 and comment responses for SAR version 1 posted on February 8, 2007.
4. SAR version 2 comment period closed on March 9, 2007.
5. SAR version 3 and comment responses for SAR version 2 accepted by SC and SDT appointed on April 9, 2007.
6. First posting of revised standards on August 15, 2007 with comment period closed on September 28, 2007.
7. Second posting of revised standards on January 7, 2008 with comment period closed on February 5, 2008.

Proposed Action Plan and Description of Current Draft:

The SDT began meeting in mid-April 2007 immediately following the approval of the SAR by the SC with the goal of completing work in approximately one year's time. The current draft is the third posting of the proposed standards. Requirements in EOP-007 and EOP-009 have been incorporated into the revised EOP-005 and EOP-006. Therefore, EOP-007 and EOP-009 will be retired when this project is approved and EOP-005-2 and EOP-006-2 go into effect.

Future Development Plan:

| Anticipated Actions | Anticipated Date |
|--|------------------|
| 1. Third posting of draft standards. | April 2008 |
| 2. Fourth posting of draft standards. | September 2008 |
| 3. Standards posted for first ballot. | January 2009 |
| 4. Standards posted for second ballot. | March 2009 |
| 5. Standards sent to BOT for approval. | March 2009 |

Definitions of Terms Used in Standard

This section includes all newly defined or revised terms used in the proposed standard. Terms already defined in the Reliability Standards Glossary of Terms are not repeated here. New or revised definitions listed below become approved when the proposed standard is approved. When the standard becomes effective, these defined terms will be removed from the individual standard and added to the Glossary.

Blackstart Capability Plan: Existing definition is retired.

Blackstart Resource: A generation Facility and associated set of equipment which has the ability to be started without support from the System or is designed to remain energized without connection to the remainder of the System, with the ability to energize a ~~dead (de-energized)~~ bus, meeting the Transmission Operator's restoration plan needs for real and reactive power capability, frequency and voltage control, and that has been included in the Transmission Operator's restoration plan.

A. Introduction

1. **Title:** System Restoration from Blackstart Resources — Operations
2. **Number:** EOP-005-2
3. **Purpose:** Ensure plans and Facilities are established, and personnel are ~~in~~ prepared to enable System restoration from Blackstart Resources to ensure reliability is maintained during restoration and priority is placed on restoring the Interconnection.
4. **Applicability:**
 - 4.1. Transmission Operators.
 - 4.2. Generator Operators.
5. **Proposed Effective Date:** TBD

B. Requirements

- R1.** Each Transmission Operator shall have a restoration plan approved by its Reliability Coordinator. The restoration plan shall allow for restoring the Transmission Operator's System following a Disturbance in which one or more areas of the Bulk Electric System (BES) shuts down and the use of Blackstart Resources is required to restore the shut down area to service, to a state whereby the choice of the next Load to be restored is not driven by the need to control frequency or voltage regardless of whether the Blackstart Resource is located within the Transmission Operator's System. The restoration plan shall include: [Violation Risk Factor = High] [Time Horizon = Operations Planning]
- R1.1.** A description of the manner in which all ~~obligations~~ Agreements for off-site power requirements of nuclear power plants will be fulfilled during System restoration.
- R1.2.** Procedures for restoring the integrity of the Interconnection under the direction of the Reliability Coordinator.
- R1.3.** Identification of each Blackstart Resource and its characteristics including the following: the name of the Blackstart Resource, location, megawatt and megavar capacity, and type of unit.
- R1.4.** Identification of Cranking Paths and initial switching requirements between each Blackstart Resource and the unit(s) to be started.
- R1.5.** Identification of acceptable operating voltage and frequency limits during restoration.
- ~~**R1.6.** A statement accounting for the possibility that restoration can not be completed as expected indicating that in situations where the actual conditions do not match the studied conditions, the System Operator shall use professional judgment to deviate from the System restoration plan.~~
- R1.7:R1.6.** Operating Procedures to reestablish connections within the Transmission Operator's System for areas that have become separated.

- ~~R1.8.R1.7.~~ Operating Procedures to restore Loads, such as station service for substations, units to be restarted or stabilized, the Load needed to stabilize generation and frequency, and provide voltage control for restoring the System.
- R2. Each Transmission Operator, ~~in order to ensure the reliability of the Interconnection,~~ shall distribute its approved restoration plan to the reliability-related operational entities identified in its restoration plan, ~~and to its Reliability Coordinator within thirty calendar days of having received approval from its Reliability Coordinator.~~ [Violation Risk Factor = Lower] [Time Horizon = Operations Planning]
- R3. Each Transmission Operator shall review its restoration plan and submit it to its Reliability Coordinator ~~on an annual (rolling 365 days) basis~~ annually on a mutually agreed predetermined schedule. [Violation Risk Factor = Medium] [Time Horizon = Operations Planning]
- R3.1. If there are no changes to the previously submitted restoration plan, the Transmission Operator shall confirm annually ~~(rolling 365 day basis)~~ on a predetermined schedule to its Reliability Coordinator that it has reviewed its restoration plan and no changes were necessary.
- R4. Each Transmission Operator shall update its restoration plan within ninety calendar days after identifying any permanent System modifications that would change the implementation of its restoration plan. [Violation Risk Factor = Medium] [Time Horizon = Operations Planning]
- R4.1. Each Transmission Operator shall submit its revised restoration plan to its Reliability Coordinator within the same ninety calendar day period.
- R5. Each Transmission Operator shall have a copy of its latest approved restoration plan within each of its control centers and available to all of its control room personnel. [Violation Risk Factor = Lower] [Time Horizon = Operations Planning]
- R6. Each Transmission Operator shall verify through ~~a combination of~~ analysis of actual events, steady state and dynamic simulations, or testing that its documented restoration plan accomplishes its intended function. This shall be completed every five years at a minimum. Such simulations or testing shall analyze: [Violation Risk Factor = Medium] [Time Horizon = Long-term Planning]
- R6.1. The ~~capability~~ ability of Blackstart Resources to meet the Real and Reactive Power requirements of the Cranking Paths and to supply initial Loads.
- R6.2. The location and magnitude of Loads required to control voltages and frequency within acceptable operating limits ~~required to stabilize the Blackstart Resources and other resources being utilized until the restoration state has ended as stated in Requirement R1.~~
- R6.3. The ~~Loads and~~ capability of generating resources required to control voltages and frequency within acceptable operating limits ~~(documented in Requirement R1.5) as the BES is restored.~~
- R7. Following a Disturbance in which one or more areas of the BES shuts down and the use of Blackstart Resources is required to restore the shut down area to service, each

affected Transmission Operator shall implement its restoration plan. [Violation Risk Factor = High] [Time Horizon = Real-time Operations]

R7.1. Each affected Transmission Operator shall work in conjunction with its Reliability Coordinator to determine the extent and condition of the isolated area(s).

~~**R7.2.** Each affected Transmission Operator shall give high priority to restoration of off-site power to nuclear power plants as directed by the Reliability Coordinator and in agreement with reliability standard NUC-001.~~

~~**R7.3.**~~**R7.2.** Each affected Transmission Operator shall notify its Reliability Coordinator of restoration progress as required in the Reliability Coordinator's restoration plan.

R7.3. If the restoration plan cannot be completed as expected because actual conditions do not match the studied conditions, the Transmission Operator shall utilize its restoration plan philosophies to implement alternative measures for achieving System restoration.

R8. Following a Disturbance in which one or more areas of the BES shuts down and the use of Blackstart Resources is required to restore the shut down area to service, ~~each affected Transmission~~ the Transmission Operator shall resynchronize ~~shut-down~~ area(s) with neighboring Transmission Operator area(s) only with the authorization of the Reliability Coordinator or in accordance with the established procedures of the Reliability Coordinator. [Violation Risk Factor = ~~Medium~~High] [Time Horizon = Real-time Operations]

R9. Each Transmission Operator shall have Blackstart Resource testing requirements to verify that each Blackstart Resource is capable of meeting the requirements of its restoration plan. These Blackstart Resource testing requirements shall include: [Violation Risk Factor = Medium] [Time Horizon = Operations Planning]

R9.1. The frequency of testing such that each Blackstart Resource is tested at least once every three years.

R9.2. A list of required tests including:

R9.2.1. The ability to start the unit when isolated with no support from the BES or when designed to remain energized without connection to the remainder of the System.

R9.2.2. The ability to energize a ~~dead (de-energized)~~ bus. If it is not possible to energize a ~~dead (de-energized)~~ bus during the test, the testing entity must affirm that the unit has the capability to energize a ~~dead (de-energized)~~ bus such as verifying that the breaker close coil relay can be energized with the voltage and frequency monitors controls disconnected.

R9.3. The minimum duration of each of the required tests.

R10. Each Transmission Operator shall ~~distribute post~~ its Blackstart Resource testing requirements, ~~to each Generator Operator in its area that operates a Blackstart~~

~~Resource~~ in a freely accessible public forum. [Violation Risk Factor = Lower] [Time Horizon = Operations Planning]

R11. Each Transmission Operator shall include within its operations training program, annual System restoration training to its ~~control room personnel~~ System Operators to ensure the proper execution of its restoration plan. This training program shall include the following: [Violation Risk Factor = Medium] [Time Horizon = ~~Long term~~ Planning Operations Planning]

R11.1. System restoration philosophy including coordination with the Reliability Coordinator and Generator Operators included in the restoration plan.

R11.2. Restoration priorities.

R11.3. Building of cranking paths.

R11.4. Synchronizing (re-energized sections of the System).

R11.5. Review of the restoration plan.

R12. Each Transmission Operator shall provide a minimum of two hours of System restoration training ~~per year~~ every two years ~~for~~ to field switching personnel identified as performing unique tasks associated with its restoration plan ~~and that are~~ outside of their normal tasks. [Violation Risk Factor = Lower] [Time Horizon = Operations Planning]

R13. Each Transmission Operator shall participate in its Reliability Coordinator's restoration drills, exercises, or simulations as requested by its Reliability Coordinator. [Violation Risk Factor = Medium] [Time Horizon = Operations Planning]

R14. Each Transmission Operator and Generator Operator with a Blackstart Resource shall have a written Blackstart Resource ~~a~~ agreement specifying the terms and conditions of their arrangement. Such Agreements shall include references to the blackstart testing requirements. [Violation Risk Factor = ~~High~~ Medium] [Time Horizon = Operations Planning]

R15. Each Generator Operator with a Blackstart Resource shall have documented procedures for starting the Blackstart Resource and energizing a ~~dead (de-energized)~~ bus. [Violation Risk Factor = ~~High~~ Medium] [Time Horizon = Operations Planning]

R16. Each Generator Operator of a Blackstart Resource shall notify its Transmission Operator of any known changes to the capabilities of that Blackstart Resource within ~~ninety calendar days~~ twenty-four hours following such change. [Violation Risk Factor = Medium] [Time Horizon = Operations Planning]

R17. Each Generator Operator of a Blackstart Resource shall perform Blackstart Resource tests, and maintain records of such testing, in accordance with the testing requirements set by the Transmission Operator to verify that the Blackstart Resource can perform as specified in the restoration plan. [Violation Risk Factor = Medium] [Time Horizon = Operations Planning]

R17.1. Testing records shall include at a minimum: name of the Blackstart Resource, unit tested, date of the test, duration of the test, time required to start the unit, an indication of any testing requirements not met under Requirement R~~6~~9.

R17.2. Each Generator Operator shall provide the blackstart test results within thirty calendar days following a request from its Reliability Coordinator or Transmission Operator.

R18. Each Generator Operator of a Blackstart Resource shall provide a minimum of two hours of training ~~per year~~ every two years to each of its operating personnel responsible for the startup and synchronization of its Blackstart Resource generation units. The training program shall include the following: [Violation Risk Factor = Medium] [Time Horizon = Operations Planning]

R18.1. System restoration philosophy including coordination with the Transmission Operator.

R18.2. Special actions required to enable blackstart and synchronization to the System.

R19. Each Generator Operator shall participate in the Reliability Coordinator's restoration drills, exercises, or simulations as requested by the Reliability Coordinator. [Violation Risk Factor = Medium] [Time Horizon = Operations Planning]

C. Measures

M1. Each Transmission Operator shall have a dated, documented System restoration plan developed in accordance with Requirement R1 that has been approved by its Reliability Coordinator as shown with the written approval letter from its Reliability Coordinator.

M2. Each Transmission Operator shall have evidence such as e-mails with receipts or registered mail receipts, that it distributed its approved restoration plan to the appropriate entities in accordance with Requirement R2.

M3. Each Transmission Operator shall have documentation such as a review signature sheet, revision histories, e-mails with receipts, or registered mail receipts, that it has annually reviewed and submitted its restoration plan to its Reliability Coordinator in accordance with Requirement R3.

M4. Each Transmission Operator shall have documentation such as adated review signature sheets, revision histories, e-mails with receipts, or registered mail receipts, that it has updated its restoration plan with its Reliability Coordinator in accordance with Requirement R4.

M5. Each Transmission Operator shall have documentation such as e-mail receipts that it has made the latest approved copy of its restoration plan available in each of its control rooms and to each of its control room personnel in accordance with Requirement R5.

M6. Each Transmission Operator shall have documentation such as power flow outputs, that it has verified that its restoration plan accomplishes its intended function in accordance with Requirement R6.

M7. If there has been a Disturbance in which Blackstart Resources have been utilized in restoring the shut down area of the System to service, each Transmission Operator involved shall have evidence such as voice recordings, e-mail, dated computer

printouts, or operator logs, that it implemented its restoration plan in accordance with Requirement R7.

M8. If there has been a Disturbance in which Blackstart Resources have been utilized in restoring the shut down area of the System to service, each Transmission Operator involved in such an event shall have evidence, such as voice recordings, e-mail, dated computer printouts, or operator logs, that it resynchronized shut down areas in accordance with Requirement R8.

M9. Each Transmission Operator shall have documented Blackstart Resource testing requirements in accordance with Requirement R9.

M10. Each Transmission Operator shall have evidence, ~~such as e-mails with receipts or registered mail receipts~~, that it has ~~distributed~~ posted its Blackstart Resource testing requirements ~~to each Generator Operator in its area that operates a Blackstart Resource~~ in accordance with Requirement R10.

M11. Each Transmission Operator shall have an electronic or hard copy of ~~its~~ the training ~~records available program material provided to its System Operators for System restoration training showing that it has provided training~~ in accordance with Requirements R11 ~~and R12~~.

M12. Each Transmission Operator shall have an electronic or hard copy of the training program material provided to its field switching personnel for System restoration training and the corresponding training records including training dates and duration in accordance with Requirement R12.

M13. Each Transmission Operator shall have evidence, such as training records, that it participated in the Reliability Coordinator's restoration drills, exercises, or simulations as requested in accordance with Requirement R13.

M14. Each Transmission Operator shall have the dated Blackstart Resource ~~a~~ Agreements with all Generator Operators with Blackstart Resources included in its restoration plan in accordance with Requirement R14.

M15. Each Generator Operator with a Blackstart Resource shall have dated documented procedures on file for starting the units and energizing a ~~dead~~ bus in accordance with Requirement R15.

M16. Each Generator Operator with a Blackstart Resource shall provide evidence, such as e-mails with receipts or registered mail receipts, showing that it notified its Transmission Operator of any known changes to its Blackstart Resource capabilities within twenty-four hours of such changes in accordance with Requirement R16.

M17. Each Generator Operator shall maintain dated documentation of its Blackstart Resource test results and shall have evidence such as e-mails with receipts or registered mail receipts, that it provided these records to its Reliability Coordinator and Transmission Operator when requested in accordance with Requirement R17.

M18. Each Generator Operator shall have a copy of its dated training records including training dates and durations on file showing that it has provided training in accordance with Requirement R18.

M19. Each Generator Operator shall have evidence, such as dated training records, that it participated in the Reliability Coordinator's restoration drills, exercises, or simulations if requested to do so in accordance with Requirement R19.

D. Compliance

1. Compliance Monitoring Process

1.1. Compliance Enforcement Authority

Regional Entity.

1.2. Compliance Monitoring Period and Reset Time Frame

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

The 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:

- Approved restoration plan and any restoration plans in force since the last compliance audit for Requirement R1, Measure M1.
- Distribution of its approved restoration plan and any restoration plans in force for the current year and three prior calendar years for Requirement R2, Measure M2.
- Submission of its annually reviewed restoration plan to its Reliability Coordinator for the current year and three prior calendar years for Requirement R3, Measure M3.
- Submission of an updated restoration plan to its Reliability Coordinator for all versions for the current year and the prior three years for Requirement R4, Measure M4.
- The current, approved restoration plan and any restoration plans in force for the last three calendar years was made available in its control rooms for Requirement R5, Measure M5.

- The verification results for the current, approved restoration plan and the previous approved restoration plan for Requirement R6, Measure M6.
- Implementation of its restoration plan on any occasion for three calendar years if there has been a Disturbance in which Blackstart Resources have been utilized in restoring the shut down area of the System to service for Requirement R7, Measure M7.
- Resynchronization of shut down areas on any occasion over three calendar years if there has been a Disturbance in which Blackstart Resources have been utilized in restoring the shut down area of the System to service for Requirement R8, Measure M8.
- The verification process and results for the current Blackstart Resource testing requirements and the last previous Blackstart Resource testing requirements for Requirement R9, Measure M9.
- Posting of its current Blackstart Resource testing requirements and any Blackstart Resource testing requirements in force during the last three years for Requirement R10, Measure M10.
- Actual training program materials or descriptions for three calendar years for Requirement R11, Measure M11.
- Actual training program materials or descriptions and actual training records for three calendar years for Requirement R12, Measure M12.
- Records of participation in all requested Reliability Coordinator restoration drills, exercises, or simulations since its last compliance audit as well as one previous compliance audit period for Requirement R13, Measure M13.
- Current Blackstart Resource Agreements and any Blackstart Resource Agreements in force since its last compliance audit for Requirement R14, Measure M14.

If a Transmission Operator is found non-compliant for any requirement, it shall keep information related to the non-compliance until found compliant.

The Generator 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:

- Current documentation and any documentation in force since its last compliance audit on procedures to start its Blackstart Resources and for energizing a bus for Requirement R15, Measure M15.
- Notification to its Transmission Operator of any known changes to its Blackstart Resource capabilities over the last three years for Requirement R16, Measure M16.
- The verification test results for the current set of requirements and one previous set for its Blackstart Resources for Requirement R17, Measure M17.

- Actual training program materials or descriptions and actual training records for three calendar years for Requirement R18, Measure M18.
- Records of participation in all requested Reliability Coordinator restoration drills, exercises, or simulations since its last compliance audit for Requirement R19, Measure M19.

If a Generation Operator is found non-compliant for any requirement, 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. | <u>The Transmission Operator failed to comply with less than 25% of the number of sub-components within the requirement.</u> | <u>The Transmission Operator failed to comply with 25% or more and less than 50% of the number of sub-components within the requirement.</u> | <u>The Transmission Operator has failed to comply with 50% or more and less than 75% of the number of sub-components within the requirement.</u> | <u>The Transmission Operator has failed to comply with 75% or more of the number of sub-components.</u> |
| R2. | <u>The Transmission Operator failed to distribute the information to an entity identified within the restoration plan within the required timeframe. Or, the Transmission Operator distributed the information to all entities but was thirty days late in doing so.</u> | <u>The Transmission Operator failed to distribute the information to two entities identified within the restoration plan within the required timeframe. Or, the Transmission Operator distributed the information to all entities but was sixty days late in doing so.</u> | <u>The Transmission Operator failed to distribute the information to three entities identified within the restoration plan within the required timeframe. Or, the Transmission Operator distributed the information to all entities but was ninety days late in doing so.</u> | <u>The Transmission Operator failed to distribute the information to four or more entities identified within the restoration plan within the required timeframe. Or, the Transmission Operator distributed the information to all entities but was 120 days late in doing so.</u> |
| R3. | <u>The Transmission Operator did not submit the required information within the pre-determined schedule. Or, the Transmission Operator did not complete the review within thirty days of the pre-determined schedule.</u> | <u>The Transmission Operator did not submit the required information within <u>thirty</u> calendar days of the pre-determined schedule. Or, the Transmission Operator did not complete the review within <u>sixty</u> days of the pre-determined schedule.</u> | <u>The Transmission Operator did not submit the required information within <u>sixty</u> calendar days of the pre-determined schedule. Or, the Transmission Operator did not complete the review within <u>ninety</u> days of the pre-determined schedule.</u> | <u>The Transmission Operator did not submit the required information within <u>ninety</u> calendar days of the pre-determined schedule. Or, the Transmission Operator did not complete the review within <u>120</u> days of the pre-determined schedule.</u> |
| R4. | <u>The Transmission Operator failed to comply within <u>ninety</u> calendar days.</u> | <u>The Transmission Operator failed to comply within <u>120</u> calendar days of the change.</u> | <u>The Transmission Operator has failed to comply within <u>150</u> calendar days of the change. .</u> | <u>The Transmission Operator has failed to comply within <u>180</u> calendar days of the change.</u> |

| R# | Lower VSL | Moderate VSL | High VSL | Severe VSL |
|-----|---|--|---|--|
| R5. | <u>The Transmission Operator did not make the latest approved restoration plan available in its control rooms within fifteen calendar days of its approval.</u> | <u>The Transmission Operator did not make the latest approved restoration plan available in its control rooms within twenty calendar days of its approval.</u> | <u>The Transmission Operator did not make the latest approved restoration plan available in its control rooms within twenty-five calendar days of its approval.</u> | <u>The Transmission Operator did not make the latest approved restoration plan available in its control rooms within thirty calendar days of its approval.</u> |
| R6. | <u>N/A</u> | <u>N/A</u> | <u>N/A</u> | The Transmission Operator did not perform the verification within the prescribed timeframe. |
| R7. | <u>N/A</u> | <u>N/A</u> | <u>N/A</u> | <u>The Transmission Operator did not implement its restoration plan following a Disturbance in which Blackstart Resources have been utilized in restoring the shut down area of the System.</u> |
| R8. | <u>N/A</u> | <u>N/A</u> | <u>N/A</u> | The Transmission Operator resynchronized without approval of the Reliability Coordinator <u>or in accordance with the established procedures of the Reliability Coordinator</u> following a Disturbance in which Blackstart Resources have been utilized in restoring the shut down area of the System to service. |
| R9. | <u>The Transmission Operator's testing requirements do not</u> | <u>N/A.</u> | <u>The Transmission Operator's testing requirements do not</u> | The Transmission Operator does not have the testing |

| R# | Lower VSL | Moderate VSL | High VSL | Severe VSL |
|------|--|--|---|--|
| | <u>address one of the subrequirements.</u> | | <u>address two of the subrequirements.</u> | requirements. |
| R10. | <u>N/A</u> | <u>N/A</u> | <u>N/A</u> | The Transmission Operator failed to <u>post the Blackstart Resource testing requirements.</u> |
| R11. | <u>The Transmission Operator’s training is missing one of the topics mentioned in the sub-requirements. .</u> | <u>The Transmission Operator’s training is missing two of the topics mentioned in the sub-requirements.</u> | <u>The Transmission Operator’s training is missing three or more of the topics mentioned in the sub-requirements.</u> | <u>The Transmission Operator has not included System restoration training in its operations training program.</u> |
| R12. | <u>The Transmission Operator only supplied 1.5 hours of training within a two year period.</u> | <u>N/A</u> | <u>The Transmission Operator only supplied one hour of training within a two year period.</u> | <u>The Transmission Operator did not supply any training within a two year period.</u> |
| R13. | <u>N/A.</u> | <u>N/A</u> | <u>N/A</u> | <u>The Transmission Operator has failed to comply with a request for their participation from the Reliability Coordinator.</u> |
| R14. | <u>The Transmission Operator does not have a Blackstart Resource Agreement for one of its Blackstart Resources.</u> | <u>The Transmission Operator does not have Blackstart Resource Agreements for 25% of Blackstart Resources.</u> | <u>The Transmission Operator does not have Blackstart Resource Agreements for 50% of Blackstart Resources.</u> | <u>The Transmission Operator does not have Blackstart Resource Agreements for more than 50% of Blackstart Resources.</u> |
| R15. | <u>The Generator Operator does not have dated documented procedures for one Blackstart Resource or the procedures do not contain both elements specified in the requirement.</u> | <u>The Generator Operator does not have dated documented procedures for two Blackstart Resources.</u> | <u>The Generator Operator does not have dated documented procedures for three Blackstart Resources.</u> | <u>The Generator Operator does not have dated documented procedures for any of its Blackstart Resources.</u> |

| R# | Lower VSL | Moderate VSL | High VSL | Severe VSL |
|------|---|---|--|---|
| R16. | <u>The Generator Operator did not notify the Transmission Operator within twenty-four hours.</u> | <u>The Generator Operator did not notify the Transmission Operator within three days.</u> | <u>The Generator Operator did not distribute the required information-notify the Transmission Operator within four days.</u> | <u>The Generator Operator did not distribute the required information-notify the Transmission Operator for more than four days.</u> |
| R17. | <u>The Generator Operator did not maintain testing records for one of the requirements for a Blackstart Resource or did not supply them as requested within the required timeframe.</u> | <u>The Generator Operator did not maintain testing records for two of the requirements for a Blackstart Resource or did not supply them as requested for sixty days after the required timeframe.</u> | <u>The Generator Operator did not maintain testing records for three of the requirements for a Blackstart Resource or did not supply them as requested for ninety days after required timeframe.</u> | <u>The Generator Operator did not maintain testing records for a Blackstart Resource or did not supply them as requested for 120 days or more after the required timeframe. .</u> |
| R18. | <u>The Generator Operator only supplied 1.5 hours of training within a two year period.</u> | N/A | <u>The Generator Operator only supplied one hour of training within a two year period.</u> | <u>The Generator Operator did not supply any training within a two year period.</u> |
| R19. | N/A. | N/A | N/A | <u>The Generator Operator has failed to comply with a request for their participation from the Reliability Coordinator.</u> |

E. Regional Variances

None.

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 | May 2, 2007 | Approved by Board of Trustees | Revised |
| 2 | TBD | Revisions pursuant to Project 2006-03 | Updated testing requirements Incorporated Attachment 1 into the requirements Updated Measures and Compliance to match new Requirements |

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. SAR version 1 posted on November 6, 2006.
2. SAR version 1 comment period closed on December 5, 2006.
3. SAR version 2 and comment responses for SAR version 1 posted on February 8, 2007.
4. SAR version 2 comment period closed on March 9, 2007.
5. SAR version 3 and comment responses for SAR version 2 accepted by SC and SDT appointed on April 9, 2007.
6. First posting of revised standards on August 15, 2007 with comment period closed on September 28, 2007.
7. Second posting of revised standards on January 7, 2008 with comment period closed on February 5, 2008.

Proposed Action Plan and Description of Current Draft:

The SDT began meeting in mid-April 2007 immediately following the approval of the SAR by the SC with the goal of completing work in approximately one year's time. The current draft is the third posting of the proposed standards. Requirements in EOP-007 and EOP-009 have been incorporated into the revised EOP-005 and EOP-006. Therefore, EOP-007 and EOP-009 will be retired when this project is approved and EOP-005-2 and EOP-006-2 go into effect.

Future Development Plan:

| Anticipated Actions | Anticipated Date |
|--|-------------------------|
| 1. Third posting of draft standards. | April 2008 |
| 2. Fourth posting of draft standards. | September 2008 |
| 3. Standards posted for first ballot. | January 2009 |
| 4. Standards posted for second ballot. | March 2009 |
| 5. Standards sent to BOT for approval. | March 2009 |

Definitions of Terms Used in Standard

This section includes all newly defined or revised terms used in the proposed standard. Terms already defined in the Reliability Standards Glossary of Terms are not repeated here. New or revised definitions listed below become approved when the proposed standard is approved. When the standard becomes effective, these defined terms will be removed from the individual standard and added to the Glossary.

None.

A. Introduction

- 1. Title: System Restoration Coordination**
- 2. Number:** EOP-006-2
- 3. Purpose:** Ensure plans are established and personnel are prepared to enable effective coordination of the System restoration process to ensure reliability is maintained during restoration and priority is placed on restoring the Interconnection.
- 4. Applicability:**
 - 4.1.** Reliability Coordinators.
- 5. Proposed Effective Date:** TBD

B. Requirements

- R1.** Each Reliability Coordinator shall have a Reliability Coordinator Area restoration plan. The scope of the Reliability Coordinator's restoration plan starts when Blackstart Resources are utilized to re-energize a shut down area of the BES, or separation has occurred between neighboring Reliability Coordinators, or an energized island has been formed on the Bulk Electric System (BES) within the Reliability Coordinator Area. The scope of the Reliability Coordinator's restoration plan ends when all of its Transmission Operators are interconnected and it is connected to all of its neighboring Reliability Coordinators. The restoration plan shall include: [Violation Risk Factor = High] [Time Horizon = Operations Planning]
 - R1.1.** Procedures for restoring the integrity of the Interconnection.
 - R1.2.** Descriptions of the elements of coordination between individual Transmission Operator restoration plans.
 - R1.3.** Descriptions of the elements of coordination of restoration plans with neighboring Reliability Coordinators.
 - R1.4.** Criteria and conditions for reestablishing interconnections between neighboring Transmission Operators and Reliability Coordinator Areas.
 - R1.5.** Identification of acceptable voltage and frequency limits during restoration.
 - R1.6.** Reporting requirements for the entities within the Reliability Coordinator Area during a restoration event.
 - R1.7.** Criteria for sharing information regarding restoration with neighboring Reliability Coordinators and with Transmission Operators and Balancing Authorities within its Reliability Coordinator area.
 - R1.8.** Identification of the Reliability Coordinator as the primary contact for disseminating information regarding restoration to neighboring Reliability Coordinators, and to Transmission Operators, and Balancing Authorities within its Reliability Coordinator Area.
- R2.** The Reliability Coordinator shall distribute its Reliability Coordinator Area restoration plan to its Transmission Operators, Balancing Authorities, and neighboring Reliability Coordinators. [Violation Risk Factor = Lower] [Time Horizon = Operations Planning]

- R3.** Each Reliability Coordinator shall review its restoration plan every twelve months. [Violation Risk Factor = Medium] [Time Horizon = Operations Planning]
- R4.** Each Reliability Coordinator shall update its restoration plan within ninety calendar days after identifying changes to one of its Transmission Operator's restoration plans or upon reviewing a neighboring Reliability Coordinator's restoration plan that would necessitate a change in their coordination tasks or responsibilities. [Violation Risk Factor = Medium] [Time Horizon = Operations Planning]
- R5.** Each Reliability Coordinator shall review the Transmission Operator restoration plans as defined in EOP-005 within its Reliability Coordinator Area. [Violation Risk Factor = Medium] [Time Horizon = Operations Planning]
 - R5.1.** The Reliability Coordinator shall determine whether the Transmission Operator's restoration plan is coordinated with the Reliability Coordinator's restoration plan as well as being compatible with other Transmission Operator restoration plans within its Reliability Coordinator Area.
 - R5.2.** The Reliability Coordinator shall approve or disapprove the Transmission Operator's submitted restoration plan within thirty calendar days following the receipt of the restoration plan from the Transmission Operator.
 - R5.3.** The Reliability Coordinator shall provide written notification to the Transmission Operator of its decision and provide reasons if disapproving a Transmission Operator's restoration plan.
- R6.** Each Reliability Coordinator shall have a copy of its latest restoration plan and the latest approved restoration plan of each Transmission Operator in its Reliability Coordinator Area within each of its control centers and available to all of its control room personnel. [Violation Risk Factor = Lower] [Time Horizon = Operations Planning]
- R7.** Each Reliability Coordinator shall work with its affected Balancing Authorities, Generator Operators, and Transmission Operators as well as neighboring Reliability Coordinators to monitor restoration progress, coordinate restoration, and take actions to restore the BES frequency within acceptable operating limits. Such actions may include but not be limited to adjusting generation, placing additional generators on line, or shedding Load. [Violation Risk Factor = High] [Time Horizon = Real-time Operations]
 - R7.1.** If the restoration plan cannot be completed as expected because actual conditions do not match the studied conditions, the Reliability Coordinator shall utilize its restoration plan philosophies to implement alternative measures for achieving System restoration.
- R8.** The Reliability Coordinator shall authorize and coordinate resynchronizing islanded areas that bridge boundaries between Transmission Operators or Reliability Coordinators. [Violation Risk Factor = High] [Time Horizon = Real-time Operations]
 - R8.1.** If the restoration plan cannot be completed as expected because actual conditions do not match the studied conditions, the Reliability Coordinator

shall utilize its restoration plan philosophies to implement alternative measures for achieving System restoration.

R9. Each Reliability Coordinator shall include within its operations training program, annual System restoration training for its System Operators to ensure the proper execution of its restoration plan. This training program shall include the following: [Violation Risk Factor = Medium] [Time Horizon = Operations Planning]

R9.1. System restoration philosophy including the coordination role of the Reliability Coordinator.

R9.2. Reestablishing the Interconnection.

R10. Each Reliability Coordinator shall conduct two System restoration drills, exercises, or simulations per calendar year, which shall include the Transmission Operators and Generator Operators as dictated by the particular scope of the drill, exercise, or simulation that is being conducted. [Violation Risk Factor = Medium] [Time Horizon = Operations Planning]

R10.1. Each Reliability Coordinator shall request each Transmission Operator and Generator Operator identified in its restoration plan to participate in a drill, exercise, or simulation at least every two calendar years.

C. Measures

M1. Each Reliability Coordinator shall have available a dated copy of its restoration plan in accordance with Requirement R1.

M2. Each Reliability Coordinator shall provide evidence such as e-mails with receipts or registered mail receipts, that its approved restoration plan has been distributed in accordance with Requirement R2.

M3. Each Reliability Coordinator shall provide evidence such as a review signature sheet, or revision histories, that it has annually reviewed its restoration plan in accordance with Requirement R3.

M4. Each Reliability Coordinator shall provide evidence such as dated review signature sheets, or revision histories, that it has updated its restoration plan in accordance with Requirement R4.

M5. Each Reliability Coordinator shall provide evidence such as a review signature sheet, that it has reviewed its Transmission Operator's submitted restoration plan(s) in accordance with Requirement R5.

M6. Each Reliability Coordinator shall have documentation such as e-mail receipts that it has made the latest approved copy of its restoration plan available in each of its control rooms and to each of its control room personnel in accordance with Requirement R6.

M7. Each Reliability Coordinator involved shall have evidence such as voice recordings, e-mail, dated computer printouts, or operator logs, that it monitored and coordinated restoration progress in accordance with Requirement R7.

- M8.** If there has been a resynchronizing of an islanded area, each Reliability Coordinator involved shall have evidence such as voice recordings, e-mail, or operator logs, that it authorized and coordinated resynchronizing in accordance with Requirement R8.
- M9.** Each Reliability Coordinator shall have an electronic or hard copy of its training records available showing that it has provided training in accordance with Requirement R9.
- M10.** Each Reliability Coordinator shall have evidence that it conducted two System restoration drills, exercises, or simulations per year and that Transmission Operators and Generator Operators included in the Reliability Coordinator's restoration plan were invited in accordance with Requirement R10.

D. Compliance

1. Compliance Monitoring Process

1.1. Compliance Enforcement Authority

Regional Entity.

1.2. Compliance Monitoring Period and Reset Time Frame

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

The Reliability Coordinator 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:

- Approved restoration plan and any restoration plans in force since the last compliance audit for Requirement R1, Measure M1.
- Distribution of its approved restoration plan and any restoration plans in force for the current year and three prior calendar years for Requirement R2, Measure M2.
- Its annually reviewed restoration plan for the current year and last three prior calendar years for Requirement R3, Measure M3.
- Updated restoration plans for all versions from the current year and the three prior calendar years for Requirement R4, Measure M4.

- The reviewed restoration plans for the current year and the last three prior calendar years for Requirement R5, Measure M5.
- The current, approved restoration plan and any restoration plans in force for the last three calendar years was made available in its control rooms for Requirement R6, Measure M6.
- Implementation of its restoration plan on any occasion over a rolling twelve month period for Requirement R7, Measure M7.
- Implementation of its restoration plan on any occasion over a rolling twelve month period for Requirement R8, Measure M8.
- Actual training program materials or descriptions for three calendar years for Requirements R9, Measure M9.
- Records of all Reliability Coordinator restoration drills, exercises, or simulations since its last compliance audit as well as one previous compliance audit period for Requirement R10, Measure M10.

If a Reliability Coordinator 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. | The Reliability Coordinator failed to comply with less than 25% of the number of sub-components within this requirement. | The Reliability Coordinator failed to comply with 25% or more and less than 50% of the number of sub-components within this requirement. | The Reliability Coordinator has failed to comply with 50% or more and less than 75% of the number of sub-components within this requirement. | The Reliability Coordinator has failed to comply with 75% or more of the number of sub-components within this requirement. |
| R2. | The Reliability Coordinator did not distribute the required information to one entity identified in the requirement within the required timeframe. Or, the Reliability Coordinator distributed the required information to all entities but was thirty days late. | The Reliability Coordinator did not distribute the required information to two entities identified in the requirement within the prescribed timeframe. Or, the Reliability Coordinator distributed the required information to all entities but was sixty days late. | The Reliability Coordinator did not distribute the required information to three entities identified in the requirement within the prescribed timeframe. Or, the Reliability Coordinator distributed the required information to all entities but was ninety days late. | The Reliability Coordinator did not distribute the required information to four or more entities identified in the requirement within the prescribed timeframe. Or, the Reliability Coordinator distributed the required information to all entities but was 120 days late. |
| R3. | The Reliability Coordinator did not review its restoration plan within twelve months. | The Reliability Coordinator did not review its restoration plan within thirteen months. | The Reliability Coordinator did not review its restoration plan within fourteen months. | The Reliability Coordinator did not review its restoration plan within fifteen months. |
| R4. | The Reliability Coordinator failed to comply within ninety calendar days of the change. | The Reliability Coordinator failed to comply within 120 calendar days of the change. | The Reliability Coordinator has failed to comply within 150 calendar days of the change. . | The Reliability Coordinator has failed to comply within 180 calendar days of the change. |
| R5. | The Reliability Coordinator did not review and approve/disapprove the restoration plans within the pre-determined schedule. Or, the Reliability Coordinator failed to notify the Transmission Operator in writing of its reasons for disapproval. | The Reliability Coordinator did not review and approve/disapprove the restoration plans within forty-five calendar days of the pre-determined schedule. | The Reliability Coordinator did not review and approve/disapprove the restoration plans within sixty calendar days of the pre-determined schedule. | The Reliability Coordinator did not review and approve/disapprove the restoration plans within ninety calendar days of the pre-determined schedule. |

Standard EOP-006-2 — System Restoration Coordination

| R# | Lower VSL | Moderate VSL | High VSL | Severe VSL |
|-------------|--|---|--|--|
| R6. | The Reliability Coordinator did not make the latest approved restoration plan available in its control rooms within fifteen calendar days of its approval. | The Reliability Coordinator did not make the latest approved restoration plan available in its control rooms within twenty calendar days of its approval. | The Reliability Coordinator did not make the latest approved restoration plan available in its control rooms within twenty-five calendar days of its approval. | The Reliability Coordinator did not make the latest approved restoration plan available in its control rooms within thirty calendar days of its approval. |
| R7. | N/A | N/A | N/A | The Reliability Coordinator did not work with its affected Balancing Authorities, Generator Operators, and Transmission Operators as well as neighboring Reliability Coordinators to monitor restoration progress, coordinate restoration, and take actions to restore the BES frequency within acceptable operating limits. |
| R8. | N/A | N/A | N/A | The Reliability Coordinator did not authorize and coordinate resynchronizing islanded areas that bridge boundaries between Transmission Operators or Reliability Coordinators. |
| R9. | The Reliability Coordinator supplied the necessary training but not within the required timeframe. | The Reliability Coordinator supplied training but did not address both sub-requirements. | N/A | The Reliability Coordinator has not included System restoration training in its operations training program. . |
| R10. | The Reliability Coordinator only held one restoration drill, exercise, or simulation during the calendar year. | The Reliability Coordinator held the correct number of restoration drills, exercises, or simulations but did not invite each Transmission Operator | N/A | The Reliability Coordinator did not hold a restoration drill, exercise, or simulation during the calendar year. |

Standard EOP-006-2 — System Restoration Coordination

| R# | Lower VSL | Moderate VSL | High VSL | Severe VSL |
|-----------|------------------|---|-----------------|-------------------|
| | | and Generator Operator identified in its restoration plan to participate in a drill, exercise, or simulation at least every two calendar years. | | |

E. Regional Variances

None.

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 | TBD | Revisions pursuant to Project 2006-03 | Updated Measures and Compliance to match new Requirements |

Standard Development Roadmap

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2. SAR version 1 comment period closed on December 5, 2006.
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5. SAR version 3 and comment responses for SAR version 2 accepted by SC and SDT appointed on April 9, 2007.
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|--|------------------|
| 1. Third posting of draft standards. | April 2008 |
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| 3. Standards posted for first ballot. | January 2009 |
| 4. Standards posted for second ballot. | March 2009 |
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None.

A. Introduction

1. **Title:** System Restoration ~~from Blackstart Resources~~ — Coordination
2. **Number:** EOP-006-2
3. **Purpose:** Ensure plans, ~~and Facilities~~ are established and personnel are ~~in place~~ prepared to enable effective coordination of the System restoration ~~from Blackstart Resources~~ process to ensure reliability is maintained during restoration and priority is placed on restoring the Interconnection.
4. **Applicability:**
 - 4.1. Reliability Coordinators.
5. **Proposed Effective Date:** TBD

B. Requirements

- R1. Each Reliability Coordinator shall have a Reliability Coordinator Area restoration plan. ~~The scope of the Reliability Coordinator's restoration plan starts when Blackstart Resources are utilized to re-energize a shut down area of the BES, or separation has occurred between neighboring Reliability Coordinators, or an energized island has been formed on the Bulk Electric System (BES) within the Reliability Coordinator Area. The scope of the Reliability Coordinator's restoration plan ends when all of its Transmission Operators are interconnected and it is connected to all of its neighboring Reliability Coordinators. The restoration plan shall be written such that it allows for the restoration of its area following a Disturbance in which one or more areas of the Bulk Electric System (BES) shuts down and the use of Blackstart Resources is required to restore the shut down area to service, to a state whereby the choice of the next Load to be restored is not driven by the need to control frequency or voltage for an event that requires the utilization of Blackstart Resources regardless of whether the Blackstart Resource is located within the Reliability Coordinator's Area.~~ The restoration plan shall include: [Violation Risk Factor = High] [Time Horizon = Operations Planning]
- R1.1. Procedures for restoring the integrity of the Interconnection.
 - R1.2. Descriptions of the elements of coordination between individual Transmission Operator restoration plans.
 - R1.3. Descriptions of the elements of coordination of restoration plans with neighboring Reliability Coordinators.
 - R1.4. Criteria and conditions for reestablishing interconnections between neighboring Transmission Operators and Reliability Coordinator Areas.
 - R1.5. Identification of acceptable voltage and frequency limits during restoration.
 - ~~R1.6. A statement accounting for the possibility that restoration can not be completed as expected indicating that in situations where the actual conditions do not match the studied conditions, the System Operator shall use professional judgment to deviate from the System restoration plan.~~
 - R1.6. Reporting requirements for the entities within the Reliability Coordinator Area during a restoration event.

- R1.7.** Criteria for sharing information regarding restoration with neighboring Reliability Coordinators and with Transmission Operators and Balancing Authorities within its Reliability Coordinator area.
- R1.8.** Identification of the Reliability Coordinator as the primary contact for disseminating information regarding restoration to neighboring Reliability Coordinators, and to Transmission Operators, and Balancing Authorities within its Reliability Coordinator Area.
- R2.** The Reliability Coordinator, ~~to ensure the reliability of the Interconnection,~~ shall distribute its Reliability Coordinator Area restoration plan to its Transmission Operators, Balancing Authorities, and neighboring Reliability Coordinators. [Violation Risk Factor = Lower] [Time Horizon = Operations Planning]
- R3.** Each Reliability Coordinator shall review its restoration plan ~~on an annual (rolling 365 days) basis~~ every twelve months. [Violation Risk Factor = Medium] [Time Horizon = Operations Planning]
- R4.** Each Reliability Coordinator shall update its restoration plan within ninety calendar days after identifying changes to one of its Transmission Operator's restoration plans or upon reviewing a neighboring Reliability Coordinator's restoration plan that would necessitate a change in their coordination tasks or responsibilities. [Violation Risk Factor = Medium] [Time Horizon = Operations Planning]
- R5.** Each Reliability Coordinator shall review the Transmission Operator restoration plans as defined in EOP-005 within its Reliability Coordinator Area. [Violation Risk Factor = Medium] [Time Horizon = Operations Planning]
- R5.1.** The Reliability Coordinator shall determine whether the Transmission Operator's restoration plan is coordinated with the Reliability Coordinator's restoration plan as well as being compatible with other Transmission Operator restoration plans within its Reliability Coordinator Area.
- R5.2.** The Reliability Coordinator shall approve or disapprove the Transmission Operator's submitted restoration plan within thirty calendar days following the receipt of the restoration plan from the Transmission Operator.
- R5.3.** The Reliability Coordinator shall provide written notification to the Transmission Operator of its decision and provide reasons if disapproving a Transmission Operator's restoration plan.
- R6.** Each Reliability Coordinator shall have a copy of its latest restoration plan and the latest approved restoration plan of each Transmission Operator in its Reliability Coordinator Area within each of its control centers and available to all of its control room personnel. [Violation Risk Factor = Lower] [Time Horizon = Operations Planning]
- R7.** ~~Following a Disturbance in which one or more areas of the BES shuts down and the use of Blackstart Resources is required to restore the shut down area to service, e~~ Each Reliability Coordinator shall work ~~in conjunction~~ with its affected Balancing Authorities, Generator Operators, and Transmission Operators as well as neighboring Reliability Coordinators to monitor restoration progress, coordinate restoration, and

take actions to restore the BES frequency within acceptable operating limits. Such actions may include but not be limited to adjusting generation, placing additional generators on line, or shedding Load. [Violation Risk Factor = High] [Time Horizon = Real-time Operations]

R7.1. If the restoration plan cannot be completed as expected because actual conditions do not match the studied conditions, the Reliability Coordinator shall utilize its restoration plan philosophies to implement alternative measures for achieving System restoration.

R8. ~~Following a Disturbance in which one or more areas of the BES shuts down and the use of Blackstart Resources is required to restore the shut down area to service, t~~The Reliability Coordinator shall authorize and coordinate resynchronizing ~~isolated~~dislanded areas that bridge boundaries between Transmission Operators or Reliability Coordinators. [Violation Risk Factor = High] [Time Horizon = Real-time Operations]

R8.1. If the restoration plan cannot be completed as expected because actual conditions do not match the studied conditions, the Reliability Coordinator shall utilize its restoration plan philosophies to implement alternative measures for achieving System restoration.

~~**R9.**Following a Disturbance in which one or more areas of the BES shuts down and the use of Blackstart Resources is required to restore the shut down area to service, t~~The Reliability Coordinator shall serve as the primary contact for disseminating information regarding restoration to neighboring Reliability Coordinators, and to Transmission Operators, and Balancing Authorities within its Reliability Coordinator Area. [Violation Risk Factor = Lower] [Time Horizon = Real-time Operations]

R10-R9. Each Reliability Coordinator shall include within its operations training program, annual System restoration training for ~~the control room personnel identified in its restoration plan~~its System Operators to ensure the proper execution of its restoration plan. This training program shall include the following: [Violation Risk Factor = Medium] [Time Horizon = Operations Planning]

R10.1-R9.1. System restoration philosophy including the coordination role of the Reliability Coordinator.

R10.2-R9.2. Reestablishing the Interconnection.

R11-R10. Each Reliability Coordinator shall conduct two System restoration drills, exercises, or simulations per calendar year, which shall include the Transmission Operators and Generator Operators as dictated by the particular scope of the drill, exercise, or simulation that is being conducted. [Violation Risk Factor = Medium] [Time Horizon = Operations Planning]

R11.1-R10.1. Each Reliability Coordinator shall request each Transmission Operator and Generator Operator identified in its restoration plan to participate in a drill, exercise, or simulation at least every two calendar years.

C. Measures

M1. Each Reliability Coordinator shall have available a dated copy of its restoration plan in accordance with Requirement R1.

- M2. Each Reliability Coordinator shall provide evidence such as e-mails with receipts or registered mail receipts, that its approved restoration plan has been distributed in accordance with Requirement R2.
- M3. Each Reliability Coordinator shall provide evidence such as a review signature sheet, or revision histories, that it has annually reviewed its restoration plan in accordance with Requirement R3.
- M4. Each Reliability Coordinator shall provide evidence such as adated review signature sheets, or revision histories, that it has updated its restoration plan in accordance with Requirement R4.
- M5. Each Reliability Coordinator shall provide evidence such as a review signature sheet, that it has reviewed its Transmission Operator's submitted restoration plan(s) in accordance with Requirement R5.
- M6. Each Reliability Coordinator shall have documentation such as e-mail receipts that it has made the latest approved copy of its restoration plan available in each of its control rooms and to each of its control room personnel in accordance with Requirement R6.
- M7. ~~If there has been a Disturbance in which Blackstart Resources have been utilized,~~ Each Reliability Coordinator involved shall have evidence such as voice recordings, e-mail, dated computer printouts, or operator logs, that it monitored and coordinated restoration progress in accordance with Requirement R7.
- M8. If there has been a resynchronizing of an isolated/islanded area, each Reliability Coordinator involved shall have evidence such as voice recordings, e-mail, or operator logs, that it authorized and coordinated resynchronizing in accordance with Requirement R8.
- ~~M9. If there has been a Disturbance in which Blackstart Resources have been utilized, e~~Each Reliability Coordinator involved shall have evidence such as voice recordings, e-mail, or operator logs, that it served as the primary contact to disseminate information to neighboring Reliability Coordinators and Transmission Operators and Balancing Authorities within its Reliability Coordinator Area in accordance with Requirement R9.
- M9. Each Reliability Coordinator shall have an electronic or hard copy of its training records available showing that it has provided training in accordance with Requirement R10.
- M10. Each Reliability Coordinator shall have evidence ~~such as training records~~ that it conducted two System restoration drills, exercises, or simulations per year and that ~~included~~ Transmission Operators and Generator Operators ~~with Blackstart Resources~~ included in the Reliability Coordinator's restoration plan were invited in accordance with Requirement R10.

D. Compliance

1. Compliance Monitoring Process
 - 1.1. Compliance Enforcement Authority
Regional Entity.

1.2. Compliance Monitoring Period and Reset Time Frame

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

The Reliability Coordinator 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:

- Approved restoration plan and any restoration plans in force since the last compliance audit for Requirement R1, Measure M1.
- Distribution of its approved restoration plan and any restoration plans in force for the current year and three prior calendar years for Requirement R2, Measure M2.
- Its annually reviewed restoration plan for the current year and last three prior calendar years for Requirement R3, Measure M3.
- Updated restoration plans for all versions from the current year and the three prior calendar years for Requirement R4, Measure M4.
- The reviewed restoration plans for the current year and the last three prior calendar years for Requirement R5, Measure M5.
- The current, approved restoration plan and any restoration plans in force for the last three calendar years was made available in its control rooms for Requirement R6, Measure M6.
- Implementation of its restoration plan on any occasion over a rolling twelve month period for Requirement R7, Measure M7.
- Implementation of its restoration plan on any occasion over a rolling twelve month period for Requirement R8, Measure M8.
- Actual training program materials or descriptions for three calendar years for Requirements R9, Measure M9.
- Records of all Reliability Coordinator restoration drills, exercises, or simulations since its last compliance audit as well as one previous compliance audit period for Requirement R10, Measure M10.

If a Reliability Coordinator 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

| <u>R#</u> | <u>Lower VSL</u> | <u>Moderate VSL</u> | <u>High VSL</u> | <u>Severe VSL</u> |
|------------|--|---|--|--|
| <u>R1.</u> | <u>The Reliability Coordinator failed to comply with less than 25% of the number of sub-components within this requirement.</u> | <u>The Reliability Coordinator failed to comply with 25% or more and less than 50% of the number of sub-components within this requirement.</u> | <u>The Reliability Coordinator has failed to comply with 50% or more and less than 75% of the number of sub-components within this requirement.</u> | <u>The Reliability Coordinator has failed to comply with 75% or more of the number of sub-components within this requirement.</u> |
| <u>R2.</u> | <u>The Reliability Coordinator did not distribute the required information to one entity identified in the requirement within the required timeframe. Or, the Reliability Coordinator distributed the required information to all entities but was thirty days late.</u> | <u>The Reliability Coordinator did not distribute the required information to two entities identified in the requirement within the prescribed timeframe. Or, the Reliability Coordinator distributed the required information to all entities but was sixty days late.</u> | <u>The Reliability Coordinator did not distribute the required information to three entities identified in the requirement within the prescribed timeframe. Or, the Reliability Coordinator distributed the required information to all entities but was ninety days late.</u> | <u>The Reliability Coordinator did not distribute the required information to four or more entities identified in the requirement within the prescribed timeframe. Or, the Reliability Coordinator distributed the required information to all entities but was 120 days late.</u> |
| <u>R3.</u> | <u>The Reliability Coordinator did not review its restoration plan within twelve months.</u> | <u>The Reliability Coordinator did not review its restoration plan within thirteen months.</u> | <u>The Reliability Coordinator did not review its restoration plan within fourteen months.</u> | <u>The Reliability Coordinator did not review its restoration plan within fifteen months.</u> |
| <u>R4.</u> | <u>The Reliability Coordinator failed to comply within ninety calendar days of the change.</u> | <u>The Reliability Coordinator failed to comply within 120 calendar days of the change.</u> | <u>The Reliability Coordinator has failed to comply within 150 calendar days of the change. .</u> | <u>The Reliability Coordinator has failed to comply within 180 calendar days of the change.</u> |
| <u>R5.</u> | <u>The Reliability Coordinator did not review and approve/disapprove the restoration plans within the pre-determined schedule. Or, the Reliability Coordinator failed to notify the Transmission Operator in writing of its reasons for disapproval.</u> | <u>The Reliability Coordinator did not review and approve/disapprove the restoration plans within forty-five calendar days of the pre-determined schedule.</u> | <u>The Reliability Coordinator did not review and approve/disapprove the restoration plans within sixty calendar days of the pre-determined schedule.</u> | <u>The Reliability Coordinator did not review and approve/disapprove the restoration plans within ninety calendar days of the pre-determined schedule.</u> |

| <u>R#</u> | <u>Lower VSL</u> | <u>Moderate VSL</u> | <u>High VSL</u> | <u>Severe VSL</u> |
|-------------|---|--|---|---|
| R6. | <u>The Reliability Coordinator did not make the latest approved restoration plan available in its control rooms within fifteen calendar days of its approval.</u> | <u>The Reliability Coordinator did not make the latest approved restoration plan available in its control rooms within twenty calendar days of its approval.</u> | <u>The Reliability Coordinator did not make the latest approved restoration plan available in its control rooms within twenty-five calendar days of its approval.</u> | <u>The Reliability Coordinator did not make the latest approved restoration plan available in its control rooms within thirty calendar days of its approval.</u> |
| R7. | <u>N/A</u> | <u>N/A</u> | <u>N/A</u> | <u>The Reliability Coordinator did not work with its affected Balancing Authorities, Generator Operators, and Transmission Operators as well as neighboring Reliability Coordinators to monitor restoration progress, coordinate restoration, and take actions to restore the BES frequency within acceptable operating limits.</u> |
| R8. | <u>N/A</u> | <u>N/A</u> | <u>N/A</u> | <u>The Reliability Coordinator did not authorize and coordinate resynchronizing islanded areas that bridge boundaries between Transmission Operators or Reliability Coordinators.</u> |
| R9. | <u>The Reliability Coordinator supplied the necessary training but not within the required timeframe.</u> | <u>The Reliability Coordinator supplied training but did not address both sub-requirements.</u> | <u>N/A</u> | <u>The Reliability Coordinator has not included System restoration training in its operations training program..</u> |
| R10. | The Reliability Coordinator only held one restoration drill, exercise, or simulation during the calendar year. | The Reliability Coordinator held the correct number of restoration drills, exercises, or simulations but did not invite each Transmission Operator | N/A | The Reliability Coordinator did not hold a restoration drill, exercise, or simulation during the calendar year. |

Standard EOP-006-2 — System Restoration ~~from Blackstart Resources~~ — Coordination

| <u>R#</u> | <u>Lower VSL</u> | <u>Moderate VSL</u> | <u>High VSL</u> | <u>Severe VSL</u> |
|-----------|------------------|---|-----------------|-------------------|
| | | and Generator Operator identified in its restoration plan to participate in a drill, exercise, or simulation at least every two calendar years. | | |

E. Regional Variances

None.

Version History

| <u>Version</u> | <u>Date</u> | <u>Action</u> | <u>Change Tracking</u> |
|----------------|------------------|--|---|
| 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 | TBD | Revisions pursuant to Project 2006-03 | Updated Measures and Compliance to match new Requirements |



PLEASE DO NOT USE THIS FORM TO SUBMIT COMMENTS. IT WILL NOT BE ACCEPTED.

Background Information:

The System Restoration and Blackstart Drafting Team (SRB SDT) has made significant changes to the second posting of EOP-005-2 and EOP-006-2 based on comments received from the industry.

The draft standards, EOP-005-2 and EOP-006-2, should be reviewed as a set when providing comments.

The System Restoration and Blackstart Drafting Team would like to receive industry comments on this group of standards. Accordingly, we request that you include your comments at the link below by **May 29, 2008**.

<https://www.nerc.net/nercsurvey/Survey.aspx?s=5d2e73b9e0134bdd8acf2485b1138ead>

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 SDT has made numerous changes to the text of both EOP-005 and EOP-006 in an attempt to clarify requirements based on industry comments from the second posting. Do you agree with the changes that were made? If not, please provide specific suggestions for change.**

Yes

No

Comments:

- 2. The SDT has completely re-worked the Implementation Plan based on industry comments from the second posting. Do you agree with the changes that were made? If not, please provide specific suggestions for change.**

Yes

No

Comments:

- 3. The SDT has included compliance elements including VSL for this posting. Do you agree with the assignments that have been made? If not, please provide specific suggestions for change.**

Yes

No

Comments:

- 4. Are there any other issues that need to be addressed? Please be specific.**

Yes

No

Comments:

Implementation Plan For EOP-005-2 and EOP-006-2

Prerequisite Approvals

There are no other Reliability Standards or Standard Authorization Requests (SARs), in progress or approved, that must be implemented before this set of standards can be implemented.

EOP-005 – System Restoration from Blackstart Resources

EOP-006 – System Restoration Coordination

Revision to Sections of Approved Standards and Definitions

There is one new definition in the proposed set of standards

Blackstart Resource: A generation Facility and associated set of equipment, under the control of the Generator Operator, with the ability to be started without support from the System or is designed to automatically remain energized without connection to the remainder of the System, with the ability to energize a bus, meeting the Transmission Operator’s restoration plan needs for real and reactive power capability, frequency and voltage control, and included in the Transmission Operator’s restoration plan

Retire the following definition coincident with the implementation of EOP-005 and EOP-006:

Blackstart Capability Plan

Balloting

The drafting team recommends that this group of two standards be balloted with a single ballot.

Compliance with Standard

| Standard | Functions That Must Comply With the Associated Requirements | | |
|--|---|-----------------------|--------------------|
| | Reliability Coordinator | Transmission Operator | Generator Operator |
| EOP-005 – System Restoration from Blackstart Resources | | X | X |
| EOP-006 – System Restoration Coordination | X | | |

Phased-in Compliance

The following table identifies the effective date for each standard.

The effective date is the date entities are expected to meet the performance identified in this standard.

Note that entities have been given several months beyond the regulatory approval date (preparation time) to fully comply with the requirements. Existing standards will remain in

effect unless individual requirements are superseded by new requirements that are phased in prior to the twenty-four month completion timeframe in the Implementation Plan at which time the existing standards (EOP-001-0, R3.4; EOP-005-1, EOP-006-1, EOP-007-0, and EOP-009-0) will be retired. The assumption used by the SDT in establishing this Implementation Plan is that all entities perform as specified during the transitional period. This Implementation Plan starts from the TOP restoration plans required by the existing standards.

Effective Dates of Revised Standards

Note: All dates shown are on the first day of the first calendar quarter, x months following applicable regulatory approval.

| R# | Immediate | 1 mo. | 3 mos. | 5 mos. | 6 mos. | 8 mos. | 24 mos. |
|------------------|--------------|-------|--------|--------|--------|--------|---------|
| EOP-005-2 | | | | | | | |
| R1 | | | X | | | | |
| R2 | | | | | X | | |
| R3 | X – existing | | X | | | | |
| R4 | | | | | | | X |
| R5 | | | | | | | X |
| R6 | X – existing | | | | | | |
| R7 | | | | | | | X |
| R8 | | | | | | | X |
| R9 | | X | | | | | |
| R10 | | | | | | | X |
| R11 | | | | | | | X |
| R12 | | | | | | | X |
| R13 | | | | | | | X |
| R14 | | | X | | | | |
| R15 | | | | | | | X |
| R16 | | | | | | | X |
| R17 | | | | | | | X |
| R18 | | | | | | | X |
| R19 | | | | | | | X |
| R# | Immediate | 1 mo. | 3 mos. | 5 mos. | 6 mos. | 8 mos. | 24 mos. |
| EOP-006-2 | | | | | | | |
| R1 | | | X | | | | |
| R2 | | | X | | | | |
| R3 | | | | | | X | |
| R4 | | | | | | X | |
| R5 | | | | X | | | |
| R6 | | | | | | | X |
| R7 | | | | | | | X |
| R8 | | | | | | | X |
| R9 | | | | | | | X |
| R10 | | | | | | | X |

Retirement Dates for Existing Standards

Note: All dates shown are on the first day of the first calendar quarter, x months following applicable regulatory approval of EOP-005-2 and EOP-006-2.

| R# | Immediate | 3 mos. | 5 mos. | 24 mos. |
|------------------|------------------|---------------|---------------|----------------|
| EOP-001-1 | | | | |
| R3.4 | | X | | |
| EOP-005-1 | | | | |
| R1 | | X | | |
| R2 | X | | | |
| R3 | | X | | |
| R4 | | | X | |
| R5 | X | | | |
| R6 | | | | X |
| R7 | X | | | |
| R8 | X | | | |
| R9 | | X | | |
| R10 | X | | | |
| R11 | | | | X |
| EOP-006-1 | | | | |
| R1 | | | X | |
| R2 | | | | X |
| R3 | | X | | |
| R4 | | X | | |
| R5 | | | | X |
| R6 | | | | X |
| EOP-007-0 | | | | |
| R1 | | | | X |
| R2 | | | | X |
| EOP-009-0 | | | | |
| R1 | | | | X |
| R2 | | | | X |

Implementation Plan For EOP-005-2 and EOP-006-2

Prerequisite Approvals

There are no other Reliability Standards or Standard Authorization Requests (SARs), in progress or approved, that must be implemented before this set of standards can be implemented.

EOP-005 – System Restoration from Blackstart Resources — ~~Operations~~
EOP-006 – System Restoration ~~from Blackstart Resources~~ — Coordination

Revision to Sections of Approved Standards and Definitions

There is one new definition in the proposed set of standards

Blackstart Resource: A generation Facility and associated set of equipment, under the control of the Generator Operator, with the ability to be started without support from the System or is designed to automatically remain energized without connection to the remainder of the System, with the ability to energize a ~~dead~~-bus, meeting the Transmission Operator’s restoration plan needs for real and reactive power capability, frequency and voltage control, and included in the Transmission Operator’s restoration plan

Retire the following definition coincident with the implementation of EOP-005 and EOP-006:

Blackstart Capability Plan

Balloting

The drafting team recommends that this group of two standards be balloted with a single ballot.

Compliance with Standard

| Standard | Functions That Must Comply With the Associated Requirements | | |
|--|---|-----------------------|--------------------|
| | Reliability Coordinator | Transmission Operator | Generator Operator |
| EOP-005 – System Restoration from Blackstart Resources — Operations | | X | X |
| EOP-006 – System Restoration from Blackstart Resources — Coordination | X | | |

Phased-in Compliance

The following table identifies the effective date for each standard.

The effective date is the date entities are expected to meet the performance identified in this standard.

Note that entities have been given several months beyond the BOT adoption regulatory approval date (preparation time) to fully comply with the requirements. Existing standards will remain in effect unless individual requirements are superseded by new requirements that are phased in prior to the twenty-four month completion timeframe in the Implementation Plan at which time the existing standards (EOP-001-0, R3.4; EOP-005-1, EOP-006-1, EOP-007-0, and EOP-009-0) will be retired. The assumption used by the SDT in establishing this Implementation Plan is that all entities perform as specified during the transitional period. This Implementation Plan starts from the TOP restoration plans required by the existing standards.

| | |
|---|--|
| EOP-006—System Restoration from Blackstart Resources—Coordination | All requirements: 18 months after applicable regulatory approvals. |
|---|--|

Effective Dates of Revised Standards

Note: All dates shown are on the first day of the first calendar quarter, x months following applicable regulatory approval.

| R# | Immediate | 1 mo. | 3 mos. | 5 mos. | 6 mos. | 8 mos. | 24 mos. |
|------------------|----------------------|--------------|---------------|---------------|---------------|---------------|----------------|
| EOP-005-2 | | | | | | | |
| <u>R1</u> | | | <u>X</u> | | | | |
| <u>R2</u> | | | | | <u>X</u> | | |
| <u>R3</u> | <u>X – existing.</u> | | <u>X</u> | | | | |
| <u>R4</u> | | | | | | | <u>X</u> |
| <u>R5</u> | | | | | | | <u>X</u> |
| <u>R6</u> | <u>X – existing.</u> | | | | | | |
| <u>R7</u> | | | | | | | <u>X</u> |
| <u>R8</u> | | | | | | | <u>X</u> |
| <u>R9</u> | | <u>X</u> | | | | | |
| <u>R10</u> | | | | | | | <u>X</u> |
| <u>R11</u> | | | | | | | <u>X</u> |
| <u>R12</u> | | | | | | | <u>X</u> |
| <u>R13</u> | | | | | | | <u>X</u> |
| <u>R14</u> | | | <u>X</u> | | | | |
| <u>R15</u> | | | | | | | <u>X</u> |
| <u>R16</u> | | | | | | | <u>X</u> |
| <u>R17</u> | | | | | | | <u>X</u> |
| <u>R18</u> | | | | | | | <u>X</u> |
| <u>R19</u> | | | | | | | <u>X</u> |
| <u>R#</u> | <u>Immediate</u> | <u>1 mo.</u> | <u>3 mos.</u> | <u>5 mos.</u> | <u>6 mos.</u> | <u>8 mos.</u> | <u>24 mos.</u> |
| EOP-006-2 | | | | | | | |
| <u>R1</u> | | | <u>X</u> | | | | |
| <u>R2</u> | | | <u>X</u> | | | | |
| <u>R3</u> | | | | | | <u>X</u> | |
| <u>R4</u> | | | | | | <u>X</u> | |
| <u>R5</u> | | | | <u>X</u> | | | |
| <u>R6</u> | | | | | | | <u>X</u> |
| <u>R7</u> | | | | | | | <u>X</u> |
| <u>R8</u> | | | | | | | <u>X</u> |
| <u>R9</u> | | | | | | | <u>X</u> |

Retirement Dates for Existing Standards

Note: All dates shown are on the first day of the first calendar quarter, x months following applicable regulatory approval of EOP-005-2 and EOP-006-2.

| R# | Immediate | 3 mos. | 5 mos. | 24 mos. |
|------------------|-----------|----------|----------|----------|
| EOP-001-1 | | | | |
| <u>R3.4</u> | | <u>X</u> | | |
| EOP-005-1 | | | | |
| <u>R1</u> | | <u>X</u> | | |
| <u>R2</u> | <u>X</u> | | | |
| <u>R3</u> | | <u>X</u> | | |
| <u>R4</u> | | | <u>X</u> | |
| <u>R5</u> | <u>X</u> | | | |
| <u>R6</u> | | | | <u>X</u> |
| <u>R7</u> | <u>X</u> | | | |
| <u>R8</u> | <u>X</u> | | | |
| <u>R9</u> | | <u>X</u> | | |
| <u>R10</u> | <u>X</u> | | | |
| <u>R11</u> | | | | <u>X</u> |
| EOP-006-1 | | | | |
| <u>R1</u> | | | <u>X</u> | |
| <u>R2</u> | | | | <u>X</u> |
| <u>R3</u> | | <u>X</u> | | |
| <u>R4</u> | | <u>X</u> | | |
| <u>R5</u> | | | | <u>X</u> |
| <u>R6</u> | | | | <u>X</u> |
| EOP-007-0 | | | | |
| <u>R1</u> | | | | <u>X</u> |
| <u>R2</u> | | | | <u>X</u> |
| EOP-009-0 | | | | |
| <u>R1</u> | | | | <u>X</u> |
| <u>R2</u> | | | | <u>X</u> |

| Individual or group. | Name | Organization | Group Name | Lead Contact | Contact Organization | Question 1 | Question 1 Comments | Question 2 | Question 2 Comments | Question 3 | Question 3 Comments | Question 4 | Question 4: Comments |
|----------------------|--|------------------------------------|------------|--------------|----------------------|------------|---|------------|---------------------|------------|---------------------|------------|---|
| Individual | J. Andrew Dodge / William Keagle / Ed Carmen | Baltimore Gas and Electric Company | | | | No | All comments below pertain to EOP-005-2 R1.1 - existing wording is not clear. Suggest modifying to read "Procedures for restoring off-site power requirements of nuclear power plants during sytem restoration per agreements. R2 - SDT needs to define the term "reliability-related operational entities". It is not clear who is a "reliability-related operational entity". | Yes | | | | Yes | All comments below pertain to EOP-005-2 R2 - What is the criteria for a Reliability Coordinator to approve a restoration plan. R7 - existing wording is not clear. What is meant by "one or more areas of the BES"? What constitutes "areas of the BES"? Does this suggest one or more circuits, transformers, substations, etc.? Suggest modifying to read "When use of Blackstart Resources is required to restore the shut down area to service, each affected Transmission Operator shall implement its restoration plan". Remove the first part of the existing sentence "Following a Disturbance in which one or more areas of the BES shuts down and the". R8 - same suggestion as R7 above. Training requirements (R11, R12, & R18) should be consistent. R11 - should state that this is required of each system operator and include minimum hours of annual training time. R12 - should state that this is required of each field switching personnel identified as performing unique tasks associated with its restoration plan that are outside of their normal tasks and should be required on an annual basis. R18 - We strongly believe that each generator operator should be trained annually, and not every two years. Their role is critical to system restoration. M3 - should say "dated" review signature sheet to be consistent with M4. Data Retention Data retention requirements for Transmission Operators and Generator Operators should be consistent. Transmission Operators need to maintain records of drill participation since its last compliance audit as well as one previous compliance audit period for R13 / M13. This could be as much as 6 years of records. Generator Operators need to |

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| | | | | | <p>Bonneville Power Administration</p> | <p>Denise Koehn</p> | <p>Bonneville Power, Transmission Reliability Program</p> | <p>No</p> | <p>It was good to clean up the duplication. EOP-005-2 R1: Is this also intended to cover what the removed R7.2 in version EOP-005-1? R2: reliability-related entities identified Restoration Plan would be the associated BAs of the TO and the coordinated TO/TOP? R6: R6.1 -delete "location and magnitude". M6: remove "such as power flow outputs," or add the additional verification language from R6 description. R10: Due to Operational AND NATIONAL Security sensitivities do NOT post Blackstart Plans publicly. R12: We agree with the change from 1 year to 2 year interval. Rather than require 2 hours of system restoration training however, suggest focusing the requirement on providing training that addresses the "unique tasks" field personnel are expected to perform. This could be done with a performance measure or checkoff sheet showing that competency in performing the tasks has been verified. (measure M12 and the VSL for R12 would need to be changed accordingly) R13/19: Suggest changing the requirement to participation 2x annually in RC exercises rather than every time TOP/GOP is requested by RC. This would provide greater flexibility to the TOP/GOP for meeting staffing requirements for both real-time personnel training staff.</p> | <p>No</p> | <p>EOP-005-2 R6 the additional verification elements added to this requirement make it a new requirement, rather than existing. change to 12 months. R9 change to 3 months (new requirement). R14: change to 12 mos. to allow rewriting of agreements.</p> | <p>No</p> | <p>EOP-005-2 change R1 to give the number of requirements similar to what was done for R11 (lower: failed to comply with 1 sub-component, moderate: failed to comply with 2 or 3 sub-components, high: failed to comply with 4 or 5 subcomponents, severe: failed to comply with with >6 subcomponents).</p> | <p>Yes</p> | <p>maintain records of participation since its last compliance audit for R19 / M19. This could be as much as 3 years of records.</p> <p>ON R 10 IN EOP-005-2, Operation AND NATIONAL Security issues with public postings of Blackstart Plans, do NOT post. USE LANGUAGE THAT WAS DELETED IN APRIL 15, 2008, DRAFT SO R10 READS AS FOLLOWS: "EACH TRANSMISSION OPERATOR SHALL DISTRIBUTE ITS BLACKSTART RESOURCE TESTING REQUIREMENTS TO EACH GENERATOR OPERATOR IN ITS AREA THAT OPERATES A BLACKSTART RESOURCE." Clarify in wording OF R14 OF EOP-005-2 that Entity Agreements DO NOT NEED TO BE INCLUDED IN THE RESTORATION PLAN THAT IS DISTRIBUTED AS REQUIRED IN R2 OF THE STANDARD. R2 IN EOP-005-2 SHOULD BE MORE SPECIFIC REGARDING WHICH ENTITIES THE TO MUST PROVIDE WITH COPIES OF ITS APPROVED RESTORATION PLAN. THE REQUIREMENT SHOULD USE NERC-DEFINED TERMS SO THERE IS NO CONFUSION. LIST SPECIFICALLY THE ORGANIZATIONS THAT ARE TO BE PROVIDED WITH COPIES. BPA SUGGESTS THAT THE ENTITIES SHOULD BE THE TO'S BALANCING AUTHORITY, GENERATOR OPERATORS THAT PROVIDE BLACKSTART RESOURCES, THE TO'S RELIABILITY COORDINATOR, ADJACENT BALANCING AUTHORITIES, NEIGHBORING TRANSMISSION OPERATORS. R2 IN EOP-006-2 CLEARLY IDENTIFIES WHO SHOULD RECEIVE COPIES OF THE RC'S RESTORATION PLAN. R2 IN EOP-005-2 SHOULD BE AS CLEAR. EOP-005-2 AND EOP-006-2 BOTH EXCLUDE BALANCING AUTHORITIES FROM APPLICABILITY. WHAT, THEN, IS THE RELATIONSHIP BETWEEN TRANSMISSION AND GENERATOR OPERATORS AND THEIR BALANCING AUTHORITIES IN THE EVENT OF EMERGENCIES THAT REQUIRE SYSTEM RESTORATION FROM BLACKSTART RESOURCES? IT APPEARS THAT BALANCING AUTHORITIES MAY HAVE NO ROLE AND THAT THE RELIABILITY COORDINATOR HAS ALL OF THE COORDINATION RESPONSIBILITIES. THE</p> |
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| | Individual | Alice Druffel | Xcel Energy | | | No | | <p>The title and purpose of each standard does not clarify what the term "restoration" means as used in these standards. It should be placed in the Purpose, or as a Definition, rather than being embedded in the requirements. EOP-005-2 Purpose says the standard establishes Facilities. Xcel Energy suggests it identifies or establishes requirements for Facilities. EOP-005-2 R7.3 and EOP-006-2 R7.1 appear to be feel-good statements telling the Transmission Operator to do the right thing if the plan doesn't work. Xcel Energy does not see the value in these requirements. EOP-005-2, R10, Xcel Energy questions the need to post Blackstart Resource testing requirements to a "freely accessible public forum". We fail to see the reliability need for this and feel that the requirements can be incorporated into Interconnection Agreements or communicated through the Blackstart Resource Agreement required in R14. EOP-005-2, R14, This requirement places the responsibility of the Blackstart Resource</p> | <p>No</p> <p>As written, the Implementation Plan is overly complicated, confusing, and does not provide the applicable entities with a clear direction to follow. Xcel Energy agrees with the MRO that within the first year following the standards effective date, the applicable entities must revise, approve, and distribute their restoration plan. The following year the applicable entities must review, test, train, and perform all</p> | <p>No</p> <p>EOP-005, R6, There needs to be a Lower, Moderate and High VSL. Lower VSL should read the Transmission Operator did not perform one of the sub requirements, Moderate VSL should read the Transmission Operator did not complete two of the sub requirements, High VSL should read the Transmission Operator did not complete three of the sub requirements. EOP-005, R9, Move the High VSL (as written) to the Moderate VSL position. The High VSL (as written) should be rewritten to "... address three of the sub requirements." EOP-005, R10, Should be deleted, see question one (1) above. If R10 is retained, Xcel Energy suggests that one or more lower level VSL's be added to incorporate the possibility that testing requirements may be posted, but be out-of-date. EOP-005, R15, The word "dated" should be removed from all four VSL's. The requirement states that Generator Operator needs to have documented procedures for Blackstart Resources and energizing a bus. A missed date will not cause the procedure to be obsolete or hinder the Generator Operator from starting the resource. EOP-005-2 R7 VSLs Given all the conditions in R7, the VSLs for this requirement should be spreadout more and not just listed in the severe level.</p> | Yes | <p>In subrequirement R7.3 of EOP-005-2, if alternative measures are implemented, shouldn't an explanation after the fact be required? In M7 of EOP-005-2, what about evidence of taking alternative measures? In section 1.4 Data Retention pertaining to R9 & M9 of EOP-005-2, why isn't there a three year retention on this data (verification process and results for the current blackstart resource testing requirements)? In</p> |

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| | | | | | | | <p>Agreement on BOTH the Transmission Operator and Generator Operator. The requirement should be rewritten as such "Each Transmission Operator will have a written Blackstart Resource Agreement specifying the terms and conditions, including testing requirements, with each Generator Operator of a Blackstart Resource." EOP-005-2 Xcel Energy questions the need to have a 2 hour requirement on the training requirement in R12 and R18. A training module along with the exercises, drills, and periodic testing that adequately covers the information specified in these requirements would seem to be sufficient. If a specific time requirement is retained, would time spent participating in drills, and Blackstart Resource testing qualify as part of this training?</p> | <p>other requirements. Please keep the Implementation Plan clear and concise. For EOP-005-2 R3, which part of the requirement is existing and which part is effective after 3 months following regulatory approval?</p> | <p>There are several conditions R7 perhaps some of these conditions could be assigned to different levels of VSLs. For example: Failure to work with others could be assigned a lower VSL or Failure to notify the RC could be assigned a moderate VSL. EOP-005-2 R8 Severe VSL The text "not" should be added between the text "The Transmission Operator resynchronized without approval of the Reliability Coordinator or" and the text "In accordance with the established procedures of the Reliability Coordinator following a disturbance ..." EOP-005-2 R14 VSL What if an entity does not have an agreement for 1 out of 4 of its Blackstart Resources, which VSL is assigned ("Lower" or "Moderate")? EOP-006-2 R5 Which latest approved restoration plan should be made available? Should both be made available as indicated in the requirement? Should one be made available as indicated in the VSLs? Should there be VSLs which address the timeframe of distributing restoration plans to the System Operator personnel?</p> | <p>subrequirement R7.1, shouldn't these alternative measures and nonstudied conditions be noted or recorded somewhere to be included in the future restoration plan.</p> |
| | | | | | | | <p>EOP-005 R1.2 Procedures for restoring the integrity of the Interconnection under the direction of the Reliability Coordinator. Comment: What is meant by "integrity" of the interconnection? How would this be assessed as an element in the plan? R1.6 There should be some consideration for the size and location of the area isolated. Perhaps this should apply to only those areas for which designated black start units are located. Because of the many possibilities for creating an island, the plan should be as generic as possible so that its general restoration philosophy will work during any scenario. R1.7 Operating Procedures to restore Loads, such as station service for substations, units to be restarted or stabilized, the Load needed to stabilize generation and frequency, and provide voltage control for restoring the System.</p> | | | |

Procedure. •R1.7 – Similar comment as for R1.6 relative to the degree of specificity required. In addition, the phrasing of the sentence is unclear due to the position of the commas. Please see if it can be cleaned up using parentheses, semi-colons, rewording or some other device. Using the term “such as” makes it hard to understand exactly what is required. For example, what other loads are being referred to beyond “station service for substations”.

R2,R3 - It appears the requirements 2 and 3 should be reversed to better reflect what takes place chronologically. R4.1 - The requirement does not mention but it is accurate to expect the TOP to resubmit the revised restoration plan to the RC for approval? •R6 – It is unclear to what extent the analysis/simulations/testing of the plan should be carried out, particularly in R6.2. Also, this requirement could be interpreted to apply to the entire Interconnection rather than just those loads for a particular area. At what point are there enough studies to satisfy that the TOP has done enough for compliance for this requirement? The requirement should state that any of the options: actual event, simulation, or testing is sufficient to meet the requirement and not all three are being required. The contents of requirements 6.1-6.3 should be consistent with the contents of R1.7. R1.7 describes what your plan should include, and R 6.1-6.3 describes ways of simulating or testing the content in 1.7. R7.2 - This requirement is not consistent with EOP-006, R1.6. EOP-005, R7.2 requires only notifying the RC on “progress” while EOP-006, R1.6 refers to “reporting requirements”. The SDT should consider removing the word “progress” in EOP-005, R7.2, or perhaps change to “Each affected TOP shall report during a restoration event to the RC as required in the RC restoration plan”.

R7.3 - The use of the word “philosophies” should be replaced with the word “practices” to make it clearer to the reader. All other references should also be changed. R10 - The term “freely accessible public forum” is vague. Testing requirements should be accessible by parties involved, but the place to post them should be a “business practice”.

•R11 – The expectation of

benefit industry in this regard. This supplemental information has been provided to the NERC standards process manager for review by the SRB SDT. R1 – As written, R1 has two embedded requirements within a lengthy paragraph. For improved readability it is suggested that the requirement be rewritten with the use of sub-requirements and that a portion of the text be moved to a new Standards Glossary definition describing Complete Restoration. If our suggested is adopted, the existing R1 sub-requirements would be re-numbered in sequence. The following describes the proposed change: "R1. Each Transmission Operator shall have a restoration plan approved by its Reliability Coordinator. The restoration plan shall: R1.1 Allow for restoring the Transmission Operator's System following a Disturbance in which one or more areas of the Bulk Electric System (BES) shuts down R1.2 Describe the Blackstart Resources required to restore the shut down area to service, to a state of Complete Restoration." Add to the Definitions Section: "Complete Restoration – The point in the restoration process whereby the choice of the next Load to be restored is not driven by the need to control frequency or voltage regardless of whether the Blackstart Resource is located within the Transmission Operator's System or an adjacent system." R1.1 - The term Agreement as defined in the NERC glossary is, "A contract or arrangement, either written or verbal and sometimes enforceable by law." However, the approved NUC-001 standard allows for procedures and protocols as equivalents to an Agreement. The drafting team should add the same footnote to the term "Agreement" as the footnote included in R2 of NUC-001-1. In addition, is a citing of the NPIR's sufficient to be in compliance or must an entity repeat all of the information contained in the NPIR's? R1.5 - Should be revised to include synchronization angle limits to aid operators in the restoration process. R1.6 - The drafting team stated that this standard, or at least R1 addresses total system restoration, but requires Operating

General comment for EOP-005 and EOP-006 VSLs: The VSLs as written do not include specific information relating to the standard to be as valuable as they could be. As an example, the Lower VSL for R4 states the

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| | | | | | | | <p>procedures to reestablish connections within the Transmission Operator's System for "areas that have become separated". This should be revised to state "areas that have been restored and are prepared for reconnection".</p> <p>R2 – Replace "distribute its approved restoration plan to the reliability-related operational entities identified" with "distribute applicable sections of its approved restoration plan to the NERC registered reliability-related operational entities identified".</p> <p>R5 - Should be revised to state "a copy of its latest approved restoration plan within its primary and backup control centers".</p> <p>Entities that own two or more control centers may have facilities that do not neighbor each other. Nor do these facilities provide backup for each other. They should not be required to have restoration plans in facilities that may have no use for them.</p> <p>R9.1 - A minimum amount of units should be tested each year to avoid all units being tested in the third year.</p> <p>R12 – FE has commented against this requirement in prior drafts and we still object to the need. While we recognize the SDT has added the phrase "unique tasks" to the requirement, in an attempt to address FE's and others concern, the use of the word "unique" is subjective and open to interpretation. While FE may believe there is nothing "unique", an auditor may have a different opinion. The SDT has failed to justify that a significant reliability improvement will result from the significant cost and effort to train thousands of field substation switching personnel throughout industry. FE's field switching personnel do not independently perform transmission switching without taking direction from our transmission operations staff. It is FE's view that our field personnel do not need to be trained in the "big picture view" of system restoration and that the tasks required of them would not be significantly different than switching steps performed during normal operations. If the team does not agree with our rationale to remove training requirements for switching personnel, then at the least, the length of the training should not be specified by the standard. To provide two full hours of this training would be</p> | | | <p>The implementation plan only provides 3 months to get Transmission Operator and Generator Operator agreements in place prior to compliance sanctions. This timeframe is insufficient and should be adjusted to allow for 6 months or more to complete the agreement negotiations.</p> | | <p>Transmission Operator failed to comply within 90 calendar days. Presumably they failed to comply with R4, but that is not explicitly stated. This should be revised to state that they "failed to update their restoration plan within 90 days of identifying any permanent System modifications that would change the implementation of its restoration plan." The VSLs should be reviewed by the drafting team and specificity added.</p> <p>EOP-005-2: R1 - VSL for R1 does not include any measure for not having your restoration plan approved by your RC. It should be added.</p> <p>R5 - VSL for R5 place an additional requirement for minimum time period of when the plan must be placed in the control center. The requirement and measure only say you have to have the plan in the control center, which is correct since it would not be possible to measure from an audit standpoint as to when it was placed in the control center. There should only be one level of violation which states simply that the plan was not found in the control center.</p> <p>R12 - Pursuant to our comment in question 1 regarding the suggested removal of the 2-hour duration, the proposed Lower and High VSL should be removed. Also, the Severe VSL should be clarified as follows: "The TOP did not supply training within a two year period to field switching personnel that perform unique tasks during system restoration."</p> | | <p>EOP-005-2: Measure (M4) for R4 - The measure only requires proof from the TOP of the agreement between the TOP and GOP. Since this is a joint effort, both entities should show proof; VSL for R4 should include the GOP since the agreement is the responsibility of both entities.</p> |
| | Group | FirstEnergy | Sam Ciccone | FirstEnergy Corp. | No | No | No | Yes | | | | | | |

impossible in many cases; training on one or two "unique" tasks would probably take 20 minutes. Therefore, we believe the duration of this testing should be removed from the standard and be left up to the entity to determine. R13 - This requirement's use of "simulations" as an option is inconsistent with the requirements being developed by the SPT SDT in revisions to PER-005. In PER-005, the team is requiring "simulators", and it is not optional. R14 - Similar to our comment regarding "Agreements" in R1.1, this term should be lower case "agreements" and should reference the same footnote as stated in R2 of NUC-001-1. R16 - We agree that the originally proposed timeframe of 90-days was unnecessarily long, but also feel that the newly proposed 24-hour timeframe is too quick. We suggest this be changed to "seventy-two hours". EOP-006-2: R3 - The phrase "every twelve months" poses an unwarranted time constraint and should be changed to "annually". This change would be consistent with EOP-005-2 and several other standards currently being developed by NERC. R6 - Should be revised to state "a copy of its latest approved restoration plan within its primary and backup control centers". Entities that own two or more control centers may have facilities that do not neighbor each other. Nor do these facilities provide backup for each other. They should not be required to have restoration plans in facilities that may have no use for them. R9 - The SDT response to our request for the inclusion of a sub-requirement for "Review of the restoration plan" in the previous draft was, "Response: EOP-006-2, R10.3: The SDT believes inclusion of system restoration philosophy covers this concern". However in EOP-005 the drafting team retained two requirements the first being R11.1 System Restoration philosophy... and R11.5 Review of the restoration plan. This would seem to indicate that the drafting team was inconsistent in its application of the equality of these two statements. We suggest adding requirement R9.3. Review of the restoration plan. We believe a review of the plan is prudent and necessary to insure that all operating personnel know the sequence of the application

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| | | | | | | | of the restoration philosophies. | | | | | | |
| Individual | Stephen Joseph | Tampa Electric Company | | | | Yes | | Yes | | Yes | | No | |
| Individual | Mark Bradley | ITC Holdings | | | | No | R1 still references Blackstart Resources being located external to TOP system, problematic when islanded. | | | No | 005, R-10 Should not be severe for "failure to post" if info is available and just not posted should be a lower penalty related to reliability. | Yes | 005-R-9 weakened test requirements. Now GO's do not have to synch to a dead bus, just say they can by defeating relays. TOPs shall have testing to verify "that each Blackstart Resource is capable of meeting the requirements of it's restoration plan." As a Transmission Company ITC owns no generation. Our plan calls for energizing a generator to a deenergized bus. Are we to weaken the previous tests to allow the generator owner to say he can, rather than actually demonstrate? |
| | | | | | | | EOP-005 R4.1 Add "for approval" between "Coordinator" and "within". EOP-005 R6.2 Delete this entire section. An unlimited number of studies would need to be conducted. Also, while dynamic model data for generators and excitation systems should be readily available as part of annual model development efforts, dynamic representations for various motor loads at each plant which would presumably be utilized in dynamic motor starting simulations would not be readily available, and would require some effort to develop. EOP-005 R7.3 Replace "philosophies" with either "concepts" or "practices". EOP-005 R10 Eliminate this requirement from EOP-005. It is a market issue and should be located in a business practice. EOP-005 R11.1 Replace "philosophies" with either "concepts" or "practices". EOP-005 R12 Eliminate this requirement. If a blackout were to occur there might be those who are certainly capable of aiding restoration who did not have training in particular tasks. The risk of having violations after the fact might prevent quick restoration if someone like a supervisor or another well trained person was used in place of the person who normally does the switching. EOP-005 R13 Add "at least one of" between "in" and "its". EOP-005 R14 Clarification should be given to what is actually an Agreement. Is this necessary in a vertically integrated company or can some other commitment serve as an Agreement? EOP-005 R18.1 Replace "philosophies" with either "concepts" or "practices". EOP-005 M2 Remove "such | | | | | | |

as e-mails with receipts or registered mail receipts, ". Note: "such as" statements are too prescriptive and need to be separated from the requirements. If examples are to be provided, they should be identified as options in a footnote. EOP-005 M3 Remove "such as dated review signature sheets, revision histories, e-mails with receipts, or registered mail receipts, ". Note: "such as" statements are too prescriptive and need to be separated from the requirements. If examples are to be provided, they should be identified as options in a footnote. EOP-005 M4 Remove "such as e-mail receipts". Note: "such as" statements are too prescriptive and need to be separated from the requirements. If examples are to be provided, they should be identified as options in a footnote. EOP-005 M5 Remove "such as power flow outputs, ". Note: "such as" statements are too prescriptive and need to be separated from the requirements. If examples are to be provided, they should be identified as options in a footnote. Also, it is not the responsibility of the TO to determine that the receiving entity read the information it received. The TO should only be responsible for sending the information. Additionally, remove "and to each of its control room personnel". EOP-005 M7 Remove "such as voice recordings, e-mail, dated computer printouts, or operator logs". Note: "such as" statements are too prescriptive and need to be separated from the requirements. If examples are to be provided, they should be identified as options in a footnote. Also change "that it implemented" to "that it coordinated with the Reliability Coordinator in implementation of". EOP-005 M8 Remove ", such as voice recordings, e-mail, dated computer printouts, or operator logs," Note: "such as" statements are too prescriptive and need to be separated from the requirements. If examples are to be provided, they should be identified as options in a footnote. EOP-005 M10 Remove this w/ the removal of the requirement R10. EOP-005 M12 Remove "and the corresponding training records including training date sand duration", EOP-005 M13 Remove "such as training records". Note: "such as" statements are too prescriptive and need to be separated from the

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| | Individual | Paul D. Dare | Ameren | | | No | <p>requirements. If examples are to be provided, they should be identified as options in a footnote. EOP-005 M16 Remove "such as e-mails with receipts or registered mail receipts,.". Note: "such as" statements are too prescriptive and need to be separated from the requirements. If examples are to be provided, they should be identified as options in a footnote. EOP-005 M17 Remove "such as e-mails with receipts or registered mail receipts,.". Note: "such as" statements are too prescriptive and need to be separated from the requirements. If examples are to be provided, they should be identified as options in a footnote. EOP-005 M18 Should read "Each Generator Operator shall have a copy of its training program material showing that it has provided training in accordance with Requirement R18." EOP-005 M19 Remove ", such as dated training records,.". Note: "such as" statements are too prescriptive and need to be separated from the requirements. If examples are to be provided, they should be identified as options in a footnote. EOP-006 R1.1 Eliminate this. Isn't this what the plan is? EOP-006 R3 Replace "every twelve months" with "on an annual basis". EOP-006 R4 There is a concern that if several TOs made changes in their restoration plan and submitted these changes within a short time of each other the RC might not have the flexibility to include all these changes in one revision of their plan without being "late" on the issuance of the first changes. EOP-006 R6 Remove " and available to all of its control room personnel". EOP-006 R7.1 Replace "philosophies" with either "concepts" or "practices". EOP-006 R8.1 Replace "philosophies" with either "concepts" or "practices". EOP-006 R9.1 Replace "philosophies" with either "concepts" or "practices". EOP-006 R10 Change "two System restorations drills, exercises or simulations" with "or participate in at least one System restorations drill, exercise or simulation". EOP-006 M2 Remove "such as e-mails with receipts or registered mail receipts,.". Note: "such as" statements are too prescriptive and need to be separated from the requirements. If examples are to be provided, they should be identified as options in a footnote. EOP-006 M3</p> | Yes | No | EOP-006 Remove VSL for R10 due to the removal of R10 and M10. | No |
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Remove "such as a review signature sheet, or revision histories,.". Note: "such as" statements are too prescriptive and need to be separated from the requirements. If examples are to be provided, they should be identified as options in a footnote. EOP-006 M4 Remove "such as dated review signature sheets, or revision histories,.". Note: "such as" statements are too prescriptive and need to be separated from the requirements. If examples are to be provided, they should be identified as options in a footnote. EOP-006 M5 Remove "such as a review signature sheet,.". Note: "such as" statements are too prescriptive and need to be separated from the requirements. If examples are to be provided, they should be identified as options in a footnote. EOP-006 M6 Remove "such as e-mail receipts". Note: "such as" statements are too prescriptive and need to be separated from the requirements. If examples are to be provided, they should be identified as options in a footnote. EOP-006 M7 Remove "such as voice recordings, e-mail, dated computer printouts, or operator logs,.". Note: "such as" statements are too prescriptive and need to be separated from the requirements. If examples are to be provided, they should be identified as options in a footnote. EOP-006 M8 Remove "such such as voice recordings, e-mail, or operator logs,.". Note: "such as" statements are too prescriptive and need to be separated from the requirements. If examples are to be provided, they should be identified as options in a footnote. EOP-006 M10 Change "two System restorations drills, exercises or simulations" with "or participate in at least one System restorations drill, exercise or simulation".

Standard VSL Job Aid
 Standard EOP-005 Requirement
 (including sub-requirements) R1
 Each Transmission Operator shall have a restoration plan approved by its Reliability Coordinator. The restoration plan shall allow for restoring the Transmission Operator's System following a Disturbance in which one or more areas of the Bulk Electric System (BES) shuts

down and the use of Blackstart Resources is required to restore the shut down area to service, to a state whereby the choice of the next Load to be restored is not driven by the need to control frequency or voltage regardless of whether the Blackstart Resource is located within the Transmission Operator's System. The restoration plan shall include:
[Violation Risk Factor = High] [Time Horizon = Operations Planning] R1.1. A description of the manner in which all Agreements for off-site power requirements of nuclear power plants will be fulfilled during System restoration.
R1.2. Procedures for restoring the integrity of the Interconnection under the direction of the Reliability Coordinator. R1.3. Identification of each Blackstart Resource and its characteristics including the following: the name of the Blackstart Resource, location, megawatt and megavar capacity, and type of unit.
R1.4. Identification of Cranking Paths and initial switching requirements between each Blackstart Resource and the unit(s) to be started. R1.5. Identification of acceptable operating voltage and frequency limits during restoration. R1.6. Operating Procedures to reestablish connections within the Transmission Operator's System for areas that have become separated.
R1.7. Operating Procedures to restore Loads, such as station service for substations, units to be restarted or stabilized, the Load needed to stabilize generation and frequency, and provide voltage control for restoring the System. Proposed Measure Each Transmission Operator shall have a dated, documented System restoration plan developed in accordance with Requirement R1 that has been approved by its Reliability

Coordinator as shown with the written approval letter from its Reliability Coordinator. Attributes of the requirement Binary Timing Complete X Communication Quality (per sample size) Other The primary attribute of this requirement is that it includes each of the elements listed as a sub-requirement. There are seven items listed – the increment included in the VSL should be whole numbers, in addition “subcomponents” may result in some confusion in the requirement interpretation, suggest changing to “sub-requirement” SDT Proposed Lower VSL The Transmission Operator failed to comply with less than 25% of the number of subcomponents within the requirement. CEDRP Proposed VSL The Transmission Operator failed to meet one of the sub-requirements. SDT Proposed Moderate VSL The Transmission Operator failed to comply with 25% or more and less than 50% of the number of sub-components within the requirement. CEDRP Proposed VSL The Transmission Operator failed to meet 2or 3 of the sub-requirements. SDT Proposed High VSL The Transmission Operator has failed to comply with 50% or more and less than 75% of the number of sub-components within the requirement. CEDRP Proposed VSL The Transmission Operator failed to meet 4or 5 of the sub-requirements. SDT Proposed Severe VSL The Transmission Operator has failed to comply with 75% or more of the number of subcomponents. CEDRP Proposed VSL The Transmission Operator failed to meet more than 5 of the sub-requirements. Standard EOP-005 Requirement (including sub-requirements) R2 Each Transmission Operator shall distribute its approved restoration

plan to the reliability-related operational entities identified in its restoration plan within thirty calendar days of having received approval from its Reliability Coordinator. [Violation Risk Factor = Lower] [Time Horizon = Operations Planning] Proposed Measure Each Transmission Operator shall have evidence such as e-mails with receipts or registered mail receipts, that it distributed its approved restoration plan to the appropriate entities in accordance with Requirement R2. Attributes of the requirement Binary Timing X Complete X Communication Quality (per sample size) Other The requirement includes timing and the requirement to distribute to all entities – as such timing and possible omission should be the primary reason(s) for incrementing the VSL's. In addition because the numbers on impacted entities will be based on the RC and its plan – using percentages for this VSL makes sense. SDT Proposed Lower VSL The Transmission Operator failed to distribute the information to an entity identified within the restoration plan within the required timeframe. Or, the Transmission Operator distributed the information to all entities but was thirty days late in doing so. CEDRP Proposed VSL The Transmission Operator failed to distribute the information to 1% to 25% of entities identified within the restoration plan within the required timeframe. Or, the Transmission Operator distributed the information to all entities but was 1 to 30 days late in doing so SDT Proposed Moderate VSL The Transmission Operator failed to distribute the information to two entities identified within the restoration plan within the required timeframe. Or, the Transmission

Operator distributed the information to all entities but was sixty days late in doing so. CEDRP Proposed VSL The Transmission Operator failed to distribute the information 26% to 50% of the entities identified within the restoration plan within the required timeframe. Or, the Transmission Operator distributed the information to all entities but was 31 to 60 days late in doing so. SDT Proposed High VSL The Transmission Operator failed to distribute the information to three entities identified within the restoration plan within the required timeframe. Or, the Transmission Operator distributed the information to all entities but was ninety days late in doing so. CEDRP Proposed VSL The Transmission Operator failed to distribute the information to 51% to 75% of the entities identified within the restoration plan within the required timeframe. Or, the Transmission Operator distributed the information to all entities but was 61 to 90 ninety days late in doing so. SDT Proposed Severe VSL The Transmission Operator failed to distribute the information to four or more entities identified within the restoration plan within the required timeframe. Or, the Transmission Operator distributed the information to all entities but was 120 days late in doing so. CEDRP Proposed VSL The Transmission Operator failed to distribute the information to 76% or more of the entities identified within the restoration plan within the required timeframe. Or, the Transmission Operator distributed the information to all entities but was 91 days or more late in doing so. Standard EOP-005 Requirement (including sub-requirements) R3 Transmission Operator shall review its restoration plan and submit it to its

Reliability Coordinator annually on a mutually agreed predetermined schedule. [Violation Risk Factor = Medium] [Time Horizon = Operations Planning] R3.1 If there are no changes to the previously submitted restoration plan, the Transmission Operator shall confirm annually on a predetermined schedule to its Reliability Coordinator that it has reviewed its restoration plan and no changes were necessary. Proposed Measure Each Transmission Operator shall have documentation such as a review signature sheet, revision histories, e-mails with receipts, or registered mail receipts, that it has annually reviewed and submitted its restoration plan to its Reliability Coordinator in accordance with Requirement R3. Attributes of the requirement Binary Timing X Complete Communication X Quality (per sample size) Other The attribute of this requirement is based on the timing of the required communication and should increment the VSL based on timing issues. SDT Proposed Lower VSL The Transmission Operator did not submit the required information within the predetermined schedule. Or, the Transmission Operator did not complete the review within thirty days of the predetermined schedule. CEDRP Proposed VSL The Transmission Operator did not review and submit the required information within 1 to 30 calendar days of the pre-determined schedule. SDT Proposed Moderate VSL The Transmission Operator did not submit the required information within thirty calendar days of the predetermined schedule. Or, the Transmission Operator did not complete the review within sixty days of the pre-determined schedule. CEDRP Proposed VSL The

Transmission Operator did not review and submit the required information within 31 to 90 calendar days of the pre-determined schedule. SDT Proposed High VSL The Transmission Operator did not submit the required information within sixty calendar days of the predetermined schedule. Or, the Transmission Operator did not complete the review within ninety days of the predetermined schedule. CEDRP Proposed VSL The Transmission Operator did not review and submit the required information within 91 to 120 calendar days of the pre-determined schedule. SDT Proposed Severe VSL The Transmission Operator did not submit the required information within ninety calendar days of the predetermined schedule. Or, the Transmission Operator did not complete the review within 120 days of the pre-determined schedule. CEDRP Proposed VSL The Transmission Operator did not review submit the required information within 121 calendar days of the pre-determined schedule. Standard EOP-005 Requirement (including sub-requirements) R4 Each Transmission Operator shall update its restoration plan within ninety calendar days after identifying any permanent System modifications that would change the implementation of its restoration plan. [Violation Risk Factor = Medium] [Time Horizon = Operations Planning] R4.1 Each Transmission Operator shall submit its revised restoration plan to its Reliability Coordinator within the same ninety calendar day period. Proposed Measure Each Transmission Operator shall have documentation such as dated review signature sheets, revision histories, e-mails with receipts, or registered mail receipts, that it has updated its

restoration plan with its Reliability Coordinator in accordance with Requirement R4. Attributes of the requirement Binary Timing X Complete Communication X Quality (per sample size) Other The attribute of this requirement is based on the timing of the required communication and should increment the VSL based on timing issues. SDT Proposed Lower VSL The Transmission Operator failed to comply within ninety calendar days. CEDRP Proposed VSL The Transmission Operator failed to update or submit the plan within 91 to 120 days of the system modification. SDT Proposed Moderate VSL The Transmission Operator failed to comply within 120 calendar days of the change. CEDRP Proposed VSL The Transmission Operator failed to update or submit the plan within 121 to 150 calendar days of the system modification. SDT Proposed High VSL The Transmission Operator has failed to comply within 150 calendar days of the change. CEDRP Proposed VSL The Transmission Operator failed to update or submit the plan within 151 to 180 calendar days of the system modification. SDT Proposed Severe VSL The Transmission Operator has failed to comply within 180 calendar days of the change. CEDRP Proposed VSL The Transmission Operator failed to update or submit the plan within 181 calendar days of the system modification. Standard EOP-005 Requirement (including sub-requirements) R5 Each Transmission Operator shall have a copy of its latest approved restoration plan within each of its control centers and available to all of its control room personnel. [Violation Risk Factor = Lower] [Time Horizon = Operations Planning] Proposed Measure

Each Transmission Operator shall have documentation such as e-mail receipts that it has made the latest approved copy of its restoration plan available in each of its control rooms and to each of its control room personnel in accordance with Requirement R5. Attributes of the requirement Binary Timing X Complete Communication Quality (per sample size) Other This requirement's main attribute is a timing issue and should increment the VSL based on not meeting the timing requirement. The CEDRP suggests assigning high and low limits (days) to each of the VSL's. In addition the SDT may want to consider the number of days between final approval and posting/providing to the control room, recognizing that they may always be a lag time between approval and issue (e.g does the lower VSL need to have a window of 5 to 15 calendar days?) – should the timing be included in the requirement itself? SDT Proposed Lower VSL The Transmission Operator did not make the latest approved restoration plan available in its control rooms within fifteen calendar days of its approval. CEDRP Proposed VSL The Transmission Operator made the latest approved restoration plan available in its control rooms one to fifteen calendar days after its final approval. SDT Proposed Moderate VSL The Transmission Operator did not make the latest approved restoration plan available in its control rooms within twenty calendar days of its approval. CEDRP Proposed VSL The Transmission Operator made the latest approved restoration plan available in its control rooms sixteen to twenty calendar days after its final approval. SDT Proposed High VSL The Transmission Operator did not make the latest

approved restoration plan available in its control rooms within twenty-five calendar days of its approval. CEDRP Proposed VSL The Transmission Operator made the latest approved restoration plan available in its control rooms twenty-one to twenty-five calendar days after its final approval. SDT Proposed Severe VSL The Transmission Operator did not make the latest approved restoration plan available in its control rooms within thirty calendar days of its approval. CEDRP Proposed VSL The Transmission Operator made the latest approved restoration plan available in its control rooms more than twenty-five calendar days after its final approval. Standard EOP-005 Requirement (including sub-requirements) R6 Each Transmission Operator shall verify through analysis of actual events, steady state and dynamic simulations, or testing that its documented restoration plan accomplishes its intended function. This shall be completed every five years at a minimum. Such simulations or testing shall analyze: [Violation Risk Factor = Medium] [Time Horizon = Long-term Planning] R6.1 The capability of Blackstart Resources to meet the Real and Reactive Power requirements of the Cranking Paths and to supply initial Loads. R6.2 The location and magnitude of Loads required to control voltages and frequency within acceptable operating limits. R6.3 The capability of generating resources required to control voltages and frequency within acceptable operating limits. Proposed Measure Each Transmission Operator shall have documentation such as power flow outputs, that it has verified that its restoration plan accomplishes its intended function in accordance with Requirement R6

Attributes of the requirement Binary X Timing Complete X Communication Quality (per sample size) X Other The attributes of this requirement are of equal importance; as a result missing one element of the requirement jeopardizes the entity's ability to meet the intent of the standard. SDT Proposed Lower VSL N/A CEDRP Proposed VSL No Comment SDT Proposed Moderate VSL N/A CEDRP Proposed VSL No Comment SDT Proposed High VSL N/A CEDRP Proposed VSL No Comment SDT Proposed Severe VSL The Transmission Operator did not perform the verification within the prescribed timeframe. CEDRP Proposed VSL No Comment Standard EOP-005 Requirement (including sub-requirements) R7 Following a Disturbance in which one or more areas of the BES shuts down and the use of Blackstart Resources is required to restore the shut down area to service, each affected Transmission Operator shall implement its restoration plan. [Violation Risk Factor = High] [Time Horizon = Real-time Operations] R7.1 - Each affected Transmission Operator shall work in conjunction with its Reliability Coordinator to determine the extent and condition of the isolated area(s). R7.2 - Each affected Transmission Operator shall notify its Reliability Coordinator of restoration progress as required in the Reliability Coordinator's restoration plan. R7.3 - If the restoration plan cannot be completed as expected because actual conditions do not match the studied conditions, the Transmission Operator shall utilize its restoration plan philosophies to implement alternative measures for achieving System restoration. Proposed Measure If there has

been a Disturbance in which Blackstart Resources have been utilized in restoring the shut down area of the System to service, each Transmission Operator involved shall have evidence such as voice recordings, e-mail, dated computer printouts, or operator logs, that it implemented its restoration plan in accordance with Requirement R7. Attributes of the requirement Binary Timing Complete X Communication Quality (per sample size) Other Based on the requirement as written – it appears that the failure to perform any single associated requirement would result in the failure to meet the intent of the requirement. SDT Proposed Lower VSL None CEDRP Proposed VSL No Comment SDT Proposed Moderate VSL None CEDRP Proposed VSL No Comment SDT Proposed High VSL None CEDRP Proposed VSL No Comment SDT Proposed Severe VSL The Transmission Operator did not implement its restoration plan following a Disturbance in which Blackstart Resources have been utilized in restoring the shut down area of the System. CEDRP Proposed VSL The Transmission Operator did not implement its restoration plan following a Disturbance in which Blackstart Resources have been utilized in restoring the shut down area of the System in accordance with R7 Standard EOP-005 Requirement (including sub-requirements) R8 Following a Disturbance in which one or more areas of the BES shuts down and the use of Blackstart Resources is required to restore the shut down area to service, the Transmission Operator shall resynchronize area(s) with neighboring Transmission Operator area(s) only

with the authorization of the Reliability Coordinator or in accordance with the established procedures of the Reliability Coordinator. [Violation Risk Factor = High] [Time Horizon = Real-time Operations] Proposed Measure If there has been a Disturbance in which Blackstart Resources have been utilized in restoring the shut down area of the System to service, each Transmission Operator involved in such an event shall have evidence, such as voice recordings, e-mail, dated computer printouts, or operator logs, that it resynchronized shut down areas in accordance with Requirement R8. Attributes of the requirement Binary X Timing Complete Communication Quality (per sample size) Other The attributes of this requirement are binary (i.e. the TO either did or did not gain permission or follow established procedures). SDT Proposed Lower VSL None CEDRP Proposed VSL No Comment SDT Proposed Moderate VSL None CEDRP Proposed VSL No Comment SDT Proposed High VSL None CEDRP Proposed VSL No Comment SDT Proposed Severe VSL The Transmission Operator resynchronized without approval of the Reliability Coordinator or in accordance with the established procedures of the Reliability Coordinator following a Disturbance in which Blackstart Resources have been utilized in restoring the shut down area of the System to service. CEDRP Proposed VSL No Comment Standard EOP-005 Requirement (including sub-requirements) R9 Each Transmission Operator shall have Blackstart Resource testing requirements to verify that each Blackstart Resource is capable of meeting the requirements of

its restoration plan. These Blackstart Resource testing requirements shall include: [Violation Risk Factor = Medium] [Time Horizon = Operations Planning] R9.1 The frequency of testing such that each Blackstart Resource is tested at least once every three years. R9.2 A list of required tests including: R9.2.1 The ability to start the unit when isolated with no support from the BES or when designed to remain energized without connection to the remainder of the System. R9.2.2 The ability to energize a bus. If it is not possible to energize a bus during the test, the testing entity must affirm that the unit has the capability to energize a bus such as verifying that the breaker close coil relay can be energized with the voltage and frequency monitor controls disconnected. R9.3 The minimum duration of each of the required tests. Proposed Measure Each Transmission Operator shall have documented Blackstart Resource testing requirements in accordance with Requirement R9. Attributes of the requirement Binary Timing Complete X Communication Quality (per sample size) Other The CEDRP felt that missing any single requirement (sub requirement) for this requirement would result in the applicable entities failure to meet the intent of this requirement. As a result the CEDRP felt this requirement should be treated as a binary requirement. SDT Proposed Lower VSL The Transmission Operator's testing requirements do not address one of the subrequirements. CEDRP Proposed VSL CEDRP – suggest no Lower VSL for this requirement SDT Proposed Moderate VSL None CEDRP Proposed VSL No comment SDT Proposed High VSL The Transmission Operator's testing requirements do not

address two of the subrequirements. CEDRP Proposed VSL CEDRP – suggest no High VSL for this requirement SDT Proposed Severe VSL The Transmission Operator does not have the testing requirements. CEDRP Proposed VSL The Transmission Operator does not have the testing requirements or the testing requirements are incomplete. Standard EOP-005 Requirement (including sub-requirements) R10 Each Transmission Operator shall post its Blackstart Resource testing requirements, in a freely accessible public forum. [Violation Risk Factor = Lower] [Time Horizon = Operations Planning] Proposed Measure Each Transmission Operator shall have evidence that it has posted its Blackstart Resource testing requirements in accordance with Requirement R10. Attributes of the requirement Binary X Timing Complete Communication Quality (per sample size) Other The attributes of this requirement appear to be binary SDT Proposed Lower VSL None CEDRP Proposed VSL No comment SDT Proposed Moderate VSL None CEDRP Proposed VSL No comment SDT Proposed High VSL None CEDRP Proposed VSL No comment SDT Proposed Severe VSL The Transmission Operator failed to post the Blackstart Resource testing requirements. CEDRP Proposed VSL No Comment Standard EOP-005 Requirement (including sub-requirements) R11 Each Transmission Operator shall include within its operations training program, annual System restoration training to its System Operators to ensure the proper execution of its restoration plan. This training program shall include the following: [Violation Risk Factor = Medium] [Time Horizon = Operations Planning] R11.1

System restoration philosophy including coordination with the Reliability Coordinator and Generator Operators included in the restoration plan. R11.2 Restoration priorities. R11.3 Building of cranking paths. R11.4 Synchronizing (re-energized sections of the System). R11.5 Review of the restoration plan. Proposed Measure Each Transmission Operator shall have an electronic or hard copy of the training program material provided to its System Operators for System restoration training in accordance with Requirement R11. Attributes of the requirement Binary Timing Complete X Communication Quality (per sample size) Other This requirement includes a number of sub-requirements, and should be incremented to higher VSL levels if any (or multiple) sub requirements are omitted. SDT Proposed Lower VSL The Transmission Operator's training is missing one of the topics mentioned in the subrequirements. CEDRP Proposed VSL The Transmission Operator's training program does not address one of the sub-requirements. SDT Proposed Moderate VSL The Transmission Operator's training is missing two of the topics mentioned in the subrequirements. CEDRP Proposed VSL The Transmission Operator's training program does not address two of the sub-requirements. SDT Proposed High VSL The Transmission Operator's training is missing three or more of the topics mentioned in the sub-requirements. CEDRP Proposed VSL The Transmission Operator's training program does not address three or more of the sub-requirements. SDT Proposed Severe VSL The Transmission Operator has not included System restoration training in its operations training program. CEDRP Proposed VSL No

Comment Standard EOP-005 Requirement (including sub-requirements) R12 Each Transmission Operator shall provide a minimum of two hours of System restoration training every two years to field switching personnel identified as performing unique tasks associated with its restoration plan that are outside of their normal tasks. [Violation Risk Factor = Lower] [Time Horizon = Operations Planning] Proposed Measure Each Transmission Operator shall have an electronic or hard copy of the training program material provided to its field switching personnel for System restoration training and the corresponding training records including training dates and duration in accordance with Requirement Attributes of the requirement Binary Timing Complete X Communication Quality (per sample size) Other This requirement includes a number of requirements that if any one were omitted would result in a possible finding of non-compliance. The CEDRP felt that this requirement presented a number of challenges 1) identification of "field switching personnel" and 2)"unique tasks" that would need to be defined and identified as a part of determining compliance. As a result the CEDRP provide minor suggested changes to the SDT's proposed compliance elements, but believe the requirement should be reviewed for revision. SDT Proposed Lower VSL The Transmission Operator only supplied 1.5 hours of training within a two year period. CEDRP Proposed VSL The Transmission Operator provided 2 hour of training on unique tasks to more than 90%, but less than 100% of the applicable field switching personnel. SDT Proposed Moderate VSL N/A

CEDRP Proposed VSL
The Transmission Operator provided 2 hour of training on unique tasks to more than 80%, but less than 90% of the applicable field switching personnel.
SDT Proposed High VSL The Transmission Operator only supplied one hour of training within a two year period. CEDRP Proposed VSL The Transmission Operator provided 2 hour of training on unique tasks to more than 70%, but less than 80% of the applicable field switching personnel.
SDT Proposed Severe VSL The Transmission Operator did not supply any training within a two year period. CEDRP Proposed VSL The Transmission Operator provided 2 hour of training on unique tasks to less than 70% of the applicable field switching personnel.
Standard EOP-005 Requirement (including sub-requirements) R13
Each Transmission Operator shall participate in its Reliability Coordinator's restoration drills, exercises, or simulations as requested by its Reliability Coordinator.
[Violation Risk Factor = Medium] [Time Horizon = Operations Planning] Proposed Measure Each Transmission Operator shall have evidence, such as training records, that it participated in the Reliability Coordinator's restoration drills, exercises, or simulations as requested in accordance with Requirement R13.
Attributes of the requirement Binary X
Timing Complete
Communication Quality (per sample size) Other
The attributes of this requirement appear to be yes/no - as such it should be treated as a binary requirement. SDT Proposed Lower VSL None CEDRP Proposed VSL No comment SDT Proposed Moderate VSL None CEDRP


Proposed VSL No comment SDT
Proposed High VSL None CEDRP
Proposed VSL No comment SDT
Proposed Severe VSL The Transmission Operator has failed to comply with a request for their participation from the Reliability Coordinator. CEDRP
Proposed VSL No comment Standard EOP-005 Requirement (including sub-requirements) R14 Each Transmission Operator and Generator Operator with a Blackstart Resource shall have a written Blackstart Resource Agreement specifying the terms and conditions of their arrangement. Such Agreements shall include references to the blackstart testing requirements.
[Violation Risk Factor = Medium] [Time Horizon = Operations Planning] Proposed Measure Each Transmission Operator shall have the dated Blackstart Resource Agreements with all Generator Operators with Blackstart Resources included in its restoration plan in accordance with Requirement R14. Attributes of the requirement Binary X Timing Complete X Communication Quality (per sample size) X Other The requirement includes the requirement to have agreements in place, with all resources and include a reference to testing requirements (quality). SDT
Proposed Lower VSL The Transmission Operator does not have a Blackstart Resource Agreement for one of its Blackstart Resources. CEDRP Proposed VSL VSL's should be percentage based – the entities may have many or very few blackstart resources. The Transmission Operator does not have Blackstart Resource Agreements for up to 10% of its Blackstart Resources. SDT Proposed Moderate VSL The Transmission Operator does not have Blackstart Resource Agreements for 25% of Blackstart

Resources. CEDRP Proposed VSL The Transmission Operator does not have Blackstart Resource Agreements for more than 10%, but less than 25% of Blackstart Resources. SDT Proposed High VSL The Transmission Operator does not have Blackstart Resource Agreements for 50% of Blackstart Resources. CEDRP Proposed VSL The Transmission Operator does not have Blackstart Resource Agreements for more than 25%, but less than 50% of Blackstart Resources. SDT Proposed Severe VSL The Transmission Operator does not have Blackstart Resource Agreements for more than 50% of Blackstart Resources. CEDRP Proposed VSL No Comment Standard EOP-005 Requirement (including sub-requirements) R15 Each Generator Operator with a Blackstart Resource shall have documented procedures for starting the Blackstart Resource and energizing a bus. [Violation Risk Factor = Medium] [Time Horizon = Operations Planning] Proposed Measure Each Generator Operator with a Blackstart Resource shall have dated documented procedures on file for starting the unit and energizing a bus in accordance with Requirement R15. Attributes of the requirement Binary X Timing Complete X Communication Quality (per sample size) Other Although this requirement has a number of elements, the CEDRP felt that missing only one of the attributes would result in a failure to meet the intent of the requirement – as a result the CEDRP felt this requirement meets the criteria of a binary (go/no go) requirement. SDT Proposed Lower VSL The Generator Operator does not have dated documented procedures for one Blackstart Resource or the procedures do not contain both

elements specified in the requirement.
CEDRP Proposed VSL
The CEDRP suggest only a Severe VSL for this requirement SDT Proposed Moderate VSL The Generator Operator does not have dated documented procedures for two Blackstart Resources. CEDRP Proposed VSL The CEDRP suggest only a Severe VSL for this requirement SDT Proposed High VSL The Generator Operator does not have dated documented procedures for three Blackstart Resources. CEDRP Proposed VSL The CEDRP suggest only a Severe VSL for this requirement SDT Proposed Severe VSL The Generator Operator does not have dated documented procedures for any of its Blackstart Resources. CEDRP Proposed VSL The Generator Operator does not have dated documented procedures for one Blackstart Resource or the procedures do not contain both elements specified in the requirement.
Standard EOP-005 Requirement (including sub-requirements) R16 Each Generator Operator of a Blackstart Resource shall notify its Transmission Operator of any known changes to the capabilities of that Blackstart Resource within twenty-four hours following such change. [Violation Risk Factor = Medium] [Time Horizon = Operations Planning] Proposed Measure Each Generator Operator with a Blackstart Resource shall provide evidence, such as e-mails with receipts or registered mail receipts, showing that it notified its Transmission Operator of any known changes to its Blackstart Resource capabilities within twenty-four hours of such changes in accordance with Requirement R16. Attributes of the requirement Binary Timing X Complete Communication X Quality (per sample

size) Other The CEDRP pool views this requirement as a timing issue that would increment, as the timing notification window grows larger. In addition the pool participants noted the use of the term "capability" in requirement, capability can mean a 1 or 2 MW derate (or uprate), or a change in start up time (slower or faster). We suspect the SDT intended this requirement to address the ability of the blackstart resource to meet obligation as a "blackstart resource". We suggest the SDT consider re-wording this requirement for the sake of clarity.

SDT Proposed Lower VSL The Generator Operator did not notify the Transmission Operator within twenty-four hours. CEDRP Proposed VSL The CEDRP suggest including a timing window for the VSLs. The Generator Operator competed notification of the Transmission Operator but notification was completed after twenty-four hours, but and less than seventy-two hours. SDT Proposed Moderate VSL The Generator Operator did not notify the Transmission Operator within three days. CEDRP Proposed VSL The Generator Operator competed notification of the Transmission Operator but notification was completed after seventy-two hours, but in less than ninety-six hours. SDT Proposed High VSL The Generator Operator did not notify the Transmission Operator within four days. CEDRP Proposed VSL The Generator Operator competed notification of the Transmission Operator but notification was completed after ninety-six hours, but in less than one hundred twenty hours. SDT Proposed Severe VSL The Generator Operator did not notify the Transmission

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|--|---|----------------------------------|--------------|------|-----|--|-----|----|----|--|--|--|--|--|--|
| | | | | | | | | | | | | | Operator for more than four days. CEDRP Proposed VSL The Generator Operator competed notification of the Transmission Operator but notification was completed after one hundred twenty hours or more. Standard EOP-005 Requirement (including sub-requirements) R17 Each Generator Operator of a Blackstart Resource shall perform Blackstart Resource tests, and maintain records of such testing, in accordance with the testing requirements set by the Transmission Operator to verify that the Blackstart Resource can perform as specified in the restoration plan. [Violation Risk Factor = Medium] [Time Horizon = Operations Planning] R17.1 Testing records shall include at a minimum: name of the Blackstart Resource, unit tested, date of the test, duration of the test, time required to start the unit, an indication of any testing requirements not met under Requirement R9. R17.2 Each Generator Operator shall provide the blackstart test results within thirty calendar days following a request from its Reliability Coordinator or Transmission Operator. Proposed Measure Each Generator Operator shall maintain dated documentation of its Blackstart Resource test results and shall have evidence such as e-mails with receipts or registered mail receipts, that it provided these records to its Reliability Coordinator and Transmission Operator when requested in accordance with Requirement R17. Attributes of the requirement Binary Timing X Complete X Communication Quality (per sample size) Other The attributes of this requirement include a testing requirement, data that should be recorded and timing of providing the test results to the TOP. As a result the VSL | | |
| |  Group | Standards Interface Subcommittee | Ellen Oswald | NERC | Yes | | Yes | No | No | | | | | | |

should increment based on any omissions in the test data and timing of when records are provided. SDT Proposed Lower VSL The Generator Operator did not maintain testing records for one of the requirements for a Blackstart Resource or did not supply them as requested within the required timeframe. CEDRP Proposed VSL The Generator Operator test data or records were incomplete or did not supply them as requested within 30 calendar days. SDT Proposed Moderate VSL The Generator Operator did not maintain testing records for two of the requirements for a Blackstart Resource or did not supply them as requested for sixty days after the required timeframe. CEDRP Proposed VSL The Generator Operator test records were incomplete and requested records were provided 31 to 60 calendar days after requested. SDT Proposed High VSL The Generator Operator did not maintain testing records for three of the requirements for a Blackstart Resource or did not supply them as requested for ninety days after required timeframe. CEDRP Proposed VSL The Generator Operator test records were incomplete and requested records were provided 61 to 90 calendar days after requested. SDT Proposed Severe VSL The Generator Operator did not maintain testing records for a Blackstart Resource or did not supply them as requested for 120 days or more after the required timeframe. CEDRP Proposed VSL The Generator Operator did not maintain testing records for a Blackstart Resource or requested records were provided 91 or more calendar days after requested. Standard EOP-005 Requirement (including sub-requirements) R18 Each Generator Operator of a

Blackstart Resource shall provide a minimum of two hours of training every two years to each of its operating personnel responsible for the startup and synchronization of its Blackstart Resource generation units. The training program shall include the following: [Violation Risk Factor = Medium] [Time Horizon = Operations Planning] R18.1 System restoration philosophy including coordination with the Transmission Operator. R18.2 Special actions required to enable blackstart and synchronization to the System. Proposed Measure Each Generator Operator shall have a copy of its dated training records including training dates and durations showing that it has provided training in accordance with Requirement R18. Attributes of the requirement Binary Timing Complete X Communication Quality (per sample size) Other The attributes of this requirement are generally that of omission, any one missing sub-requirement should result in incrementing the VSLs, and not providing the training at all (less than 2 hours) should be treated as a significant omission. SDT Proposed Lower VSL The Generator Operator only supplied 1.5 hours of training within a two year period. CEDRP Proposed VSL The Generator Operator provided 2 hours of training to at least 90%, but less than 100% of the applicable operating personnel. SDT Proposed Moderate VSL N/A CEDRP Proposed VSL The Generator Operator provided 2 hours of training to at least 80%, but less than 90% of the applicable operating personnel. SDT Proposed High VSL The Generator Operator only supplied one hour of training within a two year period. CEDRP Proposed VSL The Generator Operator provided 2 hours of training to at least

70%, but less than 80% of the applicable operating personnel. SDT Proposed Severe VSL The Generator Operator did not supply any training within a two year period. CEDRP Proposed VSL The Generator Operator did not provide 2 hours of training or provided 2 hours of training to less than 70% of the applicable operating personnel. Standard EOP-005 Requirement (including sub-requirements) R19 Each Generator Operator shall participate in the Reliability Coordinator's restoration drills, exercises, or simulations as requested by the Reliability Coordinator. [Violation Risk Factor = Medium] [Time Horizon = Operations Planning] Proposed Measure Each Generator Operator shall have evidence, such as dated training records, that it participated in the Reliability Coordinator's restoration drills, exercises, or simulations if requested to do so in accordance with Requirement R19. Attributes of the requirement Binary X Timing Complete Communication Quality (per sample size) Other The main attribute of this requirement is binary either the entity participated in drills, exercises or simulations or they did not. SDT Proposed Lower VSL None CEDRP Proposed VSL No Comment SDT Proposed Moderate VSL None CEDRP Proposed VSL No Comment SDT Proposed High VSL None CEDRP Proposed VSL No Comment SDT Proposed Severe VSL The Generator Operator has failed to comply with a request for their participation from the Reliability Coordinator. CEDRP Proposed VSL No Comment Additional Compliance Elements Enforcement Authority Regional Entity. 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
The 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:
o Approved restoration plan and any restoration plans in force since the last compliance audit for Requirement R1,
Measure M1.
o Distribution of its approved restoration plan and any restoration plans in force for the current year and three prior calendar years for Requirement R2,
Measure M2.
o Submission of its annually reviewed restoration plan to its Reliability Coordinator for the current year and three prior calendar years for Requirement R3,
Measure M3.
o Submission of an updated restoration plan to its Reliability Coordinator for all versions for the current year and the prior three years for Requirement R4,
Measure M4.
o The current, approved restoration plan and any restoration plans in force for the last three calendar years was made available in its control rooms for Requirement R5,
Measure M5.
o The verification results for the current, approved restoration plan and the previous approved restoration plan for Requirement R6,
Measure M6.
o Implementation of its restoration plan on any occasion for three calendar years if there has been a Disturbance in which Blackstart Resources have been utilized in restoring the shut down area of the System to service for Requirement R7,
Measure M7.
o Resynchronization of

shut down areas on any occasion over three calendar years if there has been a Disturbance in which Blackstart Resources have been utilized in restoring the shut down area of the System to service for Requirement R8, Measure M8. o The verification process and results for the current Blackstart Resource testing requirements and the last previous Blackstart Resource testing requirements for Requirement R9, Measure M9. o Posting of its current Blackstart Resource testing requirements and any Blackstart Resource testing requirements in force during the last three years for Requirement R10, Measure M10. o Actual training program materials or descriptions for three calendar years for Requirement R11, Measure M11. o Actual training program materials or descriptions and actual training records for three calendar years for Requirement R12, Measure M12. o Records of participation in all requested Reliability Coordinator restoration drills, exercises, or simulations since its last compliance audit as well as one previous compliance audit period for Requirement R13, Measure M13. o Current Blackstart Resource Agreements and any Blackstart Resource Agreements in force since its last compliance audit for Requirement R14, Measure M14. If a Transmission Operator is found non-compliant for any requirement, it shall keep information related to the non-compliance until found compliant. The Generator 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: o Current documentation and

any documentation in force since its last compliance audit on procedures to start its Blackstart Resources and for energizing a bus for Requirement R15, Measure M15. o Notification to its Transmission Operator of any known changes to its Blackstart Resource capabilities over the last three years for Requirement R16, Measure M16. o The verification test results for the current set of requirements and one previous set for its Blackstart Resources for Requirement R17, Measure M17. o Actual training program materials or descriptions and actual training records for three calendar years for Requirement R18, Measure M18. o Records of participation in all requested Reliability Coordinator restoration drills, exercises, or simulations since its last compliance audit for Requirement R19, Measure M19. If a Generation Operator is found non-compliant for any requirement, 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
Standard EOP-006 Requirement (including sub-requirements) R1
Each Reliability Coordinator shall have a Reliability Coordinator Area restoration plan. The scope of the Reliability Coordinator's restoration plan starts when Blackstart Resources are utilized to re-energize a shut down area of the BES, or separation has occurred between neighboring Reliability Coordinators, or an energized island has been formed on the Bulk Electric System (BES) within the Reliability Coordinator Area. The scope of

the Reliability Coordinator's restoration plan ends when all of its Transmission Operators are interconnected and it is connected to all of its neighboring Reliability Coordinators. The restoration plan shall include: [Violation Risk Factor = High] [Time Horizon = Operations Planning]

R1.1. Procedures for restoring the integrity of the Interconnection.

R1.2. Descriptions of the elements of coordination between individual Transmission Operator restoration plans.

R1.3. Descriptions of the elements of coordination of restoration plans with neighboring Reliability Coordinators.

R1.4. Criteria and conditions for reestablishing interconnections between neighboring Transmission Operators and Reliability Coordinator Areas.

R1.5. Identification of acceptable voltage and frequency limits during restoration.

R1.6. Reporting requirements for the entities within the Reliability Coordinator Area during a restoration event.

R1.7. Criteria for sharing information regarding restoration with neighboring Reliability Coordinators and with Transmission Operators and Balancing Authorities within its Reliability Coordinator area.

R1.8. Identification of the Reliability Coordinator as the primary contact for disseminating information regarding restoration to neighboring Reliability Coordinators, and to Transmission Operators, and Balancing Authorities within its Reliability Coordinator Area.

Proposed Measure Each Reliability Coordinator shall have available a dated copy of its restoration plan in accordance with Requirement R1.

Attributes of the requirement Binary Timing Complete X Communication

Quality (per sample size) Other Although the measure for this Standard appears to include a timing component – (dated copy) R1 appears to be a statement of elements that must be included in the plan – as such an “omission” of any sub-requirement would result in possible non-compliance. Proposed Lower VSL The Reliability Coordinator failed to comply with less than 25% of the number of subcomponents within this requirement. CAE Resource Pool Comments We would recommend elimination of “percentages” whole numbers can easily be used, in addition “sub-components” may be interpreted as pieces within each sub-requirement, we would recommend replacing the term subcomponents with sub-requirements. Proposed VSL The Reliability Coordinator failed to comply with 1 or 2 of the sub-requirements within this requirement. Proposed Moderate VSL The Reliability Coordinator failed to comply with 25% or more and less than 50% of the number of sub-components within this requirement. VSL Resource Pool Comments Proposed VSL The Reliability Coordinator failed to comply with 3 or 4 of the sub-requirements within this requirement. Proposed High VSL The Reliability Coordinator has failed to comply with 50% or more and less than 75% of the number of sub-components within this requirement. VSL Resource Pool Comments Proposed VSL The Reliability Coordinator failed to comply with 5 or 6 of the sub-requirements within this requirement. Proposed Severe VSL The Reliability Coordinator has failed to comply with 75% or more of the number of sub-components within this requirement. VSL Resource Pool Comments Proposed VSL The Reliability

Coordinator failed to comply with 7 or more of the sub-requirements within this requirement. Standard EOP-006 Requirement (including sub-requirements) R2 The Reliability Coordinator shall distribute its Reliability Coordinator Area restoration plan to its Transmission Operators, Balancing Authorities, and neighboring Reliability Coordinators. [Violation Risk Factor = Lower] [Time Horizon = Operations Planning] Proposed Measure Each Reliability Coordinator shall provide evidence such as e-mails with receipts or registered mail receipts, that its approved restoration plan has been distributed in accordance with Requirement R2. Attributes of the requirement Binary Timing Complete Communication X Quality (per sample size) Other No comment of proposed measure This requirements appears to focus on distribution to all applicable entities – as such we would expect possible non-compliance finding if the plan were not distributed (communicated) to all applicable entities (note – no observed timing requirement) Proposed Lower VSL The Reliability Coordinator did not distribute the required information to one entity identified in the requirement within the required timeframe. Or, the Reliability Coordinator distributed the required information to all entities but was thirty days late. CAE Resource Pool Comments As the requirement is currently written a timing cannot be included in the VSL , in addition because the audience may vary based on the RC area and the number of entities it oversees it would be more effective to use percentages in this VSL Proposed VSL The Reliability Coordinator failed to distribute the information to 1% to 25% of the entities

identified. Proposed Moderate VSL The Reliability Coordinator did not distribute the required information to two entities identified in the requirement within the prescribed timeframe. Or, the Reliability Coordinator distributed the required information to all entities but was sixty days late. CAE Resource Pool Comments Proposed VSL The Reliability Coordinator failed to distribute the information to 26% to 50% of the entities identified. Proposed High VSL The Reliability Coordinator did not distribute the required information to three entities identified in the requirement within the prescribed timeframe. Or, the Reliability Coordinator distributed the required information to all entities but was ninety days late. CAE Resource Pool Comments Proposed VSL The Reliability Coordinator failed to distribute the information to 51% to 75% of the entities identified. Proposed Severe VSL The Reliability Coordinator did not distribute the required information to four or more entities identified in the requirement within the prescribed timeframe. Or, the Reliability Coordinator distributed the required information to all entities but was 120 days late. CAE Resource Pool Comments Proposed VSL The Reliability Coordinator failed to distribute the information to 76% or more of the entities identified. Standard EOP-006 Requirement (including sub-requirements) R3 Each Reliability Coordinator shall review its restoration plan every twelve months. [Violation Risk Factor = Medium] [Time Horizon = Operations Planning] Proposed Measure Each Reliability Coordinator shall provide evidence such as a review signature sheet, or revision histories, that it has annually reviewed its restoration plan in

accordance with Requirement R3. Attributes of the requirement Binary Timing X Complete Communication Quality (per sample size) Other The measure appears to have the timing of the review of the plan as its primary attribute – as such not meeting the timing requirement (every 12 months) would result in possible findings of non-compliance. Proposed Lower VSL The Reliability Coordinator did not review its restoration plan within twelve months. CAE Resource Pool Comments No Comment Proposed Moderate VSL The Reliability Coordinator did not review its restoration plan within thirteen months. CAE Resource Pool Comments No Comment Proposed High VSL The Reliability Coordinator did not review its restoration plan within fourteen months. CAE Resource Pool Comments No Comment Proposed Severe VSL The Reliability Coordinator did not review its restoration plan within fifteen months. CAE Resource Pool Comments No Comment Standard EOP-006 Requirement (including sub-requirements) R4 Each Reliability Coordinator shall update its restoration plan within ninety calendar days after identifying changes to one of its Transmission Operator's restoration plans or upon reviewing a neighboring Reliability Coordinator's restoration plan that would necessitate a change in their coordination tasks or responsibilities. [Violation Risk Factor = Medium] [Time Horizon = Operations Planning] Proposed Measure Each Reliability Coordinator shall provide evidence such as dated review signature sheets, or revision histories, that it has updated its restoration plan in accordance with Requirement R4.

Attributes of the requirement Binary Timing X Complete X Communication Quality (per sample size) Other This requirement contains two attributes (within 90 calendar days/items that necessitate a change) that should be incremented into a higher level if either are not satisfied. Although the intent of the requirement is clear, it is not clear when the 90-day clock would start. Would the clock start when the RC receives the new plan? Or would it start when the RC completed their review of the plan and determined an update to their plan is necessary? Because the VSL's are based on timing, the Resource pool does not feel valid VSL's can be written for this requirement as currently written. The CAE would suggest revisiting the requirement, for now the pool feels the best option is to make this a yes/no VSL based on the RC recognizing the need to update their plan.

Proposed Lower VSL
The Reliability Coordinator failed to comply within ninety calendar days of the change. CAE
Resource Pool Comments N/A

Proposed Moderate VSL
The Reliability Coordinator failed to comply within 120 calendar days of the change. CAE
Resource Pool Comments N/A

Proposed High VSL
The Reliability Coordinator has failed to comply within 150 calendar days of the change. CAE
Resource Pool Comments N/A

Proposed Severe VSL
The Reliability Coordinator has failed to comply within 180 calendar days of the change. CAE
Resource Pool Comments Proposed VSL
The Reliability Coordinator failed to make a necessary update its restoration plan to reflect changes to Transmission Operator's or neighboring Reliability Coordinator restoration plans.
Standard EOP-006

Requirement (including sub-requirements) R5 Each Reliability Coordinator shall review the Transmission Operator restoration plans as defined in EOP-005 within its Reliability Coordinator Area. [Violation Risk Factor = Medium] [Time Horizon = Operations Planning] R5.1. The Reliability Coordinator shall determine whether the Transmission Operator's restoration plan is coordinated with the Reliability Coordinator's restoration plan as well as being compatible with other Transmission Operator restoration plans within its Reliability Coordinator Area. R5.2. The Reliability Coordinator shall approve or disapprove the Transmission Operator's submitted restoration plan within thirty calendar days following the receipt of the restoration plan from the Transmission Operator. R5.3. The Reliability Coordinator shall provide written notification to the Transmission Operator of its decision and provide reasons if disapproving a Transmission Operator's restoration plan. Proposed Measure Each Reliability Coordinator shall provide evidence such as a review signature sheet, that it has reviewed its Transmission Operator's submitted restoration plan(s) in accordance with Requirement R5. Attributes of the requirement Binary Timing X Complete X Communication X Quality (per sample size) Other This requirement includes a timing component (within 30 days), notification component, as well as several attributes that if omitted would result in possible findings of non-compliance if any single element were omitted. Proposed Lower VSL The Reliability Coordinator did not review and approve/disapprove the restoration plans within the

predetermined schedule. Or, the Reliability Coordinator failed to notify the Transmission Operator in writing of its reasons for disapproval. CAE Resource Pool Comments The CAE would suggest that the lower VSL include the administrative issue (notification in writing) and increment the VSL higher as more elements of this requirement are omitted (including the timing issue). Proposed VSL The Reliability Coordinator failed to notify the Transmission Operator in writing of its reasons for disapproval OR the approval/disapproval was completed 1 to 30 after the due date. Proposed Moderate VSL The Reliability Coordinator did not review and approve/disapprove the restoration plans within forty-five calendar days of the predetermined schedule. CAE Resource Pool Comments Proposed VSL The Reliability Coordinator review failed to consider if the Transmission Operator's plan was compatible with other Transmission Operator plans within its Reliability Coordinator Area, OR the approval/disapproval was completed 31 to 60 after the due date. Proposed High VSL The Reliability Coordinator did not review and approve/disapprove the restoration plans within sixty calendar days of the predetermined schedule. CAE Resource Pool Comments Proposed VSL The Reliability Coordinator review failed to consider all coordination aspects of the Transmission Operator's plan with the Reliability Coordinator's plan, OR the approval/disapproval was completed 61 to 90 after the due date. Proposed Severe VSL The Reliability Coordinator did not review and approve/disapprove the restoration plans within ninety calendar days of the

predetermined schedule. CAE Resource Pool Comments Proposed VSL The Reliability Coordinator review failed to perform it required review of the Transmission Operator's restoration plan. Standard EOP-006 Requirement (including sub-requirements) R6 Each Reliability Coordinator shall have a copy of its latest restoration plan and the latest approved restoration plan of each Transmission Operator in its Reliability Coordinator Area within each of its control centers and available to all of its control room personnel. [Violation Risk Factor = Lower] [Time Horizon = Operations Planning] Proposed Measure Each Reliability Coordinator shall have documentation such as e-mail receipts that it has made the latest approved copy of its restoration plan available in each of its control rooms and to each of its control room personnel in accordance with Requirement R6. Attributes of the requirement Binary X Timing X Complete Communication Quality (per sample size) Other This requirement appears to be a yes/no type of requirement, but due to timing issues introduced with "latest approved restoration plan" requirement, it should be treated more like an attribute with timing requirements. Proposed Lower VSL The Reliability Coordinator did not make the latest approved restoration plan available in its control rooms within fifteen calendar days of its approval. CAE Resource Pool Comments No comment Proposed Moderate VSL The Reliability Coordinator did not make the latest approved restoration plan available in its control rooms within twenty calendar days of its approval. CAE Resource Pool Comments No comment Proposed High VSL The

Reliability Coordinator did not make the latest approved restoration plan available in its control rooms within twenty-five calendar days of its approval. CAE Resource Pool Comments No comment Proposed Severe VSL The Reliability Coordinator did not make the latest approved restoration plan available in its control rooms within thirty calendar days of its approval. CAE Resource Pool Comments No comment Standard EOP-006 Requirement (including sub-requirements) R7 Each Reliability Coordinator shall work with its affected Balancing Authorities, Generator Operators, and Transmission Operators as well as neighboring Reliability Coordinators to monitor restoration progress, coordinate restoration, and take actions to restore the BES frequency within acceptable operating limits. Such actions may include but not be limited to adjusting generation, placing additional generators on line, or shedding Load. [Violation Risk Factor = High] [Time Horizon = Real-time Operations] R7.1. If the restoration plan cannot be completed as expected because actual conditions do not match the studied conditions, the Reliability Coordinator shall utilize its restoration plan philosophies to implement alternative measures for achieving System restoration. Proposed Measure Each Reliability Coordinator involved shall have evidence such as voice recordings, email, dated computer printouts, or operator logs, that it monitored and coordinated restoration progress in accordance with Requirement R7. Attributes of the requirement Binary X Timing Complete Communication Quality (per sample size) Other Although this requirement lists several "attributes" within its requirements, each of

the attributes appear to be of equal weight (if any one element is missing the intent of the requirement will not be met). As such this requirement can be treated as a yes/no type of requirement.

Proposed Lower VSL N/A CAE Resource Pool Comments Proposed Moderate VSL N/A CAE Resource Pool Comments Proposed High VSL N/A CAE Resource Pool Comments Proposed Severe VSL The Reliability Coordinator did not work with its affected Balancing Authorities, Generator Operators, and Transmission Operators as well as neighboring Reliability Coordinators to monitor restoration progress, coordinate restoration, and take actions to restore the BES frequency within acceptable operating limits. CAE Resource Pool Comments No comment Standard EOP-006 Requirement (including sub-requirements) R8 The Reliability Coordinator shall authorize and coordinate resynchronizing islanded areas that bridge boundaries between Transmission Operators or Reliability Coordinators.

[Violation Risk Factor = High] [Time Horizon = Real-time Operations] R8.1. If the restoration plan cannot be completed as expected because actual conditions do not match the studied conditions, the Reliability Coordinator shall utilize its restoration plan philosophies to implement alternative measures for achieving System restoration. Proposed Measure If there has been a resynchronizing of an islanded area, each Reliability Coordinator involved shall have evidence such as voice recordings, e-mail, or operator logs, that it authorized and coordinated resynchronizing in accordance with Requirement R8. Attributes of the requirement Binary X Timing Complete Communication Quality (per sample

size) Other Very similar to previous requirement (R7). each of the attributes appears to be of equal weight (if any one element is missing the intent of the requirement will not be met). As such this requirement can be treated as a yes/no type of requirement.

Proposed Lower VSL N/A CAE Resource Pool Comments Proposed Moderate VSL N/A CAE Resource Pool Comments Proposed High VSL N/A CAE Resource Pool Comments Proposed Severe VSL The Reliability Coordinator did not authorize and coordinate resynchronizing islanded areas that bridge boundaries between Transmission Operators or Reliability Coordinators. CAE Resource Pool Comments No Comment Standard EOP-006 Requirement (including sub-requirements) R9 Each Reliability Coordinator shall include within its operations training program, annual System restoration training for its System Operators to ensure the proper execution of its restoration plan. This training program shall include the following: [Violation Risk Factor = Medium] [Time Horizon = Operations Planning] R9.1. System restoration philosophy including the coordination role of the Reliability Coordinator. R9.2. Reestablishing the Interconnection. Proposed Measure Each Reliability Coordinator shall have an electronic or hard copy of its training records available showing that it has provided training in accordance with Requirement R9. Attributes of the requirement Binary Timing X Complete X Communication Quality (per sample size) Other This requirement includes a timing requirement (annual) as well as items that must be included in the training program. As a result, if timing requirements are not

met or attributes of training are missing the VSL's for this requirement can increment to higher levels. Proposed Lower VSL The Reliability Coordinator supplied the necessary training but not within the required timeframe. CAE Resource Pool Comments No comment Proposed Moderate VSL The Reliability Coordinator supplied training but did not address both sub-requirements. CAE Resource Pool Comments Proposed VSL The Reliability Coordinator supplied training but did not address one of the sub-requirements. Proposed High VSL N/A CAE Resource Pool Comments Proposed VSL The Reliability Coordinator supplied training but did not address either of the sub-requirements. Proposed Severe VSL The Reliability Coordinator has not included System restoration training in its operations training program. CAE Resource Pool Comments No comment Standard EOP-006 Requirement (including sub-requirements) R10 Each Reliability Coordinator shall conduct two System restoration drills, exercises, or simulations per calendar year, which shall include the Transmission Operator and Generator Operators as dictated by the particular scope of the drill, exercise, or simulation that is being conducted. [Violation Risk Factor = Medium] [Time Horizon = Operations Planning] R10.1 Each Reliability Coordinator shall request each Transmission Operator and Generator Operator identified in its restoration plan to participate in a drill, exercise, or simulation at least every two calendar years. Proposed Measure Each Reliability Coordinator shall have evidence that it conducted two System restoration drills, exercises, or simulations per year and that Transmission

Operators and Generator Operators included in the Reliability Coordinator's restoration plan were invited in accordance with Requirement R10. Attributes of the requirement Binary Timing X Complete X Communication Quality (per sample size) Other This requirement includes timing requirements (2 drill, exercises or simulations per year) and a requirement of "shall include" for participants (based on the scope of the drill). The sub-requirement may be more effective if it referred to EOP-005 (R13). Proposed Lower VSL The Reliability Coordinator only held one restoration drill, exercise, or simulation during the calendar year. CAE Resource Pool Comments Proposed Moderate VSL The Reliability Coordinator held the correct number of restoration drills, exercises, or simulations but did not invite each Transmission Operator and Generator Operator identified in its restoration plan to participate in a drill, exercise, or simulation at least every two calendar years. CAE Resource Pool Comments Proposed VSL The Reliability Coordinator held the correct number of restoration drills, exercises, or simulations but did not invite one of the Transmission Operators or Generator Operators identified in its restoration plan to participate in a drill, exercise, or simulation at least every two calendar years. Proposed High VSL N/A CAE Resource Pool Comments Proposed VSL The Reliability Coordinator held the correct number of restoration drills, exercises, or simulations but did not invite two or more of the Transmission Operators or Generator Operators identified in its restoration plan to participate in a drill, exercise, or simulation at least

every two calendar years. Proposed Severe VSL. The Reliability Coordinator did not hold a restoration drill, exercise, or simulation during the calendar year. CAE Resource Pool Comments No Comment Additional Compliance Elements Compliance Enforcement Authority Regional Entity. 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 The Reliability Coordinator 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: • Approved restoration plan and any restoration plans in force since the last compliance audit for Requirement R1, Measure M1. • Distribution of its approved restoration plan and any restoration plans in force for the current year and three prior calendar years for Requirement R2, Measure M2. • Its annually reviewed restoration plan for the current year and last three prior calendar years for Requirement R3, Measure M3. • Updated restoration plans for all versions from the current year and the three prior calendar years for Requirement R4, Measure M4. • The reviewed restoration plans for the current year and the last three prior calendar years for Requirement R5, Measure M5. • The current, approved restoration plan and any restoration plans in force for the last three calendar years was made available in its control rooms for Requirement R6, Measure M6. • Implementation of its

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| | | | | | | | | | | <p>restoration plan on any occasion over a rolling twelve month period for Requirement R7, Measure M7. • Implementation of its restoration plan on any occasion over a rolling twelve month period for Requirement R8, Measure M8. • Actual training program materials or descriptions for three calendar years for Requirements R9, Measure M9. • Records of all Reliability Coordinator restoration drills, exercises, or simulations since its last compliance audit as well as one previous compliance audit period for Requirement R10, Measure M10. If a Reliability Coordinator 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. Additional Compliance Information None CAE Resource Pool Comments None</p> | | |
| | | | | | | | | | | <p>EOP-005-2: R1 - recommend eliminating percentages and choosing fixed numbers. 25% of 7 subcomponents is 1.75, 50% is 3.5, etc. Propose the following: Lower - The Transmission Operator failed to comply with 1 of the of sub-requirements within the requirement. Moderate - The Transmission Operator failed to comply with 2 of the of sub-requirements within the requirement. High - The Transmission Operator failed to comply with 3 of the of sub-requirements within the requirement. Severe - The Transmission Operator failed to comply 4 or more of the of sub-requirements within the requirement. R2 - Either an entity provided the information on time, was late in providing the information or it did not provide it all</p> | | |

at the time of an audit. The addition of time in the VSL's not in the requirement makes for debate. Propose the following: Lower - The Transmission Operator failed to distribute the information to an entity identified within the restoration plan within the thirty (30) day required timeframe. Moderate - The Transmission Operator failed to distribute the information to one of the entities identified within the restoration plan. High - The Transmission Operator failed to distribute the information to two of the entities identified within the restoration plan. Severe - The Transmission Operator failed to distribute the information to three or more of the entities identified within the restoration plan. R3 - The most important part of this standard is the review. At the time of an audit, either the entity reviewed late or not at all or submitte late or not at all at the time of an audit. The VSL should reflect these. Propose the following: Lower - The Transmission Operator submitted the required information but was late in the submission. Moderate - The Transmission Operator failed to submit the required information within the predetermined schedule. High - Transmission Operator completed a review but the review was completed beyond predetermined schedule. Severe - Transmission Operator failed to complete a review within the predetermined schedule. R4 - Either the entity completed a review outside the 90 days or it did not complete a review within the 90 days at the time of an audit. Propose the following: Lower - OK as proposed. Moderate - NA High - NA Severe - The Transmission Operator failed to complete a review within the 90 days of the change. R5 -

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| | | <p>Individual</p> | <p>Michael Gammon</p> | <p>Kansas City Power & Light</p> | | <p>Yes</p> | | <p>No</p> | <p>EOP-005-2: Recommend R1 & R14 be at least 6 months. Developing agreements between parties required by R1.1 & R14 takes time and 3 months is too short. If R1 is changed, then recommend R2 be R1 + 3 months. Recommend R3 be R1 + 12 months as this requirement is to review the document developed in R1 for updates. EOP-006-2: Recommend R1 be at least 6 months. R1.7 requires the RC to develop information sharing criteria with other entities. There are a lot of entities and this takes time to develop. Recommend R2 be R1 + 3 months if R1 is changed. Recommend R3 be R1 + 12 months since this is an annual review of the document developed in R1.</p> | <p>No</p> | <p>Yes</p> | <p>provision of copies is an administrative requirement and should not have a VSL higher than Moderate. The proposed VSL specifies a time frame when there is none in the requirement. Propose the following: Lower - The Transmission Operator did not make the latest approved restoration plan available in its control rooms. Moderate - NA High - NA Severe - NA R10 - Posting the testing plan is an administrative requirement and the VSL's should not be any higher than Moderate. Propose the following: Lower - The Transmission Operator failed to post the Blackstart Resource testing requirements. Moderate - OK as is. High - OK as is. Severe - NA R12 - This is only 2 hours of training. The proposed VSL's can be simplified. Propose the following: Lower - NA Moderate - NA High - The Transmission Operator completed the required 2 hours of training for identified personnel, but failed to provide the training within the 2 year time frame. Severe - The Transmission Operator failed to completed the required 2 hours of training for identified personnel. R14 - Recommend removing percentages from the VSL's and going to specific numbers to improve compliance parameters. Propose the following: Lower - OK as is. Moderate - The Transmission Operator does not have Blackstart Resource Agreements for 2 of its Blackstart Resources. High - The Transmission Operator does not have Blackstart Resource Agreements for 3 of its Blackstart Resources. Severe - The Transmission Operator does not have Blackstart Resource Agreements for 4 or more of its Blackstart Resources. R16 - VSL's should not specify timing requirements that are not in the requirement. Either</p> <p>EOP-005-2: R9 requires the Transmission Operator to have the testing requirements for blackstart resources. I think this would make more sense if this was directed to the entity that is responsible for the asset, the Generator Owner. R17 requires the Generator Owner to perform the test prescribed in the standard. Please consider changing R9 to be directed to the Generator Owner.</p> |
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the Generator Operator reported on time, it reported but late or it did not report. Propose the following: Lower - NA Moderate - NA High - The Generator Operator did not notify the Transmission Operator within twenty-four hours. Severe - The Generator Operator failed to notify the Transmission Operator. R18 - Same comment as in R12 for training. Propose the following: Lower - NA Moderate - OK as is. High - The Generator Operator provided two hours of training but failed to provide the training within a two year period. Severe - The Generator Operator failed to provide two hours of training. EOP-006-2 R2 - The VSL is introducing a timing requirement when there is none in the requirement. Propose the following: Lower - The Reliability Coordinator did not distribute the required information to one entity identified in the requirement. Moderate - The Reliability Coordinator did not distribute the required information to two entities identified in the requirement. High - The Reliability Coordinator did not distribute the required information to three entities identified in the requirement. Severe - The Reliability Coordinator did not distribute the required information to four or more entities identified in the requirement. R3 - VSL's should not provide additional timing beyond the timing required. Either the entity met the timing or it did not. Propose the following: Lower - The Reliability Coordinator completed a review of its restoration plan but failed to complete the review within twelve months. Moderate - NA High - NA Severe - The Reliability Coordinator failed to complete a review of its restoration plan. R4 - VSL's should not provide additional

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| | | | | | | | | | | | <p>timing beyond the timing required. Either the entity met the timing or it did not. Propose the following: Lower - NA Moderate - NA High - The Reliability Coordinator failed to comply within ninety calendar days of the change. Severe - The Reliability Coordinator failed to update its plan due to a change. R5 - VSL's should not provide additional timing beyond the timing required. Either the entity met the timing or it did not. Propose the following: Lower - The Reliability Coordinator completed a review but failed to notify the Transmission Operator in writing of its approval/disapproval and reasons for disapproval within 90 days. Moderate - The Reliability Coordinator failed to complete a review of one Transmission Operator plan. High - The Reliability Coordinator failed to complete a review of two Transmission Operator's plans. Severe - The Reliability Coordinator failed to complete a review of three or more Transmission Operator's plans. R6 - This is administrative and should not be any higher than Moderate. The VSL introduces timing requirements not in the standard. Propose the following: Lower - The Reliability Coordinator did not make the latest approved restoration plan available in its control rooms. Moderate - NA High - NA Severe - NA</p> | | |
| | Individual | Robert Loy | Allegheny Energy | | | Yes | | | Yes | | Yes | Yes | Request a more specific definition of the term "Generator Operator" as it applies to this standard: - Does this definition include entities (i.e. Dispatch Groups) that perform certain functions on behalf of a power station? R 18.1. Request clarification as to what is meant by "system resoration philosophy"? |
| | | | | | | | | | | It seems logical to require the RC plan requirement (EOP-006 R1) and the dissemination of that plan to the entities covered by/affected by the plan (EOP-006 R2) prior to the TOP | | | |


EOP-005 R1. Due to the complexities associated with obtaining binding agreements, especially agreements with a nuclear facility, a 3-month plan for

to 15, 20, 25 and 30 days should be removed from the VSLs. We suggest keeping the Lower VSL, as modified below, and deleting the remaining VSLs.
 Lower - The Transmission Operator did not make the latest approved restoration plan available in its control rooms. R9. We suggest the following: Lower - The Transmission Operator's testing requirements do not address one (1) of the sub-requirements or sub-sub-requirements, collectively. Moderate - The Transmission Operator's testing requirements do not address two (2) of the sub-requirements or sub-sub-requirements, collectively. High - The Transmission Operator's testing requirements do not address three (3) of the sub-requirements or sub-sub-requirements, collectively. Severe - The Transmission Operator's testing requirements do not address four (4) or more of the sub-requirements or sub-sub-requirements, collectively. R10. We suggest moving the single VSL to Lower. R12. We suggest deleting the Lower and High VSL, modify the Severe VSL as indicated below and move it to Moderate.
 Moderate - The Transmission Operator did not provide the required training as specified in R12. R14. We suggest the following:
 Lower - The Transmission Operator does not have a Blackstart Resource Agreement for one (1) of its Blackstart Resources. Moderate - The Transmission Operator does not have a Blackstart Resource Agreement for two (2) of its Blackstart Resources. High - The Transmission Operator does not have a Blackstart Resource Agreement for three (3) of its Blackstart Resources. Severe - The Transmission Operator does not have a Blackstart


of the sub-requirements of R1. Severe - The Reliability Coordinator failed to comply with four (4) or more of the sub-requirements of R1. R2. The requirement does not contain a timing requirement, therefore the references to 30, 60, 90 and 120 days in the VSLs should be deleted. Additionally, we propose the following: Lower - The Reliability Coordinator did not distribute the required information to one (1) entity identified in R2. Moderate - The Reliability Coordinator did not distribute the required information to two (2) entities identified in R2. High - The Reliability Coordinator did not distribute the required information to three (3) entities identified in R2. Severe - The Reliability Coordinator did not distribute the required information to four (4) or more entities identified in R2. R3. We suggest the following: Lower - The Reliability Coordinator failed to review its restoration plan within twelve months. Moderate - delete High - delete Severe - The Reliability Coordinator failed to review its restoration plan. R4. We suggest the following: Lower - delete Moderate - delete High - The Reliability Coordinator updated its restoration plan but not within the ninety day timeframe required in R4. Severe - The Reliability Coordinator failed to update its restoration plan. R5. We suggest the following: Lower - The Reliability Coordinator reviewed and approved/disapproved the restoration plans within the predetermined schedule but failed to notify the Transmission Operator in writing of its approval/disapproval. Moderate - The Reliability Coordinator did not review and approve/disapprove the restoration plans of one (1)

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| | | | | | | | | | | | | Transmission Operator within its Reliability Coordinator Area. High - The Reliability Coordinator did not review and approve/disapprove the restoration plans of two (2) Transmission Operators within its Reliability Coordinator Area. Severe - The Reliability Coordinator did not review and approve/disapprove the restoration plans of three (3) or more Transmission Operators within its Reliability Coordinator Area. R6. There is no timing requirement in the R6, therefore the references to 15, 20, 25 and 30 days should be deleted from the VSLs. We propose the following for the Lower VSL and recommend deleting the remaining VSLs. Lower - The Reliability Coordinator did not make the latest approved restoration plan available in its control rooms. | | |
| |  Individual | Tom Bradish | Reliant Energy Inc. | | | | Yes | | | | Yes | I suggest that the SDT revise the wording in 18.1 and 18.2 to the following: 18.1 Change the phrase "restoration philosophy" to "restoration plan" in 18.1 and anywhere else "restoration philosophy" is used. Restoration plan is a more common industry term to describe the steps to be taken in restoring the grid. 18.2 Procedure to be followed in starting the black start unit without power from the grid. | Yes | Since this is a reliability standard did the SDT discuss how to improve the probability that the black start unit would start in the event of a black out? Most of these units in PJM are 70's vintage simple cycle CT's. Because of their high heat rate these units are only called upon to run during high demand periods. It is not uncommon for these units to sit dormant for more than 90 days. Should this standard require the TOP to contract with the generator owner to run these machines at least every 90 days for at least 15 minutes? One other comment around this standard, the generator operator of a black start unit is a major player in the restoration of the grid. Yet we have been denied when we have requested transmission maps from our TO. It appears that these are considered by FERC to be critical infrastructure information. How can a generator operator be an important part of grid reliability and be denied access to transmission maps of the TO that its facilities are located? |
| | | | | | | | | EOP-005 R1.1: This subrequirement is redundant to NUC-001-1 R9.3 and its subrequirements, which implicitly requires that an | | | | | | |

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| | Individual | Thad Ness | AEP | | | <p>No</p> <p>reviewed it's " with "that the Transmission Operator has reviewed it's " EOP 005-R5 - Suggest adding a date requirement. Each Transmission Operator shall have a copy of its latest approved restoration plan within each of its control centers and available to all of its control room personnel within 15 days of being approved. Presently only the VSL has a date requirement. EOP 006-2 R8 – Change "The Reliability Coordinator shall" to "The Reliability Coordinators shall" to address seams issues in system restoration between RC / RC and TO / TO areas. Compliance 1.4 Data Retention R1 / M1 Who approves the RC's restoration plan? R13 of EOP-005 should better agree with the text of R10.1 of EOP-006, which requires TO participation in the RC restoration/black-start drills at least every two calendar years. R13 of EOP-005 just says the TO will participate "as requested by its RC", which could be interpreted as an unlimited number of requests from the RC, for example if the RC requests 10 drills, the TO would have to participate in 10 drills. We believe R13 of EOP-005 should read.... "Each Transmission Operator shall participate in its Reliability Coordinator's restoration drills, exercises, or simulations at least every two calendar years". M13 of EOP-005, in correspondence to the above for R13 of EOP-005, should include the two calendar year reference for measurement, such as, "Each Transmission Operator shall have evidence, such as training records, that it participated in the Reliability Coordinator's restoration drills, exercises, or simulations, at least every two calendar years in accordance with Requirement R13".</p> | <p>No</p> <p>EOP 005 R1 Suggest grandfathering pre-EOP 005-1 plans as being "approved" by the RC. This will eliminate the attendant back log of plans needing initially approval. The SDT needs to identify the requirement sections being retired in EOP 005-1, EOP 006-1, EOP 007-0, and EOP 009-0 by the phased in plan in EOP 005-2 for R1,R2,R3,R6,R9, and R14 and in EOP 006-2 R1,R2,R3,R4, and R5.</p> | <p>No</p> <p>The data retention requirements seem excessive for EOP 005-2 R2, R3,R4, R5, R11, and R12. It would take approximately six years for the data retention requirements to be fully meet. I.e., 24 months + current year + 3 previous years ~ 6 years. Data retention requirement for EOP 005-2 R17 is more reasonable VSL for EOP-005, R13 should correspond with the above two calendar year requirement such as follows: "The Transmission Operator has failed to comply with participation in the Reliability Coordinator's restoration drills at least once every two years.</p> | <p>No</p> |
| | | | | | | <p>We endorse the comments submitted by the SERC Operating Committee. In addition, we reiterate our previous position on the requirement regarding training of switching personnel currently defined in R12 of standard EOP-005. Like many other TOs, our training and recertification program for field switching personnel is on a three year cycle. This switching recertification training is not a requirement in any NERC Reliability Standard yet we provide it because we believe it to be Good Utility Practice. We also believe that specific training on</p> | | | |

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| |  Individual | Jack Kerr | Dominion Virginia Power | | | | No | <p>restoration-related switching tasks for field personnel will also be Good Utility Practice, and we see good reason to incorporate such training into our three year program. This program has proven to be more than adequate, and we see no basis or compelling reason for having to establish a separate training program (on a different cycle) specifically for restoration-related switching tasks instead of being allowed to incorporate such training into our established three year program. Our switchmen have proven by their performance in the field that our three year recertification program has provided excellent training. We request that Requirement R12 be revised to read: R12. Each Transmission Operator shall provide a minimum of 2 hours of System Restoration training as part of their regular training and recertification program for field switching personnel identified as performing unique tasks associated with its restoration plan and outside of their normal tasks.</p> | | | | | | | | |
| | | | | | | | | <p>EOP-005-2 R1.1 – Formal approval by FERC currently include agreements and procedures to meet this requirement in NUC-001. The wording as stated is not clear, what would an auditor be looking for in the “description of the manner in which all Agreements ...”? R1.4 - Cranking Path” is not a term utilized throughout the industry. If an entity has few blackstart generators that are located close to major generating stations, then the term would fit. However, if there are numerous blackstart units with multiple options for how to get from the blackstart to the major generating stations, then the term may not apply. If the blackstart resources are capable of restoring significant portions of a system then the term “cranking path” is not utilized. Suggest terminology which will apply across the industry. R2 –The interpretation of the term “reliability-related operational entities” is not defined. Who is a “reliability-related operational entity; the RC, BA, TO, in some cases the LSE??? R5 – Not sure why a “copy...” is necessary, if the operator knows where the electronic version is. A lot of company's are going paperless and do not want a lot of books around the control room. Suggest adding terminology for</p> | | | | | | | | |

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| | | | | | | | <p>access to the electronic version. R6 – Does this requirement to apply to the entire Interconnection rather than just those loads for a particular area? Why are all three options being required? The requirement should state that any of the options: actual event, simulation, or testing is sufficient to meet the requirement. The criteria for the studies are not defined as to what constitutes the meeting compliance for this requirement? R7 – Why aren't the Balancing Authorities included in this requirement to "work with" their RC. If the BA is disseminating information about restoration, shouldn't they be included in the applicability section? At what point does the BA get notified their system has been restored and the BA can resume their function?? R7.1 "Philosophies" end with the experience retiring or leaving. We suggest replacing it with "practices" and this would apply throughout the document. R7.2 - The word "progress" is open to interpretation by each RC. We suggest rewording so that EOP-005, R7.2 aligns with "reporting requirements..." in EOP-006, R1. R7.3 - The use of the word "philosophies" should be replaced with the word "practices" to make it clearer to the reader. All other references should also be changed. R10: What is the definition of "public forum"? With the current state of National Security, this requirement seems like a violation. Sharing with your neighbors and the RC should be the only requirement. R11 – Training in of itself does not "ensure" anything. The expectation of training to "ensure the proper execution of its restoration plan" is not accurate. Training does not "ensure that proper execution..." occurs for every event. Suggest ending the statement at training. "This training program shall include" ..., etc.; should the drafting team decide to leave it in then the wording should be changed to say only "knowledgeable execution can result" from training. R11.1 "Philosophies" end with the experience retiring or leaving. We suggest replacing it with "practices" and this would apply throughout the document. R11.3 "Cranking Path" is not a term utilized throughout the industry. Suggest different</p> | | | | | |
| | Individual | Lauri Jones | Pacific Gas and Electric Company | No | | Yes | | Yes | | No | | |

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| | | | | | | | terminology which will apply across the industry. R12 – This seems very limiting. Since it is unknown what might lead to a blackout, we would not want to be limited on our manpower and depending on occurred to take us down, there may not be enough "field switching personnel" who attend the training to assist. There could be those who are capable of aiding in the restoration, i.e. a supervisor or another well trained person, who have not been trained in a particular task. R13 –It is not really clear on the meaning of "Each Transmission Operator..." Does this mean the registered entity or each operator, as in all the operators from each TO? M2 - M8 "such as" statements are too prescriptive and need to be separated from the requirements. If examples are to be provided, they should be identified as options in a footnote. M16 – M17 "such as" statements are too prescriptive and need to be separated from the requirements. If examples are to be provided, they should be identified as options in a footnote. | | | | | | |
| |  Individual | Greg Rowland | Duke Energy Corporation | | | No | In EOP-005-2 requirement R10, the SDT creates a new system by requiring that the Blackstart Test requirements be placed in a public forum. What advantage is there in having these requirements in a public forum? Why must there be added expense to the TO to maintain this public site? Why can they not be submitted to the generators that have blackstart capability? The answer for the public forum is not the OASIS, for that is not the purpose of that site to distribute test requirements to generators. In EOP-005 requirement R14, if the TO and the GO are the same entity, why is an agreement required? If they are the same entity, then R14 should be "not applicable", or alternatively, the terms and conditions of the arrangement could be included in the Restoration Plan. EOP-005-2 | No | The implementation plan for EOP-005-2 assumes that Agreements will be in place within the first 3 months after this standard is approved. FERC has yet to approve NUC-001, and if this Standard is not approved or FERC has not issued the Final Rule in Docket No. RM08-3-000, these agreements will not be in place. How will it be possible to implement EOP-001 R1 in three months time? The SDT in EOP-005-2 R6 believes that Immediate is appropriate implementation plan because it is believed that this information already exists. However, the SDT added a new requirement in 6.2 that states that the location and magnitude must be verified that these loads will control voltages and frequency. This is a new requirement and therefore, more time must be given in order to implement. Duke Energy recommends at least a full year. In EOP- | No | NERC has recently established an EOP VSL drafting team. That team should establish the VSLs for EOP-005-2 and EOP-006-2. | Yes | The SDT has incorporated new Data Retention Requirements in this draft of EOP-005-2 and EOP-006-2 that require the keeping of old plans just to meet a compliance requirement over three years as seen in M1, M6, etc. This serves no purpose in maintaining or restoring the reliability of the interconnection of the system. As long as the entities demonstrate compliance to the Standard, why are three years worth of outdated plans needed to be maintained? The SDT in previous responses stated that these documents are not administrative requirements but are to show a planning function that goes into the creation of the document. Yet this data retention policy clearly shows administrative requirements that do not warrant a "Medium" VRF. For R5, M5, in order to meet this data retention requirement, you have to have older plans in a control room because they were in force prior to the update. Does the SDT |

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| | | | | | | | <p>requirements R13 and R19 mandate that TOs and GOs participate in drills, exercises or simulations as requested by the RC. However the related EOP-006-2 requirements R10 and R10.1 are confusing. R10 requires the RC to conduct two drills, exercises or simulations per year, while R10.1 requires the RC to request participation from each TO and GO at least every two calendar years. The RC could require every TO and GO to participate in two drills per year, which seems excessive.</p> | <p>006 R5, the SDT has put a new requirement on the Reliability Coordinator to review and APPROVE all Emergency Plans in its area. The SDT believes that this can be accomplished within 5 months assuming that all members in its area submit their plans in a timely manner. This timeframe may only allow a Reliability Coordinator enough time to do a cursory review of the plans, especially since the Reliability Coordinator only has 30 days to respond as stated in the Standard. Recommend that this time be no less than one year to implement.</p> | | | <p>not realize the danger of keeping outdated plans in the control room? The data retention of any emergency plan should be no more than the current plan itself. Furthermore, in the data retention requirement for training materials to be maintained for three years, why should not just the records be maintained that the training was taken? Training records requirements should all be located in the PER standards. Also, old training material provide another means to create issues during an actual event and should not be maintained other than what is current.</p> |
| | | | | | | | <p>Suggested changes for Standard EOP-005-2: R1. Santee Cooper recommends splitting the second sentence of R1 into two sentences. Suggestion is to add a period after "restore the shutdown area to service." The last sentence would read as "The end of restoration is a state whereby the choice of the next Load to be" Capitalization of Operating Procedures in R1.6 and R1.7 requires a company to have specific steps and tasks to achieve a specific operating goal. It is impossible to develop Operating Procedures for every possible scenario that may require system restoration. Recommend changing "Operating Procedure" to the defined term "Operating Process" in R1.6 and R1.7. This term is defined as a document that identifies general steps for achieving a generic operating goal and better suits these requirements. R5. Recommend removal of "and available to all of its control room personnel". This seems redundant - if the copy of the restoration plan is within the control centers, then it is available to control room personnel. R6. Santee Cooper recommends that R6 be rewritten to reflect that a restoration plan needs to be developed in such a manner that it provides guidance and allows for flexibility to address many different sets of conditions and events. Restoration plans that are developed for one specific set of conditions will probably bear no resemblance to what actually occurs. We recommend R6.2 be</p> | | | | |

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| | | | | | | removed. This requirement as written appears to require dynamic simulations for an infinite number of possibilities of the system to satisfy compliance requirements. R10. We recommend R10 be removed from the Standard and put in a Business Practice since this is a market function. R12. Santee Cooper recommends that R12 be rewritten to state that "Each Transmission Operator shall provide System Restoration training to field switching personnel identified as performing unique tasks." Where does this specific time allotment come from? In Order 693, the Commission did not specify an amount of hours to train. R14. Santee Cooper suggests that vertically integrated utilities be exempt from this Requirement. A statement should be added to R14 to that effect. R18. Santee Cooper recommends that R18 be rewritten to state that "Each Generator Operator of a Blackstart Resource shall provide training to each of its operating personnel responsible for the startup and synchronization of its Blackstart Resource generation units." Where does this specific time allotment come from? In Order 693, the Commission did not specify an amount of hours to train. Santee Cooper suggest deleting the "such as" and language following from all the measures. If the SDT wants to provide examples then we suggest including words "such as but not limited to". M10. This measure should be deleted should be removed along with R10 - this is a market function that should be relocated to a business practice. M12. Santee Cooper recommends deleting "and the corresponding training records including training dates and duration" from this measure. We feel this measure is going beyond the scope of the requirement. A roster of the attendees from the required training program should be sufficient to meet the requirement. M18. Suggest rewording of this measure as follows: Each Generator Operator shall have a copy of the roster of the attendees of the required training program should be sufficient to meet the requirement. Suggested changes for Standard EOP-006-2: R5.2 Santee Cooper believes restoration plans should be tailored for each | | | | | | | The VSLs need to contemplate larger and smaller entities as they are being developed. R10 should be removed from the VSL table as Santee Cooper has recommended the Requirement be removed from the proposed standard. R12 and R18 The Commission did not specify a specific number of hours for field switching personnel or generator operators to be trained. The VSL is based on a 2 hour requirement. We recommend removing the lower, moderate, and high VSL on these two requirements. The Severe VSL would be that no training has been provided. Currently, R12 does not consider the number of training participants on a per student basis. What if training is provided for all but one operator? | | | For the data retention how does an entity prove to an auditor that previous versions of its System Restoration Plan were made available in the control room. The auditor can ask to see the current version during an audit and entity can certainly provide a copy of previous versions but it would not be prudent to keep three different versions of a plan in the control room just to prove compliance. Santee Cooper recommends that the SDT explore the possibility of combining some the measures together. Is it required to have a measure for every Requirement? |
| | Group | Santee Cooper | Terry L. Blackwell | South Carolina Public Service Authority | No | No | The Implementation Plan with the phased in compliance is complicated and confusing. | No | No | Yes | | | | | | |

particular system, and its particular circumstances, and therefore should not require approval by a Reliability Coordinator as long as all of the requirements associated with the related NERC standards are satisfied (i.e., the RC should not perform a compliance monitoring). We believe they should be allowed input into a TOP's plan. If an RC fails to approve a TOP's plan, does that make you non-compliant? The standard should contemplate this as a possibility. R6. Recommend removal of "and available to all of its control room personnel". This seems redundant - if the copy of the restoration plan is within the control centers, then it is available to control room personnel. R10. Santee Cooper recommends changing shall conduct to "shall conduct or participate in". This allows an RC to participate in a System Restoration drill with a neighboring entity or on a regional level. Santee Cooper suggest deleting the "such as" from all the measures.

For EOP-005: R1.1 is redundant to NUC-001-1 R9.3 and its subrequirements. It should be struck. R1.2 is superfluous, is not measurable and should be struck. R1.6 and R1.7 together accomplish the intention of this requirement. You can't measure the integrity of the interconnection. Integrity is a relative term. Relative terms should be avoided in writing standards. R10 is not a reliability requirement. It appears to focus more on meeting market principles (non-discriminatory access). While reliability standards can't conflict with market principles, they neither should be used to establish or uphold market principles. Removing this requirement will not create an impediment to any markets for blackstart resources. If the TOP needs to have Blackstart Resources, they will make this known appropriately and other rules (orders 888, 889, and

For EOP-005: R2 - We suggest that the failure to distribute to entities be specified on a percentage basis similar to R1 as opposed by discrete numbers. This creates larger penalties for smaller TOPs since they will have fewer entities to distribute to which is contrary to FERC and NERC's premise that larger entities have greater reliability impact and should be subject to greater fines. Lower VSL needs to specify greater than 30 days. 30 days late is not a violation. 31 is. R3 - We suggest required information be replaced with restoration plan in all of the VSLs. R4 - We suggest changing "the Transmission Operator failed to comply" to "the Transmission Operator failed to update its restoration plan". R5 needs to be deleted. The VSLs make it obvious that the requirement is not measurable. How will an auditor know when the restoration plan was placed in the control center? R6 - Why did the drafting team not write multiple VSLs based on how late the verification was performed like some


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| | | | | | | | <p>890) exist to incent the TOP to make the information publicly available. The minimum time duration of training for R12 and R18 should be removed and replaced with a requirement to establish a training objective. There is no justification for the minimum time duration. To meet the training objectives may take a longer or shorter amount of time to train field switching personnel that will perform unique tasks during restoration that are outside their normal tasks. If two hours of training is not enough to train the field switching personnel particular to a TOP's restoration plan, reliability would not be served by measuring the duration. One can measure whether training objectives have been met. The System Personnel Training standards drafting team has focused on a system approach to training. This systematic approach focuses on objectives first and foremost. For consistency, this draft standard should focus on meeting training objectives also rather than minimum time duration. R14 is an unnecessary requirement. Because the TOP must have a restoration plan R1, the TOP will contract for Blackstart services to meet R1. The incentive is given by the potential for penalties for \$1,000,000/day/event. The TOP won't be able to meet R1 without the agreements so this is really an opportunity for double jeopardy. Requirement 14 is also written presuming that if a Blackstart resource exists, the GOP must have an agreement. What if the resource is not needed? It is also written stating that a TOP has blackstart resources. TOPs don't have blackstart resources GOPs do. It would appear though to assume that the TOP needs access to all blackstart resources on their System. They may not. For R16, why should a GOP be allowed to wait 24 hours before notifying the TOP of changes to the capability of a blackstart resource. There is no justification for the GOP not notifying the TOP within one hour. For EOP-006: R1 - All but the first sentence of R1 should be struck. The RC's restoration plan will define the scope. Everything after the first sentence is prescriptive and tells the RC how to do his job not what his job is. The requirement should specify what not how. It would be</p> | | | | | | | | | <p>of the previous requirements? What is the justification for only one VSL? R7 should be deleted. See question 1. How can you measure if a restoration plan was implemented especially considering all restoration events are unique and never match the conditions in the restoration plan? R8 - The outcome of failing to following RC procedures or receiving RC authorization should be considered in the VSL. If no operating or reliability problems were caused, the VSL should lower. If additional outages, equipment damage or operational problems were caused, then a severe VSL would be appropriate. R9 - Since there are multiple subrequirements, the VSLs should be defined based on the percentage of sub-requirements not met in the testing standards. Four VSLs could then be defined based on quartile performance. R10 - This requirement should be deleted for reasons stated in question 1. R12 and R18 - Because these requirements should not focus on training duration but rather objectives met, the VSLs should be modified. However, if the drafting team does not modify the requirements, the moderate VSLs should be set that 1 hour of training was performed and the high VSLs should be set for 30 minutes of training performed. R14 - Requirement applies to both TOP and GOP. VSLs don't recognize application to GOP. For EOP-006: R2 - We suggest that the failure to distribute to entities be specified on a percentage basis similar to R1 as opposed by discrete numbers. This creates larger penalties for smaller TOPs since they will have fewer entities to distribute to which is contrary to FERC and NERC's premise that larger entities have greater reliability impact and should be subject to greater fines. Lower VSL needs to specify</p> | | | <p>The Balancing Authority has a role in restoration. The Balancing Authority has a role in determining the relative priority of units to be restored. The Balancing Authority is also aware of unit operating constraints such as minimum shutdown times, fuel availability, etc. Unfortunately, the drafting team's continued persistence to ignore these realities will result in a set of standards that actually decreases reliability because the TOP may restore a cranking path to a unit that is not immediately available due to these constraints. Considering the GOP is only required to notify the TOP within 24-hours of a change in the black start capability of a unit, the TOP very well may not know that the resource he was counting won't work.</p> |
| | | | | | | Midwest ISO Stakeholders Standards Collaborators | Jason L. Marshall | Midwest ISO | No | | No | Assuming the requirements are deleted as specified in question 1, we agree with the implementation plan. | No | Yes | | | | | |
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appropriate to have these extra sentences in an attachment though to explain what the scope of the RC restoration plan might look like. R1.1 is superfluous, is not measurable and should be struck. You can't measure the integrity of the interconnection. Integrity is a relative term. Relative terms should be avoided in writing standards. R8 as written will cause an RC to be non-compliant for not authorizing re-synchronization for any reason. Obviously, there are reliability reasons not to authorize re-synchronization. Some language needs to be added so that a refusal for reliability reasons is not a compliance violation.

greater than 30 days. 30 days late is not a violation. 31 is. R6 needs to be deleted. The VSLs make it obvious that the requirement is not measurable. How will an auditor know when the restoration plan was placed in the control center? R8 as written will cause an RC to be non-compliant for not authorizing re-synchronization for any reason. Obviously, there are reliability reasons not to authorize re-synchronization. Some language needs to be added so that a refusal for reliability reasons is not a compliance violation. The VSLs will then need to be modified. R9 and R10 - The VSLs do not appear to follow any of the categories identified in the VSL Guidelines document developed by the VSL drafting team. Rather it appears to be an amalgamation of multiple categories.

Requirement 1 should be broken into two requirements. New Requirement 1: The TOP shall have a restoration plan that is accepted by its Reliability Coordinator. The use of the word "approved" gives the impression that the RC is approving compliance with EOP-005-2, when in practice the RC is determining whether the TOP's restoration plan is coordinated with the RC's restoration plan as well as being compatible with other TOP's restoration plans. Using the word accepted more accurately identifies the role of the RC in reviewing the TOP's restoration plan. Requirement 2: The TOP's restoration plan shall allow for restoring the Transmission Operator's System following a Disturbance in which one or more areas of the Bulk Electric System (BES) shuts down and the use of Blackstart Resources is required to restore the shut down area to service, to a state whereby the choice of the next Load to restore is not driven by the need to control frequency or voltage. The restoration plan shall include: The proposed separation better represents the goal of the standard while not changing the importance of getting the RC to accept a TOP's restoration plan. Modification to 1.3 (existing numbering)

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|--|--|--------------|-------------------------------|--|--|--|----|--|-----|--|----|---------------------------------|----|--|--|--|--|---|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| | | | | | | | | | | | | | | | | | | Blackstart Resource information: New Requirement 1.3.1: Name of the Blackstart Resource(s) New Requirement 1.3.2: Location of the Blackstart Resource(s) New Requirement 1.3.3: Megawatt and megavar capacity of each Blackstart Resource(s) New Requirement 1.3.4: Type of unit of the Blackstart Resource(s) The change more accurately represents the goal of this requirement. The current language requires that the TOP include all those items identified along with something else. ATC is concern that without the change the TOP will have to include some other characteristics which has not been listed. Requirement 1.4 (existing numbering) Identification of the Cranking Path(s) and initial switching requirements between each Blackstart Resource and the unit(s) to be started. The small change indicates that a TOP can have one or more paths. Without this change the standard is requiring multiple paths for each unit to be started. This change should also be in Requirement 6.1. Requirement 4: (existing numbering) ATC understands what the SDT is attempting to achieve in Requirement 4 but believes that compliance enforcement will be problematic. ATC does not offer a change to the requirement but believes that it should be deleted. Requirement 5: (existing numbering) The term "control center personnel" is currently not defined and needs clarity. Who in a TOP organization is covered under the term "control center personnel"? Suggestion: Each TOP shall have a copy of its latest restoration plan within its control center(s). General Comment: ATC agree with the change from "rolling 365" to "annually". (Requirements 3 and 3.1) EOP-006-2 Requirement 3 In EOP-005-2 the SDT uses the phrase "annual review" but Requirement 3 uses the phrase "every twelve months". Why the difference in language for the review interval? ATC prefers the phrase "annually review" over "every twelve months". Requirement 5.2 (Proposed Modification) The RC shall accept or reject the TOP's restoration plan based on requirement 5.1 within thirty calendar days following the receipt of the restoration plan from the | | | | | | | | | | | | | | | | | | | | |
| |  Individual | Jason Shaver | American Transmission Company | | | | No | | Yes | | No | See our comments to question 1. | No | | | | | | | | | | | | | | | | | | | | | | | | | |


TOP. Requirement 5.3 The RC shall provide written notification to the TOP of its decision. New Requirement 5.3.1 If the TOP's restoration plan is rejected the RC shall provide the specific reason for the rejection(s). Requirement 6: (existing numbering) The term "control center personnel" is currently not defined and needs clarity. Who in a RC's organization is covered under the term "control center personnel"? Suggestion: Each RC shall have a copy of its latest restoration plan and the latest restoration plan of each TOP in its Reliability Coordinator Area, within its control center(s).


EOP-005 R1.2 the requirement "restoring the integrity of the Interconnection" is too vague as written; additionally, GOs and TOPs cannot restore the integrity of the Interconnection, only those elements under their control. R3 the "mutually agreed predetermined schedule" adds unnecessary complexity. The requirement should state that the TOP review and submit for approval its procedure to their RC once per calendar year. R4 90 days seems too long for a emergency procedure to possibly contain incorrect information. R5 should state "RC" approved rather than just "approved"; "control room personnel" should be changed to "System Operators" as these are the individuals responsible for taking the actions. For those control centers not staffed by System Operators consider defining and using the term "field operators" or similar. R6 remove the term "documented" prior to "restoration plan". "RC approved" would be more appropriate if any qualifier is used. Insert the term "analysis" in the last sentence: "Such analysis, simulation, or testing shall analyze:..." R8 does "or in accordance with the established procedures of the RC" imply that the TOP can resynchronize with neighboring TOP areas without authorization from the RC? R10 serves no obvious reliability purpose and should be eliminated. R11 remove the words "to ensure the proper execution of its restoration plan" as they are not necessary. R11.1 refers to philosophies however the philosophy of a restoration plan is not a required part of the plan as specified in R1, consider adding it as a component in R1 or

The implementation plan contains too many different timelines for the various the requirements. This is

I disagree with several VSLs listed.

Entergy

| | | | | | | | | | | | | | |
|--|--|---------------|---|--|--|----|---|----|--|----|---|--|--|
| |  Individual | Will Franklin | Services, Inc. System Planning & Operation (Generation) | | | No | rephrasing/eliminating the requirement. R15 consider adding words similar to "... as directed by their TOP or RC." R16 should this requirement direct the TOP to notify the RC of changes? R17 eliminate the words "...to verify that the Blackstart Resource can perform as specified in the restoration plan." as they serve no purpose. R18 should include a sub requirement to review procedures. R18.1 refers to philosophies however the philosophy of a restoration plan is not a required part of the plan as specified in R15, consider adding it as a component in R15 or rephrasing/eliminating the requirement. M4 consider changing the wording to state "...that is has updated ans submitted its revised restoration plan to its Reliability coordinator in accordance with Requirement 4." M16 add voice recordings as an example of evidence. M18 add attendance list to records to be retained. EOP-006 R1 use the term Reliability Coordinator "Areas". R1 also does not account for the possibility that an entity may have extensive damage to transmission lines and cannot restore an connection with one or more of its neighboring TOPs (BAs) for a long time, so is the restoration plan still in effect? R1.1 should be more specific and state "...integrity of the Reliability Coordinator Area." R4 should be a shorter time frame (e.g. 30 days) as 90 seems too long to have an incorrect plan in effect. R6 should state "RC" approved rather than just "approved"; "control room personnel" should be changed to "System Operators" as these are the individuals responsible for taking the actions. For those control centers not staffed by System Operators consider defining and using the term "field operators" or similar. | No | overly complicating the entire process (compliance, tracking, etc). Recommend having no more than "immediate", "1 yr" and "2 yr" effective dates for requirements. | No | One example is that R2 should not be graded based on number of days late. Either you are late or you are not. | | |
| | | | | | | | | | | | EOP-005, R6, There needs to be a Lower, Moderate and High VSL. Lower VSL should read the Transmission Operator did not perform one of the sub requirements, Moderate VSL should read the Transmission Operator did not complete two of the sub requirements, High VSL should read the Transmission Operator did not complete three of the sub requirements. EOP-005, R9, Move | | |

| | | | | | | | | | | | | | |
|--|-----------|----------------------------------|--|--|--|----|--------------------------------------|--|--|----|---|--|--|
| | | | | | | | | requirement on the training requirement in R12 and R18. EOP-005-2, R18.1 Does this sub requirement preclude the GOP from working with the BA when coordinating with the TOP? | | | which VSL is assigned ("Lower" or "Moderate")? EOP-005-2 R15 VSL Lower Shouldn't the condition that "the procedures do not contain both elements specified in the requirement" (R15) be in the "Severe VSL" and not in the "Lower VSL"? EOP-006-2 R6 Which latest approved restoration plan should be made available? Should both be made available as indicated in the requirement? Should one be made available as indicated in the VSLs? Should there be VSLs which address the timeframe of distributing restoration plans to the System Operator personnel? EOP-006-2 R7 Severe VSL This VSLs' conditions should be split up and spread out among the VSL levels. It seems rather extreme to list all of the conditions in the "Severe" VSL level. | ...to affirm that the breaker close coil relay can be energized with voltage and frequency monitor controls disconnected or to affirm through the Transmission Operator the Blackstart Resource can energize a bus." EOP-006-2, R8.1 – The words "restoration plan" in the first sentence should be replaced with "resynchronization". | |
|  Individual | Anita Lee | Alberta Electric System Operator | | | | No | We supports comments by the IRC/SRC. | | | No | The data retention requirements in section D 1.4 are too perscriptive and should be abbreviated and be based on high level principles. | Yes | 1. Pertaining to the RC approving the TOP's restoration plan - the AESO will have to define the scope of such approval in order that the legislated autonomy/mandate of the Alberta ISO is maintained. 2. Pertaining to the "initial switching requirements" referred to in R4, we interpret that to mean a high level switching plan rather than a "breaker by breaker" type switching instructions. 3. We recommend that the training requirements be moved to the training standards. |

Consideration of Comments on the 3rd Draft of EOP Standards — Project 2006-03

The System Restoration and Blackstart Standards Drafting Team thank all commenters who submitted comments on the 3rd draft of the revisions to the EOP-005 and EOP-006 standards. These standards were posted for a 45-day public comment period from April 15, 2008 through May 29, 2008. The stakeholders were asked to provide feedback through a special Standard Comment Form. There were 29 sets of comments, including comments from 75 different people from approximately 50 companies representing 8 of the 10 Industry Segments as shown in the table on the following pages.

http://www.nerc.com/~filez/standards/System_Restoration_Blackstart.html

While the SDT believes that the changes made to the standards are somewhat minor in nature and clarifying in purpose, the volume of such changes seems to indicate that an additional posting is required.

The SDT has made numerous minor changes to the requirements, measures, and VSLs for clarification purposes based on the comments received as shown below. Some of the changes are highlighted here:

- EOP-006-2, R1.9 was added to try to clarify the role of the BA.
- The SDT has made numerous changes for clarity due to the industry comments received. EOP-005-2, R10 has been deleted. 'Control room personnel' has been changed to 'System Operators'. 'Procedures' has been changed to 'Process'. Several sub-requirements have been rolled up into the main requirement to eliminate redundancies. EOP-006-2, R4 was deleted but the main concept was merged into R5.
- Definition of "Blackstart Resource was changed.
- EOP-005-2, Purpose statement was changed.

The following requirements have been changed due to industry comments:

EOP-005: R1.2, R1.3, R1.4, R1.7, R1.8, R2, R4, R4.1, R5, R6, R7, R10 (deleted), R11, R11.1, R14, R15, R17, R18, R18.1, and R18.2.

EOP-006: R1, R1.2, R1.9, R2, R3, R4, R4.1, R5, R5.1, R5.2 (deleted and merged into R5.1), R6, R7.1 (deleted and merged into R7), R8, R8.1 (deleted and merged into R8), R9, and R9.1.

The following measurements have been changed due to industry comments:

EOP-005: M3, M4, M5, M6, M10 (deleted), M14, M15, and M18.

EOP-006: M5.

The following VSLs have been changed due to industry comments:

EOP-005: R1, R2, R3, R4, R5, R6, R8, R9, R10 (deleted), R11, R12, R14, R15, R16, R17, and R18.

EOP-006: R1, R2, R4, R9, and R10.

In addition, the SDT has listened to the industry as to the complexity of the proposed Implementation Plan and has adjusted the plan so that all changes take effect 24 months following regulatory approval.

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>.

Consideration of Comments on 3rd Draft of EOP Standards — Project 2006-03

Index to Questions, Comments, and Responses

- 1. The SDT has made numerous changes to the text of both EOP-005 and EOP-006 in an attempt to clarify requirements based on industry comments from the second posting. Do you agree with the changes that were made? If not, please provide specific suggestions for change. 7
- 2. The SDT has completely re-worked the Implementation Plan based on industry comments from the second posting. Do you agree with the changes that were made? If not, please provide specific suggestions for change.65
- 3. The SDT has included compliance elements including VSL for this posting. Do you agree with the assignments that have been made? If not, please provide specific suggestions for change.71
- 4. Are there any other issues that need to be addressed? Please be specific. 157

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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

| Committer | Organization | Industry Segment | | | | | | | | | | | | |
|-----------|--|----------------------------------|---|---|---|---|---|---|---|---|----|--|--|--|
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | | | |
| 1. | Anita Lee (I) (G1) | AES0 | | x | | | | | | | | | | |
| 2. | Robert Loy | Allegheny Energy | | | | | x | | | | | | | |
| 3. | Paul D. Dare | Ameren | x | | | | | | | | | | | |
| 4. | Thad Ness | American Electric Power | | | | | | | | | | | | |
| 5. | Jason Shaver | American Transmission Co. | x | | | | | | | | | | | |
| 6. | J. Andrew Dodge / William Keagle / Ed Carmen | Baltimore Gas and Electric Co. | x | | | | | | | | | | | |
| 7. | Dave Rudolph (G8) | Basin Electric Power Cooperative | x | | x | | x | x | | | | | | |
| 8. | Denise Koehn | Bonneville Power Administration | x | | x | | x | x | | | | | | |
| 9. | Jim Burns (G2) | Bonneville Power Administration | x | | | | | | | | | | | |
| 10. | Brian Tuck (G2) | Bonneville Power Administration | x | | | | | | | | | | | |
| 11. | Sally Long (G2) | Bonneville Power Administration | x | | | | | | | | | | | |
| 12. | Brent Kingsford (G1) | California ISO | | x | | | | | | | | | | |
| 13. | Ed Thompson (G3) | ConEd Company of New York, Inc. | x | | | | | | | | | | | |
| 14. | Mark D. Paschke | Consumers Energy Company | | | x | x | | | | | | | | |
| 15. | Jack Kerr | Dominion Virginia Power | x | | x | | x | x | | | | | | |
| 16. | Greg Rowland | Duke Energy Corporation | x | | x | | x | x | | | | | | |
| 17. | Greg Mason (G6) | Dynegy | | | | | x | | | | | | | |
| 18. | Ed Davis | Entergy Services, Inc. | x | | | | | | | | | | | |
| 19. | Will Franklin | Entergy Services, Inc. | | | | | | | | | | | | |
| 20. | Steve Myers (G1) | ERCOT | | x | | | | | | | | | | |
| 21. | Sam Ciccone (G4) | FirstEnergy Corp. | x | | x | | x | x | | | | | | |
| 22. | Doug Hohlbaugh (G4) | FirstEnergy Corp. | x | | x | | x | x | | | | | | |
| 23. | Dave Folk (G4) | FirstEnergy Corp. | x | | x | | x | x | | | | | | |
| 24. | Ken Dresner (G4) | FirstEnergy Corp. | x | | x | | x | x | | | | | | |
| 25. | John Reed (G4) | FirstEnergy Corp. | x | | x | | x | x | | | | | | |
| 26. | John Stephens (G4) | FirstEnergy Corp. | x | | x | | x | x | | | | | | |
| 27. | Eugene Blick (G4) | FirstEnergy Corp. | x | | x | | x | x | | | | | | |
| 28. | Ed Stein (G4) | FirstEnergy Corp. | x | | x | | x | x | | | | | | |
| 29. | Ed Baznik (G4) | FirstEnergy Corp. | x | | x | | x | x | | | | | | |
| 30. | Joseph Knight | Great River Energy | x | | x | | x | x | | | | | | |
| 31. | David Kiguel (G3) | Hydro One Networks, Inc. | x | | | | | | | | | | | |
| 32. | Ken Goldsmith | IES Utilities Inc. | | | | x | | | | | | | | |
| 33. | Ron Falsetti (G1) | IESO | | x | | | | | | | | | | |

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| Commenter | | Organization | Industry Segment | | | | | | | | | | | |
|-----------|-------------------------|--------------------------------------|------------------|---|---|---|---|---|---|---|---|----|---|---|
| | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | | |
| 34. | Matt Goldberg (G1) | ISO New England | | x | | | | | | | | | | |
| 35. | Mark Bradley | ITC Holdings | x | | | | | | | | | | | |
| 36. | Michael Gammon (I) (G7) | Kansas City Power & Light | x | | | | | | | | | | | |
| 37. | Eric Ruskamp | Lincoln Electric System | x | | x | | x | x | | | | | | |
| 38. | Joseph DePoorter | Madison Gas and Electric Co. | | | x | x | x | x | | | | | | |
| 39. | Craig McLean | Manitoba Hydro | x | | x | | x | x | | | | | | |
| 40. | Tom Mielnik | Midamerican Energy Company | x | | x | | x | x | | | | | | |
| 41. | Jason L. Marshall (G6) | Midwest ISO | | x | | | | | | | | | | |
| 42. | Bill Phillips (G1) | Midwest ISO | | x | | | | | | | | | | |
| 43. | Terry Bilke | Midwest ISO | | x | | | | | | | | | | |
| 44. | Larry Brusseau | Midwest Reliability Organization | | | | | | | | | | | | x |
| 45. | Michael Brytowski | Midwest Reliability Organization | | | | | | | | | | | | x |
| 46. | Carol Gerou | Minnesota Power | x | | x | | x | x | | | | | | |
| 47. | Ellen Oswald | NERC Standards Interface Cmte. | | | | | | | | | | | | |
| 48. | Randy McDonald (G3) | New Brunswick System Operator | | x | | | | | | | | | | |
| 49. | Jim Castle (G1) | New York ISO | | x | | | | | | | | | | |
| 50. | Ralph Rufrano (G3) | New York Power Authority | | | | | x | | | | | | | |
| 51. | Guy Zito (G3) | Northeast Power Coordinating Council | | | | | | | | | | | | x |
| 52. | Lee Pedowicz (G3) | Northeast Power Coordinating Council | | | | | | | | | | | | x |
| 53. | Rick White | Northeast Utilities | x | | | | | | | | | | | |
| 54. | Al Adamson (G3) | NY State Reliability Council | | | | | | | | | | | x | |
| 55. | Don Hargrove (G7) | Oklahoma Gas and Electric | x | | x | | x | | | | | | | |
| 56. | Lauri Jones | Pacific Gas and Electric Co. | x | | x | | x | | | | | | | |
| 57. | Patrick Brown (G1) | PJM Interconnection | | x | | | | | | | | | | |
| 58. | Tom Bradish | Reliant Energy Inc. | | | | | x | x | | | | | | |
| 59. | Terry L. Blackwell (G5) | Santee Cooper | x | | | | | | | | | | | |
| 60. | S.T. Abrams (G5) | Santee Cooper | x | | | | | | | | | | | |
| 61. | Glenn Stephens (G5) | Santee Cooper | x | | | | | | | | | | | |
| 62. | René Free (G5) | Santee Cooper | x | | | | | | | | | | | |
| 63. | Kristi Boland (G5) | Santee Cooper | x | | | | | | | | | | | |
| 64. | Vicky Budreau (G5) | Santee Cooper | x | | | | | | | | | | | |
| 65. | Roman Carter | Southern Company Transmission | x | | | | | | | | | | | |
| 66. | Robert Rhodes (G7) | Southwest Power Pool | x | x | x | | x | | | | | | | x |
| 67. | Charles Yeung | Southwest Power Pool | | x | | | | | | | | | | |
| 68. | Kyle McMenamin (G7) | Southwestern Public Service | x | | x | | x | | | | | | | |
| 69. | Stephen Joseph | Tampa Electric Company | x | | x | | x | | | | | | | |
| 70. | Jim Haigh | WAPA | x | | | | | x | | | | | | |
| 71. | Barb Kedrowski (G6) | We Energies | | | x | | | | | | | | | |
| 72. | Allen Klassen (G7) | Westar Energy | x | | x | | x | | | | | | | |
| 73. | Neal Balu | WPS | | | x | x | x | x | | | | | | |
| 74. | Pan Oreschnick | Xcel Energy | x | | x | | x | x | | | | | | |
| 75. | Alice Druffel | Xcel Energy | x | | x | | x | x | | | | | | |
| 76. | John Troha | SERC OC SRC | | x | | | | | | | | | | |
| 77. | Ed Stein | First Energy | x | | x | | x | x | | | | | | |

G1 — ISO/RTO Council
G2 — Bonneville Power Administration
G3 — NPCC Regional Standards Group
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G4 — FirstEnergy Corp.

G5 — Santee Cooper

G6 — MISO Stakeholders Collaborative

G7 — SPP Operating Reliability Working Group

G8 — Midwest Reliability Organization NERC Standards Review Subcommittee

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1. The SDT has made numerous changes to the text of both EOP-005 and EOP-006 in an attempt to clarify requirements based on industry comments from the second posting. Do you agree with the changes that were made? If not, please provide specific suggestions for change.

Summary Consideration: The SDT has made numerous changes for clarity due to the industry comments received. EOP-005-2, R10 has been deleted. 'Control room personnel' has been changed to 'System Operators'. 'Procedures' has been changed to 'Process'. Several sub-requirements have been rolled up into the main requirement to eliminate redundancies. EOP-006-2, R4 was deleted but the main concept was merged into R5.

The following definition was revised due to industry comments:

Blackstart Resource: A ~~generation Facility~~ **generating unit(s)** and **its** associated set of equipment which has the ability to be started without support from the System or is designed to remain energized without connection to the remainder of the System, with the ability to energize a bus, meeting the Transmission Operator's restoration plan needs for real and reactive power capability, frequency and voltage control, and that has been included in the Transmission Operator's restoration plan.

The Purpose statement was changed due to industry comments:

Ensure plans, ~~and Facilities are established~~, and personnel are prepared to enable System restoration from Blackstart Resources to ~~ensure~~ **assure** reliability is maintained during restoration and priority is placed on restoring the Interconnection.

The following requirements have been changed due to industry comments:

EOP-005-2:

R1.2: A description of the manner in which all Agreements **or mutually agreed upon procedures or protocols** for off-site power requirements of nuclear power plants, **including priority of restoration**, will be fulfilled during System restoration.

R1.3: Procedures for restoring ~~the integrity of the Interconnection~~ **interconnections with other Transmission Operators** under the direction of the Reliability Coordinator.

R1.4 Identification of each Blackstart Resource and its characteristics including **but not limited to** the following: the name of the Blackstart Resource, location, megawatt and megavar capacity, and type of unit.

R1.7 Operating ~~Procedures~~ **Processes** to reestablish connections within the Transmission Operator's System for areas that have ~~become separated~~ **been restored and are prepared for reconnection**.

Consideration of Comments on 3rd Draft of EOP Standards — Project 2006-03

R1.8 Operating Procedures ~~Processes~~ to restore Loads ~~required to restore the System~~, such as station service for substations, units to be restarted or stabilized, the Load needed to stabilize generation and frequency, and provide voltage control ~~for restoring the System~~.

R1.9 Criteria for transferring operations and authority back to the Balancing Authority.

R2 Each Transmission Operator shall ~~distribute its approved restoration plan to the reliability-related operational entities identified in its restoration plan within thirty calendar days of having received approval from its Reliability Coordinator~~. Each Transmission Operator shall provide the operational entities identified in its approved restoration plan with a description of any changes to their roles and specific tasks prior to the implementation date of the plan.

R4 Each Transmission Operator shall update its restoration plan within ninety calendar days after identifying any **unplanned** permanent System modifications, **or prior to implementing a planned System modification**, that would change the implementation of its restoration plan.

R4.1 Each Transmission Operator shall submit its revised restoration plan to its Reliability Coordinator **for approval** within the same ninety calendar day period.

R5 Each Transmission Operator shall have a copy of its latest **Reliability Coordinator** approved restoration plan within each of its **primary and backup control centers rooms** and available to all of its ~~control room personnel~~ **System Operators prior to its implementation date**.

R6 Each Transmission Operator shall verify through analysis of actual events, steady state and dynamic simulations, or testing that its ~~documented~~ restoration plan accomplishes its intended function. This shall be completed every five years at a minimum. Such **analysis**, simulations or testing shall ~~analyze~~ **verify**:

R7 Following a Disturbance in which one or more areas of the BES shuts down and the use of Blackstart Resources is required to restore the shut down area to service, each affected Transmission Operator shall implement its restoration plan. **If the restoration plan cannot be executed as expected because actual conditions do not match the studied conditions, the Transmission Operator shall utilize its restoration plan strategies to facilitate restoration.**

R11 Each Transmission Operator shall include within its operations training program, annual System restoration training to its System Operators to ~~ensure~~ **assure** the proper execution of its restoration plan. This training program shall include **training on** the following:

R11.1 System restoration ~~philosophy~~ **plan** including coordination with the Reliability Coordinator and Generator Operators included in the restoration plan.

Consideration of Comments on 3rd Draft of EOP Standards — Project 2006-03

R143 Each Transmission Operator and Generator Operator with a Blackstart Resource shall have a written Blackstart Resource Agreements ~~or mutually agreed upon procedures or protocols~~, specifying the terms and conditions of their arrangement. Such Agreements shall include references to the ~~Blackstart~~ **Blackstart Resource** testing requirements.

R176 Each Generator Operator ~~of~~ **with** a Blackstart Resource shall perform Blackstart Resource tests, and maintain records of such testing, in accordance with the testing requirements set by the Transmission Operator to verify that the Blackstart Resource can perform as specified in the restoration plan.

~~R18.1~~ **17.1.** System restoration ~~philosophy~~ **plan** including coordination with the Transmission Operator.

EOP-006-2:

R1 Each Reliability Coordinator shall have a Reliability Coordinator Area restoration plan. The scope of the Reliability Coordinator's restoration plan starts when Blackstart Resources are utilized to re-energize a shut down area of the **Bulk Electric System (BES)**, or separation has occurred between neighboring Reliability Coordinators, or an energized island has been formed on the ~~Bulk Electric System (BES)~~ within the Reliability Coordinator Area. The scope of the Reliability Coordinator's restoration plan ends when all of its Transmission Operators are interconnected and ~~it~~ **its Reliability Coordinator Area** is connected to all of its neighboring Reliability Coordinators **Areas**. The restoration plan shall include:

R1.2 ~~Procedures~~ **Processes** for restoring ~~the integrity of~~ the Interconnection.

R3 Each Reliability Coordinator shall review its restoration plan ~~every twelve~~ **within thirteen** months **of the last review**.

R4 Each Reliability Coordinator shall ~~update its restoration plan within ninety calendar days after identifying changes to one of its Transmission Operator's restoration plans or upon reviewing a~~ **their** neighboring Reliability Coordinator's restoration plans that would necessitate a change in their coordination tasks or responsibilities.

R4.1 **If the Reliability Coordinator finds conflicts between its restoration plans and any of its neighbors, the conflicts shall be resolved in thirty days.**

R5 Each Reliability Coordinator shall review the ~~Transmission Operator~~ restoration plans ~~as defined in~~ **required by** EOP-005 **of the Transmission Operators** within its Reliability Coordinator Area, **and neighboring Reliability Coordinators, when received.**

R5.1 The Reliability Coordinator shall determine whether the Transmission Operator's restoration plan is coordinated **and compatible** with the Reliability Coordinator's restoration plan ~~as well as being compatible with~~ **and** other Transmission Operators' restoration plans within its Reliability Coordinator Area. **The Reliability Coordinator shall approve or disapprove, with stated reasons, the Transmission Operator's submitted restoration plan within thirty calendar days following the receipt of the restoration plan from the Transmission Operator.**

R5.2 deleted and merged into R5.1.

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R6 Each Reliability Coordinator shall have a copy of its latest restoration plan and **copies of** the latest approved restoration plan of each Transmission Operator in its Reliability Coordinator Area within ~~each of its~~ **primary and backup control centers rooms** and available to all of its ~~control room personnel~~ **System Operators prior to the implementation date.**

R7 Each Reliability Coordinator shall work with its affected ~~Balancing Authorities,~~ Generator Operators, and Transmission Operators as well as neighboring Reliability Coordinators to monitor restoration progress, coordinate restoration, and take actions to restore the BES frequency within acceptable operating limits. **If the restoration plan cannot be completed as expected because actual conditions do not match the studied conditions, the Reliability Coordinator shall utilize its restoration plan strategies to facilitate System restoration.** ~~Such actions may include but not be limited to adjusting generation, placing additional generators on line, or shedding Load.~~

R7.1 deleted and merged into R7.

R8 The Reliability Coordinator shall **coordinate or** authorize ~~and coordinate~~ resynchronizing islanded areas that bridge boundaries between Transmission Operators or Reliability Coordinators. **If the resynchronization cannot be completed as expected because actual conditions do not match the studied conditions, the Reliability Coordinator shall utilize its restoration plan strategies to facilitate resynchronization.**

R8.1 deleted and merged into R8.

R9 Each Reliability Coordinator shall include within its operations training program, annual System restoration training for its System Operators to ~~ensure~~ **assure** the proper execution of its restoration plan. This training program shall ~~include~~ **address** the following:

R9.1 ~~System restoration philosophy including~~ **†** The coordination role of the Reliability Coordinator.

The following measures have been changed due to industry comments:

EOP-005-2:

M4 Each Transmission Operator shall have documentation such as dated review signature sheets, revision histories, e-mails with receipts, or registered mail receipts, that it has updated its restoration plan ~~with~~ **and submitted it to** its Reliability Coordinator in accordance with Requirement R4.

M5 Each Transmission Operator shall have documentation ~~such as e-mail receipts~~ that it has made the latest **Reliability Coordinator** approved copy of its restoration plan available in ~~each of its~~ **primary and backup control rooms** and to each of its ~~control room personnel~~ **System Operators prior to its implementation date** in accordance with Requirement R5.

M1817 Each Generator Operator **with a Blackstart Resource** shall have **an electronic or hard copy of the training program material provided to its operating personnel responsible for the startup and synchronization of its Blackstart Resource**

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generation units and a copy of its dated training records including training dates and durations showing that it has provided training in accordance with Requirement R18.

| Organization | Question 1: | Question 1 Comments: |
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| Baltimore Gas and Electric Company | No | <p>All comments below pertain to EOP-005-2</p> <p>R1.1 - existing wording is not clear. Suggest modifying to read "Procedures for restoring off-site power requirements of nuclear power plants during system restoration per agreements.</p> <p>R2 - SDT needs to define the term "reliability-related operational entities". It is not clear who is a "reliability-related operational entity".</p> |
| <p>Response: R1.1 (old) = R1.2 (new) - Reference to an agreement with a Nuclear Plant Generator Operator could be used as evidence per Measurement 1.</p> <p>R1.2: A description of the manner in which all Agreements or mutually agreed upon procedures or protocols for off-site power requirements of nuclear power plants, including priority of restoration, will be fulfilled during System restoration.</p> <p>R2 - The requirement has been revised to address the comment.</p> <p>R2: Each Transmission Operator shall distribute its approved restoration plan to the reliability-related operational entities identified in its restoration plan within thirty calendar days of having received approval from its Reliability Coordinator. Each Transmission Operator shall provide the operational entities identified in its approved restoration plan with a description of any changes to their roles and specific tasks prior to the implementation date of the plan.</p> | | |
| Bonneville Power Administration | No | <p>It was good to clean up the duplication.</p> <p>EOP-005-2R1: Is this also intended to cover what the removed R7.2 in version EOP-005-1?</p> <p>R2: reliability-related entities identified Restoration Plan would be the associated BAs of the TO and the coordinated TO/TOP?</p> <p>R6: R6.1 -delete "location and magnitude". M6: remove "such as power flow outputs," or add the additional verification language from R6 description.</p> <p>R10: Due to Operational AND NATIONAL Security sensitivities do NOT post Blackstart Plans publicly.</p> |

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| Organization | Question 1: | Question 1 Comments: |
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| | | <p>R12: We agree with the change from 1 year to 2 year interval. Rather than require 2 hours of system restoration training however, suggest focusing the requirement on providing training that addresses the "unique tasks" field personnel are expected to perform. This could be done with a performance measure or check off sheet showing that competency in performing the tasks has been verified. (measure M12 and the VSL for R12 would need to be changed accordingly)</p> <p>R13/19: Suggest changing the requirement to participation 2x annually in RC exercises rather than every time TOP/GOP is requested by RC. This would provide greater flexibility to the TOP/GOP for meeting staffing requirements for both real-time personnel training staff.</p> |
| <p>Response: EOP-005-1 did not have an R7.2. R2 – The requirement has been rewritten to clarify the intent.</p> <p style="color: red;">R2: Each Transmission Operator shall provide the operational entities identified in its approved restoration plan with a description of any changes to their roles and specific tasks prior to the implementation date of the plan.</p> <p>6.1 – The SDT believes that you meant R6.2 and believes this is a necessary condition. No change made. M6 – The phrase is only an example and no change was made. R10 – These are testing requirements, not plans R12 – The SDT believes that 2 hours of training is a minimum for familiarity with the purpose and risks associated with specific tasks. The TOP is free to use performance measures or check off sheets. R13/19 – EOP-006-2, R10 requires the RC to conduct two drills per year. The comment is already addressed in the required coordination between these two standards.</p> | | |
| Xcel Energy | No | <p>The title and purpose of each standard does not clarify what the term "restoration" means as used in these standards. It should be placed in the Purpose, or as a Definition, rather than being embedded in the requirements. EOP-005-2 Purpose says the standard establishes Facilities. Xcel Energy suggests it identifies or establishes requirements for Facilities. EOP-005-2 R7.3 and EOP-006-2 R7.1 appear to be feel-good statements telling the Transmission Operator to do the right thing if the plan doesn't work. Xcel Energy does not see the value in these requirements.</p> <p>EOP-005-2, R10, Xcel Energy questions the need to post Blackstart Resource testing</p> |

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| Organization | Question 1: | Question 1 Comments: |
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| | | <p>requirements to a "freely accessible public forum". We fail to see the reliability need for this and feel that the requirements can be incorporated into Interconnection Agreements or communicated through the Blackstart Resource Agreement required in R14.</p> <p>EOP-005-2, R14, This requirement places the responsibility of the Blackstart Resource Agreement on BOTH the Transmission Operator and Generator Operator. The requirement should be rewritten as such "Each Transmission Operator will have a written Blackstart Resource Agreement specifying the terms and conditions, including testing requirements, with each Generator Operator of a Blackstart Resource."</p> <p>EOP-005-2 Xcel Energy questions the need to have a 2 hour requirement on the training requirement in R12 and R18. A training module along with the exercises, drills, and periodic testing that adequately covers the information specified in these requirements would seem to be sufficient. If a specific time requirement is retained, would time spent participating in drills, and Blackstart Resource testing qualify as part of this training?</p> |
| <p>Response: The Purpose does not state that the standard establishes Facilities, but that established Facilities must enable restoration. Wording changed for clarity. EOP-005-2, R7.3 and EOP-006-2 R7.1 (now moved into R7 in the revised drafts) accommodate compliance if conditions do not permit the system to be restored as described in the plan.</p> <p>R7: Following a Disturbance in which one or more areas of the BES shuts down and the use of Blackstart Resources is required to restore the shut down area to service, each affected Transmission Operator shall implement its restoration plan. If the restoration plan cannot be executed as expected because actual conditions do not match the studied conditions, the Transmission Operator shall utilize its restoration plan strategies to facilitate restoration.</p> <p>Purpose: Ensure plans, and Facilities are established, and personnel are prepared to enable System restoration from Blackstart Resources to ensure assure reliability is maintained during restoration and priority is placed on restoring the Interconnection.</p> <p>R10 – Requirement has been deleted. R14 – Wording changed to provide clarity. (R14 now R13)</p> <p>R13: Each Transmission Operator and Generator Operator with a Blackstart Resource shall have a written Blackstart Resource Agreements or mutually agreed upon procedures or protocols, specifying the terms and conditions of their arrangement. Such Agreements shall include references to the blackstart Blackstart Resource testing requirements.</p> | | |

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| Organization | Question 1: | Question 1 Comments: |
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| <p>R12 and R18 (now R11 and R17)- The SDT believes that 2 hours of training is a minimum for familiarity with the purpose and risks associated with specific tasks.</p> | | |
| <p>NPCC</p> | <p>No</p> | <p>EOP-005 R1.2 Procedures for restoring the integrity of the Interconnection under the direction of the Reliability Coordinator. Comment: What is meant by "integrity" of the interconnection? How would this be assessed as an element in the plan?</p> <p>R1.6 There should be some consideration for the size and location of the area isolated. Perhaps this should apply to only those areas for which designated black start units are located. Because of the many possibilities for creating an island, the plan should be as generic as possible so that its general restoration philosophy will work during any scenario.</p> <p>R1.7 Operating Procedures to restore Loads, such as station service for substations, units to be restarted or stabilized, the Load needed to stabilize generation and frequency, and provide voltage control for restoring the System. Comment: Perhaps should read: Procedures to restore loads associated with initial stages of restoration, such as.....There comes a time in restoration where loads are simply restored in a typical fashion for which a procedure is not required. R5Latest Approved? I assume that this means RC approved. The requirement should specifically state RC approved.</p> <p>R7.3 Consider adding a need to communicate/review with the RC when deviating from the plan.</p> <p>R9.2For those units "designed to remain energized" testing should include successful and sustained islanded operation either through testing or an actual event within the testing requirement timeline. R10What is the purpose for public posting of blackstart resource testing? This should not be in a reliability standard.</p> <p>EOP-006R1 (SCOPE) 1) The size and location of the island should be a consideration. Area restoration plans should only consider only those islands that contain the designated black start resources. 2) The SCOPE should not include the separation of two RCs unless the affected RC has been completely unconnected from all other RCs.</p> <p>R1.1 "Integrity of the Interconnection" should be clarified.</p> |

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| Organization | Question 1: | Question 1 Comments: |
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| | | <p>Response: R1.1 (old) = R1.2 (new)– integrity has been removed.</p> <p>R1.2: Procedures for restoring the integrity of the Interconnection interconnections with other Transmission Operators under the direction of the Reliability Coordinator.</p> <p>R1.6 (old) = R1.7 (new)– The requirement has been revised to clarify intent.</p> <p>R1.7: Operating Procedures Processes to reestablish connections within the Transmission Operator’s System for areas that have become separated been restored and are prepared for reconnection.</p> <p>R1.7 (old) = R1.8 (new) – The requirement has been revised to clarify intent. Restoration as described in this standard ends as stated in R1.</p> <p>R1.8: Operating Procedures Processes to restore Loads required to restore the System, such as station service for substations, units to be restarted or stabilized, the Load needed to stabilize generation and frequency, and provide voltage control for restoring the System</p> <p>R5 – The requirement has been revised.</p> <p>R5: Each Transmission Operator shall have a copy of its latest Reliability Coordinator approved restoration plan within each of its primary and backup control centers rooms and available to all of its control room personnel System Operators prior to its implementation date</p> <p>R7.3 – EOP-006-2, R1.2 covers this issue.</p> <p>R9.2 – The TOP is permitted to determine testing requirements needed to support its restoration plan. No change made.</p> <p>R10 – requirement was deleted.</p> <p>EOP-006-2, R1, the scope is meant to cover all situations not just those requiring Blackstart Resources. No change made.</p> <p>R1.1 (old) = R1.2 (new) – integrity has been removed.</p> <p>R1.2: A description of the manner in which all Agreements or mutually agreed upon procedures or protocols for off-site power requirements of nuclear power plants, including priority of restoration, will be fulfilled during System restoration.</p> |
| Southern Company | No | Comments on Draft 3 — EOP-00 5R1.1 — Where the TOP and the GOP are the same entity formal Agreements should not be required. NUC-001 as approved by FERC currently allow |

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| Organization | Question 1: | Question 1 Comments: |
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| Transmission | | <p>arrangement/procedures to fulfill this requirement. –</p> <p>R1.6 — This requirement for “Operating Procedures” would seem to be difficult to achieve if taken too literally. The NERC Glossary indicates an “Operating Procedure” “identifies specific steps or tasks that should be taken by one or more specific operating positions to achieve specific operating goal(s)”. Due to the unknown nature by which areas may become separated, developing sufficient (from a compliance perspective) operating procedures to reestablish connections for all possibilities is impractical. If the Drafting Team agrees these procedures to be more generic in nature, the generic meaning should be captured here using the term “Operating Process” rather than the “specific” nature of the Glossary definition for Operating Procedure. –</p> <p>R1.7 — Similar comment as for R1.6 relative to the degree of specificity required. In addition, the phrasing of the sentence is unclear due to the position of the commas. Please see if it can be cleaned up using parentheses, semi-colons, rewording or some other device. Using the term “such as” makes it hard to understand exactly what is required. For example, what other loads are being referred to beyond “station service for substations”.</p> <p>R2, R3 — It appears the requirements 2 and 3 should be reversed to better reflect what takes place chronologically.</p> <p>R4.1 — The requirement does not mention but it is accurate to expect the TOP to resubmit the revised restoration plan to the RC for approval?</p> <p>“R6” It is unclear to what extent the analysis/simulations/testing of the plan should be carried out, particularly in R6.2. Also, this requirement could be interpreted to apply to the entire Interconnection rather than just those loads for a particular area. At what point are there enough studies to satisfy that the TOP has done enough for compliance for this requirement? The requirement should state that any of the options: actual event, simulation, or testing is sufficient to meet the requirement and not all three are being required.</p> <p>The contents of requirements 6.1-6.3 should be consistent with the contents of R1.7. R1.7 describes what your plan should include, and R 6.1-6.3 describes ways of simulating or testing the content in 1.7.</p> |

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| | | <p>R7.2 - This requirement is not consistent with EOP-006, R1.6. EOP-005, R7.2 requires only notifying the RC on "progress" while EOP-006, R1.6 refers to "reporting requirements". The SDT should consider removing the word "progress" in EOP-005, R7.2, or perhaps change to "Each affected TOP shall report during a restoration event to the RC as required in the RC restoration plan".</p> <p>R7.3 - The use of the word "philosophies" should be replaced with the word "practices" to make it clearer to the reader. All other references should also be changed.</p> <p>R10 - The term "freely accessible public forum" is vague. Testing requirements should be accessible by parties involved, but the place to post them should be a "business practice".</p> <p>"R11" The expectation of training to "ensure the proper execution of its restoration plan" is unrealistic. Training can not ensure that proper execution occurs for every instance. Remove the words after System Operators and end the sentence there. Then pick up the next sentence as it is currently written with "This training program shall include"....,etc.; Should the drafting team decide to leave it in then the wording should be changed to say only "knowledgeable execution can result" from training.</p> <p>R14 - The term "Blackstart Resource Agreement" is capitalized meaning it is a defined term. However, it is not defined in the NERC Glossary or in this standard. Remove the capitalization of Agreement in the Blackstart Resource Agreement. Also, if the TOP and the GOP are same entity, formal agreements are not required with itself. Internal Entity procedures and MOUs are adequate.</p> <p>"R16" Is the phrase "changes to the capabilities" referring to only Blackstart capabilities or to any capabilities of the resource? It is expected to mean Blackstart capabilities and recommend putting Blackstart before capabilities. Also, recommend including the word "permanent" in front of changes.</p> <p>M5 - Does the term "e-mail receipts" refer to e-mail "read" receipts showing the recipient had opened the e-mail? I am assuming other means are also acceptable? For example, intranet sites and electronic and hard copies in the control room should be acceptable.</p> |

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| | | <p>"M18" It is assumed that this measurement is referring to Generator Operator of a Blackstart Resource. For consistency with the style in M15 and M16 this clarification is suggested.</p> <p>Comments on Draft 3 – EOP-006R1 — We recommend including the word "Areas" in the scope statement of R1 as follows: separation has occurred between neighboring Reliability Coordinator Areas, or an....</p> <p>R1.4 Should "neighboring" be inserted before Reliability Coordinators Areas to make the requirement clearer?</p> <p>R1.7 If the Balancing Authority is disseminated information about restoration, should the BA be included in the applicability section? Since the BA plays no part in the restoration process (according to the drafting team), is the BA being disseminated information during the restoration process or after restoration has been achieved?</p> <p>"R7" In previous drafts, the Drafting Team has remained steadfast in its position that there was no applicability of System Restoration requirements to Balancing Authorities. In light of this why are Balancing Authorities included in this requirement to "work with" their RC. What does "work with" involve on the part of the BA and is this not a required activity on the part of Balancing Authorities during a System Restoration. The Drafting Team was quite clear in its previous comments that the BAs had no role in monitoring restoration progress, coordinating restoration, and taking action to restore BES frequency within acceptable limits that this requirement contains.</p> <p>R7.1 - The content of R7.1 is exactly the same as R8.1. Would it not be better to only include the requirement once? Also, replace the word "philosophies" with "practices" throughout the document. Finally, we recommend breaking out this sub-requirement into a stand alone requirement. It does not depend on the information of R7 to exist.</p> <p>"R9" The expectation of training to "ensure the proper execution of its restoration plan" is unrealistic. Training can not ensure that proper execution occurs for every instance. Remove the words after System Operators and end the sentence there. Then pick up the next sentence as it is currently written with "This training program shall include"....,etc.; Should the drafting</p> |

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| Organization | Question 1: | Question 1 Comments: |
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| | | <p>team decide to leave it in then the wording should be changed to say only "knowledgeable execution can result" from training</p> |
| <p>Response: R1.1 (old) = R1.2 (new) – Requirement was revised.</p> <p>R1.2: A description of the manner in which all Agreements or mutually agreed upon procedures or protocols for off-site power requirements of nuclear power plants, including priority of restoration, will be fulfilled during System restoration.</p> <p>R1.6 (old) = R1.7 (new) - The term has been changed to Operating Process.</p> <p>R1.7: Operating Procedures Processes to reestablish connections within the Transmission Operator’s System for areas that have become separated been restored and are prepared for reconnection.</p> <p>R1.7 (old) = R1.8 (new) - The requirement has been revised to clarify intent.</p> <p>R1.8: Operating Procedures Processes to restore Loads required to restore the System, such as station service for substations, units to be restarted or stabilized, the Load needed to stabilize generation and frequency, and provide voltage control for restoring the System</p> <p>R2, R3 – Chronological order is not important. No change made.</p> <p>R4.1 – The requirement states “submit its revised restoration plan to its Reliability Coordinator”. No change made.</p> <p>R6 – The conjunction “or” indicates not all are required. The verification is for the plan, which is intended to cover restoration to “to a state whereby the choice of the next Load to be restored is not driven by the need to control frequency or voltage...”.</p> <p>R7 has been revised to address the concern.</p> <p>R7: Following a Disturbance in which one or more areas of the BES shuts down and the use of Blackstart Resources is required to restore the shut down area to service, each affected Transmission Operator shall implement its restoration plan. If the restoration plan cannot be executed as expected because actual conditions do not match the studied conditions, the Transmission Operator shall utilize its restoration plan strategies to facilitate restoration.</p> <p>R10 – requirement has been deleted.</p> <p>R11 – wording changed to provide clarity. (now R10)</p> <p>R10: Each Transmission Operator shall include within its operations training program, annual System restoration training to its System Operators to ensure assure the proper execution of its restoration plan. This training program shall</p> | | |

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| | | <p>include training on the following:</p> <p>R14 – wording changed for clarity. (now R13)</p> <p>R13: Each Transmission Operator and Generator Operator with a Blackstart Resource shall have a written Blackstart Resource Agreements or mutually agreed upon procedures or protocols, specifying the terms and conditions of their arrangement. Such Agreements shall include references to the blackstart Blackstart Resource testing requirements.</p> <p>R16 (now R15) – The SDT believes the requirement is unambiguous as written. If short term changes affect the TOP’s plan, the TOP needs to know.</p> <p>M5 – reference to e-mail has been deleted.</p> <p>M5: Each Transmission Operator shall have documentation such as e-mail receipts that it has made the latest Reliability Coordinator approved copy of its restoration plan available in each of its primary and backup control rooms and to each of its control room personnel System Operators prior to its implementation date in accordance with Requirement R5.</p> <p>M18 – The measure has been revised. (now M17)</p> <p>M17: Each Generator Operator with a Blackstart Resource shall have an electronic or hard copy of the training program material provided to its operating personnel responsible for the startup and synchronization of its Blackstart Resource generation units and a copy of its dated training records including training dates and durations showing that it has provided training in accordance with Requirement R18.</p> <p>EOP-006 R1 – The requirement has been revised to address the concern.</p> <p>R1: Each Reliability Coordinator shall have a Reliability Coordinator Area restoration plan. The scope of the Reliability Coordinator’s restoration plan starts when Blackstart Resources are utilized to re-energize a shut down area of the Bulk Electric System (BES), or separation has occurred between neighboring Reliability Coordinators, or an energized island has been formed on the Bulk Electric System (BES) within the Reliability Coordinator Area. The scope of the Reliability Coordinator’s restoration plan ends when all of its Transmission Operators are interconnected and it its Reliability Coordinator Area is connected to all of its neighboring Reliability Coordinators Areas. The restoration plan shall include:</p> <p>R1.4 – The SDT believes it is obvious from the context. No change made.</p> <p>R1.7 – No, this does not make the BA an applicable entity. The RC determines when the BA is informed.</p> |

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| <p>R7 – The BA has been removed.</p> <p>R7: Each Reliability Coordinator shall work with its affected Balancing Authorities, Generator Operators, and Transmission Operators as well as neighboring Reliability Coordinators to monitor restoration progress, coordinate restoration, and take actions to restore the BES frequency within acceptable operating limits. If the restoration plan cannot be completed as expected because actual conditions do not match the studied conditions, the Reliability Coordinator shall utilize its restoration plan strategies to facilitate System restoration. Such actions may include but not be limited to adjusting generation, placing additional generators on line, or shedding Load.</p> <p>R7.1 – R8 has been changed for clarity.</p> <p>R8: The Reliability Coordinator shall coordinate or authorize and coordinate resynchronizing islanded areas that bridge boundaries between Transmission Operators or Reliability Coordinators. If the resynchronization cannot be completed as expected because actual conditions do not match the studied conditions, the Reliability Coordinator shall utilize its restoration plan strategies to facilitate resynchronization.</p> <p>R9 –The word has been changed to “assure”.</p> <p>R9: Each Reliability Coordinator shall include within its operations training program, annual System restoration training for its System Operators to ensure assure the proper execution of its restoration plan. This training program shall include address the following:</p> | | |
| Manitoba Hydro | Yes | EOP-006-2 R8.1 is redundant with R7.1, this could result in non-compliance to 2 requirements when it should only be to one. |
| <p>Response: R7.1 was deleted – R8 has been changed.</p> <p>R8: The Reliability Coordinator shall coordinate or authorize and coordinate resynchronizing islanded areas that bridge boundaries between Transmission Operators or Reliability Coordinators. If the resynchronization cannot be completed as expected because actual conditions do not match the studied conditions, the Reliability Coordinator shall utilize its restoration plan strategies to facilitate resynchronization.</p> | | |
| Northeast Utilities | Yes | <p>EOP-005-2R2. — Suggest the following rewording; "Each Transmission Operator shall distribute, consistent with its Critical Energy Infrastructure Information protocol, its approved ?".</p> <p>R4. — Changing "identifying" to "implementing", or removing it altogether, better</p> |

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| Organization | Question 1: | Question 1 Comments: |
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| | | <p>communicates what may be adequate for this requirement; and eliminates confusion in circumstances where a modification is identified 2 years (for example) prior to implementation, or sometime after implementation of the modification .</p> <p>R6. — The technical data required for such studies is difficult to obtain in a de-regulated environment. May need to add a requirement for Generator Operators to supply this data.</p> <p>R6.2. — The wording is awkward implying loads control voltage or frequency, specifically. Suggest: "The location and magnitude of Loads inherent in controlling voltages and frequency ?</p> <p>"R12. ? The requirement needs to recognize that in many cases switching personnel work for the TO, not the TOP. The TOP is not in a position to "provide" the training. Perhaps the TOP should "ensure" the training; or the possibility the TO is responsible should be recognized. Further, use of a Systematic Approach to Training should define necessary training requirements. The standard should not impose a mandated time (2 hrs).</p> |
| <p>Response: R2 - The requirement has been revised to address the comment.</p> <p>R2: Each Transmission Operator shall distribute its approved restoration plan to the reliability-related operational entities identified in its restoration plan within thirty calendar days of having received approval from its Reliability Coordinator. R2: Each Transmission Operator shall provide the operational entities identified in its approved restoration plan with a description of any changes to their roles and specific tasks prior to the implementation date of the plan.</p> <p>R4 - requirement has been revised.</p> <p>R4: Each Transmission Operator shall update its restoration plan within ninety calendar days after identifying any unplanned permanent System modifications, or prior to implementing a planned System modification, that would change the implementation of its restoration plan</p> <p>R6 – The TOP can include a requirement for generator data in its Blackstart Resource Agreement. R6.2 – The SDT considers the wording to be equivalent. No change made. R12 – (now R11) The TOP can assign tasks to the TO (for example) including the requirement for training. While the TOP is still responsible, the relationship can be addressed through an Agreement. The SDT believes that 2 hours of training is a minimum for familiarity with the purpose and risks associated with specific tasks.</p> | | |

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| Organization | Question 1: | Question 1 Comments: |
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| Consumers Energy Company | No | The definition of a Blackstart Resource and R9.2.2 have been revised to remove the requirement for energizing a dead bus. The ability to energize a dead bus is an essential requirement of being a blackstart unit. This requirement should not have been removed. |
| Response: The definition of the Blackstart Resource requires the ability to energize a bus. Only a dead bus can be energized. | | |
| FirstEnergy | No | <p>EOP-005-2: Definitions — The proposed definition of a Blackstart Resource leaves room for various interpretations. Since this definition will lay the foundation for how Blackstart Resources are defined in the NERC Reliability Standards, it is crucial that it be written clearly as the definition will impact other reliability standards (i.e. CIP-002) as well as potential blackstart tariff applications within a RTO construct. To aid the SRB SDT's understanding of FE's concerns, we have prepared supplemental documentation which summarizes how we believe the existing Blackstart Resource definition can lead to differing interpretations. Additionally, we have provided suggested changes to the definition which we believe will benefit industry in this regard. This supplemental information has been provided to the NERC standards process manager for review by the SRB SDT.</p> <p>R1 — As written, R1 has two embedded requirements within a lengthy paragraph. For improved readability it is suggested that the requirement be rewritten with the use of sub-requirements and that a portion of the text be moved to a new Standards Glossary definition describing Complete Restoration. If our suggested is adopted, the existing R1 sub-requirements would be re-numbered in sequence. The following describes the proposed change: "R1. Each Transmission Operator shall have a restoration plan approved by its Reliability Coordinator. The restoration plan shall: R1.1 Allow for restoring the Transmission Operator's System following a Disturbance in which one or more areas of the Bulk Electric System (BES) shuts down R1.2 Describe the Blackstart Resources required to restore the shut down area to service, to a state of Complete Restoration. "Add to the Definitions Section: "Complete Restoration — The point in the restoration process whereby the choice of the next Load to be restored is not driven by the need to control frequency or voltage regardless of whether the Blackstart Resource is located within the Transmission Operator's System or an adjacent system."</p> <p>R1.1 - The term Agreement as defined in the NERC glossary is, "A contract or arrangement, either written or verbal and sometimes enforceable by law." However, the approved NUC-001 standard allows for procedures and protocols as equivalents to an Agreement. The drafting team should add the same footnote to the term "Agreement" as the footnote included in R2 of</p> |

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| | | <p>NUC-001-1. In addition, is a citing of the NPIR's sufficient to be in compliance or must an entity repeat all of the information contained in the NPIR's?</p> <p>R1.5 — Should be revised to include synchronization angle limits to aid operators in the restoration process.</p> <p>R1.6 - The drafting team stated that this standard, or at least R1 addresses total system restoration, but requires Operating procedures to reestablish connections within the Transmission Operator's System for "areas that have become separated". This should be revised to state "areas that have been restored and are prepared for reconnection".</p> <p>R2 — Replace "distribute its approved restoration plan to the reliability-related operational entities identified" with "distribute applicable sections of its approved restoration plan to the NERC registered reliability-related operational entities identified".</p> <p>R5 - Should be revised to state "a copy of its latest approved restoration plan within its primary and backup control centers". Entities that own two or more control centers may have facilities that do not neighbor each other. Nor do these facilities provide backup for each other. They should not be required to have restoration plans in facilities that may have no use for them.</p> <p>R9.1 — A minimum amount of units should be tested each year to avoid all units being tested in the third year.</p> <p>R12 — FE has commented against this requirement in prior drafts and we still object to the need. While we recognize the SDT has added the phrase "unique tasks" to the requirement, in an attempt to address FE's and others concern, the use of the word "unique" is subjective and open to interpretation. While FE may believe there is nothing "unique", an auditor may have a different opinion. The SDT has failed to justify that a significant reliability improvement will result from the significant cost and effort to train thousands of field substation switching personnel throughout industry. FE's field switching personnel do not independently perform transmission switching without taking direction from our transmission operations staff. It is FE's view that our field personnel do not need to be trained in the "big picture view" of system restoration and that the tasks required of them would not be significantly different than</p> |

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| | | <p>switching steps performed during normal operations. If the team does not agree with our rationale to remove training requirements for switching personnel, then at the least, the length of the training should not be specified by the standard. To provide two full hours of this training would be impossible in many cases; training on one or two "unique" tasks would probably take 20 minutes. Therefore, we believe the duration of this testing should be removed from the standard and be left up to the entity to determine.</p> <p>R13 - This requirement's use of "simulations" as an option is inconsistent with the requirements being developed by the SPT SDT in revisions to PER-005. In PER-005, the team is requiring "simulators", and it is not optional.</p> <p>R14 - Similar to our comment regarding "Agreements" in R1.1, this term should be lower case "agreements" and should reference the same footnote as stated in R2 of NUC-001-1.</p> <p>R16 - We agree that the originally proposed timeframe of 90-days was unnecessarily long, but also feel that the newly proposed 24-hour timeframe is too quick. We suggest this be changed to "seventy-two hours".</p> <p>EOP-006-2:R3 - The phrase "every twelve months" poses an unwarranted time constraint and should be changed to "annually". This change would be consistent with EOP-005-2 and several other standards currently being developed by NERC.</p> <p>R6 - Should be revised to state "a copy of its latest approved restoration plan within its primary and backup control centers". Entities that own two or more control centers may have facilities that do not neighbor each other. Nor do these facilities provide backup for each other. They should not be required to have restoration plans in facilities that may have no use for them.</p> <p>R9 - The SDT response to our request for the inclusion of a sub-requirement for "Review of the restoration plan" in the previous draft was, "Response: EOP-006-2, R10.3: The SDT believes inclusion of system restoration philosophy covers this concern". However in EOP-005 the drafting team retained two requirements the first being</p> <p>R11.1 System Restoration philosophy... and R11.5 Review of the restoration plan. This would</p> |

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| | | <p>seem to indicate that the drafting team was inconsistent in its application of the equality of these two statements. We suggest adding requirement R9.3. Review of the restoration plan. We believe a review of the plan is prudent and necessary to insure that all operating personnel know the sequence of the application of the restoration philosophies.</p> |
| <p>Response: Definitions – definition has been changed to provide clarity.</p> <p>Blackstart Resource: A generation Facility generating unit(s) and its associated set of equipment which has the ability to be started without support from the System or is designed to remain energized without connection to the remainder of the System, with the ability to energize a bus, meeting the Transmission Operator’s restoration plan needs for real and reactive power capability, frequency and voltage control, and that has been included in the Transmission Operator’s restoration plan.</p> <p>R1 - The SDT set up EOP-005 to cover restoration from Blackstart Resources. Other types of restoration are covered by EOP-006. The SDT does not feel that this structure should be changed. The definition for Complete Restoration is not required. R1.1 (old) = R1.2 (new) – requirement has been changed.</p> <p>R1.2: A description of the manner in which all Agreements or mutually agreed upon procedures or protocols for off-site power requirements of nuclear power plants, including priority of restoration, will be fulfilled during System restoration.</p> <p>R1.5 - This can be included at the discretion of the RC in EOP-006-2, R1.4. R1.6 (old) = R1.7 (new) - The SDT has made the suggested change.</p> <p>R1.7: Operating Procedures Processes to reestablish connections within the Transmission Operator’s System for areas that have become separated been restored and are prepared for reconnection.</p> <p>R2 – The requirement has been changed.</p> <p>R2: Each Transmission Operator shall distribute its approved restoration plan to the reliability-related operational entities identified in its restoration plan within thirty calendar days of having received approval from its Reliability Coordinator. Each Transmission Operator shall provide the operational entities identified in its approved restoration plan with a description of any changes to their roles and specific tasks prior to the implementation date of the plan.</p> <p>R5 - The requirement has been changed as suggested.</p> | | |

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| | | <p>R5: Each Transmission Operator shall have a copy of its latest Reliability Coordinator approved restoration plan within each of its primary and backup control centers rooms and available to all of its control room personnel System Operators prior to its implementation date</p> <p>R9.1 – The SDT believes this is a TOP scheduling issue. No change made.</p> <p>R12 – (now R11) The standard gives the TOP full capability to define the unique tasks. The SDT believes that normal tasks performed during restoration, such as switching, are not unique. As an example considered by the SDT, synchronization would generally be considered a unique task unless it were included in the field employee's normal duties. Additionally, the SDT does not believe that every field employee would need to be trained. No change made.</p> <p>R13 – (Now R12) The requirement is to participate in drills. Simulators are a tool that may be used in a drill.</p> <p>R14 – (Now R13) wording changed for clarity.</p> <p>R13: Each Transmission Operator and Generator Operator with a Blackstart Resource shall have a written Blackstart Resource Agreements or mutually agreed upon procedures or protocols, specifying the terms and conditions of their arrangement. Such Agreements shall include references to the blackstart Blackstart Resource testing requirements.</p> <p>R16 – (Now R15) The SDT believes that within 24 hours of a known change is not unduly burdensome. No change made.</p> <p>EOP-006-2: R3 – change made as suggested.</p> <p>R3: Each Reliability Coordinator shall review its restoration plan every twelve within thirteen months of the last review</p> <p>R6 - The requirement has been changed as suggested.</p> <p>R6: Each Transmission Operator shall verify through analysis of actual events, steady state and dynamic simulations, or testing that its documented restoration plan accomplishes its intended function. This shall be completed every five years at a minimum. Such analysis, simulations or testing shall analyze-verify:</p> <p>R9 - The requirement has been changed as suggested.</p> <p>R9: Each Reliability Coordinator shall include within its operations training program, annual System restoration training for its System Operators to ensure assure the proper execution of its restoration plan. This training program shall include address the following:</p> |

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| <p>R11.1, R11.5 – The SDT believes the concerns have been addressed through the revisions to R9.</p> | | |
| ITC Holdings | No | <p>R1 still references Blackstart Resources being located external to TOP system. Problematic when islanded.</p> |
| <p>Response: R1 - Islands will not necessarily be bounded by a TOP Area's boundary. Additionally, the most useful Blackstart Resource may be in an adjacent TOP's Area. The purpose is to assure that any system restoration using a Blackstart Resource uses a reliable restoration process.</p> | | |
| Ameren | No | <p>EOP-005 R4.1 Add "for approval" between "Coordinator" and "within".</p> <p>EOP-005 R6.2 Delete this entire section. An unlimited number of studies would need to be conducted. Also, while dynamic model data for generators and excitation systems should be readily available as part of annual model development efforts, dynamic representations for various motor loads at each plant which would presumably be utilized in dynamic motor starting simulations would not be readily available, and would require some effort to develop.</p> <p>EOP-005 R7.3 Replace "philosophies" with either "concepts" or "practices".</p> <p>EOP-005 R10 Eliminate this requirement from EOP-005. It is a market issue and should be located in a business practice.</p> <p>EOP-005 R11.1 Replace "philosophies" with either "concepts" or "practices".</p> <p>EOP-005 R12 Eliminate this requirement. If a blackout were to occur there might be those who are certainly capable of aiding restoration who did not have training in particular tasks. The risk of having violations after the fact might prevent quick restoration if someone like a supervisor or another well trained person was used in place of the person who normally does the switching.</p> <p>EOP-005 R13 Add "at least one of" between "in" and "its".</p> <p>EOP-005 R14 Clarification should be given to what is actually an Agreement. Is this necessary in a vertically integrated company or can some other commitment serve as an Agreement?</p> |

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| | | <p>EOP-005 R18.1 Replace “philosophies” with either “concepts” or “practices”. EOP-005 M2 Remove “such as e-mails with receipts or registered mail receipts,”. Note: “such as” statements are too prescriptive and need to be separated from the requirements. If examples are to be provided, they should be identified as options in a footnote.</p> <p>EOP-005 M3 Remove “such as dated review signature sheets, revision histories, e-mails with receipts, or registered mail receipts,”. Note: “such as” statements are too prescriptive and need to be separated from the requirements. If examples are to be provided, they should be identified as options in a footnote. EOP-005 M4 Remove “such as e-mail receipts”. Note: “such as” statements are too prescriptive and need to be separated from the requirements. If examples are to be provided, they should be identified as options in a footnote.</p> <p>EOP-005 M5 Remove “such as power flow outputs,”. Note: “such as” statements are too prescriptive and need to be separated from the requirements. If examples are to be provided, they should be identified as options in a footnote. Also, it is not the responsibility of the TO to determine that the receiving entity read the information it received. The TO should only be responsible for sending the information. Additionally, remove “and to each of its control room personnel”.</p> <p>EOP-005 M7 Remove “such as voice recordings, e-mail, dated computer printouts, or operator logs”. Note: “such as” statements are too prescriptive and need to be separated from the requirements. If examples are to be provided, they should be identified as options in a footnote. Also change “that it implemented” to “that it coordinated with the Reliability Coordinator in implementation of”.</p> <p>EOP-005 M8 Remove “, such as voice recordings, e-mail, dated computer printouts, or operator logs,” Note: “such as” statements are too prescriptive and need to be separated from the requirements. If examples are to be provided, they should be identified as options in a footnote.</p> <p>EOP-005 M10 Remove this w/ the removal of the requirement R10.</p> <p>EOP-005 M12 Remove ?and the corresponding training records including training date sand duration?.</p> |

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| | | <p>EOP-005 M13 Remove “such as training records”. Note: “such as” statements are too prescriptive and need to be separated from the requirements. If examples are to be provided, they should be identified as options in a footnote.</p> <p>EOP-005 M16 Remove “such as e-mails with receipts or registered mail receipts,?”. Note: “such as” statements are too prescriptive and need to be separated from the requirements. If examples are to be provided, they should be identified as options in a footnote.</p> <p>EOP-005 M17 Remove “such as e-mails with receipts or registered mail receipts,”. Note: “such as” statements are too prescriptive and need to be separated from the requirements. If examples are to be provided, they should be identified as options in a footnote.</p> <p>EOP-005 M18 Should read “Each Generator Operator shall have a copy of its training program material showing that it has provided training in accordance with Requirement R18.”</p> <p>EOP-005 M19 Remove “such as dated training records,”. Note: “such as” statements are too prescriptive and need to be separated from the requirements. If examples are to be provided, they should be identified as options in a footnote.</p> <p>EOP-006 R1.1 Eliminate this. Isn’t this what the plan is?</p> <p>EOP-006 R3 Replace “every twelve months” with “on an annual basis”.</p> <p>EOP-006 R4. There is a concern that if several TOs made changes in their restoration plan and submitted these changes within a short time of each other the RC might not have the flexibility to include all these changes in one revision of their plan without being “late” on the issuance of the first changes.EOP-006 R6 Remove “and available to all of its control room personnel”.</p> <p>EOP-006 R7.1 Replace “philosophies” with either “concepts” or “practices”.</p> <p>EOP-006 R8.1 Replace “philosophies” with either “concepts” or “practices”.</p> <p>EOP-006 R9.1 Replace “philosophies” with either “concepts” or “practices”.</p> |

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| | | <p>EOP-006 R10 Change “two System restorations drills, exercises or simulations” with “or participate in at least one System restorations drill, exercise or simulation”.</p> <p>EOP-006 M2 Remove “such as e-mails with receipts or registered mail receipts,” Note: “such as” statements are too prescriptive and need to be separated from the requirements. If examples are to be provided, they should be identified as options in a footnote.</p> <p>EOP-006 M3 Remove “such as a review signature sheet, or revision histories,”. Note: “such as” statements are too prescriptive and need to be separated from the requirements. If examples are to be provided, they should be identified as options in a footnote.</p> <p>EOP-006 M4 Remove “such as dated review signature sheets, or revision histories,”. Note: “such as” statements are too prescriptive and need to be separated from the requirements. If examples are to be provided, they should be identified as options in a footnote.</p> <p>EOP-006 M5 Remove “such as a review signature sheet,”. Note: “such as” statements are too prescriptive and need to be separated from the requirements. If examples are to be provided, they should be identified as options in a footnote.</p> <p>EOP-006 M6 Remove “such as e-mail receipts”. Note: “such as” statements are too prescriptive and need to be separated from the requirements. If examples are to be provided, they should be identified as options in a footnote.</p> <p>EOP-006 M7 Remove such as voice recordings, e-mail, dated computer printouts, or operator logs,?. Note: such as statements are too prescriptive and need to be separated from the requirements. If examples are to be provided, they should be identified as options in a footnote.</p> <p>EOP-006 M8 Remove “such such as voice recordings, e-mail, or operator logs,” Note: “such as” statements are too prescriptive and need to be separated from the requirements. If examples are to be provided, they should be identified as options in a footnote.</p> <p>EOP-006 M10. Change “two System restorations drills, exercises or simulations” with “or</p> |

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| | | participate in at least one System restorations drill, exercise or simulation". |
| <p>Response: R4.1 – The requirement has been revised.</p> <p>R4.1: Each Transmission Operator shall submit its revised restoration plan to its Reliability Coordinator for approval within the same ninety calendar day period.</p> <p>R6.2 - The requirement has been deleted. R7.3 - The requirement has been deleted. R10 – requirement deleted. R11.1 - The requirement has been revised. (Now R10.1)</p> <p>R10.1: System restoration philosophy plan including coordination with the Reliability Coordinator and Generator Operators included in the restoration plan.</p> <p>R12 – (Now R11) This is a training requirement, not a requirement to be followed during actual restoration. R13 – (Now R12) EOP-006-2, R10 requires the RC to conduct two drills per year. The SDT believes that it is important to reliability for the TOP to participate as requested. The requirement is for the TOP as an entity and not for individual operators. No change made. R14 – (Now R13) wording changed for clarity.</p> <p>R13: Each Transmission Operator and Generator Operator with a Blackstart Resource shall have a written Blackstart Resource Agreements or mutually agreed upon procedures or protocols, specifying the terms and conditions of their arrangement. Such Agreements shall include references to the blackstart Blackstart Resource testing requirements.</p> <p>R18.1 - The requirement has been revised. (Now R17.1)</p> <p>R17.1: System restoration philosophy plan including coordination with the Transmission Operator.</p> <p>M3-M8, M12, M13, M16, M17, M19 – The wording of the measure is consistent with NERC requirements. These are just examples. M10 – requirement and measurement deleted. M18 – The measure has been revised. (Now M17)</p> <p>M17: Each Generator Operator with a Blackstart Resource shall have an electronic or hard copy of the training program</p> | | |

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| | | <p>material provided to its operating personnel responsible for the startup and synchronization of its Blackstart Resource generation units and a copy of its dated training records including training dates and durations showing that it has provided training in accordance with Requirement R18.</p> <p>EOP-006-2 R1.1 (old) = R1.2 (new) – The sub-requirements describe required elements of the plan. No change made. R3 – wording change made.</p> <p>R3: Each Reliability Coordinator shall review its restoration plan every twelve within thirteen months of the last review</p> <p>R4 – requirement deleted. R6 – The SDT does not see this as a legitimate concern. The SDT believes it is necessary to have the restoration plan readily available. No change made. R7.1 – The requirement has been deleted and merged into R7. R8. 1 – The requirement has been deleted and merged into R8. R9. 1 – The requirement has been revised.</p> <p>R9.1: System restoration philosophy including †The coordination role of the Reliability Coordinator.</p> <p>R10 – The SDT does not see any problem with the RC conducting 2 drills per year and requiring participation at least every two years. Comments from RCs do not indicate any intent to run constant and recurring drills. No change made. M2-M8 The wording of the measure is consistent with NERC requirements M10 – Please see comment above for R10. No change made.</p> |
| Entergy Services | No | <p>EOP-006 R4 suggested rewording: Each Reliability Coordinator shall update its restoration plan within ninety calendar days after identifying a necessary change in their coordination tasks or responsibilities. Updates may be necessitated due to changes to one of its Transmission Operator’s restoration plans or a neighboring Reliability Coordinator’s restoration plan.</p> <p>EOP-006-2 R1.7 is unclear</p> <p>EOP-006-2 R1 - in stating the scope of the RC plan (when it begins and when it ends), the wording is not clear on whether the scope ends when at least one connection is made between separated TOPs/RCs or do all connections need to be in place? It seems to imply that one connection between each will suffice. This doesn’t necessarily seem optimal for all</p> |

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| | | <p>circumstances. In fact, I find the concept of defining the scope very difficult and not at all a "one size fits all." What is the purpose of trying to define a one size fits all scope?</p> |
| <p>Response: R4 - The requirement has been deleted. R1.7 (old) = R1.8 (new) – The SDT disagrees – no other entity has raised this issue. No change made. R1 – The SDT believes that as worded, this is at least one connection to each RC Area. The intent was to provide a clear measure of the end of the 'restoration' period.</p> | | |
| Operating Reliability Working Group (ORWG) | No | <p>EOP-005R1. Including the definition of a restored state in R1 does not add to the requirement. If it is necessary to include this definition, it could be incorporated into the standard as a sub-requirement of R1. We suggest ending the second sentence of the requirement with '?the shut down area to service.' and deleting the remainder of the sentence.</p> <p>R11. Replace 'to' with 'for' in the first sentence: '?System restoration training for its System Operators?'.</p> <p>R16. The 24-hour notification requirement is not consistent with the 30-minute notification requirement in R3 of VAR-002-1a. This requirement should be changed to bring it in line with existing reporting requirements.EOP-006R1. Similar to what we proposed with R1 in EOP-005 we suggest either deleting the second sentence of R1 or include it as a sub-requirement.M1. The measure asks for a 'dated' copy of the restoration plan but R1 does not specifically require the plan to be dated. Either add the requirement that the plan be dated or delete 'dated' in M1.</p> |
| <p>Response: R1 - The SDT has carefully defined the scope of restoration covered by these two standards. No change made. R11 – The SDT believes "to" is the correct term. R16 – The presumption in VAR-002-1a is that the associated generator is on-line. The presumption of EOP-005-2 is that the unit is not on-line but may be needed.</p> <p>EOP-006-2 R1 - The SDT has carefully defined the scope of restoration covered by these two standards. No change made. M1 – The SDT believes that all evidence of compliance must be dated.</p> | | |
| ISO RTO Council/Standards Review Committee | No | <p>EOP-005</p> <p>R1.1: This subrequirement is redundant to NUC-001-1 R9.3 and its subrequirements, which implicitly requires that an agreement shall be in place to ensure backup supply is provided to the nuclear power plant. We suggest to remove R1.1.</p> |

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| | | <p>R1.2: The term "integrity of the Interconnection" is not defined nor is it measurable. We suggest to revise R1.2 to: "Procedures for restoring interconnection with other Transmission Operator areas under the direction of the Reliability Coordinator."</p> <p>R9.2.1: We do not agree to the changes made to EOP-005-2 R9.2.1 in this draft. From a practical standpoint it is not possible to test a unit's ability to remain online indefinitely after every imaginable disturbance. We suggest this requirement be revised to specify a definite test time period, say 1 to 2 hours, long enough to fulfill the intended task to energize off-potential facilities and supply some loads.</p> <p>R10: Posting the requirements for testing Blackstart resources is not a reliability requirement, but communicating the testing requirements to the GOP is. We suggest to change R10 to: "Each Transmission Operator shall communicate its Blackstart Resource testing requirements to the Generator Operator in its area that has a Blackstart Resource."</p> <p>R14: This is an unnecessary requirement. Since the TOP must have a restoration plan as mandated by R1, the TOP will need to contract for Blackstart services to meet R1. It follows that the TOP must have a contractual agreement with the GOP that has the Blackstart resource. R14 is thus redundant, and we suggest to remove it.</p> <p>EOP-006</p> <p>R1.1: The term "integrity of the Interconnection" is not defined nor is it measurable. We suggest to revise R1.2 to: "Procedures for restoring interconnection with other Reliability Coordinator areas."</p> <p>R8: This requirement as written can result in finding the RC non-compliant for not authorizing re-synchronization for any reason, such as reliability concerns. We suggest to revise this to read: ""The Reliability Coordinator shall authorize and coordinate resynchronizing islanded areas that bridge boundaries between Transmission Operators or Reliability Coordinators, provided that the resynchronization does not jeopardize the reliability of either of the areas to be synchronized."</p> |
| Alberta Electric System Operator | No | We supports comments by the IRC/SRC. |

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| | | <p>Response: R1.1 (old) = R1.2 (new) – The SDT believes that it is necessary to reference support of nuclear units in the restoration plan. R1.2 (old) = R1.3 (new) - The requirement has been revised as suggested.</p> <p>R1.3: Procedures for restoring the integrity of the Interconnection interconnections with other Transmission Operators under the direction of the Reliability Coordinator.</p> <p>R9.2.1 – The requirement does not specify a time. R9 states the test must “verify that each Blackstart Resource is capable of meeting the requirements of its restoration plan.” R10 – requirement was deleted. R14 – The SDT believes that R1 does not require the TOP to have a contract. No change made.</p> <p>EOP-006-2 R1.1 (old) = R1.2 (new) – integrity deleted.</p> <p>R1.2: Procedures Processes for restoring the integrity of the Interconnection.</p> <p>R8 – wording changed for clarity.</p> <p>R8: The Reliability Coordinator shall coordinate or authorize and coordinate resynchronizing islanded areas that bridge boundaries between Transmission Operators or Reliability Coordinators. If the resynchronization cannot be completed as expected because actual conditions do not match the studied conditions, the Reliability Coordinator shall utilize its restoration plan strategies to facilitate resynchronization.</p> |
| AEP | No | <p>R3.1 Replace “that it has reviewed it’s” with “that the Transmission Operator has reviewed it’s</p> <p>“EOP 005-R5 - Suggest adding a date requirement. Each Transmission Operator shall have a copy of its latest approved restoration plan within each of its control centers and available to all of it control room personnel within 15 days of being approved. Presently only the VSL has a date requirement.</p> <p>EOP 006-2R8 ? Change ?The Reliability Coordinator shall? to “The Reliability Coordinators shall” to address seams issues in system restoration between RC / RC and TO / TO are as.</p> <p>Compliance 1.4 Data Retention R1 / M1 Who approves the RC’s restoration plan?</p> |

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| | | <p>R13 of EOP-005 should better agree with the text of R10.1 of EOP-006, which requires TO participation in the RC restoration/black-start drills at least every two calendar years.</p> <p>R13 of EOP-005 just says the TO will participate "as requested by its RC", which could be interpreted as an unlimited number of requests from the RC, for example if the RC requests 10 drills, the TO would have to participate in 10 drills. We believe R13 of EOP-005 should read?. "Each Transmission Operator shall participate in its Reliability Coordinator's restoration drills, exercises, or simulations at least every two calendar years".</p> <p>M13 of EOP-005, in correspondence to the above for R13 of EOP-005, should include the two calendar year reference for measurement, such as, "Each Transmission Operator shall have evidence, such as training records, that it participated in the Reliability Coordinator's restoration drills, exercises, or simulations, at least every two calendar years in accordance with Requirement R13".</p> |
| <p>Response: R3.1 – While the SDT does not feel that the requirement is ambiguous, any possible ambiguities should be clarified by the change made to R3.</p> <p>R5 – The requirement has been revised.</p> <p>R5: Each Transmission Operator shall have a copy of its latest Reliability Coordinator approved restoration plan within each of its primary and backup control centers rooms and available to all of its control room personnel System Operators prior to its implementation date.</p> <p>EOP-006-2</p> <p>R8 – Standards apply to individual registered entities. No change made.</p> <p>M1 – There is no formal approval but peers do receive copies. No change made.</p> <p>R10.1 and EOP-005-2 R13 – The SDT does not see any inconsistency with the RC conducting 2 drills per year and requiring participation at least every two years. Comments from RCs do not indicate any intent to run constant and recurring drills.</p> | | |
| Dominion Virginia Power | No | <p>We endorse the comments submitted by the SERC Operating Committee. In addition, we reiterate our previous position on the requirement regarding training of switching personnel currently defined in R12 of standard EOP-005. Like many other TOs, our training and recertification program for field switching personnel is on a three year cycle. This switching recertification training is not a requirement in any NERC Reliability Standard yet we provide it because we believe it to be Good Utility Practice. We also believe that specific training on</p> |

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| | | <p>restoration-related switching tasks for field personnel will also be Good Utility Practice, and we see good reason to incorporate such training into our three year program. This program has proven to be more than adequate, and we see no basis or compelling reason for having to establish a separate training program (on a different cycle) specifically for restoration-related switching tasks instead of being allowed to incorporate such training into our established three year program. Our switchmen have proven by their performance in the field that our three year recertification program has provided excellent training. We request that Requirement R12 be revised to read: R12. Each Transmission Operator shall provide a minimum of 2 hours of System Restoration training as part of their regular training and recertification program for field switching personnel identified as performing unique tasks associated with its restoration plan and outside of their normal tasks.</p> |
| <p>Response: R12 – The SDT does not see training every two years as unduly burdensome. The standard gives the TOP full capability to define the unique tasks. The SDT believes that normal tasks performed during restoration, such as switching, are not unique. As an example considered by the SDT, synchronization would generally be considered a unique task unless it were included in the field employee’s normal duties. Additionally, the SDT does not believe that every field employee would need to be trained. It would be impossible for an interconnection-wide standard to fit every existing practice.</p> | | |
| Pacific Gas and Electric Company | No | <p>EOP-005-2 R1.1 — Formal approval by FERC currently include agreements and procedures to meet this requirement in NUC-001. The wording as stated is not clear, what would an auditor be looking for in the ?description of the manner in which all Agreements ...??</p> <p>R1.4 - Cranking Path? is not a term utilized throughout the industry. If an entity has few blackstart generators that are located close to major generating stations, then the term would fit. However, if there are numerous blackstart units with multiple options for how to get from the blackstart to the major generating stations, then the term may not apply. If the blackstart resources are capable of restoring significant portions of a system then the term “cranking path” is not utilized. Suggest terminology which will apply across the industry .</p> <p>R2 — The interpretation of the term "reliability-related operational entities" is not defined. Who is a "reliability-related operational entity; the RC, BA, TO, in some cases the LSE???</p> <p>R5 — Not sure why a “copy” is necessary, if the operator knows where the electronic version is. A lot of company’s are going paperless and do not want a lot of books around the control room. Suggest adding terminology for access to the electronic version.</p> |

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| | | <p>R6 — Does this requirement to apply to the entire Interconnection rather than just those loads for a particular area? Why are all three options being required? The requirement should state that any of the options: actual event, simulation, or testing is sufficient to meet the requirement. The criteria for the studies are not defined as to what constitutes the meeting compliance for this requirement?</p> <p>R7 — Why aren't the Balancing Authorities included in this requirement to "work with" their RC. If the BA is disseminating information about restoration, shouldn't they be included in the applicability section? At what point does the BA get notified their system has been restored and the BA can resume their function??</p> <p>R7.1 "Philosophies" end with the experience retiring or leaving. We suggest replacing it with "practices" and this would apply throughout the document.</p> <p>R7.2 — The word "progress" is open to interpretation by each RC. We suggest rewording so that EOP-005, R7.2 aligns with "reporting requirements?? in EOP-006, R1.</p> <p>R7.3 - The use of the word "philosophies" should be replaced with the word "practices" to make it clearer to the reader. All other references should also be changed.</p> <p>R10: What is the definition of "public forum" With the current state of National Security, this requirement seems like a violation. Sharing with your neighbors and the RC should be the only requirement.</p> <p>R11 — Training in of itself does not "ensure" anything. The expectation of training to "ensure the proper execution of its restoration plan" is not accurate. Training does not "ensure that proper execution" occurs for every event. Suggest ending the statement at training. "This training program shall include"...., etc.; should the drafting team decide to leave it in then the wording should be changed to say only "knowledgeable execution can result" from training.</p> <p>R11.1 "Philosophies" end with the experience retiring or leaving. We suggest replacing it with "practices" and this would apply throughout the document.</p> <p>R11.3 — Cranking Path? is not a term utilized throughout the industry. Suggest different</p> |

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| | | <p>terminology which will apply across the industry.</p> <p>R12 — This seems very limiting. Since it is unknown what might lead to a blackout, we would not want to be limited on our manpower and depending on occurred to take us down, there may not be enough “field switching personnel” who attend the training to assist. There could be those who are capable of aiding in the restoration, i.e. a supervisor or another well trained person, who have not been trained in a particular task.</p> <p>R13 — It is not really clear on the meaning of “Each Transmission Operator...” Does this mean the registered entity or each operator, as in all the operators from each TO?</p> <p>M2 — M8 “such as” statements are too prescriptive and need to be separated from the requirements. If examples are to be provided, they should be identified as options in a footnote.</p> <p>M16 — M17 “such as” statements are too prescriptive and need to be separated from the requirements. If examples are to be provided, they should be identified as options in a footnote.</p> |
| <p>Response: R1.1 (now R1.2) – wording changed.</p> <p>R1.2: A description of the manner in which all Agreements or mutually agreed upon procedures or protocols for off-site power requirements of nuclear power plants, including priority of restoration, will be fulfilled during System restoration.</p> <p>R1.4 – Cranking Path is a defined term in the NERC Glossary of Terms. Nothing requires the TOP to have multiple Cranking Paths, only that if there are multiple paths, they be identified.</p> <p>R2 – The requirement has been revised. R2: Each Transmission Operator shall distribute its approved restoration plan to the reliability-related operational entities identified in its restoration plan within thirty calendar days of having received approval from its Reliability Coordinator. Each Transmission Operator shall provide the operational entities identified in its approved restoration plan with a description of any changes to their roles and specific tasks prior to the implementation date of the plan.</p> <p>R5 – The SDT believes it is necessary to have a paper copy to cover the potential loss of access to electronic copies.</p> | | |

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| | | <p>R6 - The scope of the TOP's restoration is described in R1 as "to a state whereby the choice of the next Load to be restored is not driven by the need to control frequency or voltage regardless of whether the Blackstart Resource is located within the Transmission Operator's System." The use of the conjunction "or" indicates these are options, not individually required methods. M6 would be used for compliance.</p> <p>R7 - Please see new Requirement R1.9 for treatment of the BA.</p> <p style="padding-left: 40px;">R1.9 - Criteria for transferring operations and authority back to the Balancing Authority.</p> <p>R7.1 and R7.2 have been deleted, R7.3 has been moved into the requirement, "philosophies" has been replaced with "strategies".</p> <p>R10 – requirement deleted.</p> <p>R11 – "ensure" has been replaced by "assure". (Now R10)</p> <p style="padding-left: 40px;">R10: Each Transmission Operator shall include within its operations training program, annual System restoration training to its System Operators to ensure assure the proper execution of its restoration plan. This training program shall include training on the following:</p> <p>R11.1 – The requirement has been revised. (Now R10.1)</p> <p style="padding-left: 40px;">R10.1: System restoration philosophy plan including coordination with the Reliability Coordinator and Generator Operators included in the restoration plan.</p> <p>R11.3 - Cranking Path is a defined term in the NERC Glossary of Terms.</p> <p>R12 – The standard gives the TOP full capability to define the unique tasks. The SDT believes that normal tasks performed during restoration, such as switching, are not unique. As an example considered by the SDT, synchronization would generally be considered a unique task unless it were included in the field employee's normal duties. Additionally, the SDT does not believe that every field employee would need to be trained. This is a requirement for preparation, not actions during restoration.</p> <p>R13 – Transmission Operator is a registered entity. The TOP does not need to have every System Operator participate in a drill to assure its participation as a TOP entity.</p> <p>M2-M8 The wording of the measure is consistent with NERC requirements. No change made.</p> <p>M16, M17 - The wording of the measures is consistent with NERC requirements. No change made.</p> |
| Duke Energy | No | In EOP-005-2 requirement R10, the SDT creates a new system by requiring that the Blackstart |

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| Corporation | | <p>Test requirements be placed in a public forum. What advantage is there in having these requirements in a public forum? Why must there be added expense to the TO to maintain this public site? Why can they not be submitted to the generators that have blackstart capability? The answer for the public forum is not the OASIS, for that is not the purpose of that site to distribute test requirements to generators.</p> <p>In EOP-005 requirement R14, if the TO and the GO are the same entity, why is an agreement required? If they are the same entity, then R14 should be "not applicable", or alternatively, the terms and conditions of the arrangement could be included in the Restoration Plan.</p> <p>EOP-005-2 requirements R13 and R19 mandate that TOs and GOs participate in drills, exercises or simulations as requested by the RC. However the related EOP-006-2 requirements R10 and R10.1 are confusing. R10 requires the RC to conduct two drills, exercises or simulations per year, while R10.1 requires the RC to request participation from each TO and GO at least every two calendar years. The RC could require every TO and GO to participate in two drills per year, which seems excessive.</p> |
| <p>Response: R10 – requirement deleted.</p> <p>R14 – wording revised. (now R13)</p> <p>R13: Each Transmission Operator and Generator Operator with a Blackstart Resource shall have a written Blackstart Resource Agreements or mutually agreed upon procedures or protocols, specifying the terms and conditions of their arrangement. Such Agreements shall include references to the blackstart Blackstart Resource testing requirements.</p> <p>R13-R19 – It is possible for the RC to request participation two times per year. The SDT believes this is not an undue burden.</p> | | |
| Santee Cooper | No | <p>Suggested changes for Standard EOP-005-2: R1. Santee Cooper recommends splitting the second sentence of R1 into two sentences. Suggestion is to add a period after "restore the shutdown area to service." The last sentence would read as "The end of restoration is a state whereby the choice of the next Load to be ?.</p> <p>"Capitalization of Operating Procedures in R1.6 and R1.7 requires a company to have specific steps and tasks to achieve a specific operating goal. It is impossible to develop Operating Procedures for every possible scenario that may require system restoration. Recommend changing "Operating Procedure" to the defined term "Operating Process" in R1.6 and R1.7.</p> |

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| | | <p>This term is defined as a document that identifies general steps for achieving a generic operating goal and better suits these requirements.</p> <p>R5. Recommend removal of "and available to all of its control room personnel". This seems redundant - if the copy of the restoration plan is within the control centers, then it is available to control room personnel.</p> <p>R6. Santee Cooper recommends that R6 be rewritten to reflect that a restoration plan needs to be developed in such a manner that it provides guidance and allows for flexibility to address many different sets of conditions and events. Restoration plans that are developed for one specific set of conditions will probably bear no resemblance to what actually occurs. We recommend R6.2 be removed. This requirement as written appears to require dynamic simulations for an infinite number of possibilities of the system to satisfy compliance requirements.</p> <p>R10. We recommend R10 be removed from the Standard and put in a Business Practice since this is a market function.</p> <p>R12. Santee Cooper recommends that R12 be rewritten to state that "Each Transmission Operator shall provide System Restoration training to field switching personnel identified as performing unique tasks." Where does this specific time allotment come from? In Order 693, the Commission did not specify an amount of hours to train.</p> <p>R14. Santee Cooper suggests that vertically integrated utilities be exempt from this Requirement. A statement should be added to R14 to that effect.</p> <p>R18. Santee Cooper recommends that R18 be rewritten to state that "Each Generator Operator of a Blackstart Resource shall provide training to each of its operating personnel responsible for the startup and synchronization of its Blackstart Resource generation units." Where does this specific time allotment come from? In Order 693, the Commission did not specify an amount of hours to train. Santee Cooper suggest deleting the "such as" and language following from all the measures. If the SDT wants to provide examples then we suggest including words "such as but not limited to".</p> |

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| | | <p>M10. This measure should be deleted should be removed along with R10 - this is a market function that should be relocated to a business practice.</p> <p>M12. Santee Cooper recommends deleting "and the corresponding training records including training dates and duration" from this measure. We feel this measure is going beyond the scope of the requirement. A roster of the attendees from the required training program should be sufficient to meet the requirement.</p> <p>M18. Suggest rewording of this measure as follows: Each Generator Operator shall have a copy of the roster of the attendees of the required training program should be sufficient to meet the requirement.</p> <p>Suggested changes for Standard EOP-006-2:R5.2 Santee Cooper believes restoration plans should be tailored for each particular system, and its particular circumstances, and therefore should not require approval by a Reliability Coordinator as long as all of the requirements associated with the related NERC standards are satisfied (i.e., the RC should not perform a compliance monitoring). We believe they should be allowed input into a TOP's plan. If an RC fails to approve a TOP's plan, does that make you non-compliant? The standard should contemplate this as a possibility.</p> <p>R6. Recommend removal of "and available to all of its control room personnel". This seems redundant - if the copy of the restoration plan is within the control centers, then it is available to control room personnel.</p> <p>R10. Santee Cooper recommends changing shall conduct to "shall conduct or participate in". This allows an RC to participate in a System Restoration drill with a neighboring entity or on a regional level. Santee Cooper suggests deleting the "such as" from all the measures.</p> |
| <p>Response: R1 - The SDT believes R1 is correct as written – the intent is to define the scope of the restoration plan. R1.6, R1.7 (now R1.7 and R1.8) – “procedures” has been replaced with “processes”.</p> <p>R1.7: Operating Procedures Processes to reestablish connections within the Transmission Operator’s System for areas that have become separated been restored and are prepared for reconnection.</p> <p>R1.8: Operating Procedures Processes to restore Loads required to restore the System, such as station service for substations, units to be restarted or stabilized, the Load needed to stabilize generation and frequency, and provide</p> | | |

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| | | <p>voltage control for restoring the System.</p> <p>R5 – The requirement has been revised. The SDT believes the intent is better met by retaining the phrase.</p> <p>R5: Each Transmission Operator shall have a copy of its latest Reliability Coordinator approved restoration plan within each of its primary and backup control centers rooms and available to all of its control room personnel System Operators prior to its implementation date.</p> <p>R6 – The SDT believes that the restoration plan should provide a complete example of how the system can be restored as defined in the scope described in Requirement 1. Requirement 7 is meant to cover the reasonable expectation that the system cannot be restored precisely as described in the plan. No change made.</p> <p>R6.2 does not require any specific simulation. R6 requires verification through a set of optional methods. No change made.</p> <p>R10 – requirement deleted.</p> <p>R12 – The standard gives the TOP full capability to define the unique tasks. The SDT believes that normal tasks performed during restoration, such as switching, are not unique. As an example considered by the SDT, synchronization would generally be considered a unique task unless it were included in the field employee’s normal duties. Additionally, the SDT does not believe that every field employee would need to be trained. The SDT believes that 2 hours of training is a minimum for familiarity with the purpose and risks associated with specific tasks.</p> <p>R14 – wording changed. (now R13)</p> <p>R13: Each Transmission Operator and Generator Operator with a Blackstart Resource shall have a written Blackstart Resource Agreements or mutually agreed upon procedures or protocols, specifying the terms and conditions of their arrangement. Such Agreements shall include references to the blackstart Blackstart Resource testing requirements.</p> <p>R18 - The SDT believes that 2 hours of training is a minimum for familiarity with the purpose and risks associated with specific tasks.</p> <p>M10 – R10 was deleted.</p> <p>M12, M18 - The SDT believes that all evidence of compliance must be dated. Since there is a time requirement, then the duration must be documented.</p> <p>EOP-006-2</p> <p>R5.2 – The SDT has written EOP-005-2 and EOP-006-2 to permit the RC to have input to the TOP’s restoration plan. The RC does not approve for compliance but for coordination with the RC’s plan. The plan must be approved by the RC. The SDT</p> |

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| | | <p>believes that every TOP will have an approved plan at the end of the implementation plan.</p> <p>R6 - The SDT believes it is necessary to have the restoration plan readily available but changes were made for clarity.</p> <p>R6: Each Reliability Coordinator shall have a copy of its latest restoration plan and copies of the latest approved restoration plan of each Transmission Operator in its Reliability Coordinator Area within each of its primary and backup control centers rooms and available to all of its control room personnel System Operators prior to the implementation date.</p> <p>R10 – RC's may jointly conduct drills and meet the requirement.</p> <p>Measures - The wording of the measures is consistent with NERC requirements.</p> |
| Midwest ISO Stakeholders Standards Collaborators | No | <p>For EOP-005:R1.1 is redundant to NUC-001-1 R9.3 and its subrequirements. It should be struck.</p> <p>R1.2 is superfluous, is not measurable and should be struck.</p> <p>R1.6 and R1.7 together accomplish the intention of this requirement. You can't measure the integrity of the interconnection. Integrity is a relative term. Relative terms should be avoided in writing standards.</p> <p>R10 is not a reliability requirement. It appears to focus more on meeting market principles (non-discriminatory access). While reliability standards can't conflict with market principles, they neither should be used to establish or uphold market principles. Removing this requirement will not create an impediment to any markets for blackstart resources. If the TOP needs to have Blackstart Resources, they will make this known appropriately and other rules (orders 888, 889, and 890) exist to incent the TOP to make the information publicly available.</p> <p>The minimum time duration of training for R12 and R18 should be removed and replaced with a requirement to establish a training objective. There is no justification for the minimum time duration. To meet the training objectives may take a longer or shorter amount of time to train field switching personnel that will perform unique tasks during restoration that are outside their normal tasks. If two hours of training is not enough to train the field switching personnel particular to a TOP's restoration plan, reliability would not be served by measuring the duration. One can measure whether training objectives have been met. The System Personnel Training standards drafting team has focused on a system approach to training.</p> |

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| | | <p>This systematic approach focuses on objectives first and foremost. For consistency, this draft standard should focus on meeting training objectives also rather than minimum time duration.</p> <p>R14 is an unnecessary requirement. Because the TOP must have a restoration plan R1, the TOP will contract for Blackstart services to meet R1. The incentive is given by the potential for penalties for \$1,000,000/day/event. The TOP won't be able to meet R1 without the agreements so this is really an opportunity for double jeopardy. Requirement 14 is also written presuming that if a Blackstart resource exists, the GOP must have an agreement. What if the resource is not needed? It is also written stating that a TOP has blackstart resources. TOPs don't have blackstart resources GOPs do. It would appear though to assume that the TOP needs access to all blackstart resources on their System. They may not.</p> <p>For R16, why should a GOP be allowed to wait 24 hours before notifying the TOP of changes to the capability of a blackstart resource. There is no justification for the GOP not notifying the TOP within one hour.</p> <p>For EOP-006:R1 - All but the first sentence of R1 should be struck. The RC's restoration plan will define the scope. Everything after the first sentence is prescriptive and tells the RC how to do his job not what his job is. The requirement should specify what not how. It would be appropriate to have these extra sentences in an attachment though to explain what the scope of the RC restoration plan might look like.</p> <p>R1.1 is superfluous, is not measurable and should be struck. You can't measure the integrity of the interconnection. Integrity is a relative term. Relative terms should be avoided in writing standards.</p> <p>R8 as written will cause an RC to be non-compliant for not authorizing re-synchronization for any reason. Obviously, there are reliability reasons not to authorize re-synchronization. Some language needs to be added so that a refusal for reliability reasons is not a compliance violation.</p> |
| <p>Response: R1.1 (old) = R1.2 (new)– The SDT believes the requirement is valid but wording changed for clarity.</p> <p>R1.2: A description of the manner in which all Agreements or mutually agreed upon procedures or protocols for off-site power requirements of nuclear power plants, including priority of restoration, will be fulfilled during System restoration.</p> | | |

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| | | <p>R1.2 (old) = R1.3 (new) – The requirement has been revised.</p> <p>R1.3: Procedures for restoring the integrity of the Interconnection interconnections with other Transmission Operators under the direction of the Reliability Coordinator.</p> <p>R1.6 & R1.7 (old) = R1.7 & R1.8 (new) – The requirements have been revised.</p> <p>R1.7: Operating Procedures Processes to reestablish connections within the Transmission Operator’s System for areas that have become separated been restored and are prepared for reconnection.</p> <p>R1.8: Operating Procedures Processes to restore Loads required to restore the System, such as station service for substations, units to be restarted or stabilized, the Load needed to stabilize generation and frequency, and provide voltage control for restoring the System</p> <p>R10 – requirement deleted.</p> <p>R12 and R18 - The SDT believes that 2 hours of training is a minimum for familiarity with the purpose and risks associated with specific tasks.</p> <p>R14 – The intent is to assure reliability in areas where the TOP may be a separate legal entity from the GOP. If a Blackstart Resource is not needed, this standard does not apply. Further, the definition of Blackstart Resource requires that it “has been included in the Transmission Operator’s restoration plan.” If a unit with blackstart capability exists but is not included in the plan, then it is not a Blackstart Resource. A TOP determines the Blackstart Resources in its area.</p> <p>R14: Each Transmission Operator and Generator Operator with a Blackstart Resource shall have a written Blackstart Resource Agreements or mutually agreed upon procedures or protocols, specifying the terms and conditions of their arrangement. Such Agreements shall include references to the blackstart Blackstart Resource testing requirements.</p> <p>R16 – The SDT believes that 24 hours is a minimum requirement.</p> <p>EOP-006-2</p> <p>R1 - EOP-006-2 describes the scope of the RC’s restoration plan beginning when “...or separation has occurred between neighboring Reliability Coordinators, or an energized island has been formed on the Bulk Electric System (BES) within the Reliability Coordinator Area. The scope of the Reliability Coordinator’s restoration plan ends when all of its Transmission Operators are interconnected and its Reliability Coordinator Area is connected to all of its neighboring Reliability Coordinator Areas.” The scope covers what has been called “partial shutdown” as well as restoration using Blackstart Resources.</p> |

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| <p>R1.1 (old) = R1.2 (new – wording changed for clarity.</p> <p>R1.2: Procedures Processes for restoring the integrity of the Interconnection.</p> <p>R8 – The RC can establish processes and conditions for synchronization – it does not need to explicitly authorize every single synchronization. No change made.</p> | | |
| <p>American Transmission Company</p> | <p>No</p> | <p>Requirement 1 should be broken into two requirements. New Requirement 1: The TOP shall have a restoration plan that is accepted by its Reliability Coordinator. The use of the word "approved" gives the impression that the RC is approving compliance with EOP-005-2, when in practice the RC is determining whether the TOP's restoration plan is coordinated with the RC's restoration plan as well as being compatible with other TOP's restoration plans. Using the word accepted more accurately identifies the role of the RC in reviewing the TOP's restoration plan.</p> <p>Requirement 2: The TOP's restoration plan shall allow for restoring the Transmission Operator's System following a Disturbance in which one or more areas of the Bulk Electric System (BES) shuts down and the use of Blackstart Resources is required to restore the shut down area to service, to a state whereby the choice of the next Load to restore is not driven by the need to control frequency or voltage. The restoration plan shall include: The proposed separation better represents the goal of the standard while not changing the importance of getting the RC to accept a TOP's restoration plan.</p> <p>Modification to 1.3 (existing numbering) Blackstart Resource information: New Requirement 1.3.1: Name of the Blackstart Resource(s) New Requirement 1.3.2: Location of the Blackstart Resource(s) New Requirement 1.3.3: Megawatt and megavar capacity of each Blackstart Resource(s) New Requirement 1.3.4: Type of unit of the Blackstart Resource(s)The change more accurately represents the goal of this requirement. The current language requires that the TOP include all those items identified along with something else. ATC is concern that without the change the TOP will have to include some other characteristics which has not been listed.</p> <p>Requirement 1.4 (existing numbering) Identification of the Cranking Path(s) and initial switching requirements between each Blackstart Resource and the unit(s) to be started. The small change indicates that a TOP can have one or more paths. Without this change the</p> |

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| | | <p>standard is requiring multiple paths for each unit to be started. This change should also be in Requirement 6.1.</p> <p>Requirement 4: (existing numbering)ATC understands what the SDT is attempting to achieve in Requirement 4 but believes that compliance enforcement will be problematic. ATC does not offer a change to the requirement but believes that it should be deleted.</p> <p>Requirement 5: (existing numbering) The term "control center personnel" is currently not defined and needs clarity. Who in a TOP organization is covered under the term "control center personnel"? Suggestion: Each TOP shall have a copy of its latest restoration plan within its control center(s).General Comment: ATC agree with the change from "rolling 365" to "annually".</p> <p>(Requirements 3 and 3.1)EOP-006-2Requirement 3In EOP-005-2 the SDT uses the phrase "annual review" but Requirement 3 uses the phrase "every twelve months". Why the difference in language for the review interval? ATC prefers the phrase "annually review" over "every twelve months".</p> <p>Requirement 5.2 (Proposed Modification)The RC shall accept or reject the TOP's restoration plan based on requirement 5.1 within thirty calendar days following the receipt of the restoration plan from the TOP.</p> <p>Requirement 5.3The RC shall provide written notification to the TOP of its decision. New Requirement 5.3.1If the TOP's restoration plan is rejected the RC shall provide the specific reason for the rejection(s).</p> <p>Requirement 6: (existing numbering)The term "control center personnel" is currently not defined and needs clarity. Who in a RC's organization is covered under the term "control center personnel"? Suggestion: Each RC shall have a copy of its latest restoration plan and the latest restoration plan of each TOP in its Reliability Coordinator Area, within its control center(s).</p> |
| <p>Response: R1 - The SDT believes R1 is correct as written – the intent is to define the scope of the restoration plan. No change made.</p> <p>R1.3 (old) = R1.4 (new) – The wording was changed for clarity.</p> | | |

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| | | <p>R1.4: Identification of each Blackstart Resource and its characteristics including but not limited to the following: the name of the Blackstart Resource, location, megawatt and megavar capacity, and type of unit.</p> <p>R1.4 (old) = R1.5 (new) – Cranking Path is a defined term in the NERC Glossary of Terms. Nothing requires the TOP to have multiple Cranking Paths, only that if there are multiple paths, they be identified.</p> <p>R4 – The SDT believes the requirement is needed.</p> <p>R5 – wording changed.</p> <p>R5: Each Transmission Operator shall have a copy of its latest Reliability Coordinator approved restoration plan within each of its primary and backup control centers rooms and available to all of its control room personnel System Operators prior to its implementation date</p> <p>EOP-006-2</p> <p>R3 – wording changed.</p> <p>R3: Each Reliability Coordinator shall review its restoration plan every twelve within thirteen months of the last review</p> <p>R5 – Requirement R5.2 was merged into R5.1.</p> <p>R5.1: The Reliability Coordinator shall determine whether the Transmission Operator’s restoration plan is coordinated and compatible with the Reliability Coordinator’s restoration plan as well as being compatible with and other Transmission Operators’ restoration plans within its Reliability Coordinator Area. The Reliability Coordinator shall approve or disapprove, with stated reasons, the Transmission Operator’s submitted restoration plan within thirty calendar days following the receipt of the restoration plan from the Transmission Operator.</p> <p>R6 – wording changed.</p> <p>R6: Each Reliability Coordinator shall have a copy of its latest restoration plan and copies of the latest approved restoration plan of each Transmission Operator in its Reliability Coordinator Area within each of its primary and backup control centers rooms and available to all of its control room personnel System Operators prior to the implementation date.</p> |
| Entergy Services, Inc. System | No | EOP-005R1.2 the requirement "restoring the integrity of the Interconnection" is too vague as written; additionally, GOs and TOPs cannot restore the integrity of the Interconnection, only |

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| <p>Planning & Operation (Generation)</p> | | <p>those elements under their control.</p> <p>R3 the "mutually agreed predetermined schedule" adds unnecessary complexity. The requirement should state that the TOP review and submit for approval its procedure to their RC once per calendar year.</p> <p>R4 90 days seems too long for a emergency procedure to possibly contain incorrect information.R5 should state "RC" approved rather than just "approved"; "control room personnel" should be changed to "System Operators" as these are the individuals responsible for taking the actions. For those control centers not staffed by System Operators consider defining and using the term "field operators" or similar.R6 remove the term "documented" prior to "restoration plan". "RC approved" would be more appropriate if any qualifier is used. Insert the term "analysis" in the last sentence: "Such analysis, simulation, or testing shall analyze:?"</p> <p>R8 does "or in accordance with the established procedures of the RC" imply that the TOP can resynchronize with neighboring TOP areas without authorization from the RC?</p> <p>R10 serves no obvious reliability purpose and should be eliminated.</p> <p>R11 remove the words "to ensure the proper execution of its restoration plan" as they are not necessary.R11.1 refers to philosophies however the philosophy of a restoration plan is not a required part of the plan as specified in R1, consider adding it as a component in R1 or rephrasing/eliminating the requirement.</p> <p>R15 consider adding words similar to "?as directed by their TOP or RC."</p> <p>R16 should this requirement direct the TOP to notify the RC of changes?</p> <p>R17 eliminate the words "?to verify that the Blackstart Resource can perform as specified in the restoration plan." as they serve no purpose.R18 should include a sub requirement to review procedures.</p> <p>R18.1 refers to philosophies however the philosophy of a restoration plan is not a required part</p> |

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| | | <p>of the plan as specified in R15, consider adding it as a component in R15 or rephrasing/eliminating the requirement.</p> <p>M4 consider changing the wording to state "that is has updated and submitted its revised restoration plan to its Reliability coordinator in accordance with Requirement 4."M16 add voice recordings as an example of evidence.</p> <p>M18 add attendance list to records to be retained.EOP-006R1 use the term Reliability Coordinator "Areas".</p> <p>R1 also does not account for the possibility that an entity may have extensive damage to transmission lines and cannot restore an connection with one or more of its neighboring TOPs (BAs) for a long time, so is the restoration plan still in effect?</p> <p>R1.1 should be more specific and state "?integrity of the Reliability Coordinator Area."R4 should be a shorter time frame (e.g. 30 days) as 90 seems too long to have an incorrect plan in effect.</p> <p>R6 should state "RC" approved rather than just "approved"; "control room personnel" should be changed to "System Operators" as these are the individuals responsible for taking the actions. For those control centers not staffed by System Operators consider defining and using the term "field operators" or similar.</p> |
| <p>Response: R1.2 (old) = R1.3 (new) - The requirement has been revised.</p> <p>R1.3: Procedures for restoring the integrity of the Interconnection interconnections with other Transmission Operators under the direction of the Reliability Coordinator.</p> <p>R3 – The SDT believes a mutually agreed schedule is beneficial to all parties. No change made.</p> <p>R4 – The SDT believes that a 90 day period allows thorough review and revision. No change made.</p> <p>R5 – The requirement has been revised to address the first comment. The SDT does not understand the comment for ‘field operator’.</p> <p>R5: Each Transmission Operator shall have a copy of its latest Reliability Coordinator approved restoration plan within each of its primary and backup control centers rooms and available to all of its control room personnel System Operators</p> | | |

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| | | <p>prior to its implementation date</p> <p>R6 - The requirement has been revised to address the comment.</p> <p>R6: Each Transmission Operator shall verify through analysis of actual events, steady state and dynamic simulations, or testing that its documented restoration plan accomplishes its intended function. This shall be completed every five years at a minimum. Such analysis, simulations or testing shall analyze-verify:</p> <p>R8 – The RC can establish processes and conditions for synchronization – it does not need to explicitly authorize every single synchronization.</p> <p>R10 – requirement has been deleted.</p> <p>R11, R11.1 – The requirements have been revised. (Now R10 and R10.1)</p> <p>R10: Each Transmission Operator shall include within its operations training program, annual System restoration training to its System Operators to ensure assure the proper execution of its restoration plan. This training program shall include training on the following:</p> <p>R10.1: System restoration philosophy plan including coordination with the Reliability Coordinator and Generator Operators included in the restoration plan.</p> <p>R15 – This can be addressed in the Agreement if needed. No change made.</p> <p>R16 – The SDT has reviewed the requirement and believes that it is correctly stated. The GOP should notify the TOP. The TOP would then notify the RC as necessary and as indicated in Requirement R3.</p> <p>R17 – The requirement has been revised. (Now R16)</p> <p>R16: Each Generator Operator of with a Blackstart Resource shall perform Blackstart Resource tests, and maintain records of such testing, in accordance with the testing requirements set by the Transmission Operator to verify that the Blackstart Resource can perform as specified in the restoration plan.</p> <p>R18.1 – The requirement has been revised. (Now R17.1)</p> <p>R17.1: System restoration philosophy plan including coordination with the Transmission Operator</p> <p>M4 – The measure has been revised.</p> |

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| Organization | Question 1: | Question 1 Comments: |
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| | | <p>M4: Each Transmission Operator shall have documentation such as dated review signature sheets, revision histories, e-mails with receipts, or registered mail receipts, that it has updated its restoration plan with and submitted it to its Reliability Coordinator in accordance with Requirement R4</p> <p>M16 – The list is not exhaustive.</p> <p>M18 – The SDT believes that the measure is sufficient as written.</p> <p>EOP-006-2</p> <p>R1 – The requirement has been revised. The second comment is covered by R7 & R8.</p> <p>R1: Each Reliability Coordinator shall have a Reliability Coordinator Area restoration plan. The scope of the Reliability Coordinator's restoration plan starts when Blackstart Resources are utilized to re-energize a shut down area of the Bulk Electric System (BES), or separation has occurred between neighboring Reliability Coordinators, or an energized island has been formed on the Bulk Electric System (BES) within the Reliability Coordinator Area. The scope of the Reliability Coordinator's restoration plan ends when all of its Transmission Operators are interconnected and # its Reliability Coordinator Area is connected to all of its neighboring Reliability Coordinators Areas. The restoration plan shall include:</p> <p>R1.1 (old) = R1.2 (new) - The scope of the Reliability Coordinator's restoration plan ends when all of its Transmission Operators are interconnected and its Reliability Coordinator Area is connected to all of its neighboring Reliability Coordinator Areas." The scope covers what has been called "partial shutdown" as well as restoration using Blackstart Resources. No change made.</p> <p>R4 – R4 has been incorporated into R5 and changed to 30 days.</p> <p>R4: Each Transmission Operator shall update its restoration plan within ninety calendar days after identifying any unplanned permanent System modifications, or prior to implementing a planned System modification, that would change the implementation of its restoration plan.</p> <p>R6 – The requirement has been revised.</p> <p>R6: Each Reliability Coordinator shall have a copy of its latest restoration plan and copies of the latest approved restoration plan of each Transmission Operator in its Reliability Coordinator Area within each of its primary and backup control centers rooms and available to all of its control room personnel System Operators prior to the implementation date.</p> |
| MRO NERC | No | Is the goal of Project 2006-03 to eliminate system restoration from a non-blackstart scenario? |

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| Standards Review Subcommittee | | <p>Currently, EOP-005-1 and EOP-006-1 pertaining to system restoration in general and EOP-007-0 and EOP-009-0 pertaining specifically to Blackstart Restoration. In the MRO's opinion, these are two separate operating conditions.</p> <p>In EOP-005-2_R1_R7_R8 the "terms shuts down" should be replaced with more appropriate terms such as "becomes de-energized" and "de-energized".</p> <p>Also in order to make EOP-005-2_R1 read better, there should be a comma after Disturbance.</p> <p>In EOP-006-2_R1 the term "shuts down" should be replaced with a more appropriate term such as "de-energized". Also, replace the words, "a area" with "an area".</p> <p>EOP-005-2, R10, The MRO questions the need to post Blackstart Resource testing requirements to a "freely accessible public forum". Per NERC Security Guidelines for the Electricity Sector, Threats and Incident Reporting (dated April 2008), under surveillance activities, Intelligence Gathering is Social Engineering. Also, isn't posting these documents on a freely accessible public forum against order 890A policies?</p> <p>EOP-005-2, R12, Please define what is meant by "unique task"? What if the entity does not have any unique task? Does this requirement still apply to the entity?</p> <p>EOP-005-2, R14, Since the Transmission Operator is responsible for the Blackstart plan, this requirement places the responsibility of the Blackstart Resource Agreement on BOTH the Transmission Operator and Generator Operator. The requirement should be rewritten as such "Each Transmission Operator will have a written Blackstart Resource Agreement specifying the terms and conditions with the Generator Operator with a Blackstart Resource."</p> <p>EOP-005-2 The MRO questions the need to have a 2 hour requirement on the training requirement in R12 and R18.</p> <p>EOP-005-2, R18.1 Does this sub requirement preclude the GOP from working with the BA when coordinating with the TOP?</p> |
| <p>Response: EOP-006-2 describes the scope of the RC's restoration plan beginning when "...or separation has occurred between neighboring Reliability Coordinators, or an energized island has been formed on the Bulk Electric System (BES) within the</p> | | |

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| | | <p>Reliability Coordinator Area. The scope of the Reliability Coordinator’s restoration plan ends when all of its Transmission Operators are interconnected and its Reliability Coordinator Area is connected to all of its neighboring Reliability Coordinator Areas.” The scope covers what has been called “partial shutdown” as well as restoration using Blackstart Resources. EOP-005-2: R1/R7/R8: Regional differences in terminology prohibit the use of ‘de-energized’. No change made. R1 – A comma is not appropriate in this location.</p> <p>EOP-006-2 R1 – Regional differences in terminology prohibit the use of ‘de-energized’. No change made.</p> <p>EOP_005-2 R10 – requirement deleted. R12 – The standard gives the TOP full capability to define the unique tasks. The SDT believes that normal tasks performed during restoration, such as switching, are not unique. As an example considered by the SDT, synchronization would generally be considered a unique task unless it were included in the field employee’s normal duties. Additionally, the SDT does not believe that every field employee would need to be trained. R14 – Agreements are between at least two parties. R12 & R18 – The SDT believes that 2 hours of training is a minimum for familiarity with the purpose and risks associated with specific tasks. R18.1 – No, this is a training requirement.</p> |
| SERC OC SRC | No | <p>EOP-005-2: Add - Islanded Resource: A generation Facility and associated set of equipment which is designed to remain energized without connection to the remainder of the System, with the ability to energize a dead (de-energized) bus, meeting the Transmission Operator’s restoration plan needs for real and reactive power capability, frequency and voltage control, and that has been included in the Transmission Operator’s restoration plan.</p> <p>Purpose: Ensure plans and Facilities are established, and personnel are prepared to enable System restoration from Blackstart Resources and/or Islanded resources to ensure the ability to restore critical loads identified in the Transmission Operator’s restoration plan.</p> <p>R1.3 Identification of each Blackstart Resource or Islanded Resource and its characteristics including the following: the name of the resource, location, megawatt and megavar capacity, and type of unit.</p> |

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| Organization | Question 1: | Question 1 Comments: |
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| | | <p>R1.6 Operating process to reestablish connections within the Transmission Operator’s System for areas that have become separated.</p> <p>R1.7 Operating process to restore Loads, such as station service for substations, units to be restarted or stabilized, the Load needed to stabilize generation and frequency, and provide voltage control for restoring the System.</p> <p>R6.1 The capability of Blackstart Resources and Islanded Resource to meet the Real and Reactive Power requirements of the Cranking Paths and to supply initial Loads.</p> <p>R6.2 This requirement can be interpreted to require an unbounded amount of dynamic simulations of the entire system to satisfy compliance requirements. The first goal of restoration is to maintain off site power to nuclear plants and to pick up critical loads that have primary consideration in restoration procedures. Unbounded simulation requirements are unnecessary and unacceptable – we recommend that this requirement be deleted.</p> <p>R7. Following a Disturbance in which one or more areas of the BES shuts down and the use of Blackstart Resources or Islanded Resource is required to restore the shut down area to service, each affected Transmission Operator shall implement its restoration plan.</p> <p>R7.3 If the restoration plan cannot be completed as expected because actual conditions do not match the studied conditions, the Transmission Operator shall utilize its restoration plan concepts or practices to implement alternative measures for achieving System restoration.</p> <p>R8. Following a Disturbance in which one or more areas of the BES shuts down and the use of Blackstart Resources or Islanded Resources is required to restore the shut down area to service, the Transmission Operator shall resynchronize area(s) with neighboring Transmission Operator area(s) only with the authorization of the Reliability Coordinator or in accordance with the established procedures of the Reliability Coordinator.</p> <p>R9. Each Transmission Operator shall have Blackstart Resource and/or Islanded Resource e testing requirements to verify that each resource is capable of meeting the requirements of its restoration plan.</p> |

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| | | <p>R9.1 The frequency of testing such that each resource is tested at least once every three years.</p> <p>R9.2.1 The ability to start a blackstart unit when isolated with no support from the BES.</p> <p>R9.2.2 The ability of an Islanded Resource to remain energized without connection to the remainder of the system. (this requirement added)</p> <p>R10. We suggest this requirement should be removed – this is a market function that should be relocated to a business practice.</p> <p>R11. System restoration concepts or practices including coordination with the Reliability Coordinator and Generator Operators included in the restoration plan.</p> <p>R12. While we see the intention of this requirement, we think that it could have the unintended consequence of delaying restoration. In a system restoration, others that normally don't perform switching will be called into service (i.e., relay technicians, linemen, management, etc.). Would we not allow switching to proceed in a restoration because someone did not have the 2 hour training requirement? Would this be a Standard violation? This would also be a compliance nightmare.</p> <p>R13. Each Transmission Operator shall participate in at least one of its Reliability Coordinator's restoration drills, exercises, or simulations as requested by its Reliability Coordinator.</p> <p>R14. Each Transmission Operator and Generator Operator with a Blackstart Resource or Islanded Resource shall have a written Agreement specifying the terms and conditions of their arrangement. Such Agreements shall include references to the testing requirements. (Note: Blackstart resources agreement is not defined)</p> <p>R15. Each Generator Operator with a Blackstart Resource or Islanded Resource shall have documented procedures for starting/islanding the resource and energizing a bus.</p> <p>R16. Each Generator Operator of a Blackstart Resource or Islanding Resource shall notify its Transmission Operator of any known changes to the blackstart or islanding capabilities of</p> |

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| Organization | Question 1: | Question 1 Comments: |
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| | | <p>either resource within twenty-four hours following such change.</p> <p>R17. Each Generator Operator of a Blackstart Resource or Islanded Resource shall perform tests, and maintain records of such testing, in accordance with the testing requirements set by the Transmission Operator to verify that the Blackstart Resource can perform as specified in the restoration plan.</p> <p>R17.1 Testing records shall include at a minimum: name of the resource, unit tested, date of the test, duration of the test, time required to start the unit, an indication of any testing requirements not met under Requirement R9.</p> <p>R17.2 Each Generator Operator shall provide the test results within thirty calendar days following a request from its Reliability Coordinator or Transmission Operator.</p> <p>R18. Each Generator Operator of a Blackstart Resource or Islanded Resource shall provide training every two years to each of its operating personnel responsible for the startup and synchronization of its resource.</p> <p>R18.1 System restoration concepts or practices including coordination with the Transmission Operator.</p> <p>R19. Each Generator Operator of a Blackstart Resource or Islanded Resource shall participate in at least one of the Reliability Coordinator’s restoration drills, exercises, or simulations as requested by the Reliability Coordinator.</p> <p>EOP-006: R1.1 Note: this denotes the restoration plan – should be eliminated.</p> <p>R3. Each Reliability Coordinator shall review its restoration plan on an annual basis.</p> <p>R4. Each Reliability Coordinator, if necessary, shall update its restoration plan within ninety calendar days after identifying changes to one of its Transmission Operator’s restoration plans or a neighboring Reliability Coordinator’s restoration plan that would require a change in its coordination tasks or responsibilities.</p> |

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| Organization | Question 1: | Question 1 Comments: |
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| | | <p>R6. Delete 'and available to all of its control room personnel' at the end of the sentence.</p> <p>R7.1 If the restoration plan cannot be completed as expected because actual conditions do not match the studied conditions, the Reliability Coordinator shall utilize its restoration plan concepts or practices to implement alternative measures for achieving System restoration.</p> <p>R8.1 If the restoration plan cannot be completed as expected because actual conditions do not match the studied conditions, the Reliability Coordinator shall utilize its restoration plan concepts or practices to implement alternative measures for achieving System restoration.</p> <p>R9. Delete 'to ensure the proper execution of its restoration plan' from the end of sentence one.</p> <p>R9.1 System restoration concepts and practices including the coordination role of the Reliability Coordinator.</p> <p>R10. Each Reliability Coordinator shall conduct or participate in at least one System restoration drill, exercise, or simulation per calendar year, which shall include the Transmission Operators and Generator Operators as dictated by the particular scope of the drill, exercise, or simulation that is being conducted.</p> |
| <p>Response: Added definition – The SDT does not believe a separate definition is required. Purpose – the purpose is correct – the goal is more than restoring critical loads. R1.3 (old) = R1.4 (new) – term was not added – no change made. R1.6 (old) = R1.7 (new) – The requirement has been revised.</p> <p style="padding-left: 40px;">R1.7: Operating Procedures Processes to reestablish connections within the Transmission Operator's System for areas that have become separated been restored and are prepared for reconnection.</p> <p>R1.7 (old) = R1.8 (new) – The requirement has been revised.</p> <p style="padding-left: 40px;">R1.8: Operating Procedures Processes to restore Loads required to restore the System, such as station service for substations, units to be restarted or stabilized, the Load needed to stabilize generation and frequency, and provide voltage control for restoring the System</p> | | |

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| | | <p>R6.1 - The SDT does not believe a separate definition is required.</p> <p>R6.2 – The scope of the simulations is defined in Requirement 1. No change made.</p> <p>R7 - The SDT does not believe a separate definition is required.</p> <p>R7.3 – The requirement has been revised and incorporated into the main requirement.</p> <p style="padding-left: 40px;">R7: Following a Disturbance in which one or more areas of the BES shuts down and the use of Blackstart Resources is required to restore the shut down area to service, each affected Transmission Operator shall implement its restoration plan. If the restoration plan cannot be executed as expected because actual conditions do not match the studied conditions, the Transmission Operator shall utilize its restoration plan strategies to facilitate restoration.</p> <p>R8 - The SDT does not believe a separate definition is required.</p> <p>R9-R9.2.2 - The SDT does not believe a separate definition is required.</p> <p>R10 – requirement deleted.</p> <p>R11.1 – The requirement has been revised. (Now R10.1)</p> <p style="padding-left: 40px;">R10.1 - System restoration philosophy plan including coordination with the Reliability Coordinator and Generator Operators included in the restoration plan.</p> <p>R12 – The standard gives the TOP full capability to define the unique tasks. The SDT believes that normal tasks performed during restoration, such as switching, are not unique. As an example considered by the SDT, synchronization would generally be considered a unique task unless it were included in the field employee’s normal duties. Additionally, the SDT does not believe that every field employee would need to be trained.</p> <p>R13 - EOP-006-2, R10 requires the RC to conduct two drills per year. The SDT believes that it is important to reliability for the TOP to participate as requested. The requirement is for the TOP as an entity and not for individual operators. No change made</p> <p>R14 - The SDT does not believe a separate definition is required. Blackstart Resources and Agreement are separate defined terms in the NERC Glossary of Terms. (Blackstart Resources will be added upon adoption of this standard.)</p> <p>R15 - The SDT does not believe a separate definition is required.</p> <p>R16 - The SDT does not believe a separate definition is required.</p> <p>R17-R17.1 - The SDT does not believe a separate definition is required.</p> <p>R17.2 – The SDT does not believe a separate definition is required.</p> <p>R18 - The SDT does not believe a separate definition is required.</p> |

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| Organization | Question 1: | Question 1 Comments: |
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| | | <p>R18.1 –wording changed for clarity. (ow R17.1)</p> <p>R17.1: System restoration philosophy plan including coordination with the Transmission Operator</p> <p>R19 - The SDT does not believe a separate definition is required.</p> <p>EOP-006-2</p> <p>R1.1 (old) = R1.2 (new) – The scope of the standard is defined in Requirement 1. Other standards cover what is expected of the RC once the scope has been met.</p> <p>R3 – wording changed for clarity.</p> <p>R3: Each Reliability Coordinator shall review its restoration plan every twelve within thirteen months of the last review</p> <p>R4 – wording changed.</p> <p>R4 - Each Reliability Coordinator shall update its restoration plan within ninety calendar days after identifying changes to one of its Transmission Operator’s restoration plans or upon reviewing a their neighboring Reliability Coordinator’s restoration plans that would necessitate a change in their coordination tasks or responsibilities</p> <p>R6 - The SDT believes it is necessary to have the restoration plan readily available. Wording changed for clarity.</p> <p>R6: Each Reliability Coordinator shall have a copy of its latest restoration plan and copies of the latest approved restoration plan of each Transmission Operator in its Reliability Coordinator Area within each of its primary and backup control centers rooms and available to all of its control room personnel System Operators prior to the implementation date.</p> <p>R7.1 – The requirement has been revised and incorporated into R7.</p> <p>R7: Each Reliability Coordinator shall work with its affected Balancing Authorities, Generator Operators, and Transmission Operators as well as neighboring Reliability Coordinators to monitor restoration progress, coordinate restoration, and take actions to restore the BES frequency within acceptable operating limits. If the restoration plan cannot be completed as expected because actual conditions do not match the studied conditions, the Reliability Coordinator shall utilize its restoration plan strategies to facilitate System restoration. Such actions may include but not be limited to adjusting generation, placing additional generators on line, or shedding Load.</p> |

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| <p>R8.1 – merged into R8.</p> <p>R8: The Reliability Coordinator shall coordinate or authorize and coordinate resynchronizing islanded areas that bridge boundaries between Transmission Operators or Reliability Coordinators. If the resynchronization cannot be completed as expected because actual conditions do not match the studied conditions, the Reliability Coordinator shall utilize its restoration plan strategies to facilitate resynchronization.</p> <p>R9 – The SDT believes that the phrase is valid. Wording changed for clarity.</p> <p>R9: Each Reliability Coordinator shall include within its operations training program, annual System restoration training for its System Operators to ensure assure the proper execution of its restoration plan. This training program shall include address the following:</p> <p>R9.1 – wording changed for clarity.</p> <p>R9.1: System restoration philosophy including †The coordination role of the Reliability Coordinator.</p> <p>R10 - RC's may jointly conduct drills and meet the requirement.</p> | | |
| Tampa Electric Company | Yes | |
| Standards Interface Subcommittee | Yes | |
| Kansas City Power & Light | Yes | |
| Allegheny Energy | Yes | |
| Reliant Energy Inc. | Yes | |
| <p>Response: Thank you for your response.</p> | | |

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- The SDT has completely re-worked the Implementation Plan based on industry comments from the second posting. Do you agree with the changes that were made? If not, please provide specific suggestions for change.

Summary Consideration: Due to industry comments received, the SDT now realizes that the proposed Implementation Plan was far too complex. The SDT has decided that there is no reasonable way to look at individual requirements with different implementation dates. The Implementation Plan has been revised so that all requirements will take effect on the first calendar day of the first calendar quarter that is twenty-four months after regulatory approvals – or in those jurisdictions where no regulatory approval is required on the first calendar day of the first calendar quarter that is twenty-four months after Board of Trustees adoption.

| Organization | Question 2: | Question 2 Comments: |
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| Bonneville Power Administration | No | EOP-005-2 R6 the additional verification elements added to this requirement make it a new requirement, rather than existing. change to 12 months. R9 change to 3 months (new requirement). R14: change to 12 mos. to allow rewriting of agreements. |
| Xcel Energy | No | As written, the Implementation Plan is overly complicated, confusing, and does not provide the applicable entities with a clear direction to follow. Xcel Energy agrees with the MRO that within the first year following the standards effective date, the applicable entities must revise, approve, and distribute their restoration plan. The following year the applicable entities must review, test, train, and perform all other requirements. Please keep the Implementation Plan clear and concise. For EOP-005-2 R3, which part of the requirement is existing and which part is effective after 3 months following regulatory approval? |
| FirstEnergy | No | The implementation plan only provides 3 months to get Transmission Operator and Generator Operator agreements in place prior to compliance sanctions. This timeframe is insufficient and should be adjusted to allow for 6 months or more to complete the agreement negotiations. |
| Kansas City Power & Light | No | EOP-005-2:Recommend R1 & R14 be at least 6 months. Developing agreements between parties required by R1.1 & R14 takes time and 3 months is too short. If R1 is changed, then recommend R2 be R1 + 3 months. Recommend R3 be R1 + 12 months as this requirement is to review the document developed in R1 for updates. |

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| Organization | Question 2: | Question 2 Comments: |
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| | | <p>EOP-006-2:Recommend R1 be at least 6 months.</p> <p>R1.7 requires the RC to develop information sharing criteria with other entities. There are a lot of entities and this takes time to develop.</p> <p>Recommend R2 be R1 + 3 months if R1 is changed.</p> <p>Recommend R3 be R1 + 12 months since this is an annual review of the document developed in R1.</p> |
| <p>Response: The SDT realizes the transition plan posted with Draft 3 was not consistent with the reassignment of responsibilities and the time periods of the new requirements. The transition plan has been revised.</p> | | |
| Entergy Services | No | <p>It seems logical to require the RC plan requirement (EOP-006 R1) and the dissemination of that plan to the entities covered by/affected by the plan (EOP-006 R2) prior to the TOP plan requirement (EOP-005 R1). Since there are items in the RC plan that the TOP plan must address and be compliant with, the TOPs would need to have the RC plan before they can finalize their plans. However, the current implementation schedule has both EOP-005 R1 and EOP-006 R1 being effective at 3 months after regulatory approval. While I realize that coordination between the RC and the TOPs must be ongoing during the restoration and blackstart plans development, it seems appropriate to provide at least an additional 30 days (preferably 60) before EOP-005 R1 is effective.</p> <p>Also, since EOP-005 R1 requires that the TOP have a "plan approved by its Reliability Coordinator," it seems that EOP-005 R3 need to be effective prior to EOP-005 R1. The RC has a month to do the approval, so EOP-005 R3 should have an effective date one month in advance of EOP-005 R1.</p> <p>EOP-005 R9 could be moved out to 3 months after regulatory approval without impacting the generators since their requirements are all set at 24 months. In addition, the testing frequency is every 3 years which allows additional flexibility.</p> <p>R14 could also benefit from more implementation time. We feel that the extra time for R14 would be beneficial since agreements/contracts can require a substantial amount of time to finalize. The implementation time for</p> <p>EOP-006 R5 needs to coordinate with the implementation time of EOP-005 R1. Since EOP-005 R1 requires a "plan approved by its Reliability Coordinator," then EOP-006 R5 must be required prior to EOP-005 R1 being effective (also taking into consideration the 30 day approval time that the RC has to approve/disapprove the plan.)The retirement dates should be changed to coordinate with any changes made to the implementation schedule.</p> |

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| Organization | Question 2: | Question 2 Comments: |
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| <p>Response: The SDT realizes the transition plan posted with Draft 3 was not consistent with the reassignment of responsibilities and the time periods of the new requirements. The transition plan has been revised.</p> | | |
| <p>Operating Reliability Working Group (ORWG)</p> | <p>No</p> | <p>EOP-005R1. Due to the complexities associated with obtaining binding agreements, especially agreements with a nuclear facility, a 3-month plan for implementation seems almost impossible. Implementation of this standard should coincide with the proposed nuclear standard that also requires the agreements. A 24-month lead time may not be unreasonable.</p> <p>R14. Agreements will also be the critical path for implementation of this requirement. argument again. Depending upon the number of Blackstart Resources involved, 24 months may not be an unreasonable lead time.</p> <p>EOP-006R1. Due to the complexities associated with developing a data specification the 3-month plan for implementation is a bit optimistic. We would suggest a minimum of 6 months to implement R1.R2. Add an additional month to the implementation time for R1 to bring the total to 7 months for R2.</p> <p>R3, R4, R6, R7, R8, R9, R10. - Since practically all of these requirements are existing requirements or off-shoots of existing requirements, they should be able to be implemented fairly quickly, possibly as soon as 3 months following regulatory approval.</p> |
| <p>AEP</p> | <p>No</p> | <p>EOP 005 R1 Suggest grandfathering pre-EOP 005-1 plans as being ?approved? by the RC. This will eliminate the attendant back log of plans needing initially approval.</p> <p>The SDT needs to identify the requirement sections being retired in EOP 005-1, EOP 006-1, EOP 007-0, and EOP 009-0 by the phased in plan in EOP 005-2 for R1,R2,R3,R6,R9, and R14 and in EOP 006-2 R1,R2,R3,R4,and R5.</p> |
| <p>Duke Energy Corporation</p> | <p>No</p> | <p>The implementation plan for EOP-005-2 assumes that Agreements will be in place within the first 3 months after this standard is approved. FERC has yet to approve NUC-001, and if this Standard is not approved or FERC has not issued the Final Rule in Docket No. RM08-3-000, these agreements will not be in place. How will it be possible to implement EOP-001 R1 in three months time?</p> <p>The SDT in EOP-005-2 R6 believes that Immediate is appropriate implementation plan because it is believed that this information already exists. However, the SDT added a new requirement in 6.2 that states that the location and magnitude must be verified that these loads will control voltages and frequency. This is a new requirement and therefore, more time must be given in order to Implement. Duke Energy recommends at least a full year.</p> |

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| Organization | Question 2: | Question 2 Comments: |
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| | | In EOP-006 R5, the SDT has put a new requirement on the Reliability Coordinator to review and APPROVE all Emergency Plans in its area. The SDT believes that this can be accomplished within 5 months assuming that all members in its area submit their plans in a timely manner. This timeframe may only allow a Reliability Coordinator enough time to do a cursory review of the plans, especially since the Reliability Coordinator only has 30 days to respond as stated in the Standard. Recommend that this time be no less than one year to implement. |
| Santee Cooper | No | The Implementation Plan with the phased in compliance is complicated and confusing. |
| Entergy Services, Inc. System Planning & Operation (Generation) | No | The implementation plan contains too many different timelines for the various the requirements. This is overly complicating the entire process (compliance, tracking, etc). Recommend having no more than "immediate", "1 yr" and "2 yr" effective dates for requirements. |
| MRO NERC Standards Review Subcommittee | No | As written, the Implementation Plan is overly complicated, confusing, and does not provided the applicable entities with a clear direction to follow. The MRO suggests that within the first year following the standards effective date, the applicable entities must revise, approve, and distribute their restoration plan. The following year the applicable entities must review, test, train, and perform all other requirements. Please keep the Implementation Plan clear and concise. For EOP-005-2 R3, which part of the requirement is existing and which part is effective after 3 months following regulatory approval? |
| Midwest ISO Stakeholders Standards Collaborators | No | Assuming the requirements are deleted as specified in question 1, we agree with the implementation plan. |
| SERC OC SRC | No | Depends on resolution of comments offered and further clarification of effective date of Implementation Plan per phased in compliance as stated which is ambiguous and unclear: "Existing standards will remain in effect unless individual requirements are superseded by new requirements that are phased in prior to the twenty-four month completion timeframe in the Implementation Plan at which time the existing standards (EOP-001-0, R3.4; EOP-005-1, EOP-006-1, EOP-007-0, and EOP-009-0) will be retired. The assumption used by the SDT in establishing this Implementation Plan is that all entities perform as specified during the transitional period. This Implementation Plan starts from the TOP restoration plans required by the existing standards. EOP-006 – System Restoration from Blackstart Resources — |

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| Organization | Question 2: | Question 2 Comments: |
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| | | <p>Coordination All requirements: 18 months after applicable.</p> <p>In particular, we are confused by the portion that reads "unless individual requirements are superseded by new requirements that are phased in prior to the twenty-four month completion timeframe..... at which time the existing standards will be retired". Does this mean that 24 months is the nominal implementation time, unless there is an 'X' in the one of the earlier implementation times (Immediate 1 mo. 3 mos. 5 mos. 6 mos. 8 mos.)?</p> |
| Northeast Utilities | Yes | EOP-005-2 The Implementation Plan for R3. indicates both immediate and 3 mos. effective dates. |
| <p>Response: The SDT has decided that there is no reasonable way to look at individual requirements with different implementation dates. The Implementation Plan has been revised so that all requirements will take effect twenty-four months after regulatory approvals.</p> | | |
| NPCC | No | |
| American Transmission Company | Yes | |
| Pacific Gas and Electric Company | Yes | |
| Allegheny Energy | Yes | |
| Baltimore Gas and Electric Company | Yes | |
| Southern Company Transmission | Yes | |
| Manitoba Hydro | Yes | |
| Tampa Electric Company | Yes | |
| Ameren | Yes | |
| Standards Interface Subcommittee | Yes | |
| Reliant Energy Inc. | Yes | |
| <p>Response: Thank you for your response. However, the SDT has decided that there is no reasonable way to look at individual</p> | | |

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| Organization | Question 2: | Question 2 Comments: |
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| | | requirements with different implementation dates. The Implementation Plan has been revised so that all requirements will take effect twenty-four months after regulatory approvals. |

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3. The SDT has included compliance elements including VSL for this posting. Do you agree with the assignments that have been made? If not, please provide specific suggestions for change.

Summary Consideration: The SDT changed numerous requirements, measures, and VSL due to industry comments as highlighted in the following lists.

The following requirements have been changed due to industry comments:

EOP-005:

R5. Each Transmission Operator shall have a copy of its latest **Reliability Coordinator** approved restoration plan within ~~each of its primary and backup control centers rooms~~ and available to all of its ~~control room personnel~~ **System Operators prior to its implementation date.**

R7. Following a Disturbance in which one or more areas of the BES shuts down and the use of Blackstart Resources is required to restore the shut down area to service, each affected Transmission Operator shall implement its restoration plan. **If the restoration plan cannot be executed as expected because actual conditions do not match the studied conditions, the Transmission Operator shall utilize its restoration plan strategies to facilitate restoration.**

~~R11-10.~~ **R10.** Each Transmission Operator shall include within its operations training program, annual System restoration training to its System Operators to ~~ensure~~ **assure** the proper execution of its restoration plan. This training program shall include **training on** the following:

~~R11-10.1.~~ **10.1.** System restoration ~~philosophy~~ **plan** including coordination with the Reliability Coordinator and Generator Operators included in the restoration plan.

~~R14-13.~~ **R13.** Each Transmission Operator and Generator Operator with a Blackstart Resource shall have a written Blackstart Resource Agreements **or mutually agreed upon procedures or protocols**, specifying the terms and conditions of their arrangement. Such Agreements shall include references to the ~~blackstart~~ **Blackstart Resource** testing requirements.

~~R15-14.~~ **R14.** Each Generator Operator with a Blackstart Resource shall have documented procedures for starting ~~the~~ **each** Blackstart Resource and energizing a bus.

~~R18-17.~~ **R17.** Each Generator Operator ~~of~~ **with** a Blackstart Resource shall provide a minimum of two hours of training every two years to each of its operating personnel responsible for the startup ~~and synchronization~~ of its Blackstart Resource generation units **and energizing a bus.** The training program shall include **training on** the following:

EOP-006:

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R2. The Reliability Coordinator shall distribute its **most recent** Reliability Coordinator Area restoration plan to **each of its** Transmission Operators, ~~Balancing Authorities,~~ and neighboring Reliability Coordinators **within thirty calendar days of creation or revision.**

R3. Each Reliability Coordinator shall review its restoration plan ~~every twelve~~ **within thirteen** months **of the last review.**

R4. Each Reliability Coordinator shall ~~update its restoration plan within ninety calendar days after identifying changes to one of its Transmission Operator's restoration plans or upon reviewing a~~ **their** neighboring Reliability Coordinator's restoration plans **that would necessitate a change in their coordination tasks or responsibilities.**

R5. Each Reliability Coordinator shall review the ~~Transmission Operator~~ restoration plans ~~as defined in~~ **required by EOP-005 of the Transmission Operators** within its Reliability Coordinator Area **and neighboring Reliability Coordinators, when received.**

R6. Each Reliability Coordinator shall have a copy of its latest restoration plan and **copies of** the latest approved restoration plan of each Transmission Operator in its Reliability Coordinator Area within ~~each of its~~ **primary and backup control centers rooms** and available to all of its ~~control room personnel~~ **System Operators prior to the implementation date.**

R8. The Reliability Coordinator shall **coordinate or** authorize ~~and coordinate~~ resynchronizing islanded areas that bridge boundaries between Transmission Operators or Reliability Coordinators. **If the resynchronization cannot be completed as expected because actual conditions do not match the studied conditions, the Reliability Coordinator shall utilize its restoration plan strategies to facilitate resynchronization.**

R9. Each Reliability Coordinator shall include within its operations training program, annual System restoration training for its System Operators to ~~ensure~~ **assure** the proper execution of its restoration plan. This training program shall ~~include~~ **address** the following:

The following measurements have been changed due to industry comments:

EOP-005:

M6. Each Transmission Operator shall have documentation, such as power flow outputs, that it has verified that its **latest** restoration plan **will** accomplishes its intended function in accordance with Requirement R6.

~~**M4514.**~~ Each Generator Operator with a Blackstart Resource shall have dated documented procedures on file for starting ~~the~~ **each** unit and energizing a bus in accordance with Requirement ~~R4514~~.

~~**M4817.**~~ Each Generator Operator **with a Blackstart Resource** shall have **an electronic or hard copy of the training program material provided to its operating personnel responsible for the startup and synchronization of its Blackstart Resource generation units and a copy of its dated training records including training dates and durations showing that it has provided training in accordance with Requirement ~~R4817~~.**

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EOP-006:

M5. Each Reliability Coordinator shall provide evidence, such as a review signature sheet **or emails**, that it has reviewed, **approved or disapproved, and notified** its Transmission Operator’s **and reviewed its neighboring Reliability Coordinator’s** submitted restoration plan(s) **and updated its restoration plan, if necessary**, in accordance with Requirement R5.

The following VSLs have been changed due to industry comments:

EOP-005:

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| R1. | The Transmission Operator failed to comply with less than 25% of the number one of the sub-components requirements within the requirement. | The Transmission Operator failed to comply with 25% or more and less than 50% of the number two of the sub-components requirements within the requirement. | The Transmission Operator has failed to comply with 50% or more and less than 75% of the number three of the sub-components requirements within the requirement. | The Transmission Operator has failed to comply with 75% four or more of the number of sub-components requirements within the requirement. |
| R2. | The Transmission Operator failed to distribute the information to an entity identified within the restoration plan within the required timeframe provide one of the operational entities identified in its approved restoration plan with a description of any changes to their roles and specific tasks prior to the implementation date of the plan. Or The Transmission Operator distributed provided the information to all entities | The Transmission Operator failed to distribute the information to two entities identified within the restoration plan within the required timeframe provide two of the operational entities identified in its approved restoration plan with a description of any changes to their roles and specific tasks prior to the implementation date of the plan. Or The Transmission Operator distributed provided the information to all entities | The Transmission Operator failed to distribute the information to three entities identified within the restoration plan within the required timeframe provide three of the operational entities identified in its approved restoration plan with a description of any changes to their roles and specific tasks prior to the implementation date of the plan. Or The Transmission Operator distributed provided the information to all entities | The Transmission Operator failed to distribute the information to four or more entities identified within the restoration plan within the required timeframe provide four or more of the operational entities identified in its approved restoration plan with a description of any changes to their roles and specific tasks prior to the implementation date of the plan. Or The Transmission Operator distributed provided the |

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| | but was thirty days late in doing so- | but was sixty days or more late in doing so- | but was ninety days or more late in doing so. | information to all entities but was 120 days or more late in doing so. |
| R3. | The Transmission Operator did not submit the required information reviewed restoration plan or confirmation of no change within twenty-nine calendar days of the twenty-nine calendar days of the pre-determined schedule. Or, the Transmission Operator did not complete the review within thirty days of the pre-determined schedule. | The Transmission Operator did not submit the required information reviewed restoration plan or confirmation of no change within thirty to fifty-nine thirty to fifty-nine calendar days of the pre-determined schedule. Or, the Transmission Operator did not complete the review within sixty days of the pre-determined schedule. | The Transmission Operator did not submit the required information reviewed restoration plan or confirmation of no change within sixty to eighty-nine sixty to eighty-nine calendar days of the pre-determined schedule. Or, the Transmission Operator did not complete the review within ninety days of the pre-determined schedule. | The Transmission Operator did not submit the required information reviewed restoration plan or confirmation of no change within ninety calendar days of the pre-determined schedule. ninety calendar days of the pre-determined schedule. Or, the Transmission Operator did not complete the review within 120 days of the pre-determined schedule. |
| R4. | The Transmission Operator failed to comply update and submit its restoration plan to the Reliability Coordinator within ninety ninety calendar days of the change. | The Transmission Operator failed to comply update and submit its restoration plan to the Reliability Coordinator within 120 120 calendar days of the change. | The Transmission Operator has failed to comply update and submit its restoration plan to the Reliability Coordinator within 150 150 calendar days of the change. | The Transmission Operator has failed to comply update and submit its restoration plan to the Reliability Coordinator within 180 180 calendar days of the change. |
| R5. | The Transmission Operator did not make the latest approved restoration plan available in its control rooms within fifteen calendar days of its approval. N/A | The Transmission Operator did not make the latest approved restoration plan available in its control rooms within twenty calendar days of its approval. N/A | The Transmission Operator did not make the latest approved restoration plan available in its control rooms within twenty-five calendar days of its approval. N/A | The Transmission Operator did not make the latest approved restoration plan available in its control rooms within thirty calendar days of its Reliability Coordinator approved restoration plan available in its primary and backup control rooms within thirty calendar days of its |

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| | | | | approval. and available to all of its System Operators prior to its implementation date. |
| R6. | N/A The Transmission Operator performed the verification but did not complete it within the five year period. | N/A | N/A | The Transmission Operator did not perform the verification within the prescribed timeframe or it took more than six years to complete the verification. |
| R8. | N/A | N/A | N/A | The Transmission Operator resynchronized without approval of the Reliability Coordinator or not in accordance with the established procedures of the Reliability Coordinator following a Disturbance in which Blackstart Resources have been utilized in restoring the shut down area of the System to service. |
| R9. | The Transmission Operator's testing requirements do not address one of the subrequirements. N/A | N/A. | The Transmission Operator's testing requirements do not address two of the subrequirements. N/A | The Transmission Operator does not have the testing requirements. The Transmission Operator's Blackstart Resource testing requirements do not |

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| | | | | address one or more of the sub-requirements of Requirement R9. |
| R11 10. | The Transmission Operator's training is missing does not address one of the topics mentioned in the sub-requirements of Requirement R10. | The Transmission Operator's training is missing does not address two of the topics mentioned in the sub-requirements of Requirement R10. | The Transmission Operator's training is missing does not address three or more of the topics mentioned in the sub-requirements of Requirement R10. | The Transmission Operator has not included System restoration training in its operations training program. |
| R12 11. | The Transmission Operator only supplied 1.5 hours of training within a two year period. N/A | N/A | The Transmission Operator only supplied one hour of training within a two year period. N/A | The Transmission Operator applicable Transmission Owner, or applicable Distribution Provider did not supply any training to the personnel required by Requirement R11 within a two year period. |
| R14 13. | The Transmission Operator does not have a Blackstart Resource Agreement for one of its Blackstart Resources. N/A | The Transmission Operator does not have Blackstart Resource Agreements for 25% of Blackstart Resources. The Transmission Operator and Generator Operator with a Blackstart Resource do not reference Blackstart Resource Testing requirements in their | The Transmission Operator does not have Blackstart Resource Agreements for 50% of Blackstart Resources. N/A | The Transmission Operator does not have Blackstart Resource Agreements for more than 50% of Blackstart Resources. The Transmission Operator and Generator Operator with a Blackstart resource do not have a written Blackstart Resource Agreement or mutually agreed upon |

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| | | written Blackstart Resource Agreements or mutually agreed upon procedures or protocols. | | procedures or protocols. |
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| R1514. | The Generator Operator does not have dated documented procedures for one Blackstart Resource or the procedures do not contain both elements specified in the requirement. N/A | The Generator Operator does not have dated documented procedures for two Blackstart Resources. N/A | The Generator Operator does not have dated documented procedures for three Blackstart Resources. N/A | The Generator Operator does not have dated documented starting and bus energizing procedures for any of its each Blackstart Resources. |
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| R1615. | The Generator Operator with a Blackstart Resource did not notify the Transmission Operator of a change in Blackstart Resource capability within twenty-four hours. | The Generator Operator with a Blackstart Resource did not notify the Transmission Operator of a change in Blackstart Resource capability within three days seventy-two hours. | The Generator Operator with a Blackstart Resource did not notify the Transmission Operator of a change in Blackstart Resource capability within four days ninety-six hours. | The Generator Operator with a Blackstart Resource did not notify the Transmission Operator of a change in Blackstart Resource capability for more than four days ninety-six hours. |
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| R1716. | The Generator Operator with a Blackstart Resource did not maintain testing records for one of the requirements for a Blackstart Resource. e Or The Generator Operator with a Blackstart Resource did | The Generator Operator with a Blackstart Resource did not maintain testing records for two of the requirements for a Blackstart Resource. e Or The Generator Operator | The Generator Operator with a Blackstart Resource did not maintain testing records for three of the requirements for a Blackstart Resource. e Or The Generator Operator | The Generator Operator with a Blackstart Resource did not maintain testing records for a Blackstart Resource. e Or The Generator Operator with a Blackstart Resource |
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| | not supply them the Blackstart Resource testing records as requested within fifty-nine calendar days of the request the required timeframe. | with a Blackstart Resource did not supply them the Blackstart Resource testing records as requested for sixty days to eighty-nine calendar days after the request required timeframe. | with a Blackstart Resource did not supply them the Blackstart Resource testing records as requested for ninety to 119 calendar days after the request required timeframe. | did not supply them the Blackstart Resource testing records as requested for 120 days or more after the request required timeframe. |
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| R18 | The Generator Operator only supplied 1.5 hours of training within a two year period. N/A | N/A | The Generator Operator only supplied one hour of training within a two year period. N/A | The Generator Operator with a Blackstart Resource did not supply any of the training required by Requirement R17 within a two year period to each operator responsible for startup of its Blackstart Resource generation units and energizing a bus. |
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EOP-006:

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| R1. | The Reliability Coordinator failed to comply with less than 25% of the number of include one sub-components requirement of Requirement R1 within this requirement its restoration plan. | The Reliability Coordinator failed to comply with 25% or more and less than 50% of the number of include two sub-components requirements of requirement R1 within this requirement its restoration plan. | The Reliability Coordinator has failed to include comply with 50% or more and less than 75% of the number of three of the sub-components requirements of Requirement R1 within this requirement its restoration plan.-. | The Reliability Coordinator has failed to comply with 75% or more of the number of include four or more of the sub-components requirements within this requirement its restoration plan. |
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| <p>R2.</p> | <p>The Reliability Coordinator did not distributed the required information most recent Reliability Coordinator Area restoration plan to one entity the entities identified in the Requirement R2 within the required timeframe. Or, the Reliability Coordinator distributed the required information to all entities but was more than thirty calendar days late.</p> | <p>The Reliability Coordinator did not distributed the required information most recent Reliability Coordinator Area restoration plan to two entities the entities identified in the Requirement R2 within the prescribed timeframe. Or, the Reliability Coordinator distributed the required information to all entities but was more than sixty calendar days late.</p> | <p>The Reliability Coordinator did not distributed the required information most recent Reliability Coordinator Area restoration plan to three the entities identified in the Requirement R2 within the prescribed timeframe. Or, the Reliability Coordinator distributed the required information to all entities but was more than ninety calendar days late.</p> | <p>The Reliability Coordinator did not distributed the required information most recent Reliability Coordinator Area restoration plan to four or more entities identified in the Requirement R2 within the prescribed timeframe. Or, the Reliability Coordinator distributed the required information to all entities but was more than 120 calendar days late.</p> |
| <p>R3.</p> | <p>The Reliability Coordinator did not review its restoration plan within twelve months. N/A</p> | <p>The Reliability Coordinator did not review its restoration plan within thirteen months. N/A</p> | <p>The Reliability Coordinator did not review its restoration plan within fourteen months. N/A</p> | <p>The Reliability Coordinator did not review its restoration plan within fifteen thirteen months of the last review.</p> |
| <p>R4.</p> | <p>The Reliability Coordinator failed to comply within ninety calendar days of the change. The Reliability Coordinator did not review and resolve conflicts with the submitted restoration plans from its neighboring Reliability Coordinators within thirty days.</p> | <p>The Reliability Coordinator failed to comply within 120 calendar days of the change. The Reliability Coordinator did not review and resolve conflicts with the submitted restoration plans from its neighboring Reliability Coordinators within sixty days.</p> | <p>The Reliability Coordinator has failed to comply within 150 calendar days of the change. The Reliability Coordinator did not review and resolve conflicts with the submitted restoration plans from its neighboring Reliability Coordinators within ninety days.</p> | <p>The Reliability Coordinator has failed to comply within 180 calendar days of the change. The Reliability Coordinator did not review and resolve conflicts with the submitted restoration plans from its neighboring Reliability Coordinators within 120 days.</p> |

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| <p>R5.</p> | <p>The Reliability Coordinator did not review and approve/disapprove the submitted restoration plans from its <u>Transmission Operators and neighboring Reliability Coordinators</u> within the pre-determined schedule within thirty calendar days of receipt.</p> <p>Or,†</p> <p>The Reliability Coordinator failed to notify the Transmission Operator in writing of its approval or disapproval with stated reasons for disapproval within thirty calendar days of receipt.</p> | <p>The Reliability Coordinator did not review and approve/disapprove the submitted restoration plans from its <u>Transmission Operators and neighboring Reliability Coordinators</u> within forty-five calendar days of the pre-determined schedule receipt.</p> <p>Or</p> <p>The Reliability Coordinator failed to notify the Transmission Operator of its approval or disapproval with stated reasons for disapproval within forty-five calendar days of receipt.</p> | <p>The Reliability Coordinator did not review and approve/disapprove the submitted restoration plans from its <u>Transmission Operators and neighboring Reliability Coordinators</u> within sixty calendar days of the pre-determined schedule receipt.</p> <p>Or</p> <p>The Reliability Coordinator failed to notify the Transmission Operator of its approval or disapproval with stated reasons for disapproval within sixty days of receipt. Or the Reliability Coordinator failed to revise its restoration plan after identifying changes required by new or revised restoration plans received from its Transmission Operators and neighboring Reliability Coordinators within ninety calendar days of receipt.</p> | <p>The Reliability Coordinator did not review and approve/disapprove the submitted restoration plans from its <u>Transmission Operators and neighboring Reliability Coordinators</u> within ninety calendar days of the pre-determined schedule receipt.</p> <p>Or</p> <p>The Reliability Coordinator failed to notify the Transmission Operator of its approval or disapproval with stated reasons for disapproval within ninety days of receipt. Or the Reliability Coordinator failed to revise its restoration plan after identifying changes required by new or revised restoration plans received from its Transmission Operators and neighboring Reliability Coordinators within 150 calendar days of receipt.</p> |
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| <p>R9.</p> | <p>The Reliability Coordinator supplied the necessary training but not within the required timeframe. — N/A</p> | <p>The Reliability Coordinator supplied training but did not address both sub-requirements. N/A</p> | <p>N/A</p> | <p>The Reliability Coordinator has not included System restoration training in its operations training program. — The Reliability Coordinator supplied annual System restoration training but did not address both of the sub-requirements.</p> <p>Or</p> <p>The Reliability Coordinator supplied the required System restoration training but it was over two calendar years from the last training offered.</p> |
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| <p>R10.</p> | <p>The Reliability Coordinator only held one restoration drill, exercise, or simulation during the calendar year.</p> | <p>The Reliability Coordinator held the correct number of restoration drills, exercises, or simulations but did not invite each a Transmission Operator and or Generator Operator identified in its restoration plan to participate in a drill, exercise, or simulation at least every within two calendar years.</p> | <p>N/A</p> | <p>The Reliability Coordinator did not hold a restoration drill, exercise, or simulation during the calendar year.</p> |
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| Organization | Question 3: | Question 3 Comments: |
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| Bonneville Power | No | EOP-005-2 — change R1 to give the number of requirements similar to what |

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| Administration | | was done for R11 (lower: failed to comply with 1 sub-component, moderate: failed to comply with 2 or 3 sub-components, high: failed to comply with 4 or 5 subcomponents, severe: failed to comply with >6 subcomponents). | | | |
| Response: The VSLs for R1 have been modified to address your comment. | | | | | |
| R1. | The Transmission Operator failed to comply with less than 25% of the number one of the sub-components requirements within the requirement. | The Transmission Operator failed to comply with 25% or more and less than 50% of the number two of the sub-components requirements within the requirement. | The Transmission Operator has failed to comply with 50% or more and less than 75% of the number three of the sub-components requirements within the requirement. | The Transmission Operator has failed to comply with 75% four or more of the number of sub-components requirements within the requirement. | |
| Xcel Energy | No | <p>EOP-005, R6, There needs to be a Lower, Moderate and High VSL. Lower VSL should read the Transmission Operator did not perform one of the sub requirements, Moderate VSL should read the Transmission Operator did not complete two of the sub requirements, High VSL should read the Transmission Operator did not complete three of the sub requirements.</p> <p>EOP-005, R9, Move the High VSL (as written) to the Moderate VSL position. The High VSL (as written) should be rewritten to "?address three of the sub requirements."</p> <p>EOP-005, R10, Should be deleted, see question one (1) above. If R10 is retained, Xcel Energy suggests that one or more lower level VSLs be added to incorporate the possibility that testing requirements may be posted, but be out-of-date.</p> <p>EOP-005, R15, The word "dated" should be removed from all four VSLs. The requirement states that Generator Operator needs to have documented procedures for Blackstart Resources and energizing a bus. A missed date will not cause the procedure to be obsolete or hinder the Generator Operator from starting the resource.</p> | | | |

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| | | <p>EOP-005-2 R7 VSLs Given all the conditions in R7, the VSLs for this requirement should be spread out more and not just listed in the severe level. There are several conditions R7 perhaps some of these conditions could be assigned to different levels of VSLs. For example: Failure to work with others could be assigned a lower VSL or Failure to notify the RC could be assigned a moderate VSL.</p> <p>EOP-005-2 R8 Severe VSL The text "not" should be added between the text "The Transmission Operator resynchronized without approval of the Reliability Coordinator or" and the text "in accordance with the established procedures of the Reliability Coordinator following a disturbance ?"</p> <p>EOP-005-2 R14 VSL What if an entity does not have an agreement for 1 out of 4 of its Blackstart Resources, which VSL is assigned ("Lower" or "Moderate")?</p> <p>EOP-006-2 R5 Which latest approved restoration plan should be made available? Should both be made available as indicated in the requirement? Should one be made available as indicated in the VSLs? Should there be VSLs which address the timeframe of distributing restoration plans to the System Operator personnel?</p> | | |
| <p>Response: R6 - After reviewing your comments, the SDT did feel that the VSL needed to be changed but a Lower and Severe seemed most appropriate for the situation.</p> | | | | |
| <p>R6.</p> | <p>N/A The Transmission Operator performed the verification but did not complete it within the five year period.</p> | <p>N/A</p> | <p>N/A</p> | <p>The Transmission Operator did not perform the verification within the prescribed timeframe or it took more than six years to complete the verification.</p> |
| <p>R9 – The SDT believes that not having any one of the sub-requirements of R9 would completely invalidate the Blackstart</p> | | | | |

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| Resource testing requirements. The VSLs for R9 have been modified removing all VSLs except Severe. | | | | |
| R9. | The Transmission Operator's testing requirements do not address one of the subrequirements. N/A | N/A. | The Transmission Operator's testing requirements do not address two of the subrequirements. N/A | The Transmission Operator does not have the testing requirements. The Transmission Operator's Blackstart Resource testing requirements do not address one or more of the sub-requirements of Requirement R9. |
| <p>R10 – requirement was deleted.</p> <p>R15 – The SDT believes that “dated” needs to be retained in M15. Audits require dated documentation. R15 and its VSLs have also been modified to make it clear that it does not apply to a fleet of Blackstart Resources but rather to each Blackstart Resource. (Now R14 and M14)</p> <p>R14: Each Generator Operator with a Blackstart Resource shall have documented procedures for starting the each Blackstart Resource and energizing a bus.</p> <p>M14: Each Generator Operator with a Blackstart Resource shall have dated documented procedures on file for starting the each unit and energizing a bus in accordance with Requirement R15.</p> | | | | |
| R15 14. | The Generator Operator does not have dated documented procedures for one Blackstart Resource or the procedures do not contain both elements specified in the requirement. N/A | The Generator Operator does not have dated documented procedures for two Blackstart Resources. N/A | The Generator Operator does not have dated documented procedures for three Blackstart Resources. N/A | The Generator Operator does not have dated documented starting and bus energizing procedures for any of its each Blackstart Resources. |

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| <p>R7 – R7 has been modified to remove the first two sub-requirements since they essentially fall under following the restoration plan covered by R7. The third sub-requirement has been rolled into R7 since it is an exception to following the restoration plan. The VSL remains unchanged.</p> <p style="padding-left: 40px;">R7: Following a Disturbance in which one or more areas of the BES shuts down and the use of Blackstart Resources is required to restore the shut down area to service, each affected Transmission Operator shall implement its restoration plan. If the restoration plan cannot be executed as expected because actual conditions do not match the studied conditions, the Transmission Operator shall utilize its restoration plan strategies to facilitate restoration.</p> <p>R8 – Agreed. The VSL has been modified.</p> | | | | |
| R8. | N/A | N/A | N/A | The Transmission Operator resynchronized without approval of the Reliability Coordinator or not in accordance with the established procedures of the Reliability Coordinator following a Disturbance in which Blackstart Resources have been utilized in restoring the shut down area of the System to service. |
| <p>R14 –R14 has been modified to clarify that only one agreement is needed between each TOP and GOP having Blackstart Resources included in the restoration plan. It is implied that the requirement covers every Blackstart Resource but having multiple Blackstart Resources in one agreement is OK too. A Moderate VSL is established to cover the one specific requirement mentioned in R14 having to do with testing. (Now R13)</p> | | | | |

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| <p>R13: Each Transmission Operator and Generator Operator with a Blackstart Resource shall have a written Blackstart Resource Agreements or mutually agreed upon procedures or protocols, specifying the terms and conditions of their arrangement. Such Agreements shall include references to the blackstart Blackstart Resource testing requirements.</p> | | | | |
| <p>R14 13.</p> | <p>The Transmission Operator does not have a Blackstart Resource Agreement for one of its Blackstart Resources. N/A</p> | <p>The Transmission Operator does not have Blackstart Resource Agreements for 25% of Blackstart Resources. The Transmission Operator and Generator Operator with a Blackstart Resource do not reference Blackstart Resource Testing requirements in their written Blackstart Resource Agreements or mutually agreed upon procedures or protocols.</p> | <p>The Transmission Operator does not have Blackstart Resource Agreements for 50% of Blackstart Resources. N/A</p> | <p>The Transmission Operator does not have Blackstart Resource Agreements for more than 50% of Blackstart Resources. The Transmission Operator and Generator Operator with a Blackstart resource do not have a written Blackstart Resource Agreement or mutually agreed upon procedures or protocols.</p> |
| <p>EOP-006 R5 – From the context of your comment, we believe you mean R6. The R6 VSLs have been modified to include making Transmission Operator restoration plans available in the control rooms of the Reliability Coordinator.</p> | | | | |
| <p>NPCC</p> | <p>Yes</p> | <p>VSL R5 — Why are time limits being introduced in the VSL that are not included in the requirement? If it is the desire to have a time limit then this should be added to the requirement.</p> <p>R18— This VSL does not include the percentage of operators trained. What about course attendance itself?</p> | | |

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| Organization | Question 3: | Question 3 Comments: |
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| <p>Response:</p> <p>R5 – The 15 day timeframe has been deleted in favor of an implementation date approach.</p> <p>R5: Each Transmission Operator shall have a copy of its latest Reliability Coordinator approved restoration plan within each of its primary and backup control centers rooms and available to all of its control room personnel System Operators prior to its implementation date</p> | | |

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| Organization | Question 3: | Question 3 Comments: | | |
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| R5. | <p>The Reliability Coordinator did not review and approve/disapprove the submitted restoration plans from its Transmission Operators and neighboring Reliability Coordinators within the pre-determined schedule within thirty calendar days of receipt.</p> <p>Or, t</p> <p>The Reliability Coordinator failed to notify the Transmission Operator in writing of its approval or disapproval with stated reasons for disapproval within thirty calendar days of receipt.</p> | <p>The Reliability Coordinator did not review and approve/disapprove the submitted restoration plans from its Transmission Operators and neighboring Reliability Coordinators within forty-five calendar days of the pre-determined schedule receipt.</p> <p>Or</p> <p>The Reliability Coordinator failed to notify the Transmission Operator of its approval or disapproval with stated reasons for disapproval within forty-five calendar days of receipt.</p> | <p>The Reliability Coordinator did not review and approve/disapprove the submitted restoration plans from its Transmission Operators and neighboring Reliability Coordinators within sixty calendar days of the pre-determined schedule receipt.</p> <p>Or</p> <p>The Reliability Coordinator failed to notify the Transmission Operator of its approval or disapproval with stated reasons for disapproval within sixty days of receipt. Or the Reliability Coordinator failed to revise its restoration plan after identifying changes required by new or revised restoration plans received from its Transmission Operators and neighboring Reliability Coordinators within ninety calendar days of receipt.</p> | <p>The Reliability Coordinator did not review and approve/disapprove the submitted restoration plans from its Transmission Operators and neighboring Reliability Coordinators within ninety calendar days of the pre-determined schedule receipt.</p> <p>Or</p> <p>The Reliability Coordinator failed to notify the Transmission Operator of its approval or disapproval with stated reasons for disapproval within ninety days of receipt. Or the Reliability Coordinator failed to revise its restoration plan after identifying changes required by new or revised restoration plans received from its Transmission Operators and neighboring Reliability Coordinators within 150 calendar days of receipt.</p> |
| <p>R18 – The R18 VSL judges the training of each operator required by R18 under a separate compliance review. No change has been made to the VSL.</p> | | | | |
| FirstEnergy | No | General comment for EOP-005 and EOP-006 VSLs: The VSLs as written do not | | |

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| Organization | Question 3: | Question 3 Comments: | | |
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| | | <p>include specific information relating to the standard to be as valuable as they could be. As an example, the Lower VSL for R4 states the Transmission Operator failed to comply within 90 calendar days. Presumably they failed to comply with R4, but that is not explicitly stated. This should be revised to state that they "failed to update their restoration plan within 90 days of identifying any permanent System modifications that would change the implementation of its restoration plan." The VSLs should be reviewed by the drafting team and specificity added.</p> <p>EOP-005-2:R1 - VSL for R1 does not include any measure for not having your restoration plan approved by your RC. It should be added.</p> <p>R5 - VSL for R5 place an additional requirement for minimum time period of when the plan must be placed in the control center. The requirement and measure only say you have to have the plan in the control center, which is correct since it would not be possible to measure from an audit standpoint as to when it was placed in the control center. There should only be one level of violation which states simply that the plan was not found in the control center.</p> <p>R12 - Pursuant to our comment in question 1 regarding the suggested removal of the 2-hour duration, the proposed Lower and High VSL should be removed. Also, the Severe VSL should be clarified as follows: "The TOP did not supply training within a two year period to field switching personnel that perform unique tasks during system restoration."</p> | | |
| R1211. | The Transmission Operator only supplied 1.5 hours of training within a two year period. N/A | N/A | The Transmission Operator only supplied one hour of training within a two year period. N/A | The Transmission Operator applicable Transmission Owner, or applicable Distribution Provider did not supply any training to the personnel required by Requirement R11 within a two year period. |

Response:

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The VSLs were not written to stand by themselves. They must be viewed as part of the entire standard. A repeat of the requirement would make the VSLs extremely lengthy. The VSL for R4 has been modified to make it clearer.

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| R4. | The Transmission Operator failed to comply update and submit its restoration plan to the Reliability Coordinator within ninety calendar days of the change . | The Transmission Operator failed to comply update and submit its restoration plan to the Reliability Coordinator within 120 calendar days of the change. | The Transmission Operator has failed to comply update and submit its restoration plan to the Reliability Coordinator within 150 calendar days of the change. | The Transmission Operator has failed to comply update and submit its restoration plan to the Reliability Coordinator within 180 calendar days of the change. |
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R1 – The R1 VSL has not been modified to cover the approval by the Reliability Coordinator. The SDT believes that after the implementation plan has been completed, every TOP will have an approved plan.

R5 – The 15 day timeframe has been deleted in favor of an implementation date approach. The SDT changed the VSL to show only a Severe VSL.

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| R5. | The Transmission Operator did not make the latest approved restoration plan available in its control rooms within fifteen calendar days of its approval. N/A | The Transmission Operator did not make the latest approved restoration plan available in its control rooms within twenty calendar days of its approval. N/A | The Transmission Operator did not make the latest approved restoration plan available in its control rooms within twenty-five calendar days of its approval. N/A | The Transmission Operator did not make the latest Reliability Coordinator approved restoration plan available in its primary and backup control rooms within thirty calendar days of its approval. and available to all of its System Operators prior to its implementation date. |
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R12 – The SDT believes that this training is still needed. The VSL for R12 has been clarified.

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| ITC Holdings | No | 005, R-10 Should not be severe for "failure to post" if info is available and just not posted should be a lower penalty related to reliability. |
| Response: R10 was deleted. | | |
| Ameren | No | EOP-006 Remove VSL for R10 due to the removal of R10 and M10. |
| Response: – The SDT believes that this requirement and VSL are still needed so that Generator Operators can access the TOP’s testing requirements. | | |
| Standards Interface Subcommittee | No | <p>EOP-005 Requirement R1</p> <p>The primary attribute of this requirement is that it includes each of the elements listed as a sub-requirement. There are seven items listed — the increment included in the VSL should be whole numbers, in addition “subcomponents” may result in some confusion in the requirement interpretation, suggest changing to ?sub-requirement?</p> <p>CEDRP Proposed VSL The Transmission Operator failed to meet one of the sub-requirements.</p> <p>CEDRP Proposed VSL The Transmission Operator failed to meet 2or 3 of the sub-requirements.</p> <p>CEDRP Proposed VSL The Transmission Operator failed to meet 4or 5 of the sub-requirements.</p> <p>CEDRP Proposed VSL The Transmission Operator failed to meet more than 5 of the sub-requirements.</p> <p>Standard EOP-005Requirement R2</p> <p>The requirement includes timing and the requirement to distribute to all entities — as such timing and possible omission should be the primary reason(s) for incrementing the VSLs. In addition because the numbers on impacted entities will be based on the RC and its plan — using percentages for this VSL makes sense.</p> <p>CEDRP Proposed VSL The Transmission Operator failed to distribute the information to 1% to 25% of entities identified within the restoration plan within the required</p> |

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| | | <p>timeframe. Or, the Transmission Operator distributed the information to all entities but was 1 to 30 days late in doing so</p> <p>CEDRP Proposed VSL The Transmission Operator failed to distribute the information 26% to 50% of the entities identified within the restoration plan within the required timeframe. Or, the Transmission Operator distributed the information to all entities but was 31 to 60 days late in doing so.</p> <p>CEDRP Proposed VSL The Transmission Operator failed to distribute the information to 51% to 75% of the entities identified within the restoration plan within the required timeframe. Or, the Transmission Operator distributed the information to all entities but was 61 to 90 ninety days late in doing so.</p> <p>CEDRP Proposed VSL The Transmission Operator failed to distribute the information to 76% or more of the entities identified within the restoration plan within the required timeframe. Or, the Transmission Operator distributed the information to all entities but was 91 days or more late in doing so.</p> <p>Standard EOP-005 Requirement R3</p> <p>The attribute of this requirement is based on the timing of the required communication and should increment the VSL based on timing issues.</p> <p>CEDRP Proposed VSL The Transmission Operator did not review and submit the required information within 1 to 30 calendar days of the pre-determined schedule.</p> <p>CEDRP Proposed VSL The Transmission Operator did not review and submit the required information within 31 to 90 calendar days of the pre-determined schedule.</p> <p>CEDRP Proposed VSL The Transmission Operator did not review and submit the required information within 91 to 120 calendar days of the pre-determined schedule.</p> <p>CEDRP Proposed VSL The Transmission Operator did not review submit the required information within 121 calendar days of the pre-determined schedule.</p> |
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| | | <p>Standard EOP-005 Requirement R4</p> <p>The attribute of this requirement is based on the timing of the required communication and should increment the VSL based on timing issues.</p> <p>CEDRP Proposed VSL The Transmission Operator failed to update or submit the plan within 91 to 120 days of the system modification.</p> <p>CEDRP Proposed VSL The Transmission Operator failed to update or submit the plan within 121 to 150 calendar days of the system modification.</p> <p>CEDRP Proposed VSL The Transmission Operator failed to update or submit the plan within 151 to 180 calendar days of the system modification.</p> <p>CEDRP Proposed VSL The Transmission Operator failed to update or submit the plan within 181 calendar days of the system modification.</p> <p>Standard EOP-005 Requirement R5</p> <p>This requirement’s main attribute is a timing issue and should increment the VSL based on not meeting the timing requirement. The CEDRP suggests assigning high and low limits (days) to each of the VSLs. In addition the SDT may want to consider the number of days between final approval and posting/providing to the control room, recognizing that they may always be a lag time between approval and issue (e.g., does the lower VSL need to have a window of 5 to 15 calendar days?) ? should the timing be included in the requirement itself?</p> <p>CEDRP Proposed VSL The Transmission Operator made the latest approved restoration plan available in its control rooms one to fifteen calendar days after its final approval.</p> <p>CEDRP Proposed VSL The Transmission Operator made the latest approved restoration plan available in its control rooms sixteen to twenty calendar days after its final approval.</p> |
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| | | <p>CEDRP Proposed VSL The Transmission Operator made the latest approved restoration plan available in its control rooms twenty-one to twenty-five calendar days after its final approval.</p> <p>CEDRP Proposed VSL The Transmission Operator made the latest approved restoration plan available in its control rooms more than twenty-five calendar days after its final approval.</p> <p>Standard EOP-005 Requirement R7</p> <p>Based on the requirement as written ? it appears that the failure to perform any single associated requirement would result in the failure to meet the intent of the requirement.</p> <p>CEDRP Proposed Severe VSL The Transmission Operator did not implement its restoration plan following a Disturbance in which Blackstart Resources have been utilized in restoring the shut down area of the System in accordance with R7</p> <p>Standard EOP-005 Requirement R9</p> <p>The CEDRP felt that missing any single requirement (sub requirement) for this requirement would result in the applicable entities failure to meet the intent of this requirement. As a result the CEDRP felt this requirement should be treated as a binary requirement.</p> <p>SDT Proposed Lower VSL The Transmission Operator’s testing requirements do not address one of the subrequirements. CEDRP Proposed VSLCEDRP ? suggest no Lower VSL for this requirement</p> <p>SDT Proposed High VSL The Transmission Operator’s testing requirements do not address two of the subrequirements. CEDRP Proposed VSL CEDRP — suggest no High VSL for this requirement</p> <p>SDT Proposed Severe VSL The Transmission Operator does not have the testing requirements. CEDRP Proposed VSL The Transmission Operator does not have the</p> |
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| | | <p>testing requirements or the testing requirements are incomplete.</p> <p>Standard EOP-005 Requirement R11</p> <p>This requirement includes a number of sub-requirement, and should be incremented to higher VSL levels if any (or multiple) sub requirements are omitted.</p> <p>SDT Proposed Lower VSL The Transmission Operator’s training is missing one of the topics mentioned in the subrequirements. CEDRP Proposed VSL The Transmission Operator’s training program does not address one of the sub-requirements.</p> <p>SDT Proposed Moderate VSL The Transmission Operator’s training is missing two of the topics mentioned in the subrequirements. CEDRP Proposed VSL The Transmission Operator’s training program does not address two of the sub-requirements.</p> <p>SDT Proposed High VSL The Transmission Operator’s training is missing three or more of the topics mentioned in the sub-requirements. CEDRP Proposed VSL The Transmission Operator’s training program does not address three or more of the sub-requirements.</p> <p>Standard EOP-005 Requirement R12</p> <p>This requirement includes a number of requirements that if any one were omitted would result in a possible finding of non-compliance. The CEDRP felt that this requirement presented a number of challenges 1) identification of “field switching personnel” and 2) “unique tasks” that would need to be defined and identified as a part of determining compliance. As a result the CEDRP provide minor suggested changes to the SDT’s proposed compliance elements, but believe the requirement should be reviewed for revision.</p> <p>SDT Proposed Lower VSL The Transmission Operator only supplied 1.5 hours of training within a two year period. CEDRP Proposed VSL The Transmission Operator provided 2 hour of training on</p> |
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| | | <p>unique tasks to more than 90%, but less than 100% of the applicable field switching personnel.</p> <p>SDT Proposed Moderate VSL N/A CEDRP Proposed VSL The Transmission Operator provided 2 hour of training on unique tasks to more than 80%, but less than 90% of the applicable field switching personnel.</p> <p>SDT Proposed High VSL The Transmission Operator only supplied one hour of training within a two year period. CEDRP Proposed VSL The Transmission Operator provided 2 hour of training on unique tasks to more than 70%, but less than 80% of the applicable field switching personnel.</p> <p>SDT Proposed Severe VSL The Transmission Operator did not supply any training within a two year period. CEDRP Proposed VSL The Transmission Operator provided 2 hour of training on unique tasks to less than 70% of the applicable field switching personnel.</p> <p>Standard EOP-005 Requirement R14</p> <p>The requirement includes the requirement to have agreements in place, with all resources and include a reference to testing requirements (quality).</p> <p>SDT Proposed Lower VSL The Transmission Operator does not have a Blackstart Resource Agreement for one of its Blackstart Resources. CEDRP Proposed VSL VSLs should be percentage based — the entities may have many or very few blackstart resources. The Transmission Operator does not have Blackstart Resource Agreements for up to 10% of its Blackstart Resources.</p> <p>SDT Proposed Moderate VSL The Transmission Operator does not have Blackstart Resource Agreements for 25% of Blackstart Resources. CEDRP Proposed VSL The Transmission Operator does not have Blackstart Resource Agreements for more than 10%, but less than 25% of Blackstart Resources.</p> |
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| | | <p>SDT Proposed High VSL The Transmission Operator does not have Blackstart Resource Agreements for 50% of Blackstart Resources. CEDRP Proposed VSL The Transmission Operator does not have Blackstart Resource Agreements for more than 25%, but less than 50% of Blackstart Resources.</p> <p>Standard EOP-005 Requirement R15</p> <p>Although this requirement has a number of elements, the CEDRP felt that missing only one of the attributes would result in a failure to meet the intent of the requirement ? as a result the CEDRP felt this requirement meets the criteria of a binary (go/no go) requirement.</p> <p>SDT Proposed Lower VSL The Generator Operator does not have dated documented procedures for one Blackstart Resource or the procedures do not contain both elements specified in the requirement. CEDRP Proposed VSL The CEDRP suggest only a Severe VSL for this requirement</p> <p>SDT Proposed Moderate VSL The Generator Operator does not have dated documented procedures for two Blackstart Resources. CEDRP Proposed VSL The CEDRP suggest only a Severe VSL for this requirement</p> <p>SDT Proposed High VSL The Generator Operator does not have dated documented procedures for three Blackstart Resources. CEDRP Proposed VSL The CEDRP suggest only a Severe VSL for this requirement</p> <p>SDT Proposed Severe VSL The Generator Operator does not have dated documented procedures for any of its Blackstart Resources. CEDRP Proposed VSL The Generator Operator does not have dated documented procedures for one Blackstart Resource or the procedures do not contain both elements specified in the requirement.</p> <p>Standard EOP-005 Requirement R16</p> <p>The CEDRP pool views this requirement as a timing issue that would increment, as the timing notification window grows larger.</p> |
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| | | <p>In addition the pool participants noted the use of the term “capability” in requirement, capability can mean a 1 or 2 MW derate (or uprate), or a change in start up time (slower or faster). We suspect the SDT intended this requirement to address the ability of the blackstart resource to meet obligation as a “blackstart resource”. We suggest the SDT consider re-wording this requirement for the sake of clarity.</p> <p>SDT Proposed Lower VSL The Generator Operator did not notify the Transmission Operator within twenty-four hours. CEDRP Proposed VSL The CEDRP suggest including a timing window for the VSLs. The Generator Operator completed notification of the Transmission Operator but notification was completed after twenty-four hours, but and less than seventy-two hours.</p> <p>SDT Proposed Moderate VSL The Generator Operator did not notify the Transmission Operator within three days. CEDRP Proposed VSL The Generator Operator completed notification of the Transmission Operator but notification was completed after seventy-two hours, but in less than ninety-six hours.</p> <p>SDT Proposed High VSL The Generator Operator did not notify the Transmission Operator within four days. CEDRP Proposed VSL The Generator Operator completed notification of the Transmission Operator but notification was completed after ninety-six hours, but in less than one hundred twenty hours</p> <p>SDT Proposed Severe VSL The Generator Operator did not notify the Transmission Operator for more than four days. CEDRP Proposed VSL The Generator Operator completed notification of the Transmission Operator but notification was completed after one hundred twenty hours or more.</p> |
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| | | <p>Standard EOP-005 Requirement R17</p> <p>The attributes of this requirement include a testing requirement, data that should be recorded and timing of providing the test results to the TOP. As a result the VSL should increment based on any omissions in the test data and timing of when records are provided.</p> <p>SDT Proposed Lower VSL The Generator Operator did not maintain testing records for one of the requirements for a Blackstart Resource or did not supply them as requested within the required timeframe.</p> <p>CEDRP Proposed VSL The Generator Operator test data or records were incomplete or did not supply them as requested within 30 calendar days.</p> <p>SDT Proposed Moderate VSL The Generator Operator did not maintain testing records for two of the requirements for a Blackstart Resource or did not supply them as requested for sixty days after the required timeframe.</p> <p>CEDRP Proposed VSL The Generator Operator test records were incomplete and requested records were provided 31 to 60 calendar days after requested.</p> <p>SDT Proposed High VSL The Generator Operator did not maintain testing records for three of the requirements for a Blackstart Resource or did not supply them as requested for ninety days after required timeframe.</p> <p>CEDRP Proposed VSL The Generator Operator test records were incomplete and requested records were provided 61 to 90 calendar days after requested.</p> <p>SDT Proposed Severe VSL The Generator Operator did not maintain testing records for a Blackstart Resource or did not supply them as requested for 120 days or more after the required</p> |
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| | | <p>timeframe. CEDRP Proposed VSL The Generator Operator did not maintain testing records for a Blackstart Resource or requested records were provided 91 or more calendar days after requested.</p> <p>Standard EOP-005 Requirement R18</p> <p>The attributes of this requirement are generally that of omission, any one missing sub-requirement should result in incrementing the VSLs, and not providing the training at all (less than 2 hours) should be treated as a significant omission.</p> <p>SDT Proposed Lower VSL The Generator Operator only supplied 1.5 hours of training within a two year period.</p> <p>CEDRP Proposed VSL The Generator Operator provided 2 hours of training to at least 90%, but less than 100% of the applicable operating personnel.</p> <p>SDT Proposed Moderate VSL N/A</p> <p>CEDRP Proposed VSL The Generator Operator provided 2 hours of training to at least 80%, but less than 90% of the applicable operating personnel.</p> <p>SDT Proposed High VSL The Generator Operator only supplied one hour of training within a two year period.</p> <p>CEDRP Proposed VSL The Generator Operator provided 2 hours of training to at least 70%, but less than 80% of the applicable operating personnel.</p> <p>SDT Proposed Severe VSL The Generator Operator did not supply any training within a two year period.</p> <p>CEDRP Proposed VSL The Generator Operator did not provide 2 hours of training or provided 2 hours of</p> |
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| | | <p>training to less than 70% of the applicable operating personnel.</p> <p>Standard EOP-006 Requirement R1</p> <p>Although the measure for this Standard appears to include a timing component – (dated copy) R1 appears be a statement of elements that must be included in the plan – as such an “omission” of any sub-requirement would result in possible non-compliance.</p> <p>Proposed Lower VSL We would recommend elimination of “percentages” whole numbers can easily be used, in addition “sub-components” may be interpreted as pieces within each sub-requirement, we would recommend replacing the term subcomponents with sub-requirements.</p> <p>Proposed VSL The Reliability Coordinator failed to comply with 1 or 2 of the sub-requirements within this requirement.</p> <p>Proposed Moderate VSL VSL Resource Pool Comments Proposed VSL The Reliability Coordinator failed to comply with 3 or 4 of the sub-requirements within this requirement.</p> <p>Proposed High VSL VSL Resource Pool Comments Proposed VSL The Reliability Coordinator failed to comply with 5 or 6 of the sub-requirements within this requirement.</p> <p>Proposed Severe VSL VSL Resource Pool Comments Proposed VSL The Reliability Coordinator failed to comply with 7 or more of the sub-requirements within this requirement.</p> |
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| | | <p>Standard EOP-006 Requirement R2</p> <p>This requirements appears to focus on distribution to all applicable entities – as such we would expect possible non-compliance finding if the plan were not distributed (communicated) to all applicable entities (note – no observed timing requirement)</p> <p>Proposed Lower VSL CAE Resource Pool Comments As the requirement is currently written a timing cannot be included in the VSL , in addition because the audience may vary based on the RC area and the number of entities it oversees it would be more effective to use percentages in this VSL</p> <p>Proposed VSL The Reliability Coordinator failed to distribute the information to 1% to 25% of the entities identified.</p> <p>Proposed Moderate VSL CAE Resource Pool Comments Proposed VSL The Reliability Coordinator failed to distribute the information to 26% to 50% of the entities identified.</p> <p>Proposed High VSL CAE Resource Pool Comments Proposed VSL The Reliability Coordinator failed to distribute the information to 51% to 75% of the entities identified.</p> <p>Proposed Severe VSL CAE Resource Pool Comments Proposed VSL The Reliability Coordinator failed to distribute the information to 76% or more of the entities identified.</p> |
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| | | <p>Standard EOP-006 Requirement R4</p> <p>This requirement contains two attributes (within 90 calendar days/items that necessitate a change) that should be incremented into a higher level if either are not satisfied.</p> <p>Although the intent of the requirement is clear, it is not clear when the 90-day clock would start. Would the clock start when the RC receives the new plan? Or would it start when the RC completed their review of the plan and determined an update to their plan is necessary? Because the VSL's are based on timing, the Resource pool does not feel valid VSL's can be written for this requirement as currently written. The CAE would suggest revisiting the requirement, for now the pool feels the best option is to make this a yes/no VSL based on the RC recognizing the need to update their plan.</p> <p>Proposed Lower VSL CAE Resource Pool Comments N/A</p> <p>Proposed Moderate VSL CAE Resource Pool Comments N/A</p> <p>Proposed High VSL CAE Resource Pool Comments N/A</p> <p>Proposed Severe VSL CAE Resource Pool Comments Proposed VSL The Reliability Coordinator failed to make a necessary update its restoration plan to reflect changes to Transmission Operator's or neighboring Reliability Coordinator restoration plans.</p> <p>Standard EOP-006 Requirement R5</p> |
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| | | <p>This requirement includes a timing component (within 30 days), notification component, as well as several attributes that if omitted would result in possible findings of non-compliance if any single element were omitted.</p> <p>Proposed Lower VSL CAE Resource Pool Comments The CAE would suggest that the lower VSL include the administrative issue (notification in writing) and increment the VSL higher as more elements of this requirement are omitted (including the timing issue).</p> <p>Proposed VSL The Reliability Coordinator failed to notify the Transmission Operator in writing of its reasons for disapproval OR the approval/disapproval was completed 1 to 30 after the due date.</p> <p>Proposed Moderate VSL CAE Resource Pool Comments Proposed VSL The Reliability Coordinator review failed to consider if the Transmission Operator's plan was compatible with other Transmission Operator plans within its Reliability Coordinator Area, OR the approval/disapproval was completed 31 to 60 after the due date.</p> <p>Proposed High VSL CAE Resource Pool Comments Proposed VSL The Reliability Coordinator review failed to consider all coordination aspects of the Transmission Operator's plan with the Reliability Coordinator's plan, OR the approval/disapproval was completed 61 to 90 after the due date.</p> <p>Proposed Severe VSL CAE Resource Pool Comments Proposed VSL The Reliability Coordinator review failed to perform it required review of the</p> |
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| | | <p>Transmission Operator's restoration plan.</p> <p>Standard EOP-006 Requirement R9</p> <p>This requirement includes a timing requirement (annual) as well as items that must be included in the training program. As a result, if timing requirements are not met or attributes of training are missing the VSL's for this requirement can increment to higher levels.</p> <p>Proposed Moderate VSL CAE Resource Pool Comments Proposed VSL The Reliability Coordinator supplied training but did not address one of the sub-requirements.</p> <p>Proposed High VSL CAE Resource Pool Comments Proposed VSL The Reliability Coordinator supplied training but did not address either of the sub-requirements.</p> <p>Standard EOP-006 Requirement R10</p> <p>This requirement includes timing requirements (2 drill, exercises or simulations per year) and a requirement of "shall include" for participants (based on the scope of the drill). The sub-requirement may be more effective if it referred to EOP-005 (R13).</p> <p>Proposed Moderate VSL CAE Resource Pool Comments Proposed VSL The Reliability Coordinator held the correct number of restoration drills, exercises, or simulations but did not invite one of the Transmission Operators or Generator Operators identified in its restoration plan to participate in a drill, exercise, or simulation at least every two calendar years.</p> |
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| | | <p>Proposed High VSL CAE Resource Pool Comments Proposed VSL The Reliability Coordinator held the correct number of restoration drills, exercises, or simulations but did not invite two or more of the Transmission Operators or Generator Operators identified in its restoration plan to participate in a drill, exercise, or simulation at least every two calendar years.</p> |
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Response:
 EOP-005
 R1 - VSLs for R1 have been modified to address your comment.

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| R1. | The Transmission Operator failed to comply with less than 25% of the number one of the sub-components requirements within the requirement. | The Transmission Operator failed to comply with 25% or more and less than 50% of the number two of the sub-components requirements within the requirement. | The Transmission Operator has failed to comply with 50% or more and less than 75% of the number three of the sub-components requirements within the requirement. | The Transmission Operator has failed to comply with 75% four or more of the number of sub-components requirements within the requirement. |
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R2 – The SDT has simplified the VSLs for R2 by requiring judgment of each entity required to be sent the restoration plan individually instead of as a group.

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| R2. | The Transmission Operator failed to distribute the information to an entity identified within the restoration plan within the required timeframe provide one of the operational entities identified in its approved restoration plan with a description of any | The Transmission Operator failed to distribute the information to two entities identified within the restoration plan within the required timeframe provide two of the operational entities identified in its approved restoration plan with a description of any | The Transmission Operator failed to distribute the information to three entities identified within the restoration plan within the required timeframe provide three of the operational entities identified in its approved restoration plan with a description of any | The Transmission Operator failed to distribute the information to four or more entities identified within the restoration plan within the required timeframe provide four or more of the operational entities identified in its approved restoration plan with a |
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| | changes to their roles and specific tasks prior to the implementation date of the plan. Or, t The Transmission Operator distributed provided the information to all entities but was thirty calendar days late in doing so- | changes to their roles and specific tasks prior to the implementation date of the plan. Or, t The Transmission Operator distributed provided the information to all entities but was sixty calendar days or more late in doing so- | changes to their roles and specific tasks prior to the implementation date of the plan. Or, t The Transmission Operator distributed provided the information to all entities but was ninety calendar days or more late in doing so. | description of any changes to their roles and specific tasks prior to the implementation date of the plan. Or, t The Transmission Operator distributed provided the information to all entities but was 120 calendar days or more late in doing so. |
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R3 – The VSLs for R3 have been modified in a manner similar to your comment.

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| R3. | The Transmission Operator did not submit the required information reviewed restoration plan or confirmation of no change within twenty-nine calendar days of the pre-determined schedule. Or, the Transmission Operator did not complete the review within thirty days of the pre-determined schedule. | The Transmission Operator did not submit the required information reviewed restoration plan or confirmation of no change within thirty to fifty-nine calendar days of the pre-determined schedule. Or, the Transmission Operator did not complete the review within sixty days of the pre-determined schedule. | The Transmission Operator did not submit the required information reviewed restoration plan or confirmation of no change within sixty to eighty-nine calendar days of the pre-determined schedule. Or, the Transmission Operator did not complete the review within ninety days of the pre-determined schedule. | The Transmission Operator did not submit the required information reviewed restoration plan or confirmation of no change within ninety calendar days of the pre-determined schedule. Or, the Transmission Operator did not complete the review within 120 days of the pre-determined schedule. |
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R4 - VSLs for R4 have been modified because of comments similar to yours to make it clearer.

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| R4. | The Transmission Operator failed to comply update and submit its restoration plan | The Transmission Operator failed to comply update and submit its restoration plan | The Transmission Operator has failed to comply update and submit its restoration | The Transmission Operator has failed to comply update and submit its restoration |
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| | to the Reliability Coordinator within ninety calendar days of the change. | to the Reliability Coordinator within 120 calendar days of the change. | plan to the Reliability Coordinator within 150 calendar days of the change. . | plan to the Reliability Coordinator within 180 calendar days of the change. |
| <p>R5 – R5 is now tied to an implementation date.</p> <p>R5: Each Transmission Operator shall have a copy of its latest Reliability Coordinator approved restoration plan within each of its primary and backup control centers rooms and available to all of its control room personnel System Operators prior to its implementation date</p> <p>R7 – R7 has been significantly modified to clarify that it is just judging implementation of the restoration plan or use of alternative measures.</p> <p>R7: Following a Disturbance in which one or more areas of the BES shuts down and the use of Blackstart Resources is required to restore the shut down area to service, each affected Transmission Operator shall implement its restoration plan. If the restoration plan cannot be executed as expected because actual conditions do not match the studied conditions, the Transmission Operator shall utilize its restoration plan strategies to facilitate restoration.</p> <p>R9 – The SDT agrees that not having any one of the sub-requirements of R9 would completely invalidate the Blackstart Resource testing requirements. The VSLs for R9 have been modified removing all VSLs except Severe.</p> | | | | |
| R9. | The Transmission Operator's testing requirements do not address one of the subrequirements. N/A | N/A. | The Transmission Operator's testing requirements do not address two of the subrequirements. N/A | The Transmission Operator does not have the testing requirements. The Transmission Operator's Blackstart Resource testing requirements do not address one or more of the sub-requirements of Requirement R9. |

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| R11 – The VSLs for R11 have been modified reflecting your comments. (now R10) | | | | |
| R11 10. | The Transmission Operator's training is missing does not address one of the topics mentioned in the sub-requirements of Requirement R11. | The Transmission Operator's training is missing does not address two of the topics mentioned in the sub-requirements of Requirement R11. | The Transmission Operator's training is missing does not address three or more of the topics mentioned in the sub-requirements of Requirement R11. | The Transmission Operator has not included System restoration training in its operations training program. |
| R12 – The SDT believes that this training is still needed. The VSL for R12 has been clarified. (now R11) | | | | |
| R12 11. | The Transmission Operator only supplied 1.5 hours of training within a two year period. N/A | N/A | The Transmission Operator only supplied one hour of training within a two year period. N/A | The Transmission Operator did not supply any training to the personnel required by Requirement R12 within a two year period. |
| R14 – R14 has been modified to clarify that only one agreement is needed between each TOP and GOP having Blackstart Resources included in the restoration plan. It is implied that the requirement covers every Blackstart Resource but having multiple Blackstart Resources in one agreement is OK too. A Moderate VSL is established to cover the one specific requirement mentioned in R14 having to do with testing. (Now R13) | | | | |
| <p>R13: Each Transmission Operator and Generator Operator with a Blackstart Resource shall have a written Blackstart Resource Agreements or mutually agreed upon procedures or protocols, specifying the terms and conditions of their arrangement. Such Agreements shall include references to the blackstart Blackstart Resource testing requirements.</p> | | | | |
| R14 13. | The Transmission Operator | The Transmission Operator | The Transmission Operator | The Transmission Operator |

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| | does not have a Blackstart Resource Agreement for one of its Blackstart Resources. N/A | does not have Blackstart Resource Agreements for 25% of Blackstart Resources. The Transmission Operator and Generator Operator with a Blackstart Resource do not reference Blackstart Resource Testing requirements in their written Blackstart Resource Agreements or mutually agreed upon procedures or protocols. | does not have Blackstart Resource Agreements for 50% of Blackstart Resources. N/A | does not have Blackstart Resource Agreements for more than 50% of Blackstart Resources. The Transmission Operator and Generator Operator with a Blackstart resource do not have a written Blackstart Resource Agreement or mutually agreed upon procedures or protocols. |
| <p>R15 - R15 and its VSLs have also been modified to make it clear that it does not apply to a fleet of Blackstart Resources but rather to each Blackstart Resource. The SDT believes that not having either “starting the Blackstart Resource” or “energizing the bus” would completely invalidate the Blackstart Resource documented procedures. The VSLs for R15 have been modified removing all VSLs except Severe. (Now R14 and M14)</p> <p>R15: Each Generator Operator with a Blackstart Resource shall have documented procedures for starting the each Blackstart Resource and energizing a bus.</p> <p>M14: Each Generator Operator with a Blackstart Resource shall have dated documented procedures on file for starting the each unit and energizing a bus in accordance with Requirement R15.</p> | | | | |
| R1514. | The Generator Operator does not have dated documented procedures for one Blackstart Resource or the procedures do not contain both elements specified in the | The Generator Operator does not have dated documented procedures for two Blackstart Resources. N/A | The Generator Operator does not have dated documented procedures for three Blackstart Resources. N/A | The Generator Operator does not have dated documented starting and bus energizing procedures for any of its each Blackstart Resources. |

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| | requirement. N/A | | | |
| <p>R16 – The SDT believes that a change in any capability of the Blackstart Resource requires notification. A rerating can affect the plans of how that Blackstart Resource can be used. The VSLs for R16 now consistently use hours for time measurement. (Now R15)</p> | | | | |
| R1615. | The Generator Operator with a Blackstart Resource did not notify the Transmission Operator of a change in Blackstart Resource capability within twenty-four hours. | The Generator Operator with a Blackstart Resource did not notify the Transmission Operator of a change in Blackstart Resource capability within three days seventy-two hours . | The Generator Operator with a Blackstart Resource did not notify the Transmission Operator of a change in Blackstart Resource capability within four days ninety-six hours . | The Generator Operator with a Blackstart Resource did not notify the Transmission Operator of a change in Blackstart Resource capability for more than four days ninety-six hours . |
| <p>R17 – The SDT believes that a judgment of incompleteness (R17.1) of the testing record is needed in the VSLs. There is an understanding that the most severe Violation Severity Level will be applied, if applicable. Therefore listing a single bound in the VSL is sufficient.</p> | | | | |
| <p>R18 - R18 and its VSLs have also been modified to make it clear that it does not apply to a group of Blackstart Resource operating personnel but rather to each person operator responsible for startup and synchronization of Blackstart Resources. (Now R17)</p> | | | | |
| R18 17. | The Generator Operator only supplied 1.5 hours of training within a two year period. N/A | N/A | The Generator Operator only supplied one hour of training within a two year period. N/A | The Generator Operator with a Blackstart Resource did not supply any of the training required by Requirement R17 within a two year period to each operator responsible for startup of its Blackstart Resource generation units and energizing a bus. |

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EOP-006

R1 –The SDT feels that ‘dated’ is required. In the VSLs for R1, “sub-components” has been changed to “sub-requirements”. Percentages have been removed in favor of a discrete number of sub-requirements.

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| <p>R1.</p> | <p>The Reliability Coordinator failed to comply with less than 25% of the number of include one sub-components requirement of Requirement R1 within this requirement its restoration plan.</p> | <p>The Reliability Coordinator failed to comply with 25% or more and less than 50% of the number of include two sub-components requirements of requirement R1 within this requirement its restoration plan.</p> | <p>The Reliability Coordinator has failed to include comply with 50% or more and less than 75% of the number of three of the sub-components requirements of Requirement R1 within this requirement its restoration plan.-.</p> | <p>The Reliability Coordinator has failed to comply with 75% or more of the number of include four or more of the sub-components requirements within this requirement its restoration plan.</p> |
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R2 – A 30-day time requirement has been added to R2. R2 and its VSLs have also been modified to make it clear that it does not apply to a group of distribution recipients but rather to each recipient individually.

R2: The Reliability Coordinator shall distribute its **most recent** Reliability Coordinator Area restoration plan to **each of** its Transmission Operators, ~~Balancing Authorities,~~ and neighboring Reliability Coordinators **within thirty calendar days.**

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| <p>R2.</p> | <p>The Reliability Coordinator did not distributed the required information most recent Reliability Coordinator Area restoration plan to one entity the entities identified in the Requirement R2 within the required timeframe. Or, the Reliability Coordinator</p> | <p>The Reliability Coordinator did not distributed the required information most recent Reliability Coordinator Area restoration plan to two entities the entities identified in the Requirement R2 within the prescribed timeframe. Or, the Reliability Coordinator</p> | <p>The Reliability Coordinator did not distributed the required information most recent Reliability Coordinator Area restoration plan to three the entities identified in the Requirement R2 within the prescribed timeframe. Or, the Reliability Coordinator distributed the required</p> | <p>The Reliability Coordinator did not distributed the required information most recent Reliability Coordinator Area restoration plan to four or more entities identified in the Requirement R2 within the prescribed timeframe. Or, the Reliability Coordinator distributed the required information to all</p> |
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| | distributed the required information to all entities but was more than thirty calendar days late. | distributed the required information to all entities but was more than sixty calendar days late. | information to all entities but was more than ninety calendar days late. | entities but was more than 120 calendar days late. |
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R4 – Wording changed for clarity.

R4: Each Reliability Coordinator shall ~~update its restoration plan within ninety calendar days after identifying changes to one of its Transmission Operator's restoration plans or upon reviewing a~~ **their** neighboring Reliability Coordinator's restoration plans ~~that would necessitate a change in their coordination tasks or responsibilities.~~

R5 – R5.1 and R5.2 have been combined. It was difficult to measure compliance to the old R5.1 review requirement. R4 has also been added to R5. M5 has also been modified to reflect changes in R5.

M5: Each Reliability Coordinator shall provide evidence, such as a review signature sheet **or emails**, that it has reviewed, **approved or disapproved, and notified** its Transmission Operator's, **and reviewed its neighboring Reliability Coordinator's**, submitted restoration plan(s) **and updated its restoration plan, if necessary**, in accordance with Requirement R5.

R9 – The SDT believes that the changes made obviate the need for timing and boundaries

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| R9. | The Reliability Coordinator supplied the necessary training but not within the required timeframe. — N/A | The Reliability Coordinator supplied training but did not address both sub-requirements. N/A | N/A | The Reliability Coordinator has not included System restoration training in its operations training program. — The Reliability Coordinator supplied annual System restoration training but did not address both of the sub-requirements. Or The Reliability Coordinator supplied the required |
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| | | | | System restoration training but it was over two calendar years from the last training offered. |
| R10 – The SDT feels that inviting participants is a straight forward process and that the VSL is correct but has made wording changes for clarity. | | | | |
| R10. | The Reliability Coordinator only held one restoration drill, exercise, or simulation during the calendar year. | The Reliability Coordinator held the correct number of restoration drills, exercises, or simulations but did not invite each a Transmission Operator and or Generator Operator identified in its restoration plan to participate in a drill, exercise, or simulation at least every within two calendar years. | N/A | The Reliability Coordinator did not hold a restoration drill, exercise, or simulation during the calendar year. |
| Kansas City Power & Light | No | <p>EOP-005-2:</p> <p>R1 - recommend eliminating percentages and choosing fixed numbers. 25% of 7 subcomponents is 1.75, 50% is 3.5, etc. Propose the following:</p> <p>Lower - The Transmission Operator failed to comply with 1 of the of sub-requirements within the requirement.</p> <p>Moderate - The Transmission Operator failed to comply with 2 of the of sub-requirements within the requirement.</p> <p>High - The Transmission Operator failed to comply with 3 of the of sub-requirements within the requirement.</p> <p>Severe - The Transmission Operator failed to comply 4 or more of the of sub-requirements within the requirement.</p> <p>R2 - Either an entity provided the information on time, was late in providing the</p> | | |

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| | | <p>information or it did not provide it all at the time of an audit. The addition of time in the VSLs not in the requirement makes for debate. Propose the following:</p> <p>Lower - The Transmission Operator failed to distribute the information to an entity identified within the restoration plan within the thirty (30) day required timeframe.</p> <p>Moderate - The Transmission Operator failed to distribute the information to one of the entities identified within the restoration plan.</p> <p>High - The Transmission Operator failed to distribute the information to two of the entities identified within the restoration plan.</p> <p>Severe - The Transmission Operator failed to distribute the information to three or more of the entities identified within the restoration plan.</p> <p>R3 - The most important part of this standard is the review. At the time of an audit, either the entity reviewed late or not at all or submitted late or not at all at the time of an audit. The VSL should reflect these. Propose the following:</p> <p>Lower - The Transmission Operator submitted the required information but was late in the submission.</p> <p>Moderate - The Transmission Operator failed to submit the required information within the predetermined schedule.</p> <p>High - Transmission Operator completed a review but the review was completed beyond predetermined schedule.</p> <p>Severe - Transmission Operator failed to complete a review within the predetermined schedule.</p> <p>R4 - Either the entity completed a review outside the 90 days or it did not complete a review within the 90 days at the time of an audit. Propose the following:</p> <p>Lower - OK as proposed.</p> <p>Moderate - NA</p> <p>High - NA</p> <p>Severe - The Transmission Operator failed to complete a review within the 90 days of the change.</p> <p>R5 - provision of copies is an administrative requirement and should not have a VSL higher than Moderate. The proposed VSL specifies a time frame when there is none in the requirement. Propose the following:</p> <p>Lower - The Transmission Operator did not make the latest approved restoration</p> |
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| | | <p>plan available in its control rooms. Moderate - NA High - NA Severe - NA</p> <p>R10 - Posting the testing plan is an administrative requirement and the VSL's should not be any higher than Moderate. Propose the following: Lower - The Transmission Operator failed to post the Blackstart Resource testing requirements. Moderate - OK as is. High - OK as is. Severe - NA</p> <p>R12 - This is only 2 hours of training. The proposed VSL's can be simplified. Propose the following: Lower - NA Moderate - NA High - The Transmission Operator completed the required 2 hours of training for identified personnel, but failed to provide the training within the 2 year time frame. Severe - The Transmission Operator failed to completed the required 2 hours of training for identified personnel.</p> <p>R14 - Recommend removing percentages from the VSL's and going to specific numbers to improve compliance parameters. Propose the following: Lower - OK as is. Moderate - The Transmission Operator does not have Blackstart Resource Agreements for 2 of its Blackstart Resources. High - The Transmission Operator does not have Blackstart Resource Agreements for 3 of its Blackstart Resources. Severe - The Transmission Operator does not have Blackstart Resource Agreements for 4 or more of its Blackstart Resources.</p> <p>R16 - VSL's should not specify timing requirements that are not in the requirement. Either the Generator Operator reported on time, it reported but late or it did not report. Propose the following:</p> |
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| | | <p>Lower - NA Moderate - NA High - The Generator Operator did not notify the Transmission Operator within twenty-four hours. Severe - The Generator Operator failed to notify the Transmission Operator.</p> <p>R18 - Same comment as in R12 for training. Propose the following: Lower - NA Moderate - OK as is. High - The Generator Operator provided two hours of training but failed to provide the training within a two year period. Severe - The Generator Operator failed to provide two hours of training.</p> <p>EOP-006-2 R2 - The VSL is introducing a timing requirement when there is none in the requirement. Propose the following: Lower - The Reliability Coordinator did not distribute the required information to one entity identified in the requirement. Moderate - The Reliability Coordinator did not distribute the required information to two entities identified in the requirement. High - The Reliability Coordinator did not distribute the required information to three entities identified in the requirement. Severe - The Reliability Coordinator did not distribute the required information to four or more entities identified in the requirement.</p> <p>R3 - VSL's should not provide additional timing beyond the timing required. Either the entity met the timing or it did not. Propose the following: Lower - The Reliability Coordinator completed a review of its restoration plan but failed to complete the review within twelve months. Moderate - NA High - NA Severe - The Reliability Coordinator failed to complete a review of its restoration plan.</p> <p>R4 - VSL's should not provide additional timing beyond the timing required. Either</p> |
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| | | <p>the entity met the timing or it did not. Propose the following: Lower - NA Moderate - NA High - The Reliability Coordinator failed to comply within ninety calendar days of the change. Severe - The Reliability Coordinator failed to update its plan due to a change.</p> <p>R5 - VSL's should not provide additional timing beyond the timing required. Either the entity met the timing or it did not. Propose the following: Lower - The Reliability Coordinator completed a review but failed to notify the Transmission Operator in writing of its approval/disapproval and reasons for disapproval within 90 days. Moderate - The Reliability Coordinator failed to complete a review of one Transmission Operator plan. High - The Reliability Coordinator failed to complete a review of two Transmission Operator's plans. Severe - The Reliability Coordinator failed to complete a review of three or more Transmission Operator's plans.</p> <p>R6 - This is administrative and should not be any higher than Moderate. The VSL introduces timing requirements not in the standard. Propose the following: Lower - The Reliability Coordinator did not make the latest approved restoration plan available in its control rooms. Moderate - NA High - NA Severe - NA</p> |
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Response:
 EOP-005
 R1 - VSLs for R1 have been modified to address your comment.

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| R1. | The Transmission Operator failed to comply with less than 25% of the number one of the sub- | The Transmission Operator failed to comply with 25% or more and less than 50% of the number two of the | The Transmission Operator has failed to comply with 50% or more and less than 75% of the number three of | The Transmission Operator has failed to comply with 75% or more of the number four or more of the number of sub- |
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| | components requirements within the requirement. | sub-components requirements within the requirement. | the sub-components requirements within the requirement. | components requirements within the requirement. |
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| <p>R2 – Concerning your comment, it's difficult to judge the difference between "late" and "not at all" since "not at all" can never be judged as compared to very late. Also the "thirty-day" requirement was in the last posted version of EOP-005 R2. The Standard and VSLs are written to apply to each entity separately. The R2 VSLs have been clarified.</p> | | | | |
| R2. | <p>The Transmission Operator failed to distribute the information to an entity identified within the restoration plan within the required timeframe provide one of the operational entities identified in its approved restoration plan with a description of any changes to their roles and specific tasks prior to the implementation date of the plan. Or, t The Transmission Operator distributed provided the information to all entities but was thirty calendar days late in doing so-</p> | <p>The Transmission Operator failed to distribute the information to two entities identified within the restoration plan within the required timeframe provide two of the operational entities identified in its approved restoration plan with a description of any changes to their roles and specific tasks prior to the implementation date of the plan. Or, t The Transmission Operator distributed provided the information to all entities but was sixty calendar days or more late in doing so-</p> | <p>The Transmission Operator failed to distribute the information to three entities identified within the restoration plan within the required timeframe provide three of the operational entities identified in its approved restoration plan with a description of any changes to their roles and specific tasks prior to the implementation date of the plan. Or, t The Transmission Operator distributed provided the information to all entities but was ninety calendar days or more late in doing so.</p> | <p>The Transmission Operator failed to distribute the information to four or more entities identified within the restoration plan within the required timeframe provide four or more of the operational entities identified in its approved restoration plan with a description of any changes to their roles and specific tasks prior to the implementation date of the plan. Or, t The Transmission Operator distributed provided the information to all entities but was 120 calendar days or more late in doing so.</p> |
| <p>R3 – The VSLs judge the severity of non-compliance. Judging how far past the required submittal date information was submitted is a valid way of handling this type of requirement. The R3 VSLs have been clarified.</p> | | | | |

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| <p>R3.</p> | <p>The Transmission Operator did not submit the required information reviewed restoration plan or confirmation of no change within twenty-nine calendar days of the pre-determined schedule. Or, the Transmission Operator did not complete the review within thirty days of the pre-determined schedule.</p> | <p>The Transmission Operator did not submit the required information reviewed restoration plan or confirmation of no change within thirty to fifty-nine calendar days of the pre-determined schedule. Or, the Transmission Operator did not complete the review within sixty days of the pre-determined schedule.</p> | <p>The Transmission Operator did not submit the required information reviewed restoration plan or confirmation of no change within sixty to eighty-nine calendar days of the pre-determined schedule. Or, the Transmission Operator did not complete the review within ninety days of the pre-determined schedule.</p> | <p>The Transmission Operator did not submit the required information reviewed restoration plan or confirmation of no change within ninety calendar days of the pre-determined schedule. Or, the Transmission Operator did not complete the review within 120 days of the pre-determined schedule.</p> |
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R4 - The VSLs judge the severity of non-compliance. Judging how far past the required submittal date information was submitted is a valid way of handling this type of requirement. The R4 VSLs have been clarified.

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| <p>R4.</p> | <p>The Transmission Operator failed to comply update and submit its restoration plan to the Reliability Coordinator within ninety calendar days of the change.</p> | <p>The Transmission Operator failed to comply update and submit its restoration plan to the Reliability Coordinator within 120 calendar days of the change.</p> | <p>The Transmission Operator has failed to comply update and submit its restoration plan to the Reliability Coordinator within 150 calendar days of the change.</p> | <p>The Transmission Operator has failed to comply update and submit its restoration plan to the Reliability Coordinator within 180 calendar days of the change.</p> |
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R5 - The VSLs judge the severity of non-compliance. Violation Risk Factors indicates importance to reliability for each requirement. Aligning with your comment, the VRF for R5 is Lower.

R10 –requirement has been deleted.

R12 – VSL has been modified based on your suggestion to make the Lower VSL “N/A” as well as other suggestions indicating that the

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| High VSL should also be "N/A". (now R11) | | | | |
| R1211. | The Transmission Operator only supplied 1.5 hours of training within a two year period. N/A | N/A | The Transmission Operator only supplied one hour of training within a two year period. N/A | The Transmission Operator applicable Transmission Owner, or applicable Distribution Provider did not supply any training to the personnel required by Requirement R11 within a two year period. |
| R14 – The requirement has been modified and the VSLs have been modified to include a Moderate VSL for exclusion of the Testing Requirements and a Severe VSL for a non-existent Agreement. (Now R13) | | | | |
| R13: Each Transmission Operator and Generator Operator with a Blackstart Resource shall have a written Blackstart Resource Agreements or mutually agreed upon procedures or protocols, specifying the terms and conditions of their arrangement. Such Agreements shall include references to the blackstart Blackstart Resource testing requirements. | | | | |
| R1413. | The Transmission Operator does not have a Blackstart Resource Agreement for one of its Blackstart Resources. N/A | The Transmission Operator does not have Blackstart Resource Agreements for 25% of Blackstart Resources. The Transmission Operator and Generator Operator with a Blackstart Resource do not reference Blackstart Resource Testing requirements in their written Blackstart Resource Agreements or mutually agreed upon procedures or protocols. | The Transmission Operator does not have Blackstart Resource Agreements for 50% of Blackstart Resources. N/A | The Transmission Operator does not have Blackstart Resource Agreements for more than 50% of Blackstart Resources. The Transmission Operator and Generator Operator with a Blackstart resource do not have a written Blackstart Resource Agreement or mutually agreed upon procedures or protocols. |

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R16 - The VSLs judge the severity of non-compliance. Judging how far past the required submittal date information was submitted is a valid way of handling this type of requirement. The R16 VSLs have been clarified.

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| R16. | The Generator Operator with a Blackstart Resource did not notify the Transmission Operator of a change in Blackstart Resource capability within twenty-four hours. | The Generator Operator with a Blackstart Resource did not notify the Transmission Operator of a change in Blackstart Resource capability within three days seventy-two hours . | The Generator Operator with a Blackstart Resource did not notify the Transmission Operator of a change in Blackstart Resource capability within four days ninety-six hours . | The Generator Operator with a Blackstart Resource did not notify the Transmission Operator of a change in Blackstart Resource capability for more than four days ninety-six hours . |
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R18 – VSL has been modified to align with the modifications to the VSLs for R12. (now R17)

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| R1817. | The Generator Operator only supplied 1.5 hours of training within a two year period. N/A | N/A | The Generator Operator only supplied one hour of training within a two year period. N/A | The Generator Operator with a Blackstart Resource did not supply any of the training required by Requirement R17 within a two year period to each operator responsible for startup of its Blackstart Resource generation units and energizing a bus. |
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EOP-006

R2 - A 30-day time requirement has been added to R2. R2 and its VSLs have also been modified to make it clear that it does not apply to a group of distribution recipients but rather to each recipient individually.

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R2: The Reliability Coordinator shall distribute its **most recent** Reliability Coordinator Area restoration plan to **each of its** Transmission Operators, ~~Balancing Authorities,~~ and neighboring Reliability Coordinators **within thirty calendar days of creation or revision.**

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| <p>R2.</p> | <p>The Reliability Coordinator did not distributed the required information most recent Reliability Coordinator Area restoration plan to one entity the entities identified in the rRequirement R2 within the required timeframe. Or, the Reliability Coordinator distributed the required information to all entities but was more than thirty days late.</p> | <p>The Reliability Coordinator did not distributed the required information most recent Reliability Coordinator Area restoration plan to two entities the entities identified in the rRequirement R2 within the prescribed timeframe. Or, the Reliability Coordinator distributed the required information to all entities but was more than sixty days late.</p> | <p>The Reliability Coordinator did not distributed the required information most recent Reliability Coordinator Area restoration plan to three the entities identified in the rRequirement R2 within the prescribed timeframe. Or, the Reliability Coordinator distributed the required information to all entities but was more than ninety days late.</p> | <p>The Reliability Coordinator did not distributed the required information most recent Reliability Coordinator Area restoration plan to four or more entities identified in the rRequirement R2 within the prescribed timeframe. Or, the Reliability Coordinator distributed the required information to all entities but was more than 120 days late.</p> |
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R3 - The VSLs judge the severity of non-compliance. Judging how far past the required submittal date information was submitted is a valid way of handling this type of requirement.

R4 – Wording changed for clarity.

R4 Each Reliability Coordinator shall ~~update its restoration plan within ninety calendar days after identifying changes to one of its Transmission Operator’s restoration plans or upon reviewing a~~ **their** neighboring Reliability Coordinator’s restoration plans ~~that would necessitate a change in their coordination tasks or responsibilities.~~

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R5 - The VSLs judge the severity of non-compliance. Judging how far past the required submittal date information was submitted is a valid way of handling this type of requirement. R5.1 and R5.2 have been combined. It was difficult to measure compliance to the old R5.1 review requirement. R4 is now part of R5. M5 has also been modified to reflect changes in R5.

M5: Each Reliability Coordinator shall provide evidence, such as a review signature sheet **or emails**, that it has reviewed, **approved or disapproved, and notified** its Transmission Operator's, **and reviewed its neighboring Reliability Coordinator's**, submitted restoration plan(s) **and updated its restoration plan, if necessary**, in accordance with Requirement R5.

R6 - The VSLs judge the severity of non-compliance. Violation Risk Factors indicates importance to reliability for each requirement. Aligning with your comment, the VRF for R6 is Lower.

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| Operating Reliability Working Group (ORWG) | No | <p>EOP-005R1. We suggest the following: Lower - The Transmission Operator failed to comply with one (1) of the sub-requirements of R1. Moderate - The Transmission Operator failed to comply with two (2) of the sub-requirements of R1. High - The Transmission Operator failed to comply with three (3) of the sub-requirements of R1. Severe - The Transmission Operator failed to comply with four (4) or more of the sub-requirements of R1.</p> <p>R2. We suggest the following: Lower - The Transmission Operator distributed the information to all entities identified within the restoration plan but failed to meet the timing requirements for at least one entity. Moderate - The Transmission Operator failed to distribute the information to one (1) entity identified within the restoration plan. High - The Transmission Operator failed to distribute the information to two (2) entities identified within the restoration plan. Severe - The Transmission Operator failed to distribute the information to three (3) or more entities identified within the restoration plan.</p> <p>R3. We suggest the following: Lower - The Transmission Operator reviewed the plan but did not submit it within the specified time. Moderate - The Transmission Operator reviewed the plan but not within the specified time. Severe - The Transmission Operator did not review the plan.</p> <p>R4. We suggest adding a Severe VSL as follows: Severe - The Transmission Operator did not revise the plan.</p> <p>R5. There is no timing requirement in the R5, therefore references to 15, 20, 25</p> |
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| | | <p>and 30 days should be removed from the VSLs. We suggest keeping the Lower VSL, as modified below, and deleting the remaining VSLs. Lower - The Transmission Operator did not make the latest approved restoration plan available in its control rooms.</p> <p>R9. We suggest the following: Lower - The Transmission Operator's testing requirements do not address one (1) of the sub-requirements or sub-sub-requirements, collectively. Moderate - The Transmission Operator's testing requirements do not address two (2) of the sub-requirements or sub-sub-requirements, collectively. High - The Transmission Operator's testing requirements do not address three (3) of the sub-requirements or sub-sub-requirements, collectively. Severe - The Transmission Operator's testing requirements do not address four (4) or more of the sub-requirements or sub-sub-requirements, collectively.</p> <p>R10. We suggest moving the single VSL to Lower.</p> <p>R12. We suggest deleting the Lower and High VSL, modify the Severe VSL as indicated below and move it to Moderate. Moderate - The Transmission Operator did not provide the required training as specified in R12.</p> <p>R14. We suggest the following: Lower - The Transmission Operator does not have a Blackstart Resource Agreement for one (1) of its Blackstart Resources. Moderate - The Transmission Operator does not have a Blackstart Resource Agreement for two (2) of its Blackstart Resources. High - The Transmission Operator does not have a Blackstart Resource Agreement for three (3) of its Blackstart Resources. Severe - The Transmission Operator does not have a Blackstart Resource Agreement for four (4) or more of its Blackstart Resources.</p> <p>R15. The inclusion of the word 'dated' in the VSLs adds a requirement that is not contained in R15. Either delete the 'dated' in the VSLs or add 'dated' to the requirement. We would also suggest modifying the end of the Severe VSL to '?procedures for four (4) or more of its Blackstart Resources.'</p> <p>R16. We suggest the following: Lower – delete Moderate – delete High - The</p> |
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| | <p>Generator Operator did not notify the Transmission Operator within the time specified in R16. Severe - The Generator Operator failed to notify the Transmission Operator.</p> <p>R17. More emphasis is placed on record keeping than actually performing the required tests. We suggest the following: Lower - The Generator Operator tested all its Blackstart Resources but failed to provide the testing documents on time. Moderate - The Generator Operator tested all its Blackstart Resources but failed to provide any testing documentation. High - The Generator Operator failed to test its Blackstart Resources within the required timeframe. Severe - The Generator Operator failed to test its Blackstart Resources.</p> <p>R18. We suggest deleting the Lower and High VSL, modify the Severe VSL as indicated below and move it to Moderate. Moderate - The Transmission Operator did not provide the required training as specified in R12.</p> <p>EOP-006R1. We suggest the following: Lower - The Reliability Coordinator failed to comply with one (1) of the sub-requirements of R1. Moderate - The Reliability Coordinator failed to comply with two (2) of the sub-requirements of R1. High - The Reliability Coordinator failed to comply with three (3) of the sub-requirements of R1. Severe - The Reliability Coordinator failed to comply with four (4) or more of the sub-requirements of R1.</p> <p>R2. The requirement does not contain a timing requirement, therefore the references to 30, 60, 90 and 120 days in the VSLs should be deleted. Additionally, we propose the following: Lower - The Reliability Coordinator did not distribute the required information to one (1) entity identified in R2. Moderate - The Reliability Coordinator did not distribute the required information to two (2) entities identified in R2. High - The Reliability Coordinator did not distribute the required information to three (3) entities identified in R2. Severe - The Reliability Coordinator did not distribute the required information to four (4) or more entities identified in R2.</p> <p>R3. We suggest the following: Lower - The Reliability Coordinator failed to review its restoration plan within twelve months. Moderate – delete High – delete Severe</p> |
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| | <p>- The Reliability Coordinator failed to review its restoration plan.</p> <p>R4. We suggest the following: Lower – delete Moderate – delete High - The Reliability Coordinator updated its restoration plan but not within the ninety day timeframe required in R4. Severe - The Reliability Coordinator failed to update its restoration plan. R5. We suggest the following: Lower - The Reliability Coordinator reviewed and approved/disapproved the restoration plans within the predetermined schedule but failed to notify the Transmission Operator in writing of its approval/disapproval. Moderate - The Reliability Coordinator did not review and approve/disapprove the restoration plans of one (1) Transmission Operator within its Reliability Coordinator Area. High - The Reliability Coordinator did not review and approve/disapprove the restoration plans of two (2) Transmission Operators within its Reliability Coordinator Area. Severe - The Reliability Coordinator did not review and approve/disapprove the restoration plans of three (3) or more Transmission Operators within its Reliability Coordinator Area.</p> <p>R6. There is no timing requirement in the R6, therefore the references to 15, 20, 25 and 30 days should be deleted from the VSLs. We propose the following for the Lower VSL and recommend deleting the remaining VSLs. Lower - The Reliability Coordinator did not make the latest approved restoration plan available in its control rooms.</p> |
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Response:

R1 - VSLs for R1 have been modified to address your comment.

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| R1. | The Transmission Operator failed to comply with less than 25% of the number one of the sub-components requirements within the requirement. | The Transmission Operator failed to comply with 25% or more and less than 50% of the number two of the sub-components requirements within the requirement. | The Transmission Operator has failed to comply with 50% or more and less than 75% of the number three of the sub-components requirements within the requirement. | The Transmission Operator has failed to comply with 75% four or more of the number of sub-components requirements within the requirement. |
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R2 - The Standard and VSLs are written to apply to each entity separately. The R2 VSLs have been clarified.

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| <p>R2.</p> | <p>The Transmission Operator failed to distribute the information to an entity identified within the restoration plan within the required timeframe provide one of the operational entities identified in its approved restoration plan with a description of any changes to their roles and specific tasks prior to the implementation date of the plan. Or The Transmission Operator distributed provided the information to all entities but was thirty days late in doing so-</p> | <p>The Transmission Operator failed to distribute the information to two entities identified within the restoration plan within the required timeframe provide two of the operational entities identified in its approved restoration plan with a description of any changes to their roles and specific tasks prior to the implementation date of the plan. Or The Transmission Operator distributed provided the information to all entities but was sixty days or more late in doing so-</p> | <p>The Transmission Operator failed to distribute the information to three entities identified within the restoration plan within the required timeframe provide three of the operational entities identified in its approved restoration plan with a description of any changes to their roles and specific tasks prior to the implementation date of the plan. Or The Transmission Operator distributed provided the information to all entities but was ninety days or more late in doing so.</p> | <p>The Transmission Operator failed to distribute the information to four or more entities identified within the restoration plan within the required timeframe provide four or more of the operational entities identified in its approved restoration plan with a description of any changes to their roles and specific tasks prior to the implementation date of the plan. Or The Transmission Operator distributed provided the information to all entities but was 120 days or more late in doing so.</p> |
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R3 - The VSLs judge the severity of non-compliance. Judging how far past the required submittal date information was submitted is a valid way of handling this type of requirement. The R3 VSLs have been clarified.

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| <p>R3.</p> | <p>The Transmission Operator did not submit the required information reviewed restoration plan or confirmation of no change within twenty-nine calendar days of the pre-determined</p> | <p>The Transmission Operator did not submit the required information reviewed restoration plan or confirmation of no change within thirty to fifty-nine calendar days of the pre-</p> | <p>The Transmission Operator did not submit the required information reviewed restoration plan or confirmation of no change within sixty to eighty-nine calendar days of the pre-</p> | <p>The Transmission Operator did not submit the required information reviewed restoration plan or confirmation of no change within ninety calendar days of the pre-determined</p> |
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| | schedule. Or, the Transmission Operator did not complete the review within thirty days of the pre-determined schedule. | determined schedule. Or, the Transmission Operator did not complete the review within sixty days of the pre-determined schedule. | determined schedule. Or, the Transmission Operator did not complete the review within ninety days of the pre-determined schedule. | schedule. Or, the Transmission Operator did not complete the review within 120 days of the pre-determined schedule. |
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R4 - Concerning your comment, it's difficult to judge the difference between "late" and "not at all" since "not at all" can never be judged as compared to very late. Judging how far past the required submittal date information was submitted is a valid way of handling this type of requirement. The R4 VSLs have been clarified.

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| R4. | The Transmission Operator failed to comply update and submit its restoration plan to the Reliability Coordinator within ninety calendar days of the change. | The Transmission Operator failed to comply update and submit its restoration plan to the Reliability Coordinator within 120 calendar days of the change. | The Transmission Operator has failed to comply update and submit its restoration plan to the Reliability Coordinator within 150 calendar days of the change. | The Transmission Operator has failed to comply update and submit its restoration plan to the Reliability Coordinator within 180 calendar days of the change. |
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R5 – R5 has been modified to refer to implementation date.

R5: Each Transmission Operator shall have a copy of its latest **Reliability Coordinator** approved restoration plan within each of its **primary and backup control centers rooms** and available to all of its ~~control room personnel~~ **System Operators prior to its implementation date.**

R9 - The SDT agrees with a previous commenter that not having any one of the sub-requirements of R9 would completely invalidate the Blackstart Resource testing requirements. The VSLs for R9 have been modified removing all VSLs except Severe.

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| R9. | The Transmission Operator's testing requirements do not | N/A. | The Transmission Operator's testing requirements do not | The Transmission Operator does not have the testing requirements. The |
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| | address one of the subrequirements. N/A | | address two of the subrequirements. N/A | Transmission Operator's Blackstart Resource testing requirements do not address one or more of the sub-requirements of Requirement R9. |
| <p>R10 –requirement has been deleted.</p> <p>R12 – The SDT has reviewed the VSL and believes that this is an 'all or nothing' requirement. (now R11)</p> | | | | |
| R12 11. | The Transmission Operator only supplied 1.5 hours of training within a two year period. N/A | N/A | The Transmission Operator only supplied one hour of training within a two year period. N/A | The Transmission Operator did not supply any training to the personnel required by Requirement R11 within a two year period. |
| <p>R14 - The requirement has been modified and the VSLs have been modified to include a Moderate level VSL for exclusion of the Testing Requirements and a Severe VSL for a non-existent Agreement. (now R13)</p> <p>R13: Each Transmission Operator and Generator Operator with a Blackstart Resource shall have a written Blackstart Resource Agreements or mutually agreed upon procedures or protocols, specifying the terms and conditions of their arrangement. Such Agreements shall include references to the blackstart Blackstart Resource testing requirements.</p> | | | | |
| R14 13. | The Transmission Operator does not have a Blackstart Resource Agreement for one of its Blackstart Resources. N/A | The Transmission Operator does not have Blackstart Resource Agreements for 25% of Blackstart Resources. The Transmission Operator and | The Transmission Operator does not have Blackstart Resource Agreements for 50% of Blackstart Resources. N/A | The Transmission Operator does not have Blackstart Resource Agreements for more than 50% of Blackstart Resources. The Transmission Operator and |

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| | | Generator Operator with a Blackstart Resource do not reference Blackstart Resource Testing requirements in their written Blackstart Resource Agreements or mutually agreed upon procedures or protocols. | | Generator Operator with a Blackstart resource do not have a written Blackstart Resource Agreement or mutually agreed upon procedures or protocols. |
| <p>R15 - R15 and its VSLs have also been modified to make it clear that it does not apply to a fleet of Blackstart Resources but rather to each Blackstart Resource. The SDT believes that not having either starting the Blackstart Resource or energizing the bus would completely invalidate the Blackstart Resource documented procedures. The VSLs for R15 have been modified removing all VSLs except Severe. (now R14)</p> <p>R14: Each Generator Operator with a Blackstart Resource shall have documented procedures for starting the each Blackstart Resource and energizing a bus.</p> | | | | |
| R15. | The Generator Operator does not have dated documented procedures for one Blackstart Resource or the procedures do not contain both elements specified in the requirement. N/A | The Generator Operator does not have dated documented procedures for two Blackstart Resources. N/A | The Generator Operator does not have dated documented procedures for three Blackstart Resources. N/A | The Generator Operator does not have dated documented starting and bus energizing procedures for any of its each Blackstart Resources. |
| <p>R16 - The VSLs judge the severity of non-compliance. Judging how far past the required submittal date information was submitted is a valid way of handling this type of requirement. The R16 VSLs have been clarified. (now R15)</p> | | | | |

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| <p>R16 15.</p> | <p>The Generator Operator with a Blackstart Resource did not notify the Transmission Operator of a change in Blackstart Resource capability within twenty-four hours.</p> | <p>The Generator Operator with a Blackstart Resource did not notify the Transmission Operator of a change in Blackstart Resource capability within three days seventy-two hours.</p> | <p>The Generator Operator with a Blackstart Resource did not notify the Transmission Operator of a change in Blackstart Resource capability within four days ninety-six hours.</p> | <p>The Generator Operator with a Blackstart Resource did not notify the Transmission Operator of a change in Blackstart Resource capability for more than four days ninety-six hours.</p> |
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R17 – To an auditor, it would be impossible to tell if tests were performed without records so the requirement concentrates on those records. The SDT believes that a judgment of incompleteness (R17.1) of the testing record is needed in the VSLs. The Standard and VSLs are written to apply to each Blackstart Resource separately as a response to other comments received.

R18 – VSL has been modified to remove the Lower VSL as proposed – however a failure to provide the training is a total failure to comply with the requirement and meets the criteria for a Severe VSL. (now R17)

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| <p>R18 17.</p> | <p>The Generator Operator only supplied 1.5 hours of training within a two year period. N/A</p> | <p>N/A</p> | <p>The Generator Operator only supplied one hour of training within a two year period. N/A</p> | <p>The Generator Operator with a Blackstart Resource did not supply any of the training required by Requirement R17 within a two year period to each operator responsible for startup of its Blackstart Resource generation units and energizing a bus.</p> |
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EOP-006

R1 - In the VSLs for R1, "sub-components" has been changed to "sub-requirements". Percentages have been removed in favor of discrete numbers of sub-requirements.

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| <p>R1.</p> | <p>The Reliability Coordinator failed to comply with less than 25% of the number of include one sub-components requirement of Requirement R1 within this requirement its restoration plan.</p> | <p>The Reliability Coordinator failed to comply with 25% or more and less than 50% of the number of include two sub-components requirements of requirement R1 within this requirement its restoration plan.</p> | <p>The Reliability Coordinator has failed to include comply with 50% or more and less than 75% of the number of three of the sub-components requirements of Requirement R1 within this requirement its restoration plan.-.</p> | <p>The Reliability Coordinator has failed to comply with 75% or more of the number of include four or more of the sub-components requirements within this requirement its restoration plan.</p> |
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R2 - A 30-day time requirement has been added to R2. R2 and its VSLs have also been modified to make it clear that it does not apply to a group of distribution recipients but rather to each recipient individually.

R2: The Reliability Coordinator shall distribute its **most recent** Reliability Coordinator Area restoration plan to **each of** its Transmission Operators, ~~Balancing Authorities,~~ and neighboring Reliability Coordinators **within thirty calendar days of creation or revision.**

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| <p>R2.</p> | <p>The Reliability Coordinator did not distributed the required information most recent Reliability Coordinator Area restoration plan to one entity the entities identified in the Requirement R2 within the required timeframe. Or, the Reliability Coordinator distributed the required information to all entities but was more than thirty calendar days late.</p> | <p>The Reliability Coordinator did not distributed the required information most recent Reliability Coordinator Area restoration plan to two entities the entities identified in the Requirement R2 within the prescribed timeframe. Or, the Reliability Coordinator distributed the required information to all entities but was more than sixty calendar days late.</p> | <p>The Reliability Coordinator did not distributed the required information most recent Reliability Coordinator Area restoration plan to three the entities identified in the Requirement R2 within the prescribed timeframe. Or, the Reliability Coordinator distributed the required information to all entities but was more than ninety calendar days late.</p> | <p>The Reliability Coordinator did not distributed the required information most recent Reliability Coordinator Area restoration plan to four or more entities identified in the Requirement R2 within the prescribed timeframe. Or, the Reliability Coordinator distributed the required information to all entities but was more than 120 calendar days late.</p> |
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| <p>R3 - The VSLs judge the severity of non-compliance. Judging how far past the required submittal date information was submitted is a valid way of handling this type of requirement.</p> <p>R4 - R4 was made part of R5.</p> <p>R5: Each Reliability Coordinator shall review the Transmission Operator restoration plans as defined in required by EOP-005 of the Transmission Operators within its Reliability Coordinator Area and neighboring Reliability Coordinators, when received.</p> <p>R6- The VSLs judge the severity of non-compliance. Judging how far past the required submittal date information was submitted is a valid way of handling this type of requirement.</p> | | |
| Reliant Energy Inc. | Yes | <p>I suggest that the SDT revise the wording in 18.1 and 18.2 to the following: 18.1 Change the phrase "restoration philosophy" to "restoration plan" in 18.1 and anywhere else "restoration philosophy" is used. Restoration plan is a more common industry term to describe the steps to be taken in restoring the grid. 18.2 Procedure to be followed in starting the black start unit without power from the grid.</p> |
| <p>Response: R18 has been modified to reflect your comments. (now R17)</p> <p>R17: Each Generator Operator of with a Blackstart Resource shall provide a minimum of two hours of training every two years to each of its operating personnel responsible for the startup and synchronization of its Blackstart Resource generation units and energizing a bus. The training program shall include training on the following:</p> <p>"Philosophy" has been changed to "plan" in EOP-005, R11.1 (now R10.1) and EOP-006, R9.</p> <p>R10.1: System restoration philosophy plan including coordination with the Reliability Coordinator and Generator Operators included in the restoration plan.</p> | | |
| ISO RTO Council/Standards Review Committee | No | <p>EOP-005R14 — The VSLs as written apply to the GOP only, but R14 applies to both TOP and GOP. VSLs need to be modified.</p> <p>EOP-006R9 and R10 - The VSLs do not appear to follow any of the categories identified in the VSL Guidelines document developed by the VSL drafting team. Rather it appears to be an amalgamation of multiple categories. We suggest the</p> |

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| | | SDT consult the VSL guideline and revise these VSLs accordingly. |
| <p>Response: EOP-005 R14 R14 has been modified to clarify that only one agreement is needed between each TOP and GOP having Blackstart Resources included in the restoration plan. It is implied that the requirement covers every Blackstart Resource but having multiple Blackstart Resources in one agreement is OK too. (now R13)</p> <p>R13: Each Transmission Operator and Generator Operator with a Blackstart Resource shall have a written Blackstart Resource Agreements or mutually agreed upon procedures or protocols, specifying the terms and conditions of their arrangement. Such Agreements shall include references to the blackstart Blackstart Resource testing requirements.</p> | | |
| <p>EOP-006 R9 and R10 R9 and R10 cover training and the conduction of drills. The SDT modified the VSLs for R9 to reflect that if any part of the requirement was missed, the intent of the requirement had not been met at all, and the VSL is "Severe." The SDT believes that the VSLs adequately reflect the requirements.</p> | | |
| AEP | No | The data retention requirements seem excessive for EOP 005-2 R2, R3,R4, R5, R11, and R12. It would take approximately six years for the data retention requirements to be fully meet. I.e.. 24 months + current year + 3 previous years ~ 6 years. Data retention requirement for EOP 005-2 R17 is more reasonable VSL for EOP-005, R13 should correspond with the above two calendar year requirement such as follows: "The Transmission Operator has failed to comply with participation in the Reliability Coordinator's restoration drills at least once every two years. |
| <p>Response: Adequate time periods are necessary to allow creation, modification, review, and approval of required documents. The requirements mentioned do not require voluminous amounts of record retention so they will not be modified related to your comment.</p> <p>R13 – The SDT believes that the RC may request the TOPs to participate in more than one drill in the two year period. R13 is written so that the RC has the call on how often TOPs and GOPs need to participate but the minimum participation is required to be once every two years as mentioned in EOP-006 R10.1.</p> | | |
| Duke Energy Corporation | No | NERC has recently established an EOP VSL drafting team. That team should establish the VSLs for EOP-005-2 and EOP-006-2. |
| <p>Response: The NERC VSL Team established VSLs for the standards contained in FERC Order 693 that did not contain such elements. It is not a standing team and the Standards Development Guidelines state that individual SDT must draft the VSLs for their project. The SRBSDT used guidelines created by the VSL Team in creating the VSL for this project.</p> | | |

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| Santee Cooper | No | <p>The VSLs need to contemplate larger and smaller entities as they are being developed.</p> <p>R10 should be removed from the VSL table as Santee Cooper has recommended the Requirement be removed from the proposed standard.</p> <p>R12 and R18 The Commission did not specify a specific number of hours for field switching personnel or generator operators to be trained. The VSL is based on a 2 hour requirement. We recommend removing the lower, moderate, and high VSL on these two requirements. The Severe VSL would be that no training has been provided. Currently, R12 does not consider the number of training participants on a per student basis. What if training is provided for all but one operator?</p> |
| <p>Response: The SDT agrees but doesn't believe that different sized entities are treated differently in the VSLs.</p> <p>R10 – requirement deleted.</p> <p>R12: The requirement is for the TOP to provide training. The VSLs were modified so that there is only a "Severe" VSL.</p> <p>R18 – This training is for each operator. The VSLs were modified so that there is only a "Severe" VSL. (now R17)</p> <p>R17: Each Generator Operator of with a Blackstart Resource shall provide a minimum of two hours of training every two years to each of its operating personnel responsible for the startup and synchronization of its Blackstart Resource generation units and energizing a bus. The training program shall include training on the following:</p> | | |
| Midwest ISO Stakeholders Standards Collaborators | No | <p>For EOP-005:R2 - We suggest that the failure to distribute to entities be specified on a percentage basis similar to R1 as opposed by discrete numbers. This creates larger penalties for smaller TOPs since they will have fewer entities to distribute to which is contrary to FERC and NERC's premise that larger entities have greater reliability impact and should be subject to greater fines. Lower VSL needs to specify greater than 30 days. 30 days late is not a violation. 31 is.</p> <p>R3 - We suggest required information be replaced with restoration plan in all of the VSLs.</p> <p>R4 - We suggest changing "the Transmission Operator failed to comply" to " the Transmission Operator failed to update its restoration plan".</p> |

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| | <p>R5 needs to be deleted. The VSLs make it obvious that the requirement is not measurable. How will an auditor know when the restoration plan was placed in the control center?</p> <p>R6 — Why did the drafting team not write multiple VSLs based on how late the verification was performed like some of the previous requirements? What is the justification for only one VSL?</p> <p>R7 should be deleted. See question 1. How can you measure if a restoration plan was implemented especially considering all restoration events are unique and never match the conditions in the restoration plan?</p> <p>R8 — The outcome of failing to following RC procedures or receiving RC authorization should be considered in the VSL. If no operating or reliability problems were caused, the VSL should lower. If additional outages, equipment damage or operational problems were caused, then a severe VSL would be appropriate.</p> <p>R9 - Since there are multiple subrequirements, the VSLs should be defined based on the percentage of sub-requirements not met in the testing standards. Four VSLs could then be defined based on quartile performance.</p> <p>R10 — This requirement should be deleted for reasons stated in question 1.</p> <p>R12 and R18 — Because these requirements should not focus on training duration but rather objectives met, the VSLs should be modified. However, if the drafting team does not modify the requirements, the moderate VSLs should be set that 1 hour of training was performed and the high VSLs should be set for 30 minutes of training performed.</p> <p>R14 - Requirement applies to both TOP and GOP. VSLs don't recognize application to GOP.</p> <p>For EOP-006: R2 — We suggest that the failure to distribute to entities be specified on a percentage basis similar to R1 as opposed by discrete numbers.</p> |
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| | <p>This creates larger penalties for smaller TOPs since they will have fewer entities to distribute to which is contrary to FERC and NERC's premise that larger entities have greater reliability impact and should be subject to greater fines. Lower VSL needs to specify greater than 30 days. 30 days late is not a violation. 31 is.</p> <p>R6 needs to be deleted. The VSLs make it obvious that the requirement is not measurable. How will an auditor know when the restoration plan was placed in the control center?</p> <p>R8 as written will cause an RC to be non-compliant for not authorizing re-synchronization for any reason. Obviously, there are reliability reasons not to authorize re-synchronization. Some language needs to be added so that a refusal for reliability reasons is not a compliance violation. The VSLs will then need to be modified.</p> <p>R9 and R10 — The VSLs do not appear to follow any of the categories identified in the VSL Guidelines document developed by the VSL drafting team. Rather it appears to be an amalgamation of multiple categories.</p> |
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Response:
EOP-005
R2 – The VSLs have been modified. The SDT has simplified the VSLs for R2 by requiring judgment of each entity required to be sent the restoration plan separately instead of as a group.

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| R2. | <p>The Transmission Operator failed to distribute the information to an entity identified within the restoration plan within the required timeframe provide one of the operational entities identified in its approved restoration plan</p> | <p>The Transmission Operator failed to distribute the information to two entities identified within the restoration plan within the required timeframe provide two of the operational entities identified in its approved restoration plan</p> | <p>The Transmission Operator failed to distribute the information to three entities identified within the restoration plan within the required timeframe provide three of the operational entities identified in its approved restoration plan</p> | <p>The Transmission Operator failed to distribute the information to four or more entities identified within the restoration plan within the required timeframe provide four or more of the operational entities identified in its approved</p> |
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| | with a description of any changes to their roles and specific tasks prior to the implementation date of the plan. Or The Transmission Operator distributed provided the information to all entities but was thirty days late in doing so- | with a description of any changes to their roles and specific tasks prior to the implementation date of the plan. Or The Transmission Operator distributed provided the information to all entities but was sixty days or more late in doing so- | with a description of any changes to their roles and specific tasks prior to the implementation date of the plan. Or The Transmission Operator distributed provided the information to all entities but was ninety days or more late in doing so. | restoration plan with a description of any changes to their roles and specific tasks prior to the implementation date of the plan. Or The Transmission Operator distributed provided the information to all entities but was 120 days or more late in doing so. |
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R3 – The VSL has been modified reflecting your comment.

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| R3. | The Transmission Operator did not submit the required information reviewed restoration plan or confirmation of no change within twenty-nine calendar days of the twenty-nine calendar days of the pre-determined schedule. Or, the Transmission Operator did not complete the review within thirty days of the pre-determined schedule. | The Transmission Operator did not submit the required information reviewed restoration plan or confirmation of no change within thirty to fifty-nine thirty to fifty-nine calendar days of the pre-determined schedule. Or, the Transmission Operator did not complete the review within sixty days of the pre-determined schedule. | The Transmission Operator did not submit the required information reviewed restoration plan or confirmation of no change within sixty to eighty-nine sixty to eighty-nine calendar days of the pre-determined schedule. Or, the Transmission Operator did not complete the review within ninety days of the pre-determined schedule. | The Transmission Operator did not submit the required information reviewed restoration plan or confirmation of no change within ninety ninety calendar days of the pre-determined schedule. Or, the Transmission Operator did not complete the review within 120 days of the pre-determined schedule. |
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R4 - The VSLs have been modified reflecting your comment.

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| R4. | The Transmission Operator | The Transmission Operator | The Transmission Operator | The Transmission Operator |
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| | failed to comply update and submit its restoration plan to the Reliability Coordinator within ninety calendar days of the change. | failed to comply update and submit its restoration plan to the Reliability Coordinator within 120 calendar days of the change. | has failed to comply update and submit its restoration plan to the Reliability Coordinator within 150 calendar days of the change. | has failed to comply update and submit its restoration plan to the Reliability Coordinator within 180 calendar days of the change. |
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R5 – changed to refer to an implementation date.

R5: Each Transmission Operator shall have a copy of its latest Reliability Coordinator approved restoration plan within each of its primary and backup control centers rooms and available to all of its control room personnel System Operators prior to its implementation date

R6 – The SDT has added a Lower VSL.

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| R6. | N/A-The Transmission Operator performed the verification but did not complete it within the five year period. | N/A | N/A | The Transmission Operator did not perform the verification within the prescribed timeframe or it took more than six years to complete the verification. |
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R7 – requirement was revised to address the concern that each event is unique.

R7: Following a Disturbance in which one or more areas of the BES shuts down and the use of Blackstart Resources is required to restore the shut down area to service, each affected Transmission Operator shall implement its restoration plan. If the restoration plan cannot be executed as expected because actual conditions do not match the studied conditions, the Transmission Operator shall utilize its restoration plan strategies to facilitate restoration.

R8 – Violation of this requirement is serious and should never be taken lightly. After the fact review should not try to judge the severity of the event. The determination of compliance is related to communicating properly. No change has been made to R8 or its

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VSLs.
 R9 - The SDT agrees with a previous commenter that not having any one of the sub-requirements of R9 would completely invalidate the Blackstart Resource testing requirements. The VSLs for R9 have been modified removing all VSLs except Severe.

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| R9. | The Transmission Operator's testing requirements do not address one of the subrequirements. N/A | N/A. | The Transmission Operator's testing requirements do not address two of the subrequirements. N/A | The Transmission Operator does not have the testing requirements. The Transmission Operator's Blackstart Resource testing requirements do not address one or more of the sub-requirements of Requirement R9. |
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R10 – requirement deleted.

R12: The requirement is for the TOP to provide training. The VSLs were modified so that there is only a "Severe" VSL.

R18 – This training is for each operator. The VSLs were modified so that there is only a "Severe" VSL. (now R17)

R17: Each Generator Operator ~~of~~ **with** a Blackstart Resource shall provide a minimum of two hours of training every two years to each of its operating personnel responsible for the startup ~~and synchronization~~ of its Blackstart Resource generation units **and energizing a bus**. The training program shall include **training on** the following:

R14 - R14 has been modified to clarify that only one agreement is needed between each TOP and GOP having Blackstart Resources included in the restoration plan. It is implied that the requirement covers every Blackstart Resource but having multiple Blackstart Resources in one agreement is OK too. **(now R13)**

R13: Each Transmission Operator and Generator Operator with a Blackstart Resource shall have ~~a~~ written Blackstart Resource Agreements **or mutually agreed upon procedures or protocols**, specifying the terms and conditions of their arrangement. Such Agreements shall include references to the ~~blackstart~~ **Blackstart Resource** testing requirements.

EOP-006

R2 - A 30-day time requirement has been added to R2. R2 and its VSLs have also been modified to make it clear that it does not

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apply to a group of distribution recipients but rather to each recipient individually.

R2: The Reliability Coordinator shall distribute its **most recent** Reliability Coordinator Area restoration plan to **each of its** Transmission Operators, ~~Balancing Authorities,~~ and neighboring Reliability Coordinators **within thirty calendar days of creation or revision.**

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| <p>R2.</p> | <p>The Reliability Coordinator did not distributed the required information most recent Reliability Coordinator Area restoration plan to one entity the entities identified in the rRequirement R2 within the required timeframe. Or, the Reliability Coordinator distributed the required information to all entities but was more than thirty calendar days late.</p> | <p>The Reliability Coordinator did not distributed the required information most recent Reliability Coordinator Area restoration plan to two entities the entities identified in the rRequirement R2 within the prescribed timeframe. Or, the Reliability Coordinator distributed the required information to all entities but was more than sixty calendar days late.</p> | <p>The Reliability Coordinator did not distributed the required information most recent Reliability Coordinator Area restoration plan to three the entities identified in the rRequirement R2 within the prescribed timeframe. Or, the Reliability Coordinator distributed the required information to all entities but was more than ninety calendar days late.</p> | <p>The Reliability Coordinator did not distributed the required information most recent Reliability Coordinator Area restoration plan to four or more entities identified in the rRequirement R2 within the prescribed timeframe. Or, the Reliability Coordinator distributed the required information to all entities but was more than 120 calendar days late.</p> |
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R6 – requirement revised to refer to implementation date.

R6: Each Reliability Coordinator shall have a copy of its latest restoration plan and **copies of** the latest approved restoration plan of each Transmission Operator in its Reliability Coordinator Area within ~~each of its~~ **primary and backup control centers rooms** and available to all of its ~~control room personnel~~ **System Operators prior to the implementation date.**

R8 – requirement was modified.

R8: The Reliability Coordinator shall **coordinate or** authorize ~~and coordinate~~ resynchronizing islanded areas that bridge boundaries between Transmission Operators or Reliability Coordinators. **If the resynchronization cannot be completed as expected because actual conditions do not match the studied conditions, the Reliability Coordinator shall utilize its restoration**

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plan strategies to facilitate resynchronization.

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| R8. | N/A | N/A | N/A | The Reliability Coordinator did not coordinate or authorize and coordinate resynchronizing islanded areas that bridge boundaries between Transmission Operators or Reliability Coordinators. |
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R9 and R10 - R9 and R10 cover training and the conduction of drills. The SDT modified the VSLs for R9 to reflect that if any part of the requirement was missed, the intent of the requirement had not been met at all, and the VSL is "Severe." The SDT believe that the VSLs adequately reflect the requirements.

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| American Transmission Company | No | See our comments to question 1. |
| Response: See the response to Q1. | | |
| Entergy Services, Inc. System Planning & Operation (Generation) | No | I disagree with several VSLs listed. One example is that R2 should not be graded based on number of days late. Either you are late or you are not. |
| Response: The VSLs judge the severity of non-compliance. Judging how far past the required submittal date information was submitted is a valid way of handling this type of requirement. | | |
| MRO NERC Standards Review Subcommittee | No | EOP-005, R6, There needs to be a Lower, Moderate and High VSL. Lower VSL should read the Transmission Operator did not perform one of the sub requirements, Moderate VSL should read the Transmission Operator did not complete two of the sub requirements, High VSL should read the Transmission Operator did not complete three of the sub requirements. EOP-005, R9, Move the High VSL (as written) to the Moderate VSL position. The High VSL (as written) should be rewritten to "address three of the sub requirements." |

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| | <p>EOP-005, R10, Should be deleted, see question one (1) above.</p> <p>EOP-005, R15, The word "dated" should be removed from all four VSLs. The requirement states that Generator Operator needs to have a documented procedures for Blackstart Resources and energizing a bus. A missed date will not cause the procedure to be obsolete or hinder the Generator Operator from starting the resource.</p> <p>EOP-005-2 R3 VSLs The VSLs appear to be adding to the requirement. R3 does not mention 30 days plus, the agreement should indicate when the submittals are needed.</p> <p>EOP-005-2 R5 VSLs The VSLs should include that the Transmission Operator failed to making available the latest restoration plan to the system operator personnel.</p> <p>EOP-005-2 R7 VSLs Given all the conditions in R7, the VSLs for this requirement should be spread out more and not just listed in the severe level. There are several conditions R7 perhaps some of these conditions could be assigned to different levels of VSLs. For example: Failure to work with others could be assigned a lower VSL or Failure to notify the RC could be assigned a moderate VSL.</p> <p>EOP-005-2 R8 Severe VSL The text "not" should be added between the text "The Transmission Operator resynchronized without approval of the Reliability Coordinator or" and the text "in accordance with the established procedures of the Reliability Coordinator following a disturbance ?"</p> <p>EOP-005-2 R14 VSL What if an entity does not have an agreement for 1 out of 4 of its Blackstart Resources, which VSL is assigned ("Lower" or "Moderate")?</p> <p>EOP-005-2 R15 VSL Lower Shouldn't the condition that "the procedures do not contain both elements specified in the requirement" (R15) be in the "Severe VSL" and not in the "Lower VSL"</p> |
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| | | <p>EOP-006-2 R6 Which latest approved restoration plan should be made available? Should both be made available as indicated in the requirement? Should one be made available as indicated in the VSLs? Should there be VSLs which address the timeframe of distributing restoration plans to the System Operator personnel?</p> <p>EOP-006-2 R7 Severe VSL This VSLs' conditions should be split up and spread out among the VSL levels. It seems rather extreme to list all of the conditions in the "Severe" VSL level.</p> | | |
| <p>Response: EOP-005 R6 – The SDT has added a Lower VSL. The SDT believes that all verification steps need to be performed or the testing is so incomplete that it is a "Severe" VSL. Therefore, no Moderate or High VSLs were added as suggested.</p> | | | | |
| R6. | <p>N/A The Transmission Operator performed the verification but did not complete it within the five year period.</p> | N/A | N/A | <p>The Transmission Operator did not perform the verification within the prescribed timeframe or it took more than six years to complete the verification.</p> |
| <p>R9 - The SDT agrees with a previous commenter that not having any one of the sub-requirements of R9 would completely invalidate the Blackstart Resource testing requirements. The VSLs for R9 have been modified removing all VSLs except Severe.</p> | | | | |
| R9. | <p>The Transmission Operator's testing requirements do not address one of the subrequirements. N/A</p> | N/A. | <p>The Transmission Operator's testing requirements do not address two of the subrequirements. N/A</p> | <p>The Transmission Operator does not have the testing requirements. The Transmission Operator's Blackstart Resource testing requirements do not address one or more of the sub-requirements of Requirement</p> |

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| | | | | R9. |
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R10 – requirement deleted.

R15 – The SDT believes that 'dated' is required.

R3 – The VSLs judge the severity of non-compliance. Judging how far past the required submittal date information was submitted is a valid way of handling this type of requirement. The R3 VSLs have been clarified.

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| R3. | The Transmission Operator did not submit the required information reviewed restoration plan or confirmation of no change within twenty-nine calendar days of the pre-determined schedule. Or, the Transmission Operator did not complete the review within thirty days of the pre-determined schedule. | The Transmission Operator did not submit the required information reviewed restoration plan or confirmation of no change within thirty to fifty-nine calendar days of the pre-determined schedule. Or, the Transmission Operator did not complete the review within sixty days of the pre-determined schedule. | The Transmission Operator did not submit the required information reviewed restoration plan or confirmation of no change within sixty to eighty-nine calendar days of the pre-determined schedule. Or, the Transmission Operator did not complete the review within ninety days of the pre-determined schedule. | The Transmission Operator did not submit the required information reviewed restoration plan or confirmation of no change within ninety calendar days of the pre-determined schedule. Or, the Transmission Operator did not complete the review within 120 days of the pre-determined schedule. |
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R5 – requirement changed to refer to implementation date.

R5: Each Transmission Operator shall have a copy of its latest **Reliability Coordinator** approved restoration plan within each of its **primary and backup** control centers **rooms** and available to all of its control room personnel **System Operators prior to its implementation date.**

R7 – requirement has been clarified. If the responsible entity does not follow its plan or its strategies, then it has not met the intent of the requirement at all, and this qualifies as a "Severe" VSL. No new VSLs were added.

R7: Following a Disturbance in which one or more areas of the BES shuts down and the use of Blackstart Resources is required

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to restore the shut down area to service, each affected Transmission Operator shall implement its restoration plan. **If the restoration plan cannot be executed as expected because actual conditions do not match the studied conditions, the Transmission Operator shall utilize its restoration plan strategies to facilitate restoration.**

R8 – “Not” has been added to the R8 VSL.

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| R8. | N/A | N/A | N/A | The Transmission Operator resynchronized without approval of the Reliability Coordinator or not in accordance with the established procedures of the Reliability Coordinator following a Disturbance in which Blackstart Resources have been utilized in restoring the shut down area of the System to service. |
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R14 - R14 has been modified to clarify that only one agreement is needed between each TOP and GOP having Blackstart Resources included in the restoration plan and makes the TOP the only responsible entity for having these agreements. It is implied that the requirement covers every Blackstart Resource but having multiple Blackstart Resources in one agreement is OK too. High VSL has been moved to Moderate.

R14: Each Transmission Operator and Generator Operator with a Blackstart Resource shall have a written Blackstart Resource Agreements **or mutually agreed upon procedures or protocols**, specifying the terms and conditions of their arrangement. Such Agreements shall include references to the ~~blackstart~~ **Blackstart Resource** testing requirements.

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| R1413. | The Transmission Operator does not have a Blackstart | The Transmission Operator does not have Blackstart | The Transmission Operator does not have Blackstart | The Transmission Operator does not have Blackstart |
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| | Resource Agreement for one of its Blackstart Resources. N/A | Resource Agreements for 25% of Blackstart Resources. The Transmission Operator and Generator Operator with a Blackstart Resource do not reference Blackstart Resource Testing requirements in their written Blackstart Resource Agreements or mutually agreed upon procedures or protocols. | Resource Agreements for 50% of Blackstart Resources. N/A | Resource Agreements for more than 50% of Blackstart Resources. The Transmission Operator and Generator Operator with a Blackstart resource do not have a written Blackstart Resource Agreement or mutually agreed upon procedures or protocols. |
| <p>R15 - The SDT believes that not having either "starting the Blackstart Resource" or "energizing the bus" would completely invalidate the Blackstart Resource documented procedures. The VSLs for R15 have been modified removing all VSLs except Severe.(now R14)</p> | | | | |
| R15 14. | The Generator Operator does not have dated documented procedures for one Blackstart Resource or the procedures do not contain both elements specified in the requirement. N/A | The Generator Operator does not have dated documented procedures for two Blackstart Resources. N/A | The Generator Operator does not have dated documented procedures for three Blackstart Resources. N/A | The Generator Operator does not have dated documented starting and bus energizing procedures for any of its each Blackstart Resources. |
| <p>EOP-006 R6 – requirement changed to refer to implementation date.</p> <p>R6: Each Reliability Coordinator shall have a copy of its latest restoration plan and copies of the latest approved restoration plan of each Transmission Operator in its Reliability Coordinator Area within each of its primary and backup control centers rooms and available to all of its control room personnel System Operators prior to the implementation date.</p> <p>R7 – The SDT believes that this is a black and white situation and Severe is correct.</p> | | | | |

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| SERC OC SRC | No | <p>EOP-005-2: Measures - (Note: "such as" statements are too prescriptive and need to be separated from the requirements. If examples are to be provided, they should be identified as options in a footnote)</p> <p>M5 - the requirement is on the transmission Operator to share its Restoration Plan – not to prove that everyone read it!</p> <p>M6 - Each Transmission Operator shall have documentation such as power flow outputs, that it has verified that its restoration plan will accomplish its intended function in accordance with Requirement R6.</p> <p>M7 - If there has been a Disturbance in which Blackstart Resources have been utilized in restoring the shut down area of the System to service, each Transmission Operator involved shall have evidence that it coordinated with the Reliability Coordinator in implementation of its restoration plan in accordance with Requirement R7.</p> <p>M10 - We suggest this measurement should be removed along with R10 – this is a market function that should be relocated to a business practice.</p> <p>M12 – Delete 'and the corresponding training records including training dates and duration'.</p> <p>M14 - Each Transmission Operator shall have dated Agreements with all Generator Operators providing Blackstart Resources included in its restoration plan in accordance with Requirement R14.</p> <p>M15 - Each Generator Operator with a Blackstart Resource or Islanded Resource shall have dated documented procedures on file for starting/islanding the unit and energizing a bus in accordance with Requirement R15.</p> <p>M16 - Each Generator Operator with a Blackstart Resource or Islanding resource shall provide evidence showing that it notified its Transmission Operator of any known changes to its blackstart or islanding capabilities within twenty-four hours</p> |
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| | <p>of such changes in accordance with Requirement R16.</p> <p>M17. Each Generator Operator with a Blackstart Resource or Islanded Resource shall maintain dated documentation of its Blackstart Resource or Islanded resource test results and shall have evidence that it provided these records to its Reliability Coordinator and Transmission Operator when requested in accordance with Requirement R17.</p> <p>M18. Each Generator Operator with a Blackstart Resource or Islanded Resource shall have a copy of its training program material showing that it has provided training in accordance with Requirement R18.</p> <p>M19. Each Generator Operator with a Blackstart Resource or Islanded Resource shall have evidence that it participated in the Reliability Coordinator’s restoration drills, exercises, or simulations if requested to do so in accordance with Requirement R19.</p> <p>EOP-005 data retention comments:</p> <ol style="list-style-type: none"> 1. Current approved plus any in force since last audit. 2. Current approved plus any in force past 3 calendar years 3. Current year plus 3 prior calendar years 4. Current year plus 3 prior calendar years 5. Current year plus 3 prior calendar years 6. Current and previous approved 7. if implemented, 3 calendar years 8. if implemented, 3 calendar years 9. Verification results for current and previous test 10. Current plus preceding in use during past 3 years 11. 3 calendar years 12. 3 calendar years 13. Current agreement and any in force since last audit 14. Current agreement and any in force since last audit 15. Current documentation and any in force since last audit 16. Notification over last 3 calendar years 17. Verification results for current and previous test |
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| | | <p>EOP-005 VSL:</p> <p>R1 Change figures to up to 25%, 25% to 50%, 51% to 75%, and 76% or more. R7 & R8 Severe delete 'Blackstart' R12 Low & High N/A R14 Low The Transmission Operator does not have an Agreement for one of its Blackstart Resources or Islanded Resources. R14 Moderate The Transmission Operator does not have Agreements for up to 25% of Blackstart Resources or Islanded Resources. R14 High The Transmission Operator does not have Blackstart Resource Agreements for 26-50% of Blackstart Resources or Islanded Resources R14 Severe The Transmission Operator does not have Blackstart Resource Agreements for more than 50% of Blackstart Resources or Islanded Resources. R17 Add 'Islanded Resources' to all R18 Low & High N/A</p> <p>EOP-006:</p> <p>M6 - Note: the requirement is on the Reliability Coordinator to share its Restoration Plan – not to prove that everyone read it!</p> <p>M10. Each Reliability Coordinator shall have evidence that it conducted or participated in at least one System restoration drill, exercise, or simulation per year and that Transmission Operators and Generator Operators included in the Reliability Coordinator's restoration plan were invited in accordance with Requirement R10.</p> <p>EOP-006 data retention:</p> <ol style="list-style-type: none"> 1. Current approved plus any in force since last audit 2. Current year plus 3 prior calendar years 3. Current year plus 3 prior calendar years 4. Current year plus 3 prior calendar years 5. Current year plus 3 prior calendar years 6. Current year plus 3 prior calendar years 7. if plan implemented rolling 12 months |
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| | | <p>8. 3 calendar years 9. 3 calendar years 10. all records since last audit plus one audit</p> <p>Enter SERC VSL for EOP-006 here: R1. Low The Reliability Coordinator failed to comply with up to 25% of the number of sub-components within this requirement. R1. Moderate The Reliability Coordinator failed to comply with 26% to 50% of the number of sub-components within this requirement. R1 High The Reliability Coordinator has failed to comply with 51% to 75% of the number of sub-components within this requirement. R1 Severe The Reliability Coordinator has failed to comply with 76% or more of the number of sub-components within this requirement. R3 Change time periods to 18, 24, 30, and 36. R10 Low High N/A R10 Moderate The Reliability Coordinator conducted or participated the correct number of restoration drills, exercises, or simulations but did not invite each Transmission Operator and Generator Operator identified in its restoration plan to participate in a drill, exercise, or simulation at least every two calendar years. R10 Severe The Reliability Coordinator did not conduct or participate in a restoration drill, exercise, or simulation during the calendar year.</p> |
| <p>Response: Measures – Listing examples in the measurements is common practice in NERC Standards. The Measurements have not been changed related to your comment.</p> <p>EOP-005 M5 – The SDT agrees and believes the present wording of the requirement agrees with your comment. M6 – M6 has been modified reflecting your comment.</p> <p style="padding-left: 40px;">M6: Each Transmission Operator shall have documentation, such as power flow outputs, that it has verified that its latest restoration plan will accomplishes its intended function in accordance with Requirement R6.</p> <p>M7 – The SDT believes that the present wording of the measurement more closely reflects the requirements of R7 so M7 has not</p> | | |

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been changed.
M10 – requirement deleted.
M12 – The SDT disagrees. The requirement requires training and the records provide the evidence.
M14 – The SDT disagrees. Wording is equivalent.
M15, M16, M17 – The SDT did not accept the need for a new definition of Islanded Resource.
M18 – Review of the training materials has been added to M18. (now M17)

M17: Each Generator Operator **with a Blackstart Resource** shall have **an electronic or hard copy of the training program material provided to its operating personnel responsible for the startup and synchronization of its Blackstart Resource generation units and a copy of its dated training records including training dates and durations showing that it has provided training in accordance with Requirement R18**

M19 – The SDT did not accept the need for a new definition of Islanded Resource.

EOP-005 Data Retention comments – Could not determine your recommended changes. No changes made to Data Retention requirements.

EOP-005 VSL
R1 – The VSLs for R1 have been modified reflecting other comments.

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| R1. | The Transmission Operator failed to comply with less than 25% of the number one of the sub-components requirements within the requirement. | The Transmission Operator failed to comply with 25% or more and less than 50% of the number two of the sub-components requirements within the requirement. | The Transmission Operator has failed to comply with 50% or more and less than 75% of the number three of the sub-components requirements within the requirement. | The Transmission Operator has failed to comply with 75% of the number four or more of the number of sub-components requirements within the requirement. |
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R7 and R8 – R7 and R8 specifically refer to Blackstart Resources so the word Blackstart cannot be removed from the VSLs.
R12 – Only Severe remains. (now R11)

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| R12 11. | The Transmission Operator only supplied 1.5 hours of training within a two year | N/A | The Transmission Operator only supplied one hour of training within a two year | The Transmission Operator did not supply any training to the personnel required by |
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| | period. N/A | | period. N/A | Requirement R12 within a two year period. |
| <p>R14 - The Standard and VSLs are written to apply to each entity separately related to other comments received. The requirement has been modified and the VSLs have been modified to include a Moderate VSL for exclusion of the Testing Requirements and a Severe VSL for non-existent Agreement. (now R13)</p> | | | | |
| R1413. | The Transmission Operator does not have a Blackstart Resource Agreement for one of its Blackstart Resources. N/A | The Transmission Operator does not have Blackstart Resource Agreements for 25% of Blackstart Resources. The Transmission Operator and Generator Operator with a Blackstart Resource do not reference Blackstart Resource Testing requirements in their written Blackstart Resource Agreements or mutually agreed upon procedures or protocols. | The Transmission Operator does not have Blackstart Resource Agreements for 50% of Blackstart Resources. N/A | The Transmission Operator does not have Blackstart Resource Agreements for more than 50% of Blackstart Resources. The Transmission Operator and Generator Operator with a Blackstart resource do not have a written Blackstart Resource Agreement or mutually agreed upon procedures or protocols. |
| <p>R17 – The SDT did not accept the need for a new definition of Islanded Resource. R18 – Only Severe remains. (Now R17)</p> | | | | |
| R1817. | The Generator Operator only supplied 1.5 hours of training within a two year period. N/A | N/A | The Generator Operator only supplied one hour of training within a two year period. N/A | The Generator Operator with a Blackstart Resource did not supply any of the training required by Requirement R17 within a two year period to |

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| | | | | each operator responsible for startup of its Blackstart Resource generation units and energizing a bus. |
| <p>EOP-006 M6 – The SDT agrees and believe the present wording of the requirement agrees with your comment. M10 – The SDT believes that the burden to conduct the drills is on the Reliability Coordinator. The TOPs and the GOPs participate in the RC’s drills. EOP-006 Data Retention comments – The SDT used the guidelines for data retention recommended by the compliance program. R1 – The VSLs for R1 have been modified reflecting other comments.</p> | | | | |
| R1. | The Reliability Coordinator failed to comply with less than 25% of the number of include one sub-components requirement of Requirement R1 within this requirement its restoration plan. | The Reliability Coordinator failed to comply with 25% or more and less than 50% of the number of include two sub-components requirements of requirement R1 within this requirement its restoration plan. | The Reliability Coordinator has failed to include comply with 50% or more and less than 75% of the number of three of the sub-components requirements of Requirement R1 within this requirement its restoration plan. | The Reliability Coordinator has failed to comply with 75% or more of the number include four or more of the sub-components requirements within this requirement its restoration plan. |
| <p>R3 – requirement changed to 13 months from last review. VSL is Severe only. R3: Each Reliability Coordinator shall review its restoration plan every twelve within thirteen months of the last review</p> | | | | |
| R3. | The Reliability Coordinator did not review its restoration plan within | The Reliability Coordinator did not review its restoration plan within | The Reliability Coordinator did not review its restoration plan within | The Reliability Coordinator did not review its restoration plan within |

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| | | | | |
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| | twelve months. N/A | thirteen months. N/A | fourteen months. N/A | fifteen thirteen months of the last review. |
| <p>R10 – R10 requires two drills be conducted each year. The SDT believes judging partial compliance with this requirement related to the number of drills is valuable.</p> | | | | |
| Alberta Electric System Operator | No | The data retention requirements in section D 1.4 are too prescriptive and should be abbreviated and be based on high level principles. | | |
| <p>Response: D1.4 lists the evidence necessary for compliance. Most find this helpful when preparing for compliance.</p> | | | | |
| Pacific Gas and Electric Company | Yes | | | |
| Southern Company Transmission | Yes | | | |
| Manitoba Hydro | Yes | | | |
| Northeast Utilities | Yes | | | |
| Tampa Electric Company | Yes | | | |
| Allegheny Energy | Yes | | | |
| Entergy Services | Yes | | | |
| <p>Response: Thank you for your response. Many of the VSLs were revised in support of stakeholder comments. Please see the Summary Consideration.</p> | | | | |

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4. Are there any other issues that need to be addressed? Please be specific.

Summary Consideration: The SDT has made numerous minor changes to the requirements and measures for clarification purposes based on the comments received as shown below:

EOP-006-2, R1.9 was added to clarify the role of the BA.

The following requirements were changed as a result of industry comment:

EOP-005-2:

~~R2.~~ Each Transmission Operator shall distribute its approved restoration plan to the reliability-related operational entities identified in its restoration plan within thirty calendar days of having received approval from its Reliability Coordinator. ~~Each~~ Transmission Operator shall provide the operational entities identified in its approved restoration plan with a description of any changes to their roles and specific tasks prior to the implementation date of the plan.

~~R14~~ **13.** Each Transmission Operator and Generator Operator with a Blackstart Resource shall have a written Blackstart Resource Agreements ~~or mutually agreed upon procedures or protocols~~, specifying the terms and conditions of their arrangement. Such Agreements shall include references to the ~~blackstart~~ Blackstart Resource testing requirements.

~~R18~~ **17.** Each Generator Operator ~~of~~ with a Blackstart Resource shall provide a minimum of two hours of training every two years to each of its operating personnel responsible for the startup ~~and synchronization~~ of its Blackstart Resource generation units ~~and energizing a bus~~. The training program shall include ~~training on~~ the following:

~~R18-1~~ **17.1.** System restoration philosophy ~~plan~~ including coordination with the Transmission Operator

~~R18-2~~ **17.2.** Special actions required to enable blackstart and synchronization to the System ~~The procedures documented in Requirement R14.~~

EOP-006-2:

~~R1.9~~ **10.** Criteria for transferring operations and authority back to the Balancing Authority.

~~R2.~~ The Reliability Coordinator shall distribute its ~~most recent~~ Reliability Coordinator Area restoration plan to ~~each of its~~ Transmission Operators, ~~Balancing Authorities~~, and neighboring Reliability Coordinators ~~within thirty calendar days of creation or revision~~.

~~R8.~~ The Reliability Coordinator shall ~~coordinate or~~ authorize ~~and coordinate~~ resynchronizing islanded areas that bridge boundaries between Transmission Operators or Reliability Coordinators. ~~If the resynchronization cannot be completed as~~

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expected because actual conditions do not match the studied conditions, the Reliability Coordinator shall utilize its restoration plan strategies to facilitate resynchronization.

The following measurements were changed as a result of industry comments:

EOP-005-2:

M3. Each Transmission Operator shall have documentation such as a **dated** review signature sheet, revision histories, e-mails with receipts, or registered mail receipts, that it has annually reviewed and submitted ~~its~~ **the Transmission Operator's** restoration plan to its Reliability Coordinator in accordance with Requirement R3.

~~**M1413.**~~ Each Transmission Operator **and Generator Operator with a Blackstart Resource** shall have the dated Blackstart Resource Agreements **or mutually agreed upon procedures or protocols** ~~with all Generator Operators with Blackstart Resources included in its restoration plan~~ in accordance with Requirement ~~R14~~**13**.

| Organization | Question 4: | Question 4 Comments: |
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| Baltimore Gas and Electric Company | Yes | <p>All comments below pertain to EOP-005-2R2 - What is the criteria for a Reliability Coordinator to approve a restoration plan.</p> <p>R7 - existing wording is not clear. What is meant by "one or more areas of the BES"? What constitutes "areas of the BES"? Does this suggest one or more circuits, transformers, substations, etc.? Suggest modifying to read "When use of Blackstart Resources is required to restore the shut down area to service, each affected Transmission Operator shall implement its restoration plan". Remove the first part of the existing sentence "Following a Disturbance in which one or more areas of the BES shuts down and the".</p> <p>R8 - same suggestion as R7 above. Training requirements (R11, R12, & R18) should be consistent.</p> <p>R11 - should state that this is required of each system operator and include minimum hours of annual training time.</p> <p>R12 - should state that this is required of each field switching personnel identified as performing unique tasks associated with its restoration plan that are outside of their normal tasks and should be required on an annual basis.</p> |

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| Organization | Question 4: | Question 4 Comments: |
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| | | <p>R18 - We strongly believe that each generator operator should be trained annually, and not every two years. Their role is critical to system restoration.</p> <p>M3 - should say "dated" review signature sheet to be consistent with M4.</p> <p>Data Retention Data retention requirements for Transmission Operators and Generator Operators should be consistent. Transmission Operators need to maintain records of drill participation since its last compliance audit as well as one previous compliance audit period for R13 / M13. This could be as much as 6 years of records. Generator Operators need to maintain records of participation since its last compliance audit for R19 / M19. This could be as much as 3 years of records.</p> |
| <p>Response: EOP-005-2</p> <p>The SDT believes that the criteria for the RC to approve a restoration plan is as stated in EOP-006-2, R5.1</p> <p>R7/R8: The SDT believes the statement is clear, meaning there could be one or more areas of the system that are blacked out at the same time. The requirement makes it clear that the shut down areas require the use of Blackstart Resources eliminating the possibility that it is only "one or more circuits, transformers, substations". The SDT believes the first part of the sentence is required as it determines that the use of Blackstart Resources is required.</p> <p>R11: The SDT believes that it's the content of the training that's important more than the number of hours of training, which is why we specified the topics. (now R10)</p> <p>R12: The SDT believes that the statement regarding unique tasks is clear in identifying the training needs. The SDT believes that a two year requirement for training is sufficient to properly train the affected personnel. (now R11)</p> <p>R18: The requirement has been changed to 'each'. The SDT also believes that the Generator Operators are capable of supporting system restoration with training on a two year periodicity. (now R17)</p> <p style="padding-left: 40px;">R18: Each Generator Operator of with a Blackstart Resource shall provide a minimum of two hours of training every two years to each of its operating personnel responsible for the startup and synchronization of its Blackstart Resource generation units and energizing a bus. The training program shall include training on the following:</p> <p>M3: The wording has been changed to be consistent with M4.</p> | | |

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| Organization | Question 4: | Question 4 Comments: |
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| | | <p>M3: Each Transmission Operator shall have documentation such as a dated review signature sheet, revision histories, e-mails with receipts, or registered mail receipts, that it has annually reviewed and submitted its the Transmission Operator's restoration plan to its Reliability Coordinator in accordance with Requirement R3.</p> <p>Data Retention: <u>The wording is consistent between R13/M13 (now R12/M12) and R19/M19 (now R19/M18). No change made.</u></p> |
| Bonneville Power Administration | Yes | <p>ON R 10 IN EOP-005-2, Operation AND NATIONAL Security issues with public postings of Blackstart Plans, do NOT post. USE LANGUAGE THAT WAS DELETED IN APRIL 15, 2008, DRAFT SO R10 READS AS FOLLOWS: "EACH TRANSMISSION OPERATOR SHALL DISTRIBUTE ITS BLACKSTART RESOURCE TESTING REQUIREMENTS TO EACH GENERATOR OPERATOR IN ITS AREA THAT OPERATES A BLACKSTART RESOURCE.</p> <p>Clarify in wording OF R14 OF EOP-005-2 that Entity Agreements DO NOT NEED TO BE INCLUDED IN THE RESTORATION PLAN THAT IS DISTRIBUTED AS REQUIRED IN R2 OF THE STANDARD.</p> <p>R2 IN EOP-005-2 SHOULD BE MORE SPECIFIC REGARDING WHICH ENTITIES THE TO MUST PROVIDE WITH COPIES OF ITS APPROVED RESTORATION PLAN. THE REQUIREMENT SHOULD USE NERC-DEFINED TERMS SO THERE IS NO CONFUSION. LIST SPECIFICALLY THE ORGANIZATIONS THAT ARE TO BE PROVIDED WITH COPIES. BPA SUGGESTS THAT THE ENTITIES SHOULD BE THE TO'S BALANCING AUTHORITY, GENERATOR OPERATORS THAT PROVIDE BLACKSTART RESOURCES, THE TO'S RELIABILITY COORDINATOR, ADJACENT BALANCING AUTHORITIES, NEIGHBORING TRANSMISSION OPERATORS.</p> <p>R2 IN EOP-006-2 CLEARLY IDENTIFIES WHO SHOULD RECEIVE COPIES OF THE RC'S RESTORATION PLAN. R2 IN EOP-005-2 SHOULD BE AS CLEAR. EOP-005-2 AND EOP-006-2 BOTH EXCLUDE BALANCING AUTHORITIES FROM APPLICABILITY. WHAT, THEN, IS THE RELATIONSHIP BETWEEN TRANSMISSION AND GENERATOR OPERATORS AND THEIR BALANCING AUTHORITIES IN THE EVENT OF EMERGENCIES THAT REQUIRE SYSTEM RESTORATION FROM BLACKSTART RESOURCES? IT APPEARS THAT BALANCING AUTHORITIES MAY HAVE NO ROLE AND THAT THE RELIABILITY COORDINATOR HAS ALL OF THE COORDINATION RESPONSIBILITIES. THE NERC DEFINITION OF BALANCING AUTHORITY IS "THE RESPONSIBLE ENTITY THAT INTEGRATES RESOURCE PLANS AHEAD OF TIME, MAINTAINS LOAD-INTERCHANGE-GENERATION BALANCE WITHIN A</p> |

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| Organization | Question 4: | Question 4 Comments: |
|---|-------------|---|
| | | BALANCING AUTHORITY AREA, AND SUPPORTS INTERCONNECTION FREQUENCY IN REAL TIME." WITHOUT A CHANGE IN THE DEFINITION AND ROLES/RESPONSIBILITIES OF BALANCING AUTHORITIES, THESE TWO STANDARDS AS DRAFTED APPEAR TO HAVE A BIG HOLE. |
| <p>Response: EOP-005-2 R10: requirement deleted. R2: requirement was changed.</p> <p>R2: Each Transmission Operator shall distribute its approved restoration plan to the reliability-related operational entities identified in its restoration plan within thirty calendar days of having received approval from its Reliability Coordinator. Each Transmission Operator shall provide the operational entities identified in its approved restoration plan with a description of any changes to their roles and specific tasks prior to the implementation date of the plan.</p> <p>R14: Agreements do not have to be in the plan. Measure has been changed. (now R13 and M13)</p> <p>M14: Each Transmission Operator and Generator Operator with a Blackstart Resource shall have the dated Blackstart Resource Agreements or mutually agreed upon procedures or protocols with all Generator Operators with Blackstart Resources included in its restoration plan in accordance with Requirement R1413.</p> <p>EOP_006-2 R2: requirement has been changed.</p> <p>R2: The Reliability Coordinator shall distribute its most recent Reliability Coordinator Area restoration plan to each of its Transmission Operators, Balancing Authorities, and neighboring Reliability Coordinators within thirty calendar days of creation or revision.</p> <p>Lack of BA: During restoration the TOP is responsible for restoration, and generation and load balance. The BA does not become part of the restoration process until interchange is required. Requirement R1.10 has been added to clarify this situation.</p> <p>R1.10: Criteria for transferring operations and authority back to the Balancing Authority.</p> | | |
| Xcel Energy | Yes | In subrequirement R7.3 of EOP-005-2, if alternative measures are implemented, shouldn't an explanation after the fact be required? |

Consideration of Comments on 3rd Draft of EOP Standards — Project 2006-03

| Organization | Question 4: | Question 4 Comments: |
|--|-------------|---|
| | | <p>In M7 of EOP-005-2, what about evidence of taking alternative measures?</p> <p>In section 1.4 Data Retention pertaining to R9 & M9 of EOP-005-2, why isn't there a three year retention on this data (verification process and results for the current blackstart resource testing requirements)?</p> <p>In subrequirement R7.1, shouldn't these alternative measures and non studied conditions be noted or recorded somewhere to be included in the future restoration plan.</p> |
| <p>Response: EOP-005-2</p> <p>R7.3: The SDT believes the explanation will be brought out in the disturbance report. R7.3 was combined in R7 in the latest revision.</p> <p>M7: This would be a part of R7, therefore it would be included in the evidence.</p> <p>Data Retention: M9 is for 3 years since it is since the last audit which is every 3 years for TOP.</p> <p>R7.1: The SDT believes that post-restoration disturbance reporting and investigations will document the actual alternative measures utilized.</p> | | |
| Manitoba Hydro | Yes | <p>EOP-005-2 R14/M14 requirement to have a dated blackstart resource agreement included in the restoration plan, how do vertically integrated utilities handle this, do we need internal agreements?</p> <p>EOP-05-2 R10 - Entities' critical elements shouldn't be posted to public forums.</p> |
| <p>Response: R14 – requirement changed for clarity. (now R13)</p> <p>R13: Each Transmission Operator and Generator Operator with a Blackstart Resource shall have a written Blackstart Resource Agreements or mutually agreed upon procedures or protocols, specifying the terms and conditions of their arrangement. Such Agreements shall include references to the blackstart Blackstart Resource testing requirements.</p> <p>R10 – requirement deleted.</p> | | |
| FirstEnergy | Yes | <p>EOP-005-2: Measure (M4) for R4 - The measure only requires proof from the TOP of the agreement between the TOP and GOP. Since this is a joint effort, both entities should show proof;</p> <p>VSL for R4 should include the GOP since the agreement is the responsibility of both entities.</p> |

Consideration of Comments on 3rd Draft of EOP Standards — Project 2006-03

| Organization | Question 4: | Question 4 Comments: |
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| | | <p>Most of the requirements require that the Reliability Coordinator perform some action with the Transmission Operators but not the Generator Operators. Requirement 10 requires the Reliability Coordinator to conduct two System restoration drills per year with the Transmission Operators and Generator Operators. My problem is that the Reliability Coordinator in R2 only shares the restoration plan with its Transmission Operators, Balancing Authorities and neighboring Reliability Coordinators and is not required to share the plan with its Generator Operators. The Reliability Coordinator in its Restoration Plan may require the Generator to perform a task and the Generator Operator can not physically do. This fact would not come out until the restoration drills are performed.</p> <p>Why the proposed EOP-006-02 does not include the Generator Operator except for performing the drills? I have heard a number of reasons why my concern is not valid from it is a Code of Conduct issue to it is covered in another standard. To me none of the reasons make any sense. This deals with emergency operations and there should be no Code of Conduct Issues especially when both the Transmission Operator and the Generator Operator are required to perform restoration drills. Even though Generator Operator involvement may be covered in other Standards, my concern is that as an RTO like MISO begins to take on more duties of the Transmission Operator, such as becoming a Balancing Authority in September 2008, the RTO will become both the Reliability Coordinator and the Transmission Operator similar to PJM. This will require that the Standards for both the Reliability Coordinator and Transmission Operator be well defined and documented.</p> <p>Here is my recommendation for EOP-006-2 Requirement 2;</p> <p>R2 The Reliability Coordinator shall distribute applicable portions of its Reliability Coordinator Area restoration plan to all of the reliability-related operational entities, including but not limited to the Transmission Operators, Generator Operators, Balancing Authorities and neighboring Reliability Coordinators, identified in its restoration plan.</p> <p>If R2 is changed the measurement M2 would have to also change based on the changes made to R2.</p> |
| <p>Response: EOP-005-2</p> | | |

Consideration of Comments on 3rd Draft of EOP Standards — Project 2006-03

| Organization | Question 4: | Question 4 Comments: |
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| <p>M4: The SDT believes that because the TOP is the owner of the restoration plan it makes sense they also hold the agreements. R4: The SDT believes you meant R14. The requirement has been changed for clarity. (now R13)</p> <p style="padding-left: 40px;">R13: Each Transmission Operator and Generator Operator with a Blackstart Resource shall have a written Blackstart Resource Agreements or mutually agreed upon procedures or protocols, specifying the terms and conditions of their arrangement. Such Agreements shall include references to the blackstart Blackstart Resource testing requirements.</p> <p>EOP-006-2 R10/R2: The GOP takes its instructions from the TOP; it would not normally get involved with the RC unless the RC was acting as the BA. The RC plan revolves around coordination and tying systems together, which they would do through the TOP.</p> | | |
| ITC Holdings | Yes | 005-R-9 weakened test requirements. Now GOs do not have to synch to a dead bus, just say they can by defeating relays. TOPs shall have testing to verify "that each Blackstart Resource is capable of meeting the requirements of it's restoration plan." As a Transmission Company ITC owns no generation. Our plan calls for energizing a generator to a deenergized bus. Are we to weaken the previous tests to allow the generator owner to say he can, rather than actually demonstrate? |
| <p>Response: EOP-005-2 R9.2.2: The SDT believes the requirement is not weakened by the entity affirming (to confirm or ratify, maintain as true) that the unit has the capability to energize a bus, if it is not possible to energize a bus during the test.</p> | | |
| Kansas City Power & Light | Yes | EOP-005-2: R9 requires the Transmission Operator to have the testing requirements for blackstart resources. I think this would make more sense if this was directed to the entity that is responsible for the asset, the Generator Owner. R17 requires the Generator Owner to perform the test prescribed in the standard. Please consider changing R9 to be directed to the Generator Owner. |
| <p>Response: EOP-005-2 R9/R17 (now R16): The SDT believes that because the TOP is the owner of the restoration plan it makes sense they also hold the agreements and set the requirements.</p> | | |
| Allegheny Energy | Yes | Request a more specific definition of the term "Generator Operator" as it applies to this standard: - Does this definition include entities (i.e. Dispatch Groups) that perform certain functions on behalf of a power station? |

Consideration of Comments on 3rd Draft of EOP Standards — Project 2006-03

| Organization | Question 4: | Question 4 Comments: |
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| | | <p>R 18.1. Request clarification as to what is meant by "system restoration philosophy"?</p> <p>Response: GOP def: "The entity that operates generating unit(s) and performs the functions of supplying energy and Interconnected Operations Services." – NERC glossary NERC Functional Model: GOP Real Time Provides real-time operating information to the Transmission Operator and the required Balancing Authority. Adjusts real and reactive power as directed by the Balancing Authority and Transmission Operator. The standard applies to all entities that meet the criteria for "generator operator" as defined in the NERC Statement of Compliance Registry Criteria. No change made.</p> <p>R18.1: requirement was changed. (now R17.1)</p> <p>R17.1: System restoration philosophy plan including coordination with the Transmission Operator</p> |
| Entergy Services | No | <p>R12 would require a "minimum of two hours of System restoration training every two years to field switching personnel ? ". We have recommended in other standards and will continue to recommend here that field switching personnel that operate under the direction of a Transmission Operator should not be required to obtain additional training, especially System restoration training. Field switching personnel do not make independent decisions concerning local or System restoration. Therefore, we recommend R12 be deleted. If R12 is not deleted then we recommend the requirement be revised by adding the following sentence to the end of R12: "When field switching personnel follow procedures written by the Transmission Operator, the additional training of field switching personnel for system restoration shall not be required above that training ordinarily provided by the Transmission Operator.?"</p> |
| | | <p>Response: EOP-005 The SDT has attempted to be completely clear in R12 (now R11). If there are no tasks for field switching personnel that are different from their normal tasks, then no system restoration training is required. It is completely within the TOP's control in developing their restoration plan to define those field switching personnel tasks that are different (unique) to system restoration.</p> |
| Reliant Energy Inc. | Yes | <p>Since this is a reliability standard did the SDT discuss how to improve the probability that the black start unit would start in the event of a black out? Most of these units in PJM are 70's vintage simple cycle CT's. Because of their high heat rate these units are only called upon to run during high demand periods. It is not uncommon for these units to sit</p> |

Consideration of Comments on 3rd Draft of EOP Standards — Project 2006-03

| Organization | Question 4: | Question 4 Comments: |
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| | | <p>dormant for more than 90 days. Should this standard require the TOP to contract with the generator owner to run these machines at least every 90 days for at least 15 minutes? One other comment around this standard, the generator operator of a black start unit is a major player in the restoration of the grid. Yet we have been denied when we have requested transmission maps from our TO. It appears that these are considered by FERC to be critical infrastructure information. How can a generator operator be an important part of grid reliability and be denied access to transmission maps of the TO that its facilities are located?</p> |
| <p>Response: EOP-005-2 (1): The SDT believes that the standard covers this situation. The standard requires the TOP set the requirements of the blackstart units and also to have an Agreement with the GOP for Blackstart Resources. If starting a unit every 90 days is required to ensure that unit will start the TOP can place that requirement in their Agreement with the GOP. (2) This is beyond the scope of the SDT.</p> | | |
| <p>ISO RTO Council/Standards Review Committee</p> | <p>Yes</p> | <p>EOP-005</p> <p>(1) We suggest changing the definition of BlackStart resource to: Blackstart Resource: "A generation Facility and associated set of equipment which has the ability to be started without support from the System, with the ability to energize a bus, meeting the Transmission Operator's restoration plan needs for real and reactive power capability, frequency and voltage control, and that has been included in the Transmission Operator's restoration plan."</p> <p>(2) Propose to add another bullet under Item R6 which reads:</p> <p>R6.4. Each Generator Operator with restoration resources or other resources identified in the restoration plan of its Transmission Operator shall provide the Transmission Operator with the modeling information necessary for the Transmission Operator to conduct the studies described in R6.</p> <p>Propose adding text to R15 [additional text in {brackets}]:</p> <p>R15. Each Generator Operator with a Blackstart Resource shall have documented procedures for starting the Blackstart Resource and energizing a bus {and shall provide such procedures to their respective Transmission Operator}. [Violation Risk Factor =</p> |

Consideration of Comments on 3rd Draft of EOP Standards — Project 2006-03

| Organization | Question 4: | Question 4 Comments: |
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| | | [Medium] [Time Horizon = Operations Planning] |
| <p>Response: EOP-005-2 (1) The SDT does not want to prohibit units that are designed to remain energized without connection to the remainder of the System as long as the TOP and RC are satisfied with the testing that is done. (2) The TOP can put these requirements in the Agreements. R15 (now R14). The Standard requires the TOP to have an Agreement with the resource. If the TOP determines a need to have the procedures from the Blackstart Resource, that should be covered in the Agreement.</p> | | |
| Duke Energy Corporation | Yes | <p>The SDT has incorporated new Data Retention Requirements in this draft of EOP-005-2 and EOP-006-2 that require the keeping of old plans just to meet a compliance requirement over three years as seen in M1, M6, etc. This serves no purpose in maintaining or restoring the reliability of the interconnection of the system. As long as the entities demonstrate compliance to the Standard, why are three years worth of outdated plans needed to be maintained? The SDT in previous responses stated that these documents are not administrative requirements but are to show a planning function that goes into the creation of the document. Yet this data retention policy clearly shows administrative requirements that do not warrant a "Medium" VRF.</p> <p>For R5, M5, in order to meet this data retention requirement, you have to have older plans in a control room because they were in force prior to the update. Does the SDT not realize the danger of keeping outdated plans in the control room? The data retention of any emergency plan should be no more than the current plan itself. Furthermore, in the data retention requirement for training materials to be maintained for three years, why should not just the records be maintained that the training was taken? Training records requirements should all be located in the PER standards. Also, old training material provide another means to create issues during an actual event and should not be maintained other than what is current.</p> |
| <p>Response: The SDT followed published guidelines for data retention and VRF. The SDT believes the requirement (R5) is clear that only the latest approved plan is to be kept in the control room. The data retention indicates that the entity must maintain records of any previous plan (for the audit period) and records that the plan was made available in the control room in a timely manner. The data retention for previous plans does not mean that they need to be kept in the control room.</p> | | |
| Santee Cooper | Yes | For the data retention how does an entity prove to an auditor that previous versions of its System Restoration Plan were made available in the control room. The auditor can ask to see the current version during an audit and entity can certainly provide a copy of |

Consideration of Comments on 3rd Draft of EOP Standards — Project 2006-03

| Organization | Question 4: | Question 4 Comments: |
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| | | <p>previous versions but it would not be prudent to keep three different versions of a plan in the control room just to prove compliance. Santee Cooper recommends that the SDT explore the possibility of combining some the measures together. Is it required to have a measure for every Requirement?</p> |
| <p>Response: The SDT believes the requirement (R5) is clear that only the latest approved plan is to be kept in the control room. The data retention indicates that the entity must maintain records of any previous plan (for the audit period) and records that the plan was made available in the control room in a timely manner. The data retention for previous plans does not mean that they need to be kept in the control room.</p> | | |
| <p>Midwest ISO Stakeholders Standards Collaborators</p> | <p>Yes</p> | <p>The Balancing Authority has a role in restoration. The Balancing Authority has a role in determining the relative priority of units to be restored. The Balancing Authority is also aware of unit operating constraints such as minimum shutdown times, fuel availability, etc. Unfortunately, the drafting team's continued persistence to ignore these realities will result in a set of standards that actually decreases reliability because the TOP may restore a cranking path to a unit that is not immediately available due to these constraints. Considering the GOP is only required to notify the TOP within 24-hours of a change in the black start capability of a unit, the TOP very well may not know that the resource he was counting won't work.</p> |
| <p>The SDT continues to believe that restoration is an activity that is controlled by the TOP utilizing the GOP until the system is released for balancing as stated in EOP-005-2 & EOP-006-2, R1. As per EOP-006-2, R1.7, the BA is kept informed and should be ready to take over at the appropriate time. In an attempt to clarify this position, the SDT has added a new requirement, R1.10, to EOP-006-2.</p> <p>R1.10: Criteria for transferring operations and authority back to the Balancing Authority.</p> | | |
| <p>MRO NERC Standards Review Subcommittee</p> | <p>Yes</p> | <p>EOP-005, R17.1, the words "unit tested" is redundant with "Blackstart Resource", unless the SDT meant to say "type of unit tested"? The SDT should reword the requirement or drop "unit tested".</p> <p>EOP-005, R18.2, should be moved to a sub requirement of R15. R15 talks about start up procedures and R18.2 talks about those special actions required to synch to the system, which should be written in the start up procedure document.</p> <p>In sub requirement R7.3 of EOP-005-2, if alternative measures are implemented, shouldn't an explanation after the fact be required?</p> |

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| Organization | Question 4: | Question 4 Comments: |
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| | | <p>In M7 of EOP-005-2, what about evidence of taking alternative measures?</p> <p>In section 1.4 Data Retention pertaining to R9 & M9 of EOP-005-2, why isn't there a three year retention on this data (verification process and results for the current Blackstart resource testing requirements)?</p> <p>In sub requirement R7.1, shouldn't these alternative measures and non-studied conditions be noted or recorded somewhere to be included in the future restoration plan.</p> <p>In M6 of EOP-006-2, the following text should be inserted "and the latest approved restoration plan of each TOP in its control area" between the text "latest approved copy of its restoration plan" and the text "available in each of its control rooms and to each ?".</p> <p>In M7 of EOP-006-2, the text should be modified to read the following "Each Reliability Coordinator involved shall have evidence such as voice recordings, e-mail, dated computer printouts, or operator logs, that it monitored, coordinated, and took action to restore the BES in accordance with R7."</p> <p>EOP-005-2, R9.2.2, "The ability to energize a bus". This sub requirement states that if you can't energize a bus, there is a requirement to affirm that the breaker close coil relay can be energized with voltage and frequency monitor controls disconnected. There are many "older" generating units that may be blackstartable but don't have the breaker close coil relay'. A possible addition to the sub requirement may be " ...to affirm that the breaker close coil relay can be energized with voltage and frequency monitor controls disconnected or to affirm through the Transmission Operator the Blackstart Resource can energize a bus."</p> <p>EOP-006-2, R8.1 ? The words ?restoration plan? in the first sentence should be replaced with ?resynchronization?.</p> |
| <p>Response: EOP-005-2</p> <p>R17.1: The "unit tested" refers to the actual unit that was tested, if there are 3 units at a particular blackstart station and unit 2 was the one tested in 2008, then the "unit tested" is unit 2. (now R16.1)</p> <p>R18.2: This is a training requirement while R15 is a documentation requirement. Requirement has been clarified. (now R17.2)</p> | | |

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| Organization | Question 4: | Question 4 Comments: |
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| | | <p>R17.2: Special actions required to enable blackstart and synchronization to the System The procedures documented in Requirement R15</p> <p>R7.3/M7: The SDT believes the explanation will be brought out in the disturbance report.</p> <p>Data Retention: The SDT utilized the Guidelines in selecting the data retention periods. No change made.</p> <p>R7.1: The SDT believes that alternative measures will be dependent upon the current situation and it would be difficult to proactively identify all alternatives. The SDT further believes that post-restoration disturbance reporting and investigations will document the actual alternative measures utilized.</p> <p>EOP-006-2 M6: The SDT believes that the phrase 'in accordance with requirement R6' covers this situation. M7: The SDT believes that the phrase 'in accordance with requirement R7' covers this situation.</p> <p>EOP-005-2 R9.2: The SDT believes the statement is correct. No change made.</p> <p>EOP-006-2 R8.1: The SDT has revised R8 to include R8.1.</p> <p>R8: The Reliability Coordinator shall coordinate or authorize and coordinate resynchronizing islanded areas that bridge boundaries between Transmission Operators or Reliability Coordinators. If the resynchronization cannot be completed as expected because actual conditions do not match the studied conditions, the Reliability Coordinator shall utilize its restoration plan strategies to facilitate resynchronization.</p> |
| SERC OC SRC | Yes | The "such as" statements in the measures are too prescriptive and need to be separated from the requirements. If examples are to be provided they should be identified as options. |
| Response: These are just examples and not limiting conditions. | | |
| Alberta Electric System Operator | Yes | <p>1. Pertaining to the RC approving the TOP's restoration plan - the AESO will have to define the scope of such approval in order that the legislated autonomy/mandate of the Alberta ISO is maintained.</p> <p>2. Pertaining to the "initial switching requirements" referred to in R4, we interpret that to mean a high level switching plan rather than a "breaker by breaker" type switching</p> |

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| Organization | Question 4: | Question 4 Comments: |
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| | | instructions. 3. We recommend that the training requirements be moved to the training standards. |
| | | <p>Response: (1): When approving the TOP plans, the Reliability Coordinator determines whether the Transmission Operator’s restoration plan coordinates with the Reliability Coordinator plan, and is compatible with other TOP restoration plans within its Reliability Coordinator Area.</p> <p>(2): The SDT assumes that you meant R1.4. The “initial switching requirements” needs to be of sufficient detail to enable the TOP to establish the Cranking Path.</p> <p>(3): The SDT supports FERC’s recommendation in Order 693 that inclusion of periodic system restoration drills and training requirements in the EOP standards is the most effective way of achieving the desired level of system restoration training.</p> |
| NPCC | No | |
| Southern Company Transmission | | |
| Northeast Utilities | No | |
| Consumers Energy Company | | |
| Tampa Electric Company | No | |
| Ameren | No | |
| Standards Interface Subcommittee | No | |
| Operating Reliability Working Group (ORWG) | No | |
| AEP | No | |
| Pacific Gas and Electric Company | No | |
| American Transmission Company | No | |

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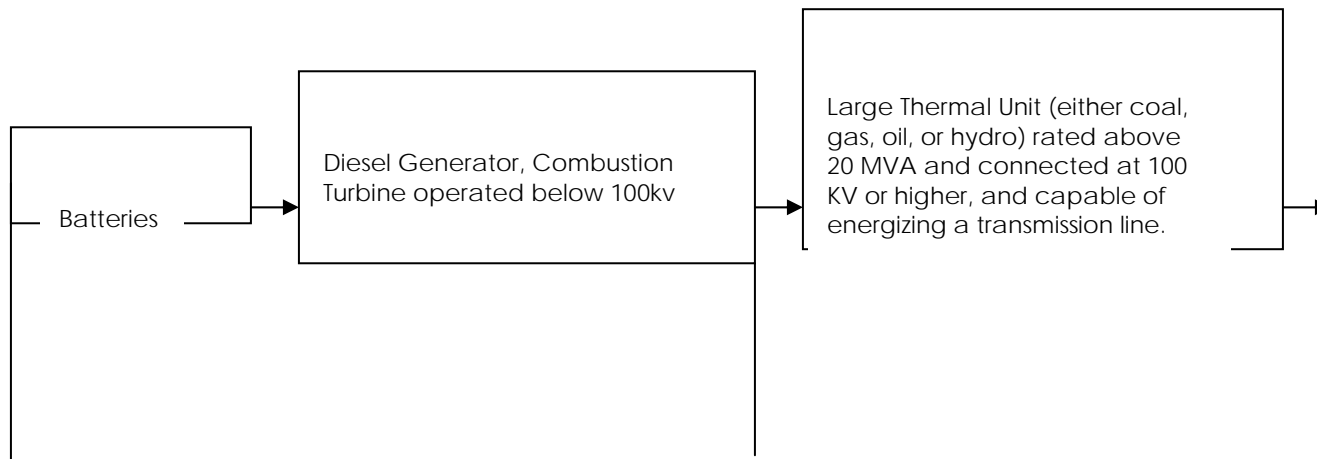
| Organization | Question 4: | Question 4 Comments: |
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| Response: Thank you for your response. | | |

FE COMMENTS – DEFINITION OF BLACKSTART RESOURCE

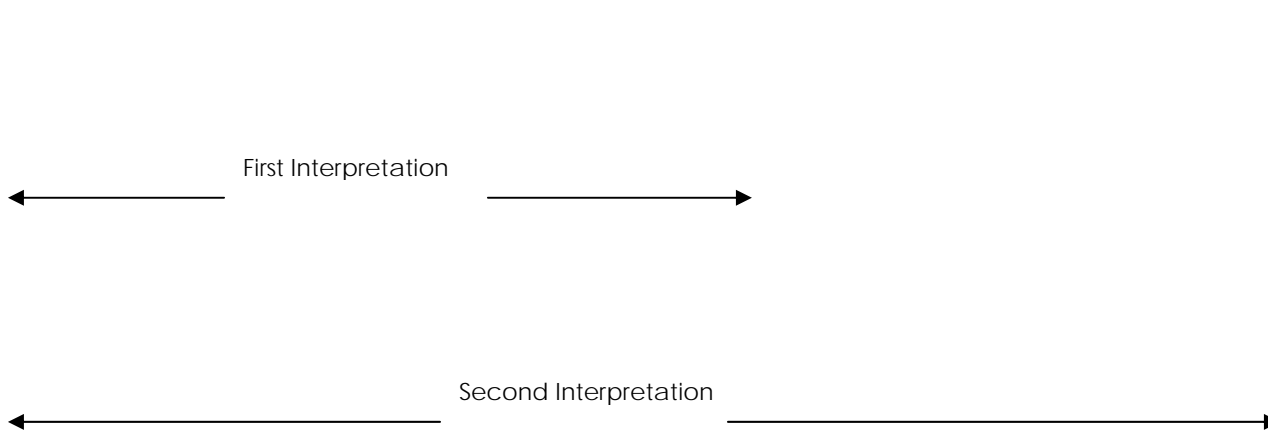
The definition of a Blackstart Resource as proposed states: “A generation **Facility** and associated set of equipment which has the ability to be started without support from the System or is designed to remain energized without connection to the remainder of the System, with the ability to energize a bus, meeting the TOP restoration plan needs for real and reactive capability, frequency and voltage control, and that has been included in the TOP restoration plan.”

The definition of **Facility** is “A set of electrical equipment that operates as a single Bulk Electric System element.”

Therefore, according to the proposed definition, it follows that Blackstart Resources are **Bulk Electric System** elements which **generally operate above 100KV**. The diagram below depicts potential variations for interpretations related to the equipment to be included as Blackstart Resources.



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Both interpretations of the definition could be rationalized to meet the needs of the TOP. Realistically, if the large thermal unit is not capable of closing on a bus without a sync signal and is not capable of varying voltage and frequency, the first interpretation of a Blackstart Resource would result. Is it the intent of the SDT that this first interpretation would be considered a valid Blackstart Resource in some instances? Under this first interpretation the large thermal unit would not be tested, only the small CT or diesel.

If the words “capable of energizing a transmission line to support load and supplying starting power to the next non-blackstart unit not at the same physical location” were added it would help eliminate the first interpretation, and more clearly define the actual Blackstart Resource being relied upon by the TOP.

Therefore we propose the following definition:

Blackstart Resource: A generation Facility and associated set of equipment which:

- 1. Has the ability to be started without support from the System or is designed to remain energized without connection to the remainder of the System, and**
- 2. Is capable of energizing a transmission line to support load and supplying starting power to the next non-blackstart unit not at the same physical location, and**
- 3. Has the ability to energize a bus, meeting the Transmission Operator's restoration plan needs for real and reactive capability, frequency and voltage control, and**
- 4. Has been included in the Transmission Operator's restoration plan.**

This definition is extremely important as it may influence many areas of compensation from Black start tariffs and other standards such as CIP-002. CIP-002 defines the criteria to review assets as critical. The CIP standard now refers to blackstart generators and not "Blackstart Resources". If a Generator Operator interprets the definition as the first interpretation he may not protect the large thermal unit from a cyber attack. Under that scenario the small diesel or CT would be of little use to energize the Bulk Electric System.

Standards Announcement

Comment Period Open

October 21–November 18, 2008

Now available at:

http://www.nerc.com/filez/standards/System_Restoration_Blackstart.html

Fourth Draft of System Restoration from Blackstart Resources Standards

The fourth draft of EOP-005-2 — System Restoration from Blackstart Resources and EOP-006-2 — System Restoration – Coordination (Project 2006-03) have been posted for a 30-day comment period. The comment period is now open **until 8 p.m. EST on November 18, 2008**

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 from Blackstart Resources |
| EOP-006-1 — Reliability Coordination — System Restoration | EOP-006-2 — System Restoration — 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 System Restoration and Blackstart Standard Drafting Team has responded to all comments submitted for the third draft. In addition to reviewing the most recent comments, the drafting team has carefully reviewed all prior comments and FERC Order 693. The drafting team did this complete review as part of its process to make the fourth draft as near final as possible.

The draft standards, EOP-005-2 and EOP-006-2, should be reviewed as a set when providing comments. Please use this [electronic form](#) to submit comments. If you experience any difficulties in using the electronic form, please contact Lauren Koller at 609-452-8060.

Further background information on the fourth draft as well as the status, purpose, and supporting documents for this project — including an off-line, unofficial copy of the questions listed in the comment form — are posted at the following site:

http://www.nerc.com/filez/standards/System_Restoration_Blackstart.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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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. SAR version 1 posted on November 6, 2006.
2. SAR version 1 comment period closed on December 5, 2006.
3. SAR version 2 and comment responses for SAR version 1 posted on February 8, 2007.
4. SAR version 2 comment period closed on March 9, 2007.
5. SAR version 3 and comment responses for SAR version 2 accepted by SC and SDT appointed on April 9, 2007.
6. First posting of revised standards on August 15, 2007 with comment period closed on September 28, 2007.
7. Second posting of revised standards on January 7, 2008 with comment period closed on February 5, 2008.
8. Third posting of revised standards on April 15, 2008 with comment period closed on May 29, 2008.

Proposed Action Plan and Description of Current Draft:

The SDT began meeting in mid-April 2007 immediately following the approval of the SAR by the SC with the goal of completing work in approximately one year's time. The current draft is the fourth posting of the proposed standards. Requirements in EOP-007 and EOP-009 have been incorporated into the revised EOP-005 and EOP-006. Therefore, EOP-007 and EOP-009 will be retired when this project is approved and EOP-005-2 and EOP-006-2 go into effect.

Future Development Plan:

| Anticipated Actions | Anticipated Date |
|--|-------------------------|
| 1. Fourth posting of draft standards. | October 2008 |
| 2. Standards posted for first ballot. | December 2008 |
| 3. Standards posted for second ballot. | February 2009 |
| 4. Standards sent to BOT for approval. | March 2009 |
| 5. File with regulatory authorities | To be determined |

Definitions of Terms Used in Standard

This section includes all newly defined or revised terms used in the proposed standard. Terms already defined in the Reliability Standards Glossary of Terms are not repeated here. New or revised definitions listed below become approved when the proposed standard is approved. When the standard becomes effective, these defined terms will be removed from the individual standard and added to the Glossary.

Blackstart Resource: A generating unit(s) and its associated set of equipment which has the ability to be started without support from the System or is designed to remain energized without connection to the remainder of the System, with the ability to energize a bus, meeting the Transmission Operator's restoration plan needs for real and reactive power capability, frequency and voltage control, and that has been included in the Transmission Operator's restoration plan.

A. Introduction

1. **Title:** System Restoration from Blackstart Resources
2. **Number:** EOP-005-2
3. **Purpose:** Ensure plans, Facilities, and personnel are prepared to enable System restoration from Blackstart Resources to assure reliability is maintained during restoration and priority is placed on restoring the Interconnection.
4. **Applicability:**
 - 4.1. Transmission Operators.
 - 4.2. Generator Operators.
 - 4.3. Transmission Owners identified in the Transmission Operator's restoration plan.
 - 4.4. Distribution Providers identified in the Transmission Operator's restoration plan.
5. **Proposed Effective Date:** In those jurisdictions where regulatory approval is required, all requirements go into effect the first day of the first calendar quarter twenty-four months after applicable regulatory approval. In those jurisdictions where no regulatory approval is required, all requirements go into effect the first day of the first calendar quarter twenty-four months after Board of Trustees adoption.

B. Requirements

- R1. Each Transmission Operator shall have a restoration plan approved by its Reliability Coordinator. The restoration plan shall allow for restoring the Transmission Operator's System following a Disturbance in which one or more areas of the Bulk Electric System (BES) shuts down and the use of Blackstart Resources is required to restore the shut down area to service, to a state whereby the choice of the next Load to be restored is not driven by the need to control frequency or voltage regardless of whether the Blackstart Resource is located within the Transmission Operator's System. The restoration plan shall include: *[Violation Risk Factor = High] [Time Horizon = Operations Planning]*
 - R1.1. A description of how the plan follows the high level strategies for restoring the Interconnection as outlined in the Transmission Operator's Reliability Coordinator restoration plan.
 - R1.2. A description of the manner in which all Agreements or mutually agreed upon procedures or protocols for off-site power requirements of nuclear power plants, including priority of restoration, will be fulfilled during System restoration.
 - R1.3. Procedures for restoring interconnections with other Transmission Operators under the direction of the Reliability Coordinator.
 - R1.4. Identification of each Blackstart Resource and its characteristics including but not limited to the following: the name of the Blackstart Resource, location, megawatt and megavar capacity, and type of unit.
 - R1.5. Identification of Cranking Paths and initial switching requirements between each Blackstart Resource and the unit(s) to be started.

- R1.6.** Identification of acceptable operating voltage and frequency limits during restoration.
- R1.7.** Operating Processes to reestablish connections within the Transmission Operator's System for areas that have been restored and are prepared for reconnection.
- R1.8.** Operating Processes to restore Loads required to restore the System, such as station service for substations, units to be restarted or stabilized, the Load needed to stabilize generation and frequency, and provide voltage control.
- R1.9.** Criteria for transferring operations and authority back to the Balancing Authority.
- R2.** Each Transmission Operator shall provide the operational entities identified in its approved restoration plan with a description of any changes to their roles and specific tasks prior to the implementation date of the plan. [*Violation Risk Factor = Lower*] [*Time Horizon = Operations Planning*]
- R3.** Each Transmission Operator shall review the Transmission Operator's restoration plan and submit it to its Reliability Coordinator annually on a mutually agreed predetermined schedule. [*Violation Risk Factor = Medium*] [*Time Horizon = Operations Planning*]
 - R3.1.** If there are no changes to the previously submitted restoration plan, the Transmission Operator shall confirm annually on a predetermined schedule to its Reliability Coordinator that it has reviewed its restoration plan and no changes were necessary.
- R4.** Each Transmission Operator shall update its restoration plan within ninety calendar days after identifying any unplanned permanent System modifications, or prior to implementing a planned System modification, that would change the implementation of its restoration plan. [*Violation Risk Factor = Medium*] [*Time Horizon = Operations Planning*]
 - R4.1.** Each Transmission Operator shall submit its revised restoration plan to its Reliability Coordinator for approval within the same ninety calendar day period.
- R5.** Each Transmission Operator shall have a copy of its latest Reliability Coordinator approved restoration plan within its primary and backup control rooms and available to all of its System Operators prior to its implementation date. [*Violation Risk Factor = Lower*] [*Time Horizon = Operations Planning*]
- R6.** Each Transmission Operator shall verify through analysis of actual events, steady state and dynamic simulations, or testing that its restoration plan accomplishes its intended function. This shall be completed every five years at a minimum. Such analysis, simulations or testing shall verify: [*Violation Risk Factor = Medium*] [*Time Horizon = Long-term Planning*]
 - R6.1.** The capability of Blackstart Resources to meet the Real and Reactive Power requirements of the Cranking Paths and to supply initial Loads.

- R6.2.** The location and magnitude of Loads required to control voltages and frequency within acceptable operating limits.
- R6.3.** The capability of generating resources required to control voltages and frequency within acceptable operating limits.
- R7.** Following a Disturbance in which one or more areas of the BES shuts down and the use of Blackstart Resources is required to restore the shut down area to service, each affected Transmission Operator shall implement its restoration plan. If the restoration plan cannot be executed as expected because actual conditions do not match the studied conditions, the Transmission Operator shall utilize its restoration plan strategies to facilitate restoration. [*Violation Risk Factor = High*] [*Time Horizon = Real-time Operations*]
- R8.** Following a Disturbance in which one or more areas of the BES shuts down and the use of Blackstart Resources is required to restore the shut down area to service, the Transmission Operator shall resynchronize area(s) with neighboring Transmission Operator area(s) only with the authorization of the Reliability Coordinator or in accordance with the established procedures of the Reliability Coordinator. [*Violation Risk Factor = High*] [*Time Horizon = Real-time Operations*]
- R9.** Each Transmission Operator shall have Blackstart Resource testing requirements to verify that each Blackstart Resource is capable of meeting the requirements of its restoration plan. These Blackstart Resource testing requirements shall include: [*Violation Risk Factor = Medium*] [*Time Horizon = Operations Planning*]
 - R9.1.** The frequency of testing such that each Blackstart Resource is tested at least once every three years.
 - R9.2.** A list of required tests including:
 - R9.2.1.** The ability to start the unit when isolated with no support from the BES or when designed to remain energized without connection to the remainder of the System.
 - R9.2.2.** The ability to energize a bus. If it is not possible to energize a bus during the test, the testing entity must affirm that the unit has the capability to energize a bus such as verifying that the breaker close coil relay can be energized with the voltage and frequency monitor controls disconnected.
 - R9.3.** The minimum duration of each of the required tests.
- R10.** Each Transmission Operator shall include within its operations training program, annual System restoration training to its System Operators to assure the proper execution of its restoration plan. This training program shall include training on the following: [*Violation Risk Factor = Medium*] [*Time Horizon = Operations Planning*]
 - R10.1.** System restoration plan including coordination with the Reliability Coordinator and Generator Operators included in the restoration plan.
 - R10.2.** Restoration priorities.
 - R10.3.** Building of cranking paths.

- R10.4.** Synchronizing (re-energized sections of the System).
- R11.** Each Transmission Operator, each applicable Transmission Owner, and each applicable Distribution Provider shall provide a minimum of two hours of System restoration training every two years to their field switching personnel identified as performing unique tasks associated with the Transmission Operator's restoration plan that are outside of their normal tasks. *[Violation Risk Factor = Lower] [Time Horizon = Operations Planning]*
- R12.** Each Transmission Operator shall participate in its Reliability Coordinator's restoration drills, exercises, or simulations as requested by its Reliability Coordinator. *[Violation Risk Factor = Medium] [Time Horizon = Operations Planning]*
- R13.** Each Transmission Operator and Generator Operator with a Blackstart Resource shall have written Blackstart Resource Agreements or mutually agreed upon procedures or protocols, specifying the terms and conditions of their arrangement. Such Agreements shall include references to the Blackstart Resource testing requirements. *[Violation Risk Factor = Medium] [Time Horizon = Operations Planning]*
- R14.** Each Generator Operator with a Blackstart Resource shall have documented procedures for starting each Blackstart Resource and energizing a bus. *[Violation Risk Factor = Medium] [Time Horizon = Operations Planning]*
- R15.** Each Generator Operator with a Blackstart Resource shall notify its Transmission Operator of any known changes to the capabilities of that Blackstart Resource within twenty-four hours following such change. *[Violation Risk Factor = Medium] [Time Horizon = Operations Planning]*
- R16.** Each Generator Operator with a Blackstart Resource shall perform Blackstart Resource tests, and maintain records of such testing, in accordance with the testing requirements set by the Transmission Operator to verify that the Blackstart Resource can perform as specified in the restoration plan. *[Violation Risk Factor = Medium] [Time Horizon = Operations Planning]*
- R16.1.** Testing records shall include at a minimum: name of the Blackstart Resource, unit tested, date of the test, duration of the test, time required to start the unit, an indication of any testing requirements not met under Requirement R9.
- R16.2.** Each Generator Operator shall provide the blackstart test results within thirty calendar days following a request from its Reliability Coordinator or Transmission Operator.
- R17.** Each Generator Operator with a Blackstart Resource shall provide a minimum of two hours of training every two years to each of its operating personnel responsible for the startup of its Blackstart Resource generation units and energizing a bus. The training program shall include training on the following: *[Violation Risk Factor = Medium] [Time Horizon = Operations Planning]*
- R17.1.** System restoration plan including coordination with the Transmission Operator.
- R17.2.** The procedures documented in Requirement R14.

- R18.** Each Generator Operator shall participate in the Reliability Coordinator's restoration drills, exercises, or simulations as requested by the Reliability Coordinator. [*Violation Risk Factor = Medium*] [*Time Horizon = Operations Planning*]

C. Measures

- M1.** Each Transmission Operator shall have a dated, documented System restoration plan developed in accordance with Requirement R1 that has been approved by its Reliability Coordinator as shown with the written approval letter from its Reliability Coordinator.
- M2.** Each Transmission Operator shall have evidence such as e-mails with receipts or registered mail receipts that it provided the operational entities identified in its approved restoration plan with a description of any changes to their roles and specific tasks prior to the implementation date of the plan in accordance with Requirement R2.
- M3.** Each Transmission Operator shall have documentation such as a dated review signature sheet, revision histories, e-mails with receipts, or registered mail receipts, that it has annually reviewed and submitted the Transmission Operator's restoration plan to its Reliability Coordinator in accordance with Requirement R3.
- M4.** Each Transmission Operator shall have documentation such as dated review signature sheets, revision histories, e-mails with receipts, or registered mail receipts, that it has updated its restoration plan and submitted it to its Reliability Coordinator in accordance with Requirement R4.
- M5.** Each Transmission Operator shall have documentation that it has made the latest Reliability Coordinator approved copy of its restoration plan available in its primary and backup control rooms and to each of its System Operators prior to its implementation date in accordance with Requirement R5.
- M6.** Each Transmission Operator shall have documentation such as power flow outputs, that it has verified that its latest restoration plan will accomplish its intended function in accordance with Requirement R6.
- M7.** If there has been a Disturbance in which Blackstart Resources have been utilized in restoring the shut down area of the System to service, each Transmission Operator involved shall have evidence such as voice recordings, e-mail, dated computer printouts, or operator logs, that it implemented its restoration plan or restoration plan strategies in accordance with Requirement R7.
- M8.** If there has been a Disturbance in which Blackstart Resources have been utilized in restoring the shut down area of the System to service, each Transmission Operator involved in such an event shall have evidence, such as voice recordings, e-mail, dated computer printouts, or operator logs, that it resynchronized shut down areas in accordance with Requirement R8.
- M9.** Each Transmission Operator shall have documented Blackstart Resource testing requirements in accordance with Requirement R9.
- M10.** Each Transmission Operator shall have an electronic or hard copy of the training program material provided to its System Operators for System restoration training in accordance with Requirement R10.

- M11.** Each Transmission Operator, each applicable Transmission Owner, and each applicable Distribution Provider shall have an electronic or hard copy of the training program material provided to their field switching personnel for System restoration training and the corresponding training records including training dates and duration in accordance with Requirement R11.
- M12.** Each Transmission Operator shall have evidence, such as training records, that it participated in the Reliability Coordinator's restoration drills, exercises, or simulations as requested in accordance with Requirement R12.
- M13.** Each Transmission Operator and Generator Operator with a Blackstart Resource shall have the dated Blackstart Resource Agreements or mutually agreed upon procedures or protocols in accordance with Requirement R13.
- M14.** Each Generator Operator with a Blackstart Resource shall have dated documented procedures on file for starting each unit and energizing a bus in accordance with Requirement R14.
- M15.** Each Generator Operator with a Blackstart Resource shall provide evidence, such as e-mails with receipts or registered mail receipts, showing that it notified its Transmission Operator of any known changes to its Blackstart Resource capabilities within twenty-four hours of such changes in accordance with Requirement R15.
- M16.** Each Generator Operator with a Blackstart Resource shall maintain dated documentation of its Blackstart Resource test results and shall have evidence such as e-mails with receipts or registered mail receipts, that it provided these records to its Reliability Coordinator and Transmission Operator when requested in accordance with Requirement R16.
- M17.** Each Generator Operator with a Blackstart Resource shall have an electronic or hard copy of the training program material provided to its operating personnel responsible for the startup and synchronization of its Blackstart Resource generation units and a copy of its dated training records including training dates and durations showing that it has provided training in accordance with Requirement R17.
- M18.** Each Generator Operator shall have evidence, such as dated training records, that it participated in the Reliability Coordinator's restoration drills, exercises, or simulations if requested to do so in accordance with Requirement R18.

D. Compliance

1. Compliance Monitoring Process

1.1. Compliance Enforcement Authority

Regional Entity.

1.2. Compliance Monitoring Period and Reset Time Frame

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

The 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:

- Approved restoration plan and any restoration plans in force since the last compliance audit for Requirement R1, Measure M1.
- Provided the operational entities identified in its approved restoration plan with a description of any changes to their roles and specific tasks prior to the implementation date of the plan for the current year and three prior calendar years for Requirement R2, Measure M2.
- Submission of the Transmission Operator's annually reviewed restoration plan to its Reliability Coordinator for the current year and three prior calendar years for Requirement R3, Measure M3.
- Submission of an updated restoration plan to its Reliability Coordinator for all versions for the current year and the prior three years for Requirement R4, Measure M4.
- The current, approved by the Reliability Coordinator restoration plan and any restoration plans in force for the last three calendar years was made available in its control rooms for Requirement R5, Measure M5.
- The verification results for the current, approved restoration plan and the previous approved restoration plan for Requirement R6, Measure M6.
- Implementation of its restoration plan or restoration plan strategies on any occasion for three calendar years if there has been a Disturbance in which Blackstart Resources have been utilized in restoring the shut down area of the System to service for Requirement R7, Measure M7.
- Resynchronization of shut down areas on any occasion over three calendar years if there has been a Disturbance in which Blackstart Resources have been utilized in restoring the shut down area of the System to service for Requirement R8, Measure M8.
- The verification process and results for the current Blackstart Resource testing requirements and the last previous Blackstart Resource testing requirements for Requirement R9, Measure M9.
- Actual training program materials or descriptions for three calendar years for Requirement R10, Measure M10.
- Records of participation in all requested Reliability Coordinator restoration drills, exercises, or simulations since its last compliance audit

as well as one previous compliance audit period for Requirement R12, Measure M12.

If a Transmission Operator is found non-compliant for any requirement, it shall keep information related to the non-compliance until found compliant.

The Transmission Operator, applicable Transmission Owner, and applicable Distribution provider 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:

- Actual training program materials or descriptions and actual training records for three calendar years for Requirement R11, Measure M11.

If a Transmission Operator, applicable Transmission owner, or applicable Distribution Provider is found non-compliant for any requirement, it shall keep information related to the non-compliance until found compliant.

The Transmission Operator and Generator Operator with a Blackstart Resource 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:

- Current Blackstart Resource Agreements and any Blackstart Resource Agreements or mutually agreed upon procedures or protocols in force since its last compliance audit for Requirement R13, Measure M13.

The Generator Operator with a Blackstart Resource 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:

- Current documentation and any documentation in force since its last compliance audit on procedures to start each Blackstart Resources and for energizing a bus for Requirement R14, Measure M14.
- Notification to its Transmission Operator of any known changes to its Blackstart Resource capabilities over the last three years for Requirement R15, Measure M15.
- The verification test results for the current set of requirements and one previous set for its Blackstart Resources for Requirement R16, Measure M16.
- Actual training program materials and actual training records for three calendar years for Requirement R17, Measure M17.

If a Generation Operator with a Blackstart Resource is found non-compliant for any requirement, it shall keep information related to the non-compliance until found compliant.

The Generator 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:

- Records of participation in all requested Reliability Coordinator restoration drills, exercises, or simulations since its last compliance audit for Requirement R18, Measure M18.

If a Generation Operator is found non-compliant for any requirement, 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. | The Transmission Operator failed to comply with one of the sub-requirements within the requirement. | The Transmission Operator failed to comply with two of the sub-requirements within the requirement. | The Transmission Operator has failed to comply with three of the sub-requirements within the requirement. | The Transmission Operator has failed to comply with four or more of the sub-requirements within the requirement. |
| R2. | <p>The Transmission Operator failed to provide one of the operational entities identified in its approved restoration plan with a description of any changes to their roles and specific tasks prior to the implementation date of the plan.</p> <p>Or</p> <p>The Transmission Operator provided the information to all entities but was thirty calendar days late in doing so.</p> | <p>The Transmission Operator failed to provide two of the operational entities identified in its approved restoration plan with a description of any changes to their roles and specific tasks prior to the implementation date of the plan.</p> <p>Or</p> <p>The Transmission Operator provided the information to all entities but was sixty calendar days or more late in doing so.</p> | <p>The Transmission Operator failed to provide three of the operational entities identified in its approved restoration plan with a description of any changes to their roles and specific tasks prior to the implementation date of the plan.</p> <p>Or</p> <p>The Transmission Operator provided the information to all entities but was ninety calendar days or more late in doing so.</p> | <p>The Transmission Operator failed to provide four or more of the operational entities identified in its approved restoration plan with a description of any changes to their roles and specific tasks prior to the implementation date of the plan.</p> <p>Or</p> <p>The Transmission Operator provided the information to all entities but was 120 calendar days or more late in doing so.</p> |
| R3. | The Transmission Operator did not submit the reviewed restoration plan or confirmation of no change within twenty-nine calendar days of the pre-determined schedule. | The Transmission Operator did not submit the reviewed restoration plan or confirmation of no change within thirty to fifty-nine calendar days of the pre-determined schedule. | The Transmission Operator did not submit the reviewed restoration plan or confirmation of no change within sixty to eighty-nine calendar days of the pre-determined schedule. | The Transmission Operator did not submit the reviewed restoration plan or confirmation of no change within ninety calendar days of the pre-determined schedule. |
| R4. | The Transmission Operator failed to update and submit its restoration plan to the Reliability Coordinator within ninety calendar days of the change. | The Transmission Operator failed to update and submit its restoration plan to the Reliability Coordinator within 120 calendar days of the change. | The Transmission Operator has failed to update and submit its restoration plan to the Reliability Coordinator within 150 calendar days of the change. | The Transmission Operator has failed to update and submit its restoration plan to the Reliability Coordinator within 180 calendar days of the change. |

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| R# | Lower VSL | Moderate VSL | High VSL | Severe VSL |
|------------|---|---------------------|-----------------|---|
| R5. | N/A | N/A | N/A | The Transmission Operator did not make the latest Reliability Coordinator approved restoration plan available in its primary and backup control rooms and available to all of its System Operators prior to its implementation date. |
| R6. | The Transmission Operator performed the verification but did not complete it within the five year period. | N/A | N/A | The Transmission Operator did not perform the verification or it took more than six years to complete the verification. |
| R7. | N/A | N/A | N/A | The Transmission Operator did not implement its restoration plan following a Disturbance in which Blackstart Resources have been utilized in restoring the shut down area of the System. Or, if the restoration plan cannot be executed as expected because actual conditions do not match the studied conditions, the Transmission Operator did not utilize its restoration plan strategies to facilitate restoration. |
| R8. | N/A | N/A | N/A | The Transmission Operator resynchronized without approval of the Reliability |

Standard EOP-005-2 — System Restoration from Blackstart Resources

| R# | Lower VSL | Moderate VSL | High VSL | Severe VSL |
|-------------|---|---|---|--|
| | | | | Coordinator or not in accordance with the established procedures of the Reliability Coordinator following a Disturbance in which Blackstart Resources have been utilized in restoring the shut down area of the System to service. |
| R9. | N/A | N/A | N/A | The Transmission Operator's Blackstart Resource testing requirements do not address one or more of the sub-requirements of Requirement R9. |
| R10. | The Transmission Operator's training does not address one of the sub-requirements of Requirement R10. | The Transmission Operator's training does not address two of the sub-requirements of Requirement R10. | The Transmission Operator's training does not address three or more of the sub-requirements of Requirement R10. | The Transmission Operator has not included System restoration training in its operations training program. |
| R11. | N/A | N/A | N/A | The Transmission Operator, applicable Transmission Owner, or applicable Distribution Provider did not supply any training to the personnel required by Requirement R11 within a two year period. |
| R12. | N/A. | N/A | N/A | The Transmission Operator has failed to comply with a request for their participation from the Reliability Coordinator. |
| R13. | N/A | The Transmission Operator and Generator Operator with a | N/A | The Transmission Operator and Generator Operator with a |

Standard EOP-005-2 — System Restoration from Blackstart Resources

| R# | Lower VSL | Moderate VSL | High VSL | Severe VSL |
|-------------|--|---|---|--|
| | | Blackstart Resource do not reference Blackstart Resource Testing requirements in their written Blackstart Resource Agreements or mutually agreed upon procedures or protocols. | | Blackstart resource do not have a written Blackstart Resource Agreement or mutually agreed upon procedures or protocols. |
| R14. | N/A | N/A | N/A | The Generator Operator does not have documented starting and bus energizing procedures for each Blackstart Resource. |
| R15. | The Generator Operator with a Blackstart Resource did not notify the Transmission Operator of a change in Blackstart Resource capability within twenty-four hours. | The Generator Operator with a Blackstart Resource did not notify the Transmission Operator of a change in Blackstart Resource capability within seventy-two hours. | The Generator Operator with a Blackstart Resource did not notify the Transmission Operator of a change in Blackstart Resource capability within ninety-six hours. | The Generator Operator with a Blackstart Resource did not notify the Transmission Operator of a change in Blackstart Resource capability for more than ninety-six hours. |
| R16. | The Generator Operator with a Blackstart Resource did not maintain testing records for one of the requirements for a Blackstart Resource. Or The Generator Operator with a Blackstart Resource did not supply the Blackstart Resource testing records as requested within fifty-nine calendar days of the request. | The Generator Operator with a Blackstart Resource did not maintain testing records for two of the requirements for a Blackstart Resource. Or The Generator Operator with a Blackstart Resource did not supply the Blackstart Resource testing records as requested for sixty days to eighty-nine calendar days after the request. | The Generator Operator with a Blackstart Resource did not maintain testing records for three of the requirements for a Blackstart Resource. Or The Generator Operator with a Blackstart Resource did not supply the Blackstart Resource testing records as requested for ninety to 119 calendar days after the request. | The Generator Operator with a Blackstart Resource did not maintain testing records for a Blackstart Resource. Or The Generator Operator with a Blackstart Resource did not supply the Blackstart Resource testing records as requested for 120 days or more after the request. |
| R17. | N/A | N/A | N/A | The Generator Operator with a Blackstart Resource did not supply any of the training required by Requirement R17 |

Standard EOP-005-2 — System Restoration from Blackstart Resources

| R# | Lower VSL | Moderate VSL | High VSL | Severe VSL |
|-------------|------------------|---------------------|-----------------|---|
| | | | | within a two year period to each operator responsible for startup of its Blackstart Resource generation units and energizing a bus. |
| R18. | N/A. | N/A | N/A | The Generator Operator has failed to comply with a request for its participation from the Reliability Coordinator. |

E. Regional Variances

None.

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 | May 2, 2007 | Approved by Board of Trustees | Revised |
| 2 | TBD | Revisions pursuant to Project 2006-03 | Updated testing requirements Incorporated Attachment 1 into the requirements Updated Measures and Compliance to match new Requirements |

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. SAR version 1 posted on November 6, 2006.
2. SAR version 1 comment period closed on December 5, 2006.
3. SAR version 2 and comment responses for SAR version 1 posted on February 8, 2007.
4. SAR version 2 comment period closed on March 9, 2007.
5. SAR version 3 and comment responses for SAR version 2 accepted by SC and SDT appointed on April 9, 2007.
6. First posting of revised standards on August 15, 2007 with comment period closed on September 28, 2007.
7. Second posting of revised standards on January 7, 2008 with comment period closed on February 5, 2008.
8. Third posting of revised standards on April 15, 2008 with comment period closed on May 29, 2008.

Proposed Action Plan and Description of Current Draft:

The SDT began meeting in mid-April 2007 immediately following the approval of the SAR by the SC with the goal of completing work in approximately one year's time. The current draft is the fourth posting of the proposed standards. Requirements in EOP-007 and EOP-009 have been incorporated into the revised EOP-005 and EOP-006. Therefore, EOP-007 and EOP-009 will be retired when this project is approved and EOP-005-2 and EOP-006-2 go into effect.

Future Development Plan:

| Anticipated Actions | Anticipated Date |
|--|-------------------------|
| 1. Fourth posting of draft standards. | October 2008 |
| 2. Standards posted for first ballot. | December 2008 |
| 3. Standards posted for second ballot. | February 2009 |
| 4. Standards sent to BOT for approval. | March 2009 |
| 5. File with regulatory authorities | To be determined |

Definitions of Terms Used in Standard

This section includes all newly defined or revised terms used in the proposed standard. Terms already defined in the Reliability Standards Glossary of Terms are not repeated here. New or revised definitions listed below become approved when the proposed standard is approved. When the standard becomes effective, these defined terms will be removed from the individual standard and added to the Glossary.

Blackstart Capability Plan: ~~Existing definition is retired.~~

Blackstart Resource: A ~~generation Facility~~ generating unit(s) and its associated set of equipment which has the ability to be started without support from the System or is designed to remain energized without connection to the remainder of the System, with the ability to energize a bus, meeting the Transmission Operator's restoration plan needs for real and reactive power capability, frequency and voltage control, and that has been included in the Transmission Operator's restoration plan.

A. Introduction

1. **Title:** System Restoration from Blackstart Resources
2. **Number:** EOP-005-2
3. **Purpose:** Ensure plans, ~~Facilities are established~~, and personnel are prepared to enable System restoration from Blackstart Resources to ~~ensure~~ assure reliability is maintained during restoration and priority is placed on restoring the Interconnection.
4. **Applicability:**
 - 4.1. Transmission Operators.
 - 4.2. Generator Operators.
 - 4.3. Transmission Owners identified in the Transmission Operator's restoration plan.
 - 4.4. Distribution Providers identified in the Transmission Operator's restoration plan.
5. **Proposed Effective Date:** ~~TBD~~ In those jurisdictions where regulatory approval is required, all requirements go into effect the first day of the first calendar quarter twenty-four months after applicable regulatory approval. In those jurisdictions where no regulatory approval is required, all requirements go into effect the first day of the first calendar quarter twenty-four months after Board of Trustees adoption.

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- R1.** Each Transmission Operator shall have a restoration plan approved by its Reliability Coordinator. The restoration plan shall allow for restoring the Transmission Operator's System following a Disturbance in which one or more areas of the Bulk Electric System (BES) shuts down and the use of Blackstart Resources is required to restore the shut down area to service, to a state whereby the choice of the next Load to be restored is not driven by the need to control frequency or voltage regardless of whether the Blackstart Resource is located within the Transmission Operator's System. The restoration plan shall include: *[Violation Risk Factor = High] [Time Horizon = Operations Planning]*
- R1.1.** A description of how the plan follows the high level strategies for restoring the Interconnection as outlined in the Transmission Operator's Reliability Coordinator restoration plan.
 - R1.2.** A description of the manner in which all Agreements or mutually agreed upon procedures or protocols for off-site power requirements of nuclear power plants, including priority of restoration, will be fulfilled during System restoration.
 - R1.3.** Procedures for restoring ~~the integrity of the Interconnection~~ interconnections with other Transmission Operators under the direction of the Reliability Coordinator.
 - R1.4.** Identification of each Blackstart Resource and its characteristics including but not limited to the following: the name of the Blackstart Resource, location, megawatt and megavar capacity, and type of unit.

- R1.5. Identification of Cranking Paths and initial switching requirements between each Blackstart Resource and the unit(s) to be started.
- R1.6. Identification of acceptable operating voltage and frequency limits during restoration.
- R1.7. Operating ~~Procedures~~ Processes to reestablish connections within the Transmission Operator's System for areas that have ~~become separated~~ been restored and are prepared for reconnection.
- R1.8. Operating ~~Procedures~~ Processes to restore Loads required to restore the System, such as station service for substations, units to be restarted or stabilized, the Load needed to stabilize generation and frequency, and provide voltage control ~~for restoring the System~~.
- R1.9. Criteria for transferring operations and authority back to the Balancing Authority.
- R2. ~~Each Transmission Operator shall distribute its approved restoration plan to the reliability related operational entities identified in its restoration plan within thirty calendar days of having received approval from its Reliability Coordinator.~~ Each Transmission Operator shall provide the operational entities identified in its approved restoration plan with a description of any changes to their roles and specific tasks prior to the implementation date of the plan. [*Violation Risk Factor = Lower*] [*Time Horizon = Operations Planning*]
- R3. Each Transmission Operator shall review ~~it's~~ the Transmission Operator's restoration plan and submit it to its Reliability Coordinator annually on a mutually agreed predetermined schedule. [*Violation Risk Factor = Medium*] [*Time Horizon = Operations Planning*]
 - R3.1. If there are no changes to the previously submitted restoration plan, the Transmission Operator shall confirm annually on a predetermined schedule to its Reliability Coordinator that it has reviewed its restoration plan and no changes were necessary.
- R4. Each Transmission Operator shall update its restoration plan within ninety calendar days after identifying any unplanned permanent System modifications, or prior to implementing a planned System modification, that would change the implementation of its restoration plan. [*Violation Risk Factor = Medium*] [*Time Horizon = Operations Planning*]
 - R4.1. Each Transmission Operator shall submit its revised restoration plan to its Reliability Coordinator for approval within the same ninety calendar day period.
- R5. Each Transmission Operator shall have a copy of its latest Reliability Coordinator approved restoration plan within ~~each of its~~ primary and backup control ~~centers~~ rooms and available to all of its ~~control room personnel~~ System Operators prior to its implementation date. [*Violation Risk Factor = Lower*] [*Time Horizon = Operations Planning*]

- R6.** Each Transmission Operator shall verify through analysis of actual events, steady state and dynamic simulations, or testing that its ~~documented~~ restoration plan accomplishes its intended function. This shall be completed every five years at a minimum. Such analysis, simulations or testing shall ~~analyze~~ verify: [*Violation Risk Factor = Medium*] [*Time Horizon = Long-term Planning*]
- R6.1.** The capability of Blackstart Resources to meet the Real and Reactive Power requirements of the Cranking Paths and to supply initial Loads.
- R6.2.** The location and magnitude of Loads required to control voltages and frequency within acceptable operating limits.
- R6.3.** The capability of generating resources required to control voltages and frequency within acceptable operating limits.
- R7.** Following a Disturbance in which one or more areas of the BES shuts down and the use of Blackstart Resources is required to restore the shut down area to service, each affected Transmission Operator shall implement its restoration plan. If the restoration plan cannot be executed as expected because actual conditions do not match the studied conditions, the Transmission Operator shall utilize its restoration plan strategies to facilitate restoration. [*Violation Risk Factor = High*] [*Time Horizon = Real-time Operations*]
- ~~**R7.1.** Each affected Transmission Operator shall work in conjunction with its Reliability Coordinator to determine the extent and condition of the isolated area(s).~~
- ~~**R7.2.** Each affected Transmission Operator shall notify its Reliability Coordinator of restoration progress as required in the Reliability Coordinator's restoration plan.~~
- ~~**R7.3.** If the restoration plan cannot be completed as expected because actual conditions do not match the studied conditions, the Transmission Operator shall utilize its restoration plan philosophies to implement alternative measures for achieving System restoration.~~
- R8.** Following a Disturbance in which one or more areas of the BES shuts down and the use of Blackstart Resources is required to restore the shut down area to service, the Transmission Operator shall resynchronize area(s) with neighboring Transmission Operator area(s) only with the authorization of the Reliability Coordinator or in accordance with the established procedures of the Reliability Coordinator. [*Violation Risk Factor = High*] [*Time Horizon = Real-time Operations*]
- R9.** Each Transmission Operator shall have Blackstart Resource testing requirements to verify that each Blackstart Resource is capable of meeting the requirements of its restoration plan. These Blackstart Resource testing requirements shall include: [*Violation Risk Factor = Medium*] [*Time Horizon = Operations Planning*]
- R9.1.** The frequency of testing such that each Blackstart Resource is tested at least once every three years.
- R9.2.** A list of required tests including:

R9.2.1. The ability to start the unit when isolated with no support from the BES or when designed to remain energized without connection to the remainder of the System.

R9.2.2. The ability to energize a bus. If it is not possible to energize a bus during the test, the testing entity must affirm that the unit has the capability to energize a bus such as verifying that the breaker close coil relay can be energized with the voltage and frequency monitor controls disconnected.

R9.3. The minimum duration of each of the required tests.

~~R10.~~ Each Transmission Operator shall post its Blackstart Resource testing requirements in a freely accessible public forum. *[Violation Risk Factor = Lower] [Time Horizon = Operations Planning]*

R11.R10. Each Transmission Operator shall include within its operations training program, annual System restoration training to its System Operators to ~~ensure~~ assure the proper execution of its restoration plan. This training program shall include training on the following: *[Violation Risk Factor = Medium] [Time Horizon = Operations Planning]*

R11.1.R10.1. System restoration ~~philosophy~~ plan including coordination with the Reliability Coordinator and Generator Operators included in the restoration plan.

R11.2.R10.2. Restoration priorities.

R11.3.R10.3. Building of cranking paths.

R11.4.R10.4. Synchronizing (re-energized sections of the System).

~~R11.5.~~ Review of the restoration plan.

~~R12.R11.~~ Each Transmission Operator, each applicable Transmission Owner, and each applicable Distribution Provider shall provide a minimum of two hours of System restoration training every two years to their field switching personnel identified as performing unique tasks associated with ~~it's~~ the Transmission Operator's restoration plan that are outside of their normal tasks. *[Violation Risk Factor = Lower] [Time Horizon = Operations Planning]*

R13.R12. Each Transmission Operator shall participate in its Reliability Coordinator's restoration drills, exercises, or simulations as requested by its Reliability Coordinator. *[Violation Risk Factor = Medium] [Time Horizon = Operations Planning]*

R14.R13. Each Transmission Operator and Generator Operator with a Blackstart Resource shall have ~~a~~ written Blackstart Resource Agreements or mutually agreed upon procedures or protocols, specifying the terms and conditions of their arrangement. Such Agreements shall include references to the ~~blackstart~~ Blackstart Resource testing requirements. *[Violation Risk Factor = Medium] [Time Horizon = Operations Planning]*

R15.R14. Each Generator Operator with a Blackstart Resource shall have documented procedures for starting ~~the~~ each Blackstart Resource and energizing a bus. *[Violation Risk Factor = Medium] [Time Horizon = Operations Planning]*

~~R16.~~**R15.** Each Generator Operator ~~of~~ with a Blackstart Resource shall notify its Transmission Operator of any known changes to the capabilities of that Blackstart Resource within twenty-four hours following such change. *[Violation Risk Factor = Medium] [Time Horizon = Operations Planning]*

~~R17.~~**R16.** Each Generator Operator ~~of~~ with a Blackstart Resource shall perform Blackstart Resource tests, and maintain records of such testing, in accordance with the testing requirements set by the Transmission Operator to verify that the Blackstart Resource can perform as specified in the restoration plan. *[Violation Risk Factor = Medium] [Time Horizon = Operations Planning]*

~~R17.1.~~**R16.1.** Testing records shall include at a minimum: name of the Blackstart Resource, unit tested, date of the test, duration of the test, time required to start the unit, an indication of any testing requirements not met under Requirement R9.

~~R17.2.~~**R16.2.** Each Generator Operator shall provide the blackstart test results within thirty calendar days following a request from its Reliability Coordinator or Transmission Operator.

~~R18.~~**R17.** Each Generator Operator ~~of~~ with a Blackstart Resource shall provide a minimum of two hours of training every two years to each of its operating personnel responsible for the startup ~~and synchronization~~ of its Blackstart Resource generation units and energizing a bus. The training program shall include training on the following: *[Violation Risk Factor = Medium] [Time Horizon = Operations Planning]*

~~R18.1.~~**R17.1.** System restoration ~~philosophy~~ plan including coordination with the Transmission Operator.

~~R18.2.~~**R17.2.** ~~Special actions required to enable blackstart and synchronization to the System.~~ The procedures documented in Requirement R14.

~~R19.~~**R18.** Each Generator Operator shall participate in the Reliability Coordinator's restoration drills, exercises, or simulations as requested by the Reliability Coordinator. *[Violation Risk Factor = Medium] [Time Horizon = Operations Planning]*

C. Measures

M1. Each Transmission Operator shall have a dated, documented System restoration plan developed in accordance with Requirement R1 that has been approved by its Reliability Coordinator as shown with the written approval letter from its Reliability Coordinator.

M2. Each Transmission Operator shall have evidence such as e-mails with receipts or registered mail receipts, that it ~~distributed its approved restoration plan to the appropriate entities~~ provided the operational entities identified in its approved restoration plan with a description of any changes to their roles and specific tasks prior to the implementation date of the plan in accordance with Requirement R2.

M3. Each Transmission Operator shall have documentation such as a dated review signature sheet, revision histories, e-mails with receipts, or registered mail receipts, that it has annually reviewed and submitted ~~its~~ the Transmission Operator's restoration plan to its Reliability Coordinator in accordance with Requirement R3.

- M4.** Each Transmission Operator shall have documentation such as dated review signature sheets, revision histories, e-mails with receipts, or registered mail receipts, that it has updated its restoration plan ~~with~~ and submitted it to its Reliability Coordinator in accordance with Requirement R4.
- M5.** Each Transmission Operator shall have documentation ~~such as e-mail receipts that it has made the latest~~ Reliability Coordinator approved copy of its restoration plan available in ~~each of its~~ primary and backup control rooms and to each of its ~~control room personnel~~ System Operators prior to its implementation date in accordance with Requirement R5.
- M6.** Each Transmission Operator shall have documentation such as power flow outputs, that it has verified that its latest restoration plan will ~~accomplishes~~ its intended function in accordance with Requirement R6.
- M7.** If there has been a Disturbance in which Blackstart Resources have been utilized in restoring the shut down area of the System to service, each Transmission Operator involved shall have evidence such as voice recordings, e-mail, dated computer printouts, or operator logs, that it implemented its restoration plan or restoration plan strategies in accordance with Requirement R7.
- M8.** If there has been a Disturbance in which Blackstart Resources have been utilized in restoring the shut down area of the System to service, each Transmission Operator involved in such an event shall have evidence, such as voice recordings, e-mail, dated computer printouts, or operator logs, that it resynchronized shut down areas in accordance with Requirement R8.
- M9.** Each Transmission Operator shall have documented Blackstart Resource testing requirements in accordance with Requirement R9.
- ~~**M10.** Each Transmission Operator shall have evidence that it has posted its Blackstart Resource testing requirements in accordance with Requirement R10.~~
- ~~**M11.**~~ **M10.** Each Transmission Operator shall have an electronic or hard copy of the training program material provided to its System Operators for System restoration training in accordance with Requirement ~~R11~~ R10.
- ~~**M12.**~~ **M11.** Each Transmission Operator, each applicable Transmission Owner, and each applicable Distribution Provider shall have an electronic or hard copy of the training program material provided to ~~its~~ their field switching personnel for System restoration training and the corresponding training records including training dates and duration in accordance with Requirement ~~R12~~ R11.
- ~~**M13.**~~ **M12.** Each Transmission Operator shall have evidence, such as training records, that it participated in the Reliability Coordinator's restoration drills, exercises, or simulations as requested in accordance with Requirement ~~R13~~ R12.
- ~~**M14.**~~ **M13.** Each Transmission Operator and Generator Operator with a Blackstart Resource shall have the dated Blackstart Resource Agreements or mutually agreed upon procedures or protocols ~~with all Generator Operators with Blackstart Resources included in its restoration plan~~ in accordance with Requirement ~~R14~~ R13.

~~M15.~~M14. Each Generator Operator with a Blackstart Resource shall have dated documented procedures on file for starting ~~the~~ each unit and energizing a bus in accordance with Requirement ~~R15~~R14.

~~M16.~~M15. Each Generator Operator with a Blackstart Resource shall provide evidence, such as e-mails with receipts or registered mail receipts, showing that it notified its Transmission Operator of any known changes to its Blackstart Resource capabilities within twenty-four hours of such changes in accordance with Requirement ~~R16~~R15.

~~M17.~~M16. Each Generator Operator with a Blackstart Resource shall maintain dated documentation of its Blackstart Resource test results and shall have evidence such as e-mails with receipts or registered mail receipts, that it provided these records to its Reliability Coordinator and Transmission Operator when requested in accordance with Requirement ~~R17~~R16.

~~M18.~~M17. Each Generator Operator with a Blackstart Resource shall have an electronic or hard copy of the training program material provided to its operating personnel responsible for the startup and synchronization of its Blackstart Resource generation units and a copy of its dated training records including training dates and durations showing that it has provided training in accordance with Requirement ~~R18~~R17.

~~M19.~~M18. Each Generator Operator shall have evidence, such as dated training records, that it participated in the Reliability Coordinator's restoration drills, exercises, or simulations if requested to do so in accordance with Requirement ~~R19~~R18.

D. Compliance

1. Compliance Monitoring Process

1.1. Compliance Enforcement Authority

Regional Entity.

1.2. Compliance Monitoring Period and Reset Time Frame

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

The 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:

- Approved restoration plan and any restoration plans in force since the last compliance audit for Requirement R1, Measure M1.
- ~~Distribution of its approved restoration plan and any restoration plans in force~~ Provided the operational entities identified in its approved restoration plan with a description of any changes to their roles and specific tasks prior to the implementation date of the plan for the current year and three prior calendar years for Requirement R2, Measure M2.
- Submission of ~~its~~ the Transmission Operator's annually reviewed restoration plan to its Reliability Coordinator for the current year and three prior calendar years for Requirement R3, Measure M3.
- Submission of an updated restoration plan to its Reliability Coordinator for all versions for the current year and the prior three years for Requirement R4, Measure M4.
- The current, approved by the Reliability Coordinator restoration plan and any restoration plans in force for the last three calendar years was made available in its control rooms for Requirement R5, Measure M5.
- The verification results for the current, approved restoration plan and the previous approved restoration plan for Requirement R6, Measure M6.
- Implementation of its restoration plan or restoration plan strategies on any occasion for three calendar years if there has been a Disturbance in which Blackstart Resources have been utilized in restoring the shut down area of the System to service for Requirement R7, Measure M7.
- Resynchronization of shut down areas on any occasion over three calendar years if there has been a Disturbance in which Blackstart Resources have been utilized in restoring the shut down area of the System to service for Requirement R8, Measure M8.
- The verification process and results for the current Blackstart Resource testing requirements and the last previous Blackstart Resource testing requirements for Requirement R9, Measure M9.
- ~~Posting of its current Blackstart Resource testing requirements and any Blackstart Resource testing requirements in force during the last three years for Requirement R10, Measure M10.~~
- Actual training program materials or descriptions for three calendar years for Requirement ~~R11~~R10, Measure ~~M11~~M10.
- ~~Actual training program materials or descriptions and actual training records for three calendar years for Requirement R12, Measure M12.~~
- Records of participation in all requested Reliability Coordinator restoration drills, exercises, or simulations since its last compliance audit as well as one previous compliance audit period for Requirement ~~R13~~R11, Measure ~~M13~~M11.

- ~~o Current Blackstart Resource Agreements and any Blackstart Resource Agreements in force since its last compliance audit for Requirement R14, Measure M14.~~

If a Transmission Operator is found non-compliant for any requirement, it shall keep information related to the non-compliance until found compliant.

The Transmission Operator, applicable Transmission Owner, and applicable Distribution provider 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:

- o Actual training program materials or descriptions and actual training records for three calendar years for Requirement R12, Measure M12.

If a Transmission Operator, applicable Transmission owner, or applicable Distribution Provider is found non-compliant for any requirement, it shall keep information related to the non-compliance until found compliant.

The Transmission Operator and Generator Operator with a Blackstart Resource 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:

- o Current Blackstart Resource Agreements and any Blackstart Resource Agreements or mutually agreed upon procedures or protocols in force since its last compliance audit for Requirement R13, Measure M13.

The Generator Operator with a Blackstart Resource 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:

- o Current documentation and any documentation in force since its last compliance audit on procedures to start ~~its~~ each Blackstart Resources and for energizing a bus for Requirement ~~R15~~R14, Measure ~~M15~~M14.
- o Notification to its Transmission Operator of any known changes to its Blackstart Resource capabilities over the last three years for Requirement ~~R16~~R15, Measure ~~M16~~M15.
- o The verification test results for the current set of requirements and one previous set for its Blackstart Resources for Requirement ~~R17~~R16, Measure ~~M17~~M16.
- o Actual training program materials ~~or descriptions~~ and actual training records for three calendar years for Requirement ~~R18~~R17, Measure ~~M18~~M17.

If a Generation Operator with a Blackstart Resource is found non-compliant for any requirement, it shall keep information related to the non-compliance until found compliant.

The Generator 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:

- Records of participation in all requested Reliability Coordinator restoration drills, exercises, or simulations since its last compliance audit for Requirement ~~R19~~R18, Measure ~~M19~~M18.

If a Generation Operator is found non-compliant for any requirement, 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. | The Transmission Operator failed to comply with less than 25% of the number <u>one of the sub-components requirements</u> within the requirement. | The Transmission Operator failed to comply with 25% or more and less than 50% of the number <u>two of the sub-components requirements</u> within the requirement. | The Transmission Operator has failed to comply with 50% or more and less than 75% of the number <u>three of the sub-components requirements</u> within the requirement. | The Transmission Operator has failed to comply with 75% of <u>four or more of the number of sub-components requirements</u> within the requirement. |
| R2. | The Transmission Operator failed to distribute the information to an entity identified within the restoration plan within the required timeframe <u>provide one of the operational entities identified in its approved restoration plan with a description of any changes to their roles and specific tasks prior to the implementation date of the plan.</u> Or, t <u>The Transmission Operator distributed provided the information to all entities but was thirty calendar days late in doing so.</u> | The Transmission Operator failed to distribute the information to two entities identified within the restoration plan within the required timeframe <u>provide two of the operational entities identified in its approved restoration plan with a description of any changes to their roles and specific tasks prior to the implementation date of the plan.</u> Or, t <u>The Transmission Operator distributed provided the information to all entities but was sixty calendar days or more late in doing so.</u> | The Transmission Operator failed to distribute the information to three entities identified within the restoration plan within the required timeframe <u>provide three of the operational entities identified in its approved restoration plan with a description of any changes to their roles and specific tasks prior to the implementation date of the plan.</u> Or, t <u>The Transmission Operator distributed provided the information to all entities but was ninety calendar days or more late in doing so.</u> | The Transmission Operator failed to distribute the information to four or more entities identified within the restoration plan within the required timeframe <u>provide four or more of the operational entities identified in its approved restoration plan with a description of any changes to their roles and specific tasks prior to the implementation date of the plan.</u> Or, t <u>The Transmission Operator distributed provided the information to all entities but was 120 calendar days or more late in doing so.</u> |
| R3. | The Transmission Operator did not submit the required information <u>reviewed restoration plan or confirmation of no change</u> within twenty-nine <u>calendar</u> | The Transmission Operator did not submit the required information <u>reviewed restoration plan or confirmation of no change</u> within thirty to <u>fifty-nine</u> | The Transmission Operator did not submit the required information <u>reviewed restoration plan or confirmation of no change</u> within sixty to <u>eighty-nine</u> | The Transmission Operator did not submit the required information <u>reviewed restoration plan or confirmation of no change</u> within ninety calendar days of |

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| R# | Lower VSL | Moderate VSL | High VSL | Severe VSL |
|-----|--|---|--|--|
| | days of the pre-determined schedule. Or, the Transmission Operator did not complete the review within thirty days of the pre-determined schedule. | calendar days of the pre-determined schedule. Or, the Transmission Operator did not complete the review within sixty days of the pre-determined schedule. | calendar days of the pre-determined schedule. Or, the Transmission Operator did not complete the review within ninety days of the pre-determined schedule. | the pre-determined schedule. Or, the Transmission Operator did not complete the review within 120 days of the pre-determined schedule. |
| R4. | The Transmission Operator failed to <u>comply update and submit its restoration plan to the Reliability Coordinator</u> within ninety calendar days <u>of the change.</u> | The Transmission Operator failed to <u>comply update and submit its restoration plan to the Reliability Coordinator</u> within 120 calendar days of the change. | The Transmission Operator has failed to <u>comply update and submit its restoration plan to the Reliability Coordinator</u> within 150 calendar days of the change. | The Transmission Operator has failed to <u>comply update and submit its restoration plan to the Reliability Coordinator</u> within 180 calendar days of the change. |
| R5. | The Transmission Operator did not make the latest approved restoration plan available in its control rooms within fifteen calendar days of its approval. <u>N/A</u> | The Transmission Operator did not make the latest approved restoration plan available in its control rooms within twenty calendar days of its approval. <u>N/A</u> | The Transmission Operator did not make the latest approved restoration plan available in its control rooms within twenty-five calendar days of its approval. <u>N/A</u> | The Transmission Operator did not make the latest <u>Reliability Coordinator</u> approved restoration plan available in its <u>primary and backup</u> control rooms within <u>thirty calendar days of its approval, and available to all of its System Operators prior to its implementation date.</u> |
| R6. | <u>N/A-The Transmission Operator performed the verification but did not complete it within the five year period.</u> | N/A | N/A | The Transmission Operator did not perform the verification within the prescribed timeframe <u>or it took more than six years to complete the verification.</u> |
| R7. | N/A | N/A | N/A | The Transmission Operator did not implement its restoration plan following a Disturbance in |

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| R# | Lower VSL | Moderate VSL | High VSL | Severe VSL |
|-----|---|--------------|---|---|
| | | | | <p>which Blackstart Resources have been utilized in restoring the shut down area of the System. <u>Or, if the restoration plan cannot be executed as expected because actual conditions do not match the studied conditions, the Transmission Operator did not utilize its restoration plan strategies to facilitate restoration.</u></p> |
| R8. | N/A | N/A | N/A | <p>The Transmission Operator resynchronized without approval of the Reliability Coordinator or <u>not</u> in accordance with the established procedures of the Reliability Coordinator following a Disturbance in which Blackstart Resources have been utilized in restoring the shut down area of the System to service.</p> |
| R9. | <p>The Transmission Operator's testing requirements do not address one of the subrequirements. <u>N/A</u></p> | N/A. | <p>The Transmission Operator's testing requirements do not address two of the subrequirements. <u>N/A</u></p> | <p>The Transmission Operator does not have the testing requirements. <u>The Transmission Operator's Blackstart Resource testing requirements do not address one or more of the sub-requirements of Requirement R9.</u></p> |

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| R# | Lower VSL | Moderate VSL | High VSL | Severe VSL |
|----------------------------|---|---|---|--|
| R10. | N/A | N/A | N/A | The Transmission Operator failed to post the Blackstart Resource testing requirements. |
| R11 <u>R10.</u> | The Transmission Operator's training is missing <u>does not address</u> one of the topics mentioned in the sub-requirements <u>of Requirement R10.</u> | The Transmission Operator's training is missing <u>does not address</u> two of the topics mentioned in the sub-requirements <u>of Requirement R10.</u> | The Transmission Operator's training is missing <u>does not address</u> three or more of the topics mentioned in the sub-requirements <u>of Requirement R10.</u> | The Transmission Operator has not included System restoration training in its operations training program. |
| R12 <u>R11.</u> | The Transmission Operator only supplied 1.5 hours of training within a two year period. N/A | N/A | The Transmission Operator only supplied one hour of training within a two year period. N/A | The Transmission Operator, <u>applicable Transmission Owner, or applicable Distribution Provider</u> did not supply any training <u>to the personnel required by Requirement R11</u> within a two year period. |
| R13 <u>R12.</u> | N/A. | N/A | N/A | The Transmission Operator has failed to comply with a request for their participation from the Reliability Coordinator. |
| R14 <u>R13.</u> | The Transmission Operator does not have a Blackstart Resource Agreement for one of its Blackstart Resources. N/A | The Transmission Operator does not have Blackstart Resource Agreements for 25% of Blackstart Resources. <u>The Transmission Operator and Generator Operator with a Blackstart Resource do not reference Blackstart Resource Testing requirements in their</u> | The Transmission Operator does not have Blackstart Resource Agreements for 50% of Blackstart Resources. N/A | The Transmission Operator does not have Blackstart Resource Agreements for more than 50% of Blackstart Resources. <u>The Transmission Operator and Generator Operator with a Blackstart resource do not have a written Blackstart Resource</u> |

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| R# | Lower VSL | Moderate VSL | High VSL | Severe VSL |
|----------------------------|---|--|--|---|
| | | <u>written Blackstart Resource Agreements or mutually agreed upon procedures or protocols.</u> | | <u>Agreement or mutually agreed upon procedure or protocol.</u> |
| R15 <u>R14.</u> | The Generator Operator does not have dated documented procedures for one Blackstart Resource or the procedures do not contain both elements specified in the requirement. <u>N/A</u> | The Generator Operator does not have dated documented procedures for two Blackstart Resources. <u>N/A</u> | The Generator Operator does not have dated documented procedures for three Blackstart Resources. <u>N/A</u> | The Generator Operator does not have dated documented starting and bus energizing procedures for any of its each Blackstart Resources. |
| R16 <u>R15.</u> | The Generator Operator with a Blackstart Resource did not notify the Transmission Operator of a change in Blackstart Resource capability within twenty-four hours. | The Generator Operator with a Blackstart Resource did not notify the Transmission Operator of a change in Blackstart Resource capability within three days seventy-two hours. | The Generator Operator with a Blackstart Resource did not notify the Transmission Operator of a change in Blackstart Resource capability within four days ninety-six hours. | The Generator Operator with a Blackstart Resource did not notify the Transmission Operator of a change in Blackstart Resource capability for more than four days ninety-six hours. |
| R17 <u>R16.</u> | The Generator Operator with a Blackstart Resource did not maintain testing records for one of the requirements for a Blackstart Resource. ⊕ <u>Or</u> The Generator Operator with a Blackstart Resource did not supply them the Blackstart Resource testing records as requested within fifty-nine calendar days of the request the required timeframe. | The Generator Operator with a Blackstart Resource did not maintain testing records for two of the requirements for a Blackstart Resource. ⊕ <u>Or</u> The Generator Operator with a Blackstart Resource did not supply them the Blackstart Resource testing records as requested for sixty days to eighty-nine calendar days after the request required timeframe. | The Generator Operator with a Blackstart Resource did not maintain testing records for three of the requirements for a Blackstart Resource. ⊕ <u>Or</u> The Generator Operator with a Blackstart Resource did not supply them the Blackstart Resource testing records as requested for ninety to 119 calendar days after the request required timeframe. | The Generator Operator with a Blackstart Resource did not maintain testing records for a Blackstart Resource. ⊕ <u>Or</u> The Generator Operator with a Blackstart Resource did not supply them the Blackstart Resource testing records as requested for 120 days or more after the request required timeframe. |
| R18 <u>R17.</u> | The Generator Operator only supplied 1.5 hours of training | <u>N/A</u> | The Generator Operator only supplied one hour of training | The Generator Operator with a Blackstart Resource did not |

Standard EOP-005-2 — System Restoration from Blackstart Resources

| R# | Lower VSL | Moderate VSL | High VSL | Severe VSL |
|------------------------|--------------------------------------|--------------|--------------------------------------|---|
| | within a two year period. <u>N/A</u> | | within a two year period. <u>N/A</u> | supply any <u>of the</u> training <u>required by Requirement R17</u> within a two year period <u>to each operator responsible for startup of its Blackstart Resource generation units and energizing a bus.</u> |
| <u>R19</u> <u>R18.</u> | N/A. | N/A | N/A | The Generator Operator has failed to comply with a request for their <u>its</u> participation from the Reliability Coordinator. |

E. Regional Variances

None.

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 | May 2, 2007 | Approved by Board of Trustees | Revised |
| 2 | TBD | Revisions pursuant to Project 2006-03 | Updated testing requirements Incorporated Attachment 1 into the requirements Updated Measures and Compliance to match new Requirements |

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. SAR version 1 posted on November 6, 2006.
2. SAR version 1 comment period closed on December 5, 2006.
3. SAR version 2 and comment responses for SAR version 1 posted on February 8, 2007.
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5. SAR version 3 and comment responses for SAR version 2 accepted by SC and SDT appointed on April 9, 2007.
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Future Development Plan:

| Anticipated Actions | Anticipated Date |
|--|-------------------------|
| 1. Fourth posting of draft standards. | October 2008 |
| 2. Standards posted for first ballot | December 2008 |
| 3. Standards posted for second ballot. | February 2009 |
| 4. Standards sent to BOT for approval | March 2009 |
| 5. File with regulatory authorities | To be determined |

Definitions of Terms Used in Standard

This section includes all newly defined or revised terms used in the proposed standard. Terms already defined in the Reliability Standards Glossary of Terms are not repeated here. New or revised definitions listed below become approved when the proposed standard is approved. When the standard becomes effective, these defined terms will be removed from the individual standard and added to the Glossary.

None.

A. Introduction

1. **Title: System Restoration Coordination**
2. **Number:** EOP-006-2
3. **Purpose:** Ensure plans are established and personnel are prepared to enable effective coordination of the System restoration process to ensure reliability is maintained during restoration and priority is placed on restoring the Interconnection.
4. **Applicability:**
 - 4.1. Reliability Coordinators.
5. **Proposed Effective Date:** In those jurisdictions where regulatory approval is required, all requirements go into effect the first day of the first calendar quarter twenty-four months after applicable regulatory approval. In those jurisdictions where no regulatory approval is required, all requirements go into effect the first day of the first calendar quarter twenty-four months after Board of Trustees adoption.

B. Requirements

- R1. Each Reliability Coordinator shall have a Reliability Coordinator Area restoration plan. The scope of the Reliability Coordinator's restoration plan starts when Blackstart Resources are utilized to re-energize a shut down area of the Bulk Electric System (BES), or separation has occurred between neighboring Reliability Coordinators, or an energized island has been formed on the BES within the Reliability Coordinator Area. The scope of the Reliability Coordinator's restoration plan ends when all of its Transmission Operators are interconnected and its Reliability Coordinator Area is connected to all of its neighboring Reliability Coordinator Areas. The restoration plan shall include: *[Violation Risk Factor = High] [Time Horizon = Operations Planning]*
 - R1.1. A description of the high level strategy to be employed during restoration events for restoring the Interconnection including minimum blackstart capability requirements.
 - R1.2. Processes for restoring the Interconnection.
 - R1.3. Descriptions of the elements of coordination between individual Transmission Operator restoration plans.
 - R1.4. Descriptions of the elements of coordination of restoration plans with neighboring Reliability Coordinators.
 - R1.5. Criteria and conditions for reestablishing interconnections between neighboring Transmission Operators and Reliability Coordinator Areas.
 - R1.6. Identification of acceptable voltage and frequency limits during restoration.
 - R1.7. Reporting requirements for the entities within the Reliability Coordinator Area during a restoration event.
 - R1.8. Criteria for sharing information regarding restoration with neighboring Reliability Coordinators and with Transmission Operators and Balancing Authorities within its Reliability Coordinator Area.

- R1.9.** Identification of the Reliability Coordinator as the primary contact for disseminating information regarding restoration to neighboring Reliability Coordinators, and to Transmission Operators, and Balancing Authorities within its Reliability Coordinator Area.
- R1.10.** Criteria for transferring operations and authority back to the Balancing Authority.
- R2.** The Reliability Coordinator shall distribute its most recent Reliability Coordinator Area restoration plan to each of its Transmission Operators and neighboring Reliability Coordinators within thirty calendar days of creation or revision. [*Violation Risk Factor = Lower*] [*Time Horizon = Operations Planning*]
- R3.** Each Reliability Coordinator shall review its restoration plan within thirteen months of the last review. [*Violation Risk Factor = Medium*] [*Time Horizon = Operations Planning*]
- R4.** Each Reliability Coordinator shall review their neighboring Reliability Coordinator's restoration plans. [*Violation Risk Factor = Medium*] [*Time Horizon = Operations Planning*]

 - R4.1.** If the Reliability Coordinator finds conflicts between its restoration plans and any of its neighbors, the conflicts shall be resolved in thirty days.
- R5.** Each Reliability Coordinator shall review the restoration plans required by EOP-005 of the Transmission Operators within its Reliability Coordinator Area and neighboring Reliability Coordinators, when received. [*Violation Risk Factor = Medium*] [*Time Horizon = Operations Planning*]

 - R5.1.** The Reliability Coordinator shall determine whether the Transmission Operator's restoration plan is coordinated and compatible with the Reliability Coordinator's restoration plan and other Transmission Operators' restoration plans within its Reliability Coordinator Area. The Reliability Coordinator shall approve or disapprove, with stated reasons, the Transmission Operator's submitted restoration plan within thirty calendar days following the receipt of the restoration plan from the Transmission Operator.
- R6.** Each Reliability Coordinator shall have a copy of its latest restoration plan and copies of the latest approved restoration plan of each Transmission Operator in its Reliability Coordinator Area within its primary and backup control rooms and available to all of its System Operators prior to the implementation date. [*Violation Risk Factor = Lower*] [*Time Horizon = Operations Planning*]
- R7.** Each Reliability Coordinator shall work with its affected Generator Operators, and Transmission Operators as well as neighboring Reliability Coordinators to monitor restoration progress, coordinate restoration, and take actions to restore the BES frequency within acceptable operating limits. If the restoration plan cannot be completed as expected because actual conditions do not match the studied conditions, the Reliability Coordinator shall utilize its restoration plan strategies to facilitate System restoration. [*Violation Risk Factor = High*] [*Time Horizon = Real-time Operations*]

- R8.** The Reliability Coordinator shall coordinate or authorize resynchronizing islanded areas that bridge boundaries between Transmission Operators or Reliability Coordinators. If the resynchronization cannot be completed as expected because actual conditions do not match the studied conditions, the Reliability Coordinator shall utilize its restoration plan strategies to facilitate resynchronization. [Violation Risk Factor = High] [Time Horizon = Real-time Operations]
- R9.** Each Reliability Coordinator shall include within its operations training program, annual System restoration training for its System Operators to assure the proper execution of its restoration plan. This training program shall address the following: [Violation Risk Factor = Medium] [Time Horizon = Operations Planning]
- R9.1.** The coordination role of the Reliability Coordinator.
- R9.2.** Reestablishing the Interconnection.
- R10.** Each Reliability Coordinator shall conduct two System restoration drills, exercises, or simulations per calendar year, which shall include the Transmission Operators and Generator Operators as dictated by the particular scope of the drill, exercise, or simulation that is being conducted. [Violation Risk Factor = Medium] [Time Horizon = Operations Planning]
- R10.1.** Each Reliability Coordinator shall request each Transmission Operator and Generator Operator identified in its restoration plan to participate in a drill, exercise, or simulation at least every two calendar years.

C. Measures

- M1.** Each Reliability Coordinator shall have available a dated copy of its restoration plan in accordance with Requirement R1.
- M2.** Each Reliability Coordinator shall provide evidence such as e-mails with receipts or registered mail receipts, that its most recent restoration plan has been distributed in accordance with Requirement R2.
- M3.** Each Reliability Coordinator shall provide evidence such as a review signature sheet, or revision histories, that it has reviewed its restoration plan within thirteen months of the last review in accordance with Requirement R3.
- M4.** Each Reliability Coordinator shall provide evidence such as dated review signature sheets that it has reviewed its neighboring Reliability Coordinator's restoration plans and resolved any conflicts within thirty days in accordance with Requirement R4.
- M5.** Each Reliability Coordinator shall provide evidence, such as a review signature sheet or emails, that it has reviewed, approved or disapproved, and notified its Transmission Operator's, and reviewed its neighboring Reliability Coordinator's, submitted restoration plan(s) and updated its restoration plan, if necessary, in accordance with Requirement R5.
- M6.** Each Reliability Coordinator shall have documentation such as e-mail receipts that it has made the latest copy of its restoration plan and copies of the latest approved restoration plan of each Transmission Operator in its Reliability Coordinator Area

available in its primary and backup control rooms and to each of its System Operators prior to the implementation date in accordance with Requirement R6.

- M7.** Each Reliability Coordinator involved shall have evidence such as voice recordings, e-mail, dated computer printouts, or operator logs, that it monitored and coordinated restoration progress in accordance with Requirement R7.
- M8.** If there has been a resynchronizing of an islanded area, each Reliability Coordinator involved shall have evidence such as voice recordings, e-mail, or operator logs, that it coordinated and authorized resynchronizing in accordance with Requirement R8.
- M9.** Each Reliability Coordinator shall have an electronic or hard copy of its training records available showing that it has provided training in accordance with Requirement R9.
- M10.** Each Reliability Coordinator shall have evidence that it conducted two System restoration drills, exercises, or simulations per year and that Transmission Operators and Generator Operators included in the Reliability Coordinator's restoration plan were invited in accordance with Requirement R10.

D. Compliance

1. Compliance Monitoring Process

1.1. Compliance Enforcement Authority

Regional Entity.

1.2. Compliance Monitoring Period and Reset Time Frame

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

The Reliability Coordinator 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:

- The current restoration plan and any restoration plans in force since the last compliance audit for Requirement R1, Measure M1.
- Distribution of its most recent restoration plan and any restoration plans in force for the current year and three prior calendar years for Requirement R2, Measure M2.

- It's reviewed restoration plan for the current review period and the last three prior review periods for Requirement R3, Measure M3.
- Reviewed copies of neighboring Reliability Coordinator restoration plans for the current year and the three prior calendar years for Requirement R4, Measure M4.
- The reviewed restoration plans for the current year and the last three prior calendar years for Requirement R5, Measure M5.
- The current, approved restoration plan and any restoration plans in force for the last three calendar years was made available in its control rooms for Requirement R6, Measure M6.
- If there has been a restoration event, implementation of its restoration plan on any occasion over a rolling twelve month period for Requirement R7, Measure M7.
- If there has been a resynchronization of an islanded area, implementation of its restoration plan on any occasion over a rolling twelve month period for Requirement R8, Measure M8.
- Actual training program materials or descriptions for three calendar years for Requirements R9, Measure M9.
- Records of all Reliability Coordinator restoration drills, exercises, or simulations since its last compliance audit as well as one previous compliance audit period for Requirement R10, Measure M10.

If a Reliability Coordinator 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. | The Reliability Coordinator failed to include one sub-requirement of Requirement R1 within its restoration plan. | The Reliability Coordinator failed to include two sub-requirements of requirement R1 within its restoration plan. | The Reliability Coordinator has failed to include three of the sub-requirements of Requirement R1 within its restoration plan.-. | The Reliability Coordinator has failed to include four or more of the sub-requirements within its restoration plan. |
| R2. | The Reliability Coordinator distributed the most recent Reliability Coordinator Area restoration plan to the entities identified in Requirement R2 but was more than thirty days late. | The Reliability Coordinator distributed the most recent Reliability Coordinator Area restoration plan to the entities identified in Requirement R2 but was more than sixty days late. | The Reliability Coordinator distributed the most recent Reliability Coordinator Area restoration plan to the entities identified in Requirement R2 but was more than ninety days late. | The Reliability Coordinator distributed the most recent Reliability Coordinator Area restoration plan to entities identified in Requirement R2 but was more than 120 days late. |
| R3. | N/A | N/A | N/A | The Reliability Coordinator did not review its restoration plan within thirteen months of the last review. |
| R4. | The Reliability Coordinator did not review and resolve conflicts with the submitted restoration plans from its neighboring Reliability Coordinators within thirty days. | The Reliability Coordinator did not review and resolve conflicts with the submitted restoration plans from its neighboring Reliability Coordinators within sixty days. | -The Reliability Coordinator did not review and resolve conflicts with the submitted restoration plans from its neighboring Reliability Coordinators within ninety days. | The Reliability Coordinator did not review and resolve conflicts with the submitted restoration plans from its neighboring Reliability Coordinators within 120 days. |
| R5. | The Reliability Coordinator did not review and approve/disapprove the submitted restoration plans from its Transmission Operators and neighboring Reliability Coordinators within thirty days of receipt. Or, the | The Reliability Coordinator did not review and approve/disapprove the submitted restoration plans from its Transmission Operators and neighboring Reliability Coordinators within forty-five calendar days of | The Reliability Coordinator did not review and approve/disapprove the submitted restoration plans from its Transmission Operators and neighboring Reliability Coordinators within sixty calendar days of receipt. | The Reliability Coordinator did not review and approve/disapprove the submitted restoration plans from its Transmission Operators and neighboring Reliability Coordinators within ninety calendar days of receipt. |

Standard EOP-006-2 — System Restoration Coordination

| R# | Lower VSL | Moderate VSL | High VSL | Severe VSL |
|------------|--|---|---|---|
| | Reliability Coordinator failed to notify the Transmission Operator of its approval or disapproval with stated reasons for disapproval within thirty days of receipt. | receipt. Or, the Reliability Coordinator failed to notify the Transmission Operator of its approval or disapproval with stated reasons for disapproval within forty-five days of receipt. | Or, the Reliability Coordinator failed to notify the Transmission Operator of its approval or disapproval with stated reasons for disapproval within sixty days of receipt. Or the Reliability Coordinator failed to revise its restoration plan after identifying changes required by new or revised restoration plans received from its Transmission Operators and neighboring Reliability Coordinators within ninety calendar days of receipt. | Or, the Reliability Coordinator failed to notify the Transmission Operator of its approval or disapproval with stated reasons for disapproval within ninety days of receipt. Or the Reliability Coordinator failed to revise its restoration plan after identifying changes required by new or revised restoration plans received from its Transmission Operators and neighboring Reliability Coordinators within 150 calendar days of receipt. |
| R6. | The Reliability Coordinator did not make its latest restoration plan and the latest approved restoration plan of each Transmission Operator in its Reliability Coordinator Area available to all of its System Operators in its primary and backup control rooms prior to the implementation date. | The Reliability Coordinator did not make its latest restoration plan and the latest approved restoration plan of each Transmission Operator in its Reliability Coordinator Area available to all of its System Operators in its primary and backup control rooms within fifteen calendar days of its implementation date. | The Reliability Coordinator did not make its latest restoration plan and the latest approved restoration plan of each Transmission Operator in its Reliability Coordinator Area available to all of its System Operators in its primary and backup control rooms within twenty calendar days of its implementation date. | The Reliability Coordinator did not make its latest restoration plan and the latest approved restoration plan of each Transmission Operator in its Reliability Coordinator Area available to all of its System Operators in its primary and backup control rooms within twenty-five calendar days of its implementation date. |
| R7. | N/A | N/A | N/A | The Reliability Coordinator did not work with its affected Generator Operators and Transmission Operators as well as neighboring Reliability Coordinators to monitor |

Standard EOP-006-2 — System Restoration Coordination

| R# | Lower VSL | Moderate VSL | High VSL | Severe VSL |
|-------------|--|---|----------|---|
| | | | | restoration progress, coordinate restoration, and take actions to restore the BES frequency within acceptable operating limits. |
| R8. | N/A | N/A | N/A | The Reliability Coordinator did not coordinate or authorize resynchronizing islanded areas that bridge boundaries between Transmission Operators or Reliability Coordinators. |
| R9. | N/A | . N/A | N/A | The Reliability Coordinator supplied annual System restoration training but did not address both of the sub-requirements. Or the Reliability Coordinator supplied the required System restoration training but it was over two calendar years from the last training offered. |
| R10. | The Reliability Coordinator only held one restoration drill, exercise, or simulation during the calendar year. | The Reliability Coordinator did not invite a Transmission Operator or Generator Operator identified in its restoration plan to participate in a drill, exercise, or simulation within two calendar years. | N/A | The Reliability Coordinator did not hold a restoration drill, exercise, or simulation during the calendar year. |

E. Regional Variances

None.

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 | TBD | Revisions pursuant to Project 2006-03 | Updated Measures and Compliance to match new Requirements |

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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4. **Applicability:**
 - 4.1. Reliability Coordinators.
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B. Requirements

- R1. Each Reliability Coordinator shall have a Reliability Coordinator Area restoration plan. The scope of the Reliability Coordinator's restoration plan starts when Blackstart Resources are utilized to re-energize a shut down area of the Bulk Electric System (BES), or separation has occurred between neighboring Reliability Coordinators, or an energized island has been formed on the ~~Bulk Electric System (BES)~~ within the Reliability Coordinator Area. The scope of the Reliability Coordinator's restoration plan ends when all of its Transmission Operators are interconnected and ~~it~~ its Reliability Coordinator Area is connected to all of its neighboring Reliability Coordinators ~~Areas~~. The restoration plan shall include: [*Violation Risk Factor = High*] [*Time Horizon = Operations Planning*]
 - R1.1. A description of the high level strategy to be employed during restoration events for restoring the Interconnection including minimum blackstart capability requirements.
 - R1.2. ~~Procedures~~ Processes for restoring ~~the integrity of the~~ Interconnection.
 - R1.3. Descriptions of the elements of coordination between individual Transmission Operator restoration plans.
 - R1.4. Descriptions of the elements of coordination of restoration plans with neighboring Reliability Coordinators.
 - R1.5. Criteria and conditions for reestablishing interconnections between neighboring Transmission Operators and Reliability Coordinator Areas.
 - R1.6. Identification of acceptable voltage and frequency limits during restoration.
 - R1.7. Reporting requirements for the entities within the Reliability Coordinator Area during a restoration event.
 - R1.8. Criteria for sharing information regarding restoration with neighboring Reliability Coordinators and with Transmission Operators and Balancing Authorities within its Reliability Coordinator ~~a~~ Area.

- R1.9.** Identification of the Reliability Coordinator as the primary contact for disseminating information regarding restoration to neighboring Reliability Coordinators, and to Transmission Operators, and Balancing Authorities within its Reliability Coordinator Area.
- R1.10.** Criteria for transferring operations and authority back to the Balancing Authority.
- R2.** The Reliability Coordinator shall distribute its most recent Reliability Coordinator Area restoration plan to each of its Transmission Operators, ~~Balancing Authorities,~~ and neighboring Reliability Coordinators within thirty calendar days of creation or revision. [*Violation Risk Factor = Lower*] [*Time Horizon = Operations Planning*]
- R3.** Each Reliability Coordinator shall review its restoration plan ~~every twelve~~ within thirteen months of the last review. [*Violation Risk Factor = Medium*] [*Time Horizon = Operations Planning*]
- R4.** Each Reliability Coordinator shall ~~update its restoration plan within ninety calendar days after identifying changes to one of its Transmission Operator's restoration plans or upon reviewing a~~ their neighboring Reliability Coordinator's restoration plans ~~that would necessitate a change in their coordination tasks or responsibilities.~~ [*Violation Risk Factor = Medium*] [*Time Horizon = Operations Planning*]
- R4.1.** If the Reliability Coordinator finds conflicts between its restoration plans and any of its neighbors, the conflicts shall be resolved in thirty days.
- R5.** Each Reliability Coordinator shall review the ~~Transmission Operator~~ restoration plans ~~as defined in~~ required by EOP-005 of the Transmission Operators within its Reliability Coordinator Area and neighboring Reliability Coordinators, when received. [*Violation Risk Factor = Medium*] [*Time Horizon = Operations Planning*]
- R5.1.** The Reliability Coordinator shall determine whether the Transmission Operator's restoration plan is coordinated and compatible with the Reliability Coordinator's restoration plan ~~as well as being compatible with~~ and other Transmission Operators' restoration plans within its Reliability Coordinator Area. The Reliability Coordinator shall approve or disapprove, with stated reasons, the Transmission Operator's submitted restoration plan within thirty calendar days following the receipt of the restoration plan from the Transmission Operator.
- ~~**R5.2.** The Reliability Coordinator shall approve or disapprove the Transmission Operator's submitted restoration plan within thirty calendar days following the receipt of the restoration plan from the Transmission Operator.~~
- ~~**R5.3.** The Reliability Coordinator shall provide written notification to the Transmission Operator of its decision and provide reasons if disapproving a Transmission Operator's restoration plan.~~
- R6.** Each Reliability Coordinator shall have a copy of its latest restoration plan and copies of the latest approved restoration plan of each Transmission Operator in its Reliability Coordinator Area within ~~each of its~~ primary and backup control ~~centers~~ rooms and available to all of its ~~control room personnel~~ System Operators prior to the

implementation date. [*Violation Risk Factor = Lower*] [*Time Horizon = Operations Planning*]

- R7. Each Reliability Coordinator shall work with its affected ~~Balancing Authorities,~~ Generator Operators, and Transmission Operators as well as neighboring Reliability Coordinators to monitor restoration progress, coordinate restoration, and take actions to restore the BES frequency within acceptable operating limits. If the restoration plan cannot be completed as expected because actual conditions do not match the studied conditions, the Reliability Coordinator shall utilize its restoration plan strategies to facilitate System restoration. Such actions may include but not be limited to adjusting generation, placing additional generators on line, or shedding Load. [*Violation Risk Factor = High*] [*Time Horizon = Real-time Operations*]

~~R7.1. If the restoration plan cannot be completed as expected because actual conditions do not match the studied conditions, the Reliability Coordinator shall utilize its restoration plan philosophies to implement alternative measures for achieving System restoration.~~

- R8. The Reliability Coordinator shall coordinate or authorize ~~and coordinate~~ resynchronizing islanded areas that bridge boundaries between Transmission Operators or Reliability Coordinators. If the resynchronization cannot be completed as expected because actual conditions do not match the studied conditions, the Reliability Coordinator shall utilize its restoration plan strategies to facilitate resynchronization. [*Violation Risk Factor = High*] [*Time Horizon = Real-time Operations*]

~~R8.1. If the restoration plan cannot be completed as expected because actual conditions do not match the studied conditions, the Reliability Coordinator shall utilize its restoration plan philosophies to implement alternative measures for achieving System restoration.~~

- R9. Each Reliability Coordinator shall include within its operations training program, annual System restoration training for its System Operators to ~~ensure~~ assure the proper execution of its restoration plan. This training program shall ~~include~~ address the following: [*Violation Risk Factor = Medium*] [*Time Horizon = Operations Planning*]

~~R9.1. System restoration philosophy including t~~ The coordination role of the Reliability Coordinator.

~~R9.2. Reestablishing the Interconnection.~~

- R10. Each Reliability Coordinator shall conduct two System restoration drills, exercises, or simulations per calendar year, which shall include the Transmission Operators and Generator Operators as dictated by the particular scope of the drill, exercise, or simulation that is being conducted. [*Violation Risk Factor = Medium*] [*Time Horizon = Operations Planning*]

~~R10.1. Each Reliability Coordinator shall request each Transmission Operator and Generator Operator identified in its restoration plan to participate in a drill, exercise, or simulation at least every two calendar years.~~

C. Measures

- M1. Each Reliability Coordinator shall have available a dated copy of its restoration plan in accordance with Requirement R1.
- M2. Each Reliability Coordinator shall provide evidence such as e-mails with receipts or registered mail receipts, that its ~~approved~~ most recent restoration plan has been distributed in accordance with Requirement R2.
- M3. Each Reliability Coordinator shall provide evidence such as a review signature sheet, or revision histories, that it has ~~annually~~ reviewed its restoration plan within thirteen months of the last review in accordance with Requirement R3.
- M4. Each Reliability Coordinator shall provide evidence such as dated review signature sheets, ~~or revision histories~~, that it has ~~updated~~ reviewed its neighboring Reliability Coordinator's restoration plans and resolved any conflicts within thirty days in accordance with Requirement R4.
- M5. Each Reliability Coordinator shall provide evidence, such as a review signature sheet or emails, that it has reviewed, approved or disapproved, and notified its Transmission Operator's, and reviewed its neighboring Reliability Coordinator's, submitted restoration plan(s) and updated its restoration plan, if necessary, in accordance with Requirement R5.
- M6. Each Reliability Coordinator shall have documentation such as e-mail receipts that it has made the latest ~~approved~~ copy of its restoration plan and copies of the latest approved restoration plan of each Transmission Operator in its Reliability Coordinator Area available in ~~each of its~~ primary and backup control rooms and to each of its ~~control room personnel~~ System Operators prior to the implementation date in accordance with Requirement R6.
- M7. Each Reliability Coordinator involved shall have evidence such as voice recordings, e-mail, dated computer printouts, or operator logs, that it monitored and coordinated restoration progress in accordance with Requirement R7.
- M8. If there has been a resynchronizing of an islanded area, each Reliability Coordinator involved shall have evidence such as voice recordings, e-mail, or operator logs, that it coordinated and authorized ~~and coordinated~~ resynchronizing in accordance with Requirement R8.
- M9. Each Reliability Coordinator shall have an electronic or hard copy of its training records available showing that it has provided training in accordance with Requirement R9.
- M10. Each Reliability Coordinator shall have evidence that it conducted two System restoration drills, exercises, or simulations per year and that Transmission Operators and Generator Operators included in the Reliability Coordinator's restoration plan were invited in accordance with Requirement R10.

D. Compliance

1. Compliance Monitoring Process

1.1. Compliance Enforcement Authority

Regional Entity.

1.2. Compliance Monitoring Period and Reset Time Frame

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

The Reliability Coordinator 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:

- ~~Approved~~ The current restoration plan and any restoration plans in force since the last compliance audit for Requirement R1, Measure M1.
- Distribution of its ~~approved~~ most recent restoration plan and any restoration plans in force for the current year and three prior calendar years for Requirement R2, Measure M2.
- It's ~~annually~~ reviewed restoration plan for the current ~~year~~ review period and the last three prior ~~calendar years~~ review periods for Requirement R3, Measure M3.
- ~~Updated restoration plans for all versions from~~ Reviewed copies of neighboring Reliability Coordinator restoration plans for the current year and the three prior calendar years for Requirement R4, Measure M4.
- The reviewed restoration plans for the current year and the last three prior calendar years for Requirement R5, Measure M5.
- The current, approved restoration plan and any restoration plans in force for the last three calendar years was made available in its control rooms for Requirement R6, Measure M6.
- If there has been a restoration event, ~~I~~ implementation of its restoration plan on any occasion over a rolling twelve month period for Requirement R7, Measure M7.
- If there has been a resynchronization of an islanded area, ~~I~~ implementation of its restoration plan on any occasion over a rolling twelve month period for Requirement R8, Measure M8.
- Actual training program materials or descriptions for three calendar years for Requirements R9, Measure M9.

- Records of all Reliability Coordinator restoration drills, exercises, or simulations since its last compliance audit as well as one previous compliance audit period for Requirement R10, Measure M10.

If a Reliability Coordinator 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. | The Reliability Coordinator failed to comply with less than 25% of the number of <u>include one</u> sub-components <u>requirement of Requirement R1</u> within this requirement <u>its restoration plan</u> . | The Reliability Coordinator failed to comply with 25% or more and less than 50% of the number of <u>include two</u> sub-components <u>requirements of requirement R1</u> within this requirement <u>its restoration plan</u> . | The Reliability Coordinator has failed to <u>include</u> comply with 50% or more and less than 75% of the number of <u>three of the</u> sub-components <u>requirements of Requirement R1</u> within this requirement <u>its restoration plan</u> . | The Reliability Coordinator has failed to comply with 75% or more of the number <u>include four or more of the</u> sub-components <u>requirements</u> within this requirement <u>its restoration plan</u> . |
| R2. | The Reliability Coordinator did not distributed the required information <u>most recent Reliability Coordinator Area restoration plan</u> to one entity <u>the entities</u> identified in the Requirement R2 within the required timeframe. Or, the Reliability Coordinator distributed the required information to all entities but was <u>more than thirty</u> calendar days late. | The Reliability Coordinator did not distributed the required information <u>most recent Reliability Coordinator Area restoration plan</u> to two entities <u>the entities</u> identified in the Requirement R2 within the prescribed timeframe. Or, the Reliability Coordinator distributed the required information to all entities but was <u>more than sixty</u> calendar days late. | The Reliability Coordinator did not distributed the required information <u>most recent Reliability Coordinator Area restoration plan</u> to three <u>the</u> entities identified in the Requirement R2 within the prescribed timeframe. Or, the Reliability Coordinator distributed the required information to all entities but was <u>more than ninety</u> calendar days late. | The Reliability Coordinator did not distributed the required information <u>most recent Reliability Coordinator Area restoration plan</u> to four or more entities identified in the Requirement R2 within the prescribed timeframe. Or, the Reliability Coordinator distributed the required information to all entities but was <u>more than 120</u> calendar days late. |
| R3. | The Reliability Coordinator did not review its restoration plan within twelve months. <u>N/A</u> | The Reliability Coordinator did not review its restoration plan within thirteen months. <u>N/A</u> | The Reliability Coordinator did not review its restoration plan within fourteen months. <u>N/A</u> | The Reliability Coordinator did not review its restoration plan within fifteen <u>thirteen</u> months <u>of the last review</u> . |
| R4. | The Reliability Coordinator failed to comply within ninety calendar days of the change. <u>The Reliability Coordinator did not review and resolve conflicts with the submitted restoration</u> | The Reliability Coordinator failed to comply within 120 calendar days of the change. <u>The Reliability Coordinator did not review and resolve conflicts with the submitted restoration</u> | The Reliability Coordinator has failed to comply within 150 calendar days of the change. <u>The Reliability Coordinator did not review and resolve conflicts with the submitted restoration</u> | The Reliability Coordinator has failed to comply within 180 calendar days of the change. <u>The Reliability Coordinator did not review and resolve conflicts with the submitted restoration</u> |

Standard EOP-006-2 — System Restoration Coordination

| R# | Lower VSL | Moderate VSL | High VSL | Severe VSL |
|-----|--|--|--|---|
| | <u>plans from its neighboring Reliability Coordinators within thirty days.</u> | <u>plans from its neighboring Reliability Coordinators within sixty days.</u> | <u>plans from its neighboring Reliability Coordinators within ninety days.</u> | <u>plans from its neighboring Reliability Coordinators within 120 days.</u> |
| R5. | <p>The Reliability Coordinator did not review and approve/disapprove the <u>submitted</u> restoration plans from its <u>Transmission Operators and neighboring Reliability Coordinators</u> within the pre-determined schedule <u>within thirty calendar days of receipt.</u></p> <p>Or</p> <p>¶The Reliability Coordinator failed to notify the Transmission Operator in writing of its <u>approval or disapproval with stated reasons</u> for disapproval <u>within thirty calendar days of receipt.</u></p> | <p>The Reliability Coordinator did not review and approve/disapprove the <u>submitted</u> restoration plans from its <u>Transmission Operators and neighboring Reliability Coordinators</u> within forty-five calendar days of the pre-determined schedule <u>receipt.</u></p> <p><u>Or,</u></p> <p><u>The Reliability Coordinator failed to notify the Transmission Operator of its approval or disapproval with stated reasons for disapproval within forty-five calendar days of receipt.</u></p> | <p>The Reliability Coordinator did not review and approve/disapprove the <u>submitted</u> restoration plans from its <u>Transmission Operators and neighboring Reliability Coordinators</u> within sixty calendar days of the pre-determined schedule <u>receipt.</u></p> <p><u>Or</u></p> <p><u>The Reliability Coordinator failed to notify the Transmission Operator of its approval or disapproval with stated reasons for disapproval within sixty days of receipt.</u></p> <p><u>Or</u></p> <p>¶<u>The Reliability Coordinator failed to revise its restoration plan after identifying changes required by new or revised restoration plans received from its Transmission Operators and neighboring Reliability Coordinators within ninety calendar days of receipt.</u></p> | <p>The Reliability Coordinator did not review and approve/disapprove the <u>submitted</u> restoration plans from its <u>Transmission Operators and neighboring Reliability Coordinators</u> within ninety calendar days of the pre-determined schedule <u>receipt.</u></p> <p><u>Or</u></p> <p><u>The Reliability Coordinator failed to notify the Transmission Operator of its approval or disapproval with stated reasons for disapproval within ninety days of receipt.</u></p> <p><u>Or</u></p> <p><u>The Reliability Coordinator failed to revise its restoration plan after identifying changes required by new or revised restoration plans received from its Transmission Operators and neighboring Reliability Coordinators within 150 calendar days of receipt.</u></p> |
| R6. | The Reliability Coordinator did not make <u>its latest restoration plan and</u> the latest approved | The Reliability Coordinator did not make <u>its latest restoration plan and</u> the latest approved | The Reliability Coordinator did not make <u>its latest restoration plan and</u> the latest approved | The Reliability Coordinator did not make <u>its latest restoration plan and</u> the latest approved |

Standard EOP-006-2 — System Restoration Coordination

| R# | Lower VSL | Moderate VSL | High VSL | Severe VSL |
|-----|---|--|--|---|
| | restoration plan <u>of each Transmission Operator in its Reliability Coordinator Area</u> available <u>to all of its System Operators</u> in its <u>primary and backup</u> control rooms within fifteen calendar days of its approval <u>prior to the implementation date.</u> | restoration plan <u>of each Transmission Operator in its Reliability Coordinator Area</u> available <u>to all of its System Operators</u> in its <u>primary and backup</u> control rooms within twenty <u>fifteen</u> calendar days of its approval <u>implementation date.</u> | restoration plan <u>of each Transmission Operator in its Reliability Coordinator Area</u> available <u>to all of its System Operators</u> in its <u>primary and backup</u> control rooms within twenty-five calendar days of its approval <u>implementation date.</u> | restoration plan <u>of each Transmission Operator in its Reliability Coordinator Area</u> available <u>to all of its System Operators</u> in its <u>primary and backup</u> control rooms within thirty <u>twenty-five</u> calendar days of its approval <u>implementation date.</u> |
| R7. | N/A | N/A | N/A | The Reliability Coordinator did not work with its affected Balancing Authorities, Generator Operators, and Transmission Operators as well as neighboring Reliability Coordinators to monitor restoration progress, coordinate restoration, and take actions to restore the BES frequency within acceptable operating limits. |
| R8. | N/A | N/A | N/A | The Reliability Coordinator did not <u>coordinate or</u> authorize and coordinate resynchronizing islanded areas that bridge boundaries between Transmission Operators or Reliability Coordinators. |
| R9. | The Reliability Coordinator supplied the necessary training but not within the required timeframe. — <u>N/A</u> | The Reliability Coordinator supplied training but did not address both sub requirements. <u>N/A</u> | N/A | The Reliability Coordinator has not included System restoration training in its operations training program. — <u>The Reliability Coordinator</u> |

Standard EOP-006-2 — System Restoration Coordination

| R# | Lower VSL | Moderate VSL | High VSL | Severe VSL |
|--------------------|---|---|------------|---|
| | | | | <p><u>supplied annual System restoration training but did not address both of the sub-requirements.</u></p> <p><u>Or</u></p> <p><u>The Reliability Coordinator supplied the required System restoration training but it was over two calendar years from the last training offered.</u></p> |
| <p>R10.</p> | <p>The Reliability Coordinator only held one restoration drill, exercise, or simulation during the calendar year.</p> | <p>The Reliability Coordinator held the correct number of restoration drills, exercises, or simulations but did not invite each <u>a</u> Transmission Operator and or <u>or</u> Generator Operator identified in its restoration plan to participate in a drill, exercise, or simulation at least every <u>within</u> two calendar years.</p> | <p>N/A</p> | <p>The Reliability Coordinator did not hold a restoration drill, exercise, or simulation during the calendar year.</p> |

E. Regional Variances

None.

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 | TBD | Revisions pursuant to Project 2006-03 | Updated Measures and Compliance to match new Requirements |

Fourth Draft of Standards for System Restoration and Blackstart (Project 2006-03)

Fourth draft of the standards for System Restoration and Blackstart (Project 2006-03). Comments must be submitted by **November 18, 2008**. If you have questions please contact Ed Dobrowolski at ed.dobrowolski@nerc.net or by telephone at 609-947-3673.

Background Information:

The System Restoration and Blackstart Standard Drafting Team (SRB SDT) has responded to all comments submitted for the third draft. In addition to reviewing the most recent comments, the SRB SDT has carefully reviewed all prior comments and FERC Order 693. The SRB SDT did this complete review as part of our process to make the fourth draft as near final as possible. The SRB SDT recognizes that there are considerable changes from the currently effective standards, but that should be expected as NERC follows its initial Reliability Standards Development Work Plan to make the standards clear and enforceable.

During a review of preliminary drafts of EOP-005 and EOP-006, FERC staff observed that the standards didn't include a high level set of strategies or principles for restoring the interconnection. This would include things such as having certain blackstart capabilities, etc. The drafting team discussed this and agreed that the Reliability Coordinator should publish a set of strategies or principles and the Transmission Operators' restoration plans should support these strategies. The fourth drafts of EOP-005 and EOP-006 each include a new subrequirement R1.1 to address this issue - EOP-006-2 Requirement R1.1 requires the Reliability Coordinator to document these strategies, and EOP-005-2 Requirement R1.1 requires the Transmission Operator to document that its system restoration plan supports its Reliability Coordinator's system restoration strategies. One of the questions in this comment form asks for feedback on these additions.

The most recent drafts have additional requirements for the Reliability Coordinator. To assure we have no gaps in the translation of the current standards to a fully enforceable set, it is necessary to have the highest operational authority, the Reliability Coordinator, fill any gaps that would have been created.

Because of the significant changes from the currently approved standards and the considerable interactions between the requirements of EOP-005-2 and EOP-006-2, the SRB SDT is proposing a 24 month implementation period for all requirements.

The draft standards, EOP-005-2 and EOP-006-2, should be reviewed as a set when providing comments.

The System Restoration and Blackstart Drafting Team would like to receive industry comments on this group of standards.

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 SDT has made a number of clarifying changes to the requirements of EOP-005-2 based on industry comments from the third posting. Do you agree with the changes that were made? If not, please provide specific suggestions for change.

Yes

No

Comments:

2. The SDT has made a number of clarifying changes to the measures in EOP-005-2 based on industry comments from the third posting. Do you agree with the changes that were made? If not, please provide specific suggestions for change.

Yes

No

Comments:

3. The SDT has made a number of clarifying changes to the compliance elements in EOP-005-2 based on industry comments from the third posting. Do you agree with the changes that were made? If not, please provide specific suggestions for change.

Yes

No

Comments:

4. The SDT has made a number of clarifying changes to the requirements of EOP-006-2 based on industry comments from the third posting. Do you agree with the changes that were made? If not, please provide specific suggestions for change.

Yes

No

Comments:

5. The SDT has made a number of clarifying changes to the measures in EOP-006-2 based on industry comments from the third posting. Do you agree with the changes that were made? If not, please provide specific suggestions for change.

Yes

No

Comments:

Comment Form — System Restoration and Blackstart (Project 2006-03)

6. The SDT has made a number of clarifying changes to the compliance elements in EOP-006-2 based on industry comments from the third posting. Do you agree with the changes that were made? If not, please provide specific suggestions for change.

Yes

No

Comments:

7. The SDT added a new subrequirement for the Reliability Coordinator's restoration plan to include a high level description of the Reliability Coordinator's strategies for restoring the interconnection - and an associated requirement for the Transmission Operator's restoration plan to document how it supports the Reliability Coordinator's restoration strategies. Do you agree with these additions? If no, please identify why not.

Yes

No

Comments:

8. The SDT has completely re-worked the Implementation Plan based on industry comments from the third posting. Do you agree with the changes that were made? If not, please provide specific suggestions for change.

Yes

No

Comments:

9. Do you believe that these standards provide for an adequate level of reliability and are ready for balloting?

Yes

No

Comments:

Implementation Plan for EOP-005-2 and EOP-006-2

Prerequisite Approvals

There are no other Reliability Standards or Standard Authorization Requests (SARs), in progress or approved, that must be implemented before this set of standards can be implemented.

EOP-005-2 – System Restoration from Blackstart Resources

EOP-006-2 – System Restoration Coordination

Revision to Sections of Approved Standards and Definitions

There is one new definition in the proposed set of standards

Blackstart Resource: A generating unit(s) and its associated set of equipment which has the ability to be started without support from the System or is designed to remain energized without connection to the remainder of the System, with the ability to energize a bus, meeting the Transmission Operator’s restoration plan needs for real and reactive power capability, frequency and voltage control, and that has been included in the Transmission Operator’s restoration plan

Retire the following definition coincident with the implementation of EOP-005 and EOP-006:

Blackstart Capability Plan

Compliance with Standards

| Standard | Functions That Must Comply With the Associated Requirements | | | | |
|--|---|-----------------------|--------------------|--------------------|-----------------------|
| | Reliability Coordinator | Transmission Operator | Generator Operator | Transmission Owner | Distribution Provider |
| EOP-005 – System Restoration from Blackstart Resources | | X | X | X | X |
| EOP-006 – System Restoration Coordination | X | | | | |

Effective Dates

The effective date is the date entities are expected to meet the performance identified in this standard.

Due to the complexity of integrating training, dates for new plan approval, and the definition of new roles and responsibilities, the SDT is recommending that all requirements in EOP-005-2 and EOP-006-2 go into effect twenty-four months after the first day of the first calendar quarter following applicable regulatory approval. In those jurisdictions where no regulatory approval is required, all requirements go into effect twenty-four months after Board of Trustees adoption. All requirements in the existing EOP-005-1, EOP-006-1, EOP-007-0, and EOP-009-0, EOP-001-0, Requirement R3.4 will be retired on the same date that the new requirements become effective.

Implementation Plan for EOP-005-2 and EOP-006-2

Prerequisite Approvals

There are no other Reliability Standards or Standard Authorization Requests (SARs), in progress or approved, that must be implemented before this set of standards can be implemented.

EOP-005-2 – System Restoration from Blackstart Resources
EOP-006-2 – System Restoration Coordination

Revision to Sections of Approved Standards and Definitions

There is one new definition in the proposed set of standards

Blackstart Resource: A ~~generation Facility~~ generating unit(s) and its associated set of equipment, ~~under the control of the Generator Operator, with which has~~ the ability to be started without support from the System or is designed to ~~automatically~~ remain energized without connection to the remainder of the System, with the ability to energize a bus, meeting the Transmission Operator’s restoration plan needs for real and reactive power capability, frequency and voltage control, and that has been included in the Transmission Operator’s restoration plan

Retire the following definition coincident with the implementation of EOP-005 and EOP-006:

Blackstart Capability Plan

Balloting

~~The drafting team recommends that this group of two standards be balloted with a single ballot.~~

Compliance with Standards

| Standard | Functions That Must Comply With the Associated Requirements | | | | |
|--|---|-----------------------|--------------------|--------------------|-----------------------|
| | Reliability Coordinator | Transmission Operator | Generator Operator | Transmission Owner | Distribution Provider |
| EOP-005 – System Restoration from Blackstart Resources | | X | X | <u>X</u> | <u>X</u> |
| EOP-006 – System Restoration Coordination | X | | | | |

Phased-in Effective Compliance Dates

~~The following table identifies the effective date for each standard.~~

The effective date is the date entities are expected to meet the performance identified in this standard.

Note that entities have been given several months beyond the regulatory approval date (preparation time) to fully comply with the requirements. Existing standards will remain in effect unless individual requirements are superseded by new requirements that are phased in prior to the twenty four month completion timeframe in the Implementation Plan at which time the existing standards (EOP 001-0, R3.4; EOP 005-1, EOP 006-1, EOP 007-0, and EOP 009-0) will be retired. The assumption used by the SDT in establishing this Implementation Plan is that all entities perform as specified during the transitional period. This Implementation Plan starts from the TOP restoration plans required by the existing standards.

Due to the complexity of integrating training, dates for new plan approval, and the definition of new roles and responsibilities, the SDT is recommending that all requirements in EOP-005-2 and EOP-006-2, go into effect twenty-four months after the first day of the first calendar quarter following appropriate regulatory approval. In those jurisdictions where no regulatory approval is required, all requirements go into effect twenty-four months after Board of Trustees adoption. All requirements in the existing EOP-005-1, EOP-006-1, EOP-007-0, and EOP-009-0, EOP-001-0, Requirement R3.4 will be retired on the same date that the new requirements become effective, as well as EOP-001-0, Requirement R3.4.

Effective Dates of Revised Standards

Note: All dates shown are on the first day of the first calendar quarter, x months following applicable regulatory approval.

| R# | Immediate | 1 mo. | 3 mos. | 5 mos. | 6 mos. | 8 mos. | 24 mos. |
|-----------|-----------|-------|--------|--------|--------|--------|---------|
| EOP-005-2 | | | | | | | |
| EOP-006-2 | | | | | | | |
| R1 | | | X | | | | |
| R2 | | | X | | | | |
| R3 | | | | | | X | |
| R4 | | | | | | X | |
| R5 | | | | X | | | |
| R6 | | | | | | | X |
| R7 | | | | | | | X |
| R8 | | | | | | | X |
| R9 | | | | | | | X |
| R10 | | | | | | | X |

















Retirement Dates for Existing Standards

Note: All dates shown are on the first day of the first calendar quarter, x months following applicable regulatory approval of EOP 005-2 and EOP 006-2.

| R# | Immediate | 3 mos. | 5 mos. | 24 mos. |
|-----------|-----------|--------|--------|---------|
| EOP-001-1 | | | | |
| EOP-005-1 | | | | |
| EOP-006-1 | | | | |

| | | | | |
|------------------|--|--|--|--|
| EQP-007-0 | | | | |
| EQP-009-0 | | | | |

- Individual or group. (37 Responses)**
- Name (26 Responses)**
- Organization (26 Responses)**
- Group Name (11 Responses)**
- Lead Contact (11 Responses)**
- Contact Organization (11 Responses)**
- Question 1 (36 Responses)**
- Question 1 Comments (37 Responses)**
- Question 2 (31 Responses)**
- Question 2 Comments (37 Responses)**
- Question 3 (31 Responses)**
- Question 3 Comments (37 Responses)**
- Question 4 (32 Responses)**
- Question 4: Comments (37 Responses)**
- Question 5 (31 Responses)**
- Question 5: Comments (37 Responses)**
- Question 6 (29 Responses)**
- Question 6: Comments (37 Responses)**
- Question 7 (32 Responses)**
- Question 7: Comments (37 Responses)**
- Question 8 (32 Responses)**
- Question 8: Comments (37 Responses)**
- Question 9 (32 Responses)**
- Question 9: Comments (37 Responses)**

| | |
|---|---|
| | |
|  | Individual |
|  | Jianmei Chai |
|  | Consumers Energy Company |
|  | No |
|  | (R1.5) The Transmission Operator needs to coordinate with the Generator Operators when identifying acceptable operating voltage and frequency limits during restoration. Generator underfrequency relaying and terminal bus voltage limits will affect the acceptable limits. (R16) What occurs if the Transmission Operator and Generator Operator cannot come to agreement on the terms and conditions of a Blackstart Agreement? Is the Generator Operator subject to unreasonable testing requirements and unreasonable financial compensation mandated by the Transmission Operator? |
|  | |
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|  | |
|  | |
|  | |
|  | |
|  | |
|  | No |
|  | (R1.5) The Transmission Operator needs to coordinate with the Generator Operators when identifying acceptable operating voltage and frequency limits during restoration. Generator underfrequency relaying and terminal bus voltage limits will affect the acceptable limits. (R16) What occurs if the Transmission Operator and Generator Operator cannot come to agreement |

| | |
|---|---|
| | <p>on the terms and conditions of a Blackstart Agreement? Is the Generator Operator subject to unreasonable testing requirements and unreasonable financial compensation mandated by the Transmission Operator?</p> |
|  | <p>Individual</p> |
|  | <p>Karl Bryan</p> |
|  | <p>US Army Corps of Engineers</p> |
|  | <p>No</p> |
| | <p>The Blackstart Resource definition implies that a specific generating unit(s) at a facility will be identified as the Blackstart Resource. For large hydroelectric facilities this either implies that all of the units within the powerhouse are blackstart resources or a specific unit on a specific transmission line/yard bus is the blackstart resource. A better approach would be for the expected amount of generation or expected number of generators on the transmission line/yard bus be specified and leave it up to the GO to meet the blackstart resource obligation. Many of our power plants have 4 generators per transformer/powerhouse line/yard bus and specifying a particular unit amongst those 4 would greatly impact the ability to perform major generator/turbine overhaul maintenance. A more realistic approach that we have been using has been to use any unit for blackstart on that powerhouse line. This has been acceptable to the TO and TOP. Should the present definition be approved with the proposed Reliability Standard, I will have to request a formal interpretation. To save time and effort, I propose that the following wording be used for the Blackstart Resource definition: Blackstart Resource: A generation Facility, or a set number of generating unit(s) from a multi-generator generation Facility, and its associated set of equipment which has the ability to be started without support from the System or is designed to remain energized without connection to the remainder of the System, with the ability to energize a bus, meeting the Transmission Operator's restoration plan needs for real and reactive power capability, frequency and voltage control, and that has been included in the Transmission Operator's restoration plan. In R1 the wording for when the blackstart phase of system restoration is no longer needed is difficult to follow, recommend "RESTORED SERVICE" be added to the definitions section to define that stage of system restoration. Propose "Restored Service" be defined as follows: RESTORED SERVICE: A state whereby the choice of the next Load to be restored is not driven by the need to control frequency or voltage regardless of whether the Blackstart Resource is located within the Transmission Operator's System. Recommend that a new R1 be developed that focuses on the requirement for the TOP and GOP to mutually develop a Blackstart Resource Agreement. Recommended wording is: Each Transmission Operator and Generator Operator with a Blackstart Resource shall have written Blackstart Resource Agreements or mutually agreed upon procedures or protocols, specifying the terms and conditions of their arrangement. including Blackstart Resource testing requirements. [Violation Risk Factor = Medium] [Time Horizon = Operations Planning]. Recommend that the old R1 become R2, the intent is for the TOP and GOP to agree to a blackstart plan and then submit the blackstart plan to the RC for approval. The RC role per EOP-006 would be to take each TOP blackstart plan within the RC's coordination area and meld the plans into an interconnection blackstart restoration plan. Recommended wording is: Each Transmission Operator shall have a restoration plan approved by its Reliability Coordinator. The restoration plan shall allow for restoring the Transmission Operator's System following a Disturbance in which one or more areas of the Bulk Electric System (BES) shuts down and the use of Blackstart Resources is required to restore the shut down area to Restored Service The TOP needs to negotiate with the blackstart resource provider on what role each party, GOP and TOP, is expected to perform for blackstarting and system restoration. The outcome of those negotiations would be the agreed to roles/responsibilities/operational configurations/constraints of the blackstart resource and of the power system as it is being reenergized (restored). The black start resource provider has to agree with the expectations of the TOP in terms of what providing assistance for system restoration. The TOP may have unrealistic expectations as to what the blackstart resource provider can provide, for example what level of reactive line support the generator is capable of, generator terminal voltage minimum operational levels, etc. There needs to be a requirement that the TOP has worked with the GOP (the blackstart resource provider) in developing blackstart system restoration plans that recognize operational constraints on the generators. The following requirements need to include recognition of the need for such an agreement: R1.4, R1.5, R1.6, R2 (note these Requirements are using the present numbering system). Below are suggested changes to the requirements recognizing the need for an agreement between the TOP and the GOP.</p> <p>R1.4 Identification of each Blackstart Resource and its agreed to characteristics including but not limited to the following: the name of the Blackstart Resource, location, megawatt and megavar capacity, and type of unit. R1.5 Identification of Cranking Paths and agreed to initial switching requirements between each Blackstart Resource and the unit(s) to be started. R1.6 Identification of agreed to operating voltage and frequency limits during system restoration. R1.9 The BA role is what this requirement covers and the "Applicability" section of this Reliability Standard presently fails to recognize the role the BA has in black start resource</p> |

system restoration. The hand off criteria from the TOP to the BA after the system is restored should be a part of the negotiated agreements that are the foundation for the system restoration plan. Recommend the "Applicability" have BA added. Recommend this requirement be rewritten so that it can be measured. Here is proposed rewording: Post disturbance/system restoration criteria for transferring operations and authority back to the BA as well as the detailed operating processes and procedures for transferring operations and authority back to the BA. R2 Each Transmission Operator shall provide the operational entities identified in its agreed to and approved restoration plan with a description of any changes to their agreed to roles and specific tasks prior to the implementation date of the plan. R7. Where is the requirement for the TOP to develop a restoration plan strategy? The strategy is the foundation for the restoration plans used by the TOP. Isn't the strategy something that the TOP and the RC should be developing together? After the coordinated strategy is developed, then the TOP would develop a blackstart restoration plan with the blackstart resource providers (GOPs). The underlying basis for the blackstart restoration plans has to be the restoration plan strategy, but this Reliability Standard doesn't have an applicable role for the RC. So either add the RC to the applicability section or put the development of a restoration plan strategy in EOP-006 and add TOP to the EOP-006 applicability section. Recommend that R9 be developed into a "Testing" section and then the roles the TOP and the GOP have to perform be listed as subsections of the "Testing" requirement. Recommend actual testing be required, for example in the present R9.2.2, ability to energize a bus, unless you test it you can't be sure that you can actually energize a bus. Verifying that you can close a breaker without synch check is not good enough. Newer excitation systems and synchronizer relays have many protections built into them to prevent closing in on a dead bus or picking up large amounts of reactive and these protections need to be bypassed for dead bus energization. Also, M14 appears to require bus energization. Without testing, how can the GOP actually know when R15, change in system equipment/configuration, will prevent energizing a dead bus? The only sure way of verifying that the proper procedures are in place for blackstart is to test the equipment and the procedures. All of my blackstart plants in the Federal Columbia River Power System perform a monthly test of the equipment and the procedures and they rotate which operator will perform the test. The benefit is that each operator gets actual experience at least once a year and the procedure/equipment are verified for functional ability to blackstart. I am aware that R13 talks about an agreement between the GOP and TOP and this should be made into R1 (see proposed wording above). I also think the above proposed modifications to R1.4, R1.5, R1.6, R2 need to be made to illustrate how important the agreements is. R16, this appears redundant with R9. Propose that a single section for testing be developed with the roles for the TOP and GOP listed in the testing section. R17, I would prefer a minimum of 2 hours every year for every generator operator because it is too easy to forget the seldom used techniques for blackstart restoration. Considering how important blackstart is, annual 2 hours of training is appropriate. R17.1 should include recognition of the TOP/GOP blackstart resource agreements. Recommend the following wording: R17.1 Agreed to system restoration plan including coordination with the Transmission Operator. Recommend deletion of all references to "or mutually agreed upon procedures or protocols in force". The TOP/GOP blackstart agreement should be the only procedure used, this would help in the auditing process as well as force the TOP/GOP to keep the blackstart agreement up to date and on file with the RC. The "or mutually agreed upon procedures or protocols in force" doesn't appear to have any check/balance like the blackstart agreement has.



No

M2 should require the TOP and GOP to have documentation showing that the mutually developed how the blackstart resource would be utilized and also documentation showing that they mutually agreed to any changes to their roles and specific tasks prior to the implementation date of the plan in accordance with Requirement R2 M7, where is the requirement to develop a Restoration Plan Strategy? What is the definition of a Restoration Plan Strategy? Is this the overarching document developed by the RC with the TOPs that lays out the big picture blackstart restoration? Need to define "Strategy" as opposed to "Plan", I think the Strategy development should be done in concert with the RC. The Plan is how the TOP proposes to accomplish the goals of the Strategy. M9 should cover all aspects of Testing, both for the TOP and for the GOP. See my recommendations for R9. M13 Recommend deletion of all references to "or mutually agreed upon procedures or protocols in force". The TOP/GOP blackstart agreement should be the only procedure used, this would help in the auditing process as well as force the TOP/GOP to keep the blackstart agreement up to date and on file with the RC. The "or mutually agreed upon procedures or protocols in force" doesn't appear to have any check/balance like the blackstart agreement has.








































Yes



































Yes



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| <input type="checkbox"/> | Yes |
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| <input type="checkbox"/> | Yes |
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| <input type="checkbox"/> | Yes |
| <input type="checkbox"/> | |
| <input type="checkbox"/> | Yes |
| <input type="checkbox"/> | |
| <input type="checkbox"/> | No |
| <input type="checkbox"/> | Based on the large number of comments that I have made, I think that this Reliability Standard needs another round of incorporating comments and going out for comments. |
| <input type="checkbox"/> | Group |
| <input type="checkbox"/> | NPCC |
| <input type="checkbox"/> | Guy Zito |
| <input type="checkbox"/> | Northeast Power Coordinating Council |
| <input type="checkbox"/> | No |
| <input type="checkbox"/> | NPCC participating members request clarification. Did the Drafting Team intend R18 to apply to Generator Operators with black start resources as with the other requirements, or to all Generators? If the Drafting Team intended applicability to Generator Operators with black start resources then we suggest rewording as follows: "R18. Each Generator Operator with a Blackstart Resource shall participate in the Reliability Coordinator's restoration drills, exercises, or simulations as requested by the Reliability Coordinator. [Violation Risk Factor = Medium] [Time Horizon = Operations Planning]" R16.2. Should be revised to read: Each Generator Operator "with a Blackstart Resource shall provide..." Requirement R1.2 remains unclear. Specifically, "a description of the manner" is confusing. The SDT response to Draft 3 comments and/or questions does not provide a meaningful understanding of what is expected in this requirement. Suggest rewording, or this requirement be moved to the Nuclear Plant Interface Coordination requirements NUC-001. |
| <input type="checkbox"/> | Yes |
| <input type="checkbox"/> | Suggest using a consistent format (i.e., text or number) when specifying calendar days and/or years. Reference VSL for R2, R3, R4, R6, R11, R15, R16 & R17. |
| <input type="checkbox"/> | Yes |
| <input type="checkbox"/> | |
| <input type="checkbox"/> | No |
| <input type="checkbox"/> | NPCC participating members believe conducting two system restoration drills/exercises annually is excessive. At least one annual comprehensive exercise is sufficient, unless there are significant changes to the Reliability Coordinator system restoration plan. |
| <input type="checkbox"/> | Yes |
| <input type="checkbox"/> | Suggest using a consistent format (i.e., text or number) when specifying calendar days and/or years. Reference VSL for R2, R3, R4 R5, R6, & R10. |
| <input type="checkbox"/> | Yes |
| <input type="checkbox"/> | |
| <input type="checkbox"/> | Yes |
| <input type="checkbox"/> | |
| <input type="checkbox"/> | Yes |
| <input type="checkbox"/> | |
| <input type="checkbox"/> | Yes |
| <input type="checkbox"/> | Yes, subject to clarifying comments provided above. |
| <input type="checkbox"/> | Group |
| <input type="checkbox"/> | Luminant Power |
| <input type="checkbox"/> | Rick Terrill |

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|  | Luminant Power |
|  | Yes |
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|  | Yes |
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|  | Yes |
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|  | Yes |
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|  | Individual |
|  | Thad Ness |
|  | AEP |
|  | No |
|  | EOP 005-2 Purpose statement uses the "Ensure plans, Facilities, and personnel.... " Recommend "Assure plans, Facilities, and personnel.." R1.2 - This is already covered under NERC Standard NUC-001-1 that has been approved by NERC BOT and FERC. R12 - Need to specify the required number of requested drills that the Transmission Operator must participate in annually. R18 - Was the requirement "Each Generator Operator shall participate..." intended to include all Generation Operators opposed to only those with Black Start Resources, such as the wording included in R17. |
|  | Yes |
|  | |
|  | Yes |
|  | |
|  | No |
|  | See response to question #7 |
|  | Yes |
|  | |
|  | No |
|  | R1.1 The term minimum blackstart capability requirements needs to be defined. As written the requirement would be a fill-in-the-gap requirement. The version 02 standards are supposed to eliminate this type of ambiguity. |
|  | Yes |
|  | |
|  | No |
|  | Our comments above indicate there is some work that needs to be done. |
|  | |

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| | Individual |
| | Virginia Cook |
| | JEA |
| | No |
| | <p>R1 This standard appears to allow TOP's full discretion over whether they even have a "Blackstart Resource" by simply choosing whether or not to include it in its plan (see definition), whereas the prior standard allowed the Region to determine the blackstart resources needed. Was this the intent? This requirement causes entities to be dependent on the actions of another entity in order to be compliant (timely response by Reliability Coordinator in approving plans). Unless it is intended that only the INITIAL plan get the approval of the RC (as there are 24 months), this could result in delays in updating/improving plans (the entity would be incented to simply notify the RC that no change was needed) potentially harming reliability by incenting entities to avoid making changes to its plan. Consider something like initial approval by effective date of standard and ongoing notification of updates to RC with RC right to object and direct changes within 60 days. R1.3 is confusing. How would the procedure differ from "do what the RC tells me"? Then just direct the entities do so in a different requirement. R1.8 The auditors will look for each of these items or a statement that it is not applicable, is that the intent? If meant only to give examples, may want to clarify with a MAY include or examples are or similar wording. R1.9 Some TOP's are also the BA and this requirement is problematic for them. Consider this requirement applying only to TOP's that are not also the BA. R2. What is meant by operational entities? Requirement 1 did not direct that operational entities and their roles and specific tasks be identified. Additionally, why shouldn't the requirement just be that these "operational entities" be provided with updated plans? Why should the TOP have to spell out for them what these changes are in a separate communication? R3. See comments for R1 regarding approval. As written, it is unclear what the approval requirements are for the annual review/update. R4. Again, there are issues with the approval aspect of the RC. Once the plan is submitted to the RC, but while awaiting approval, which plan is in force for the entity, the old one (approved, but possibly not relevant to current system) or the new one (updated, but not approved)? Either way, the entity is in a compliance quandary with regards to R1. Suggest again, submittal with RC right to direct changes. R5 The standard should require that the current plan is available in the primary and backup control centers, not just that it was provided prior to implementation and then after that it's okay if it gets lost. R9. Might consider moving this requirement up next to R6 because there may be some overlap. Also, move R16 next to this one as it is confusing to have the testing requirement separate from the procedure. Might consider placing minimum requirements on the entity for the actual testing only. Requirements that the entity develop procedures and then implement them encourage the entity to develop procedures that minimally meet the standard. Requirements that the entity complete a minimum level of activity or set of tasks, encourage the entity to set procedures that go above and beyond in order to give themselves cushion for errors. Because R16 requires the documentation of the actual testing of the blackstart unit and this is not an activity executed under emergency or operational timeframes, the absence of the procedure does not preclude adequate testing of the blackstart unit, this requirement is administrative/documentation and failure to comply is unlikely to adversely affect the BES on its own, so might consider that the VRF of this requirement is Lower. R11. What is meant by "unique tasks"? If someone performs switching during normal operating conditions – you would ask the same person to perform switching during restoration (you wouldn't take some from a clerk position and send them to the field). I think most entities would just say that their field switching personnel would not be performing any "unique" tasks, and this will end up being a useless requirement. R13. The term "Blackstart Resource Agreement" is not in the current NERC glossary, but is capitalized here. Need to define. Consider putting R6, R9 and R16 in sequence in the standard, and reviewing to prevent overlap.</p> |
| | No |
| | <p>R5 The measure should say something more like "Each Transmission Operator shall show that it has the latest Reliability Coordinator approved copy of its restoration plan available in each of its primary and backup control rooms upon request and provide documentation that it was provided to each of its control room personnel System Operators prior to its implementation date in accordance with Requirement R5. R15 Include acknowledgements from the TOP that the information is received over the appropriate time period.</p> |
| | |
| | No |
| | <p>R2. These types of requirements have been problematic, and produced a great deal of paperwork without enhancing reliability or ensuring the intent of the standard is met. I heard an auditor suggest that to satisfy a similar requirement we had to prove that the neighbors read the document (although he quickly backed down when challenged). Might consider the</p> |

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|  | wording "shall make available" rather than "shall distribute" so that something like a website posting and a printout of accounts with access is acceptable evidence. Internet posting is an established method by FERC to make information available to others for Standards of Conduct rules so should be acceptable and is considerably easier to administer and track for all involved. R9 Is it not the intent that all the RC's system operators receive this training annually? The requirement as stated only requires that this training be included. An entity could argue that only conducting the class would satisfy the requirement, regardless of the level of attendance. Collecting all training requirements in the PER standards will facilitate compliance and tracking by the entities as well as facilitating verification by auditors. It is confusing to have training requirements scattered through out the different categories. |
|  | No |
|  | M9. Might consider wording in the measure that the RC provide a copy of training content, descriptions or program materials. |
|  | |
|  | No |
|  | I agree with the RC having the high level description and believe it adds value, but the requirement on the TOP is vague and likely to result only in the inclusion of empty words in the plan to satisfy the requirement, exposing the entity to compliance risk without contributing to reliability. It should be incumbent on the RC to verify that the TOP's plan supports their strategy prior to approval. |
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|  | Individual |
|  | John L. Shaner |
|  | Allegheny Power |
|  | Yes |
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|  | Yes |
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|  | Yes |
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|  | Yes |
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|  | Yes |
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|  | Yes |
|  | |
|  | Individual |
|  | Craig McLean |
|  | Manitoba Hydro |
|  | Yes |
|  | |
|  | Yes |
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| | Yes |
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| | No |
| | Remove "including minimum blackstart capability requirements" from Requirement R1.1. This is a TOP responsibility not an RC responsibility. Requirement R1.6 "Identification of acceptable voltage and frequency limits during restoration" add "of the Interconnection". The TOP is responsible for maintain frequency and voltage during restoration of their systems, the RC is responsible at the next level (restoration of the Interconnection). |
| | Yes |
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| | Yes |
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| | No |
| | Because the new subrequirement also requires the RC to include minimum blackstart capability requirements when that is a TOP responsibility. |
| | Yes |
| | |
| | Yes |
| | Providing previously mentioned requirements are changed. |
| | Individual |
| | Kirit Shah |
| | Ameren |
| | No |
| | According to the response provided on page 32 by the Standard Drafting Team Consideration of Comments, Requirement R6.2 was deleted in preparing the fourth draft of the standards. However, the latest draft of EOP-005-2 still has the text of Requirement R6.2 included as in the previous draft with no modification. Requirement R6.2 should be deleted. |
| | Yes |
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| | Yes |
| | EOP-005-2, D, Section 1.4, the 5th bullet should be changed from "The current, approved by the Reliability Coordinator restoration plan and any restoration plans in force for the last three calendar years was made available in its control rooms for Requirement R5, Measure M5." to "The current restoration plan approved by the Reliability Coordinator and any restoration plans in force for the last three calendar years was made available in its control rooms for Requirement R5, Measure M5." 2. Retention periods, measures, & violation severity levels for R7 and R8 mention the word "System" but the requirements mention the Bulk Electric System (BES). This is not consistent. The measures, retention periods, & violation severity levels should be consistent with the requirements and reference the BES. |
| | No |
| | Regarding EOP-006 R1.1, we believe that a "minimum blackstart capability requirement" should not be set by the RC. If by "minimum blackstart capability" the SDT's intention is for the RC to set the number, location, strategy of restoration, or other minimum standard, this should either be set by the RRO, TOP or by a NERC standard with basis. |
| | Yes |
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| | Yes |
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| | Yes |
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| | Yes |
| | |
| | Group |
| | Standards Interface Subcommittee/Compliance Elements Development Resource Pool |
| | John Blazekovich |
| | Excelon Corp |
| | |
| | |
| | <p>VSL/CEA Job Aid Work Sheet Requirement Attributes Guidelines Link SIS SME: John Blazekovich CEDRP SME: Virginia Cook A. Standard – R1 EOP-005 Requirement (including sub-requirements) Each Transmission Operator shall have a restoration plan approved by its Reliability Coordinator. The restoration plan shall allow for restoring the Transmission Operator’s System following a Disturbance in which one or more areas of the Bulk Electric System (BES) shuts down and the use of Blackstart Resources is required to restore the shut down area to service, to a state whereby the choice of the next Load to be restored is not driven by the need to control frequency or voltage regardless of whether the Blackstart Resource is located within the Transmission Operator’s System. The restoration plan shall include: [Violation Risk Factor = High] [Time Horizon = Operations Planning] R1.1. A description of how the plan follows the high level strategies for restoring the Interconnection as outlined in the Transmission Operator’s Reliability Coordinator restoration plan. R1.2. A description of the manner in which all Agreements or mutually agreed upon procedures or protocols for off-site power requirements of nuclear power plants, including priority of restoration, will be fulfilled during System restoration. R1.3. Procedures for restoring interconnections with other Transmission Operators under the direction of the Reliability Coordinator. R1.4. Identification of each Blackstart Resource and its characteristics including but not limited to the following: the name of the Blackstart Resource, location, megawatt and megavar capacity, and type of unit. R1.5. Identification of Cranking Paths and initial switching requirements between each Blackstart Resource and the unit(s) to be started. R1.6. Identification of acceptable operating voltage and frequency limits during restoration. R1.7. Operating Processes to reestablish connections within the Transmission Operator’s System for areas that have been restored and are prepared for reconnection. R1.8. Operating Processes to restore Loads required to restore the System, such as station service for substations, units to be restarted or stabilized, the Load needed to stabilize generation and frequency, and provide voltage control. R1.9. Criteria for transferring operations and authority back to the Balancing Authority. Proposed Measure Each Transmission Operator shall have a dated, documented System restoration plan developed in accordance with Requirement R1 that has been approved by its Reliability Coordinator as shown with the written approval letter from its Reliability Coordinator. Attributes of the requirement Binary Timing Omission xx Communication Quality Other Discussion: B. REQUIREMENT RX COMMENTS ON VSLS SDT Proposed Lower VSL: The Transmission Operator failed to comply with one of the sub-requirements within the requirement. CEDRP Proposed Lower VSL: n/a SDT Proposed Moderate VSL: The Transmission Operator failed to comply with two of the sub-requirements within the requirement. CEDRP Proposed Moderate VSL: n/a SDT Proposed High VSL: The Transmission Operator has failed to comply with three of the sub-requirements within the requirement. CEDRP Proposed High VSL: n/a SDT Proposed Severe VSL: The Transmission Operator has failed to comply with four or more of the sub-requirements within the requirement. CEDRP Proposed Severe VSL: n/a C. REQUIREMENT RX COMMENTS ON FERC GUIDANCE FOR VSLS: 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 3. Is it truly a “binary” requirement? n/a 4. If yes, is the VSL assignment consistent with other binary requirement assignments? n/a 5. Is the VSL language clear & measurable (ambiguity removed)? If no, does the requirement or measure need to be revised? Yes 6. Does the VSL redefine or undermine the stated requirement? No 7. Is the VSL based on a single violation of the requirement (not multiple violations)? Yes D. REQUIREMENT RX COMMENTS ON ADDITIONAL COMPLIANCE ELEMENTS: Compliance Enforcement Authority: n/a Compliance Monitoring Period and Reset Time Frame: n/a Compliance Monitoring and Enforcement Processes: n/a Data Retention: ok Additional Compliance Information: n/a Additional Comments: A. Standard – R2 EOP-005 Requirement (including sub-requirements) R2. Each Transmission Operator shall provide the operational entities identified in its approved restoration plan with a description of any changes to their roles and specific tasks prior to the implementation date of the plan. [Violation Risk Factor = Lower] [Time Horizon = Operations Planning] Proposed Measure M2. Each Transmission Operator shall have evidence such as e-mails with receipts or registered mail receipts that it provided the operational entities identified in its approved restoration plan with a description of any changes to their roles and</p> |

specific tasks prior to the implementation date of the plan in accordance with Requirement R2. Attributes of the requirement Binary Timing xx Omission X Communication Quality Other Discussion: The suggested set of VSL's results in inconsistencies. If an entity did provide the information to all entities, but was 120 calendar days or more late in doing so, it would appear to be a High VSL, while if they didn't bother to do it at all, it would be lower. The choice should be made whether it is how long the entities went without the updated information OR how many entities did not have it is the overriding concern. Otherwise, accurate statement of the VSL's will be extremely complicated. The suggested VSL's below assumed the length of time was the overriding concern. The VSL's as written indicated that it was "ok" for the entity to delay notification up to thirty days after plan implementation. If this is the case, it would be best to write the standard to so indicate, otherwise, will need to rewrite the Lower VSL (see alternate suggestion below). However, consider that having multiple requirements placed on an entity prior to implementing a plan will lengthen the time needed to update plans, which could have negative impacts on reliability also. B. REQUIREMENT RX COMMENTS ON VSLS SDT Proposed Lower VSL: The Transmission Operator failed to provide one of the operational entities identified in its approved restoration plan with a description of any changes to their roles and specific tasks prior to the implementation date of the plan. Or The Transmission Operator provided the information to all entities but was thirty calendar days late in doing so. CEDRP Proposed Lower VSL: The Transmission Operator provided the information to all entities, but it was not provided prior to the plan's implementation date, and it was provided within thirty calendar days after the implementation date of the plan. (Alternate suggestion: The Transmission Operator failed to provide the information to all entities prior to plan implementation.) SDT Proposed Moderate VSL: The Transmission Operator failed to provide two of the operational entities identified in its approved restoration plan with a description of any changes to their roles and specific tasks prior to the implementation date of the plan. Or The Transmission Operator provided the information to all entities but was sixty calendar days or more late in doing so. CEDRP Proposed Moderate VSL: The Transmission Operator failed to provide the information to all entities until thirty-one days after its implementation date but within sixty calendar days of the implementation date of the plan. SDT Proposed High VSL: The Transmission Operator failed to provide three of the operational entities identified in its approved restoration plan with a description of any changes to their roles and specific tasks prior to the implementation date of the plan. Or The Transmission Operator provided the information to all entities but was ninety calendar days or more late in doing so. CEDRP Proposed High VSL: The Transmission Operator failed to provide the information to all entities until sixty-one days after its implementation date but within ninety calendar days of the implementation date of the plan. SDT Proposed Severe VSL: The Transmission Operator failed to provide four or more of the operational entities identified in its approved restoration plan with a description of any changes to their roles and specific tasks prior to the implementation date of the plan. Or The Transmission Operator provided the information to all entities but was 120 calendar days or more late in doing so. CEDRP Proposed Severe VSL: The Transmission Operator failed to provide the information to all entities within ninety-one calendar days of the implementation date of the plan. C. REQUIREMENT RX COMMENTS ON FERC GUIDANCE FOR VSLS: 8. Will the VSL assignment signal entities that less compliance than has been historically achieved is condoned? No 9. Is the VSL assignment a binary requirement? Yes 10. Is it truly a "binary" requirement? No 11. If yes, is the VSL assignment consistent with other binary requirement assignments? 12. Is the VSL language clear & measurable (ambiguity removed)? If no, does the requirement or measure need to be revised? No (see discussion) 13. Does the VSL redefine or undermine the stated requirement? No 14. Is the VSL based on a single violation of the requirement (not multiple violations)? Yes D. REQUIREMENT RX COMMENTS ON ADDITIONAL COMPLIANCE ELEMENTS: Compliance Enforcement Authority: n/a Compliance Monitoring Period and Reset Time Frame: n/a Compliance Monitoring and Enforcement Processes: n/a Data Retention: This requirement should have the same retention time period as R1. Additional Compliance Information: n/a Additional Comments: A. Standard – R3 EOP-005 Requirement (including sub-requirements) R3. Each Transmission Operator shall review the Transmission Operator's restoration plan and submit it to its Reliability Coordinator annually on a mutually agreed predetermined schedule. [Violation Risk Factor = Medium] [Time Horizon = Operations Planning] R3.1. If there are no changes to the previously submitted restoration plan, the Transmission Operator shall confirm annually on a predetermined schedule to its Reliability Coordinator that it has reviewed its restoration plan and no changes were necessary. Proposed Measure Each Transmission Operator shall have documentation such as a dated review signature sheet, revision histories, e-mails with receipts, or registered mail receipts, that it has annually reviewed and submitted the Transmission Operator's restoration plan to its Reliability Coordinator in accordance with Requirement R3. Attributes of the requirement Binary Timing Omission xx Communication X Quality Other Discussion: The attributes of this requirement include the need to Review the plan Submit the plan to the RC Confirmation of no changes In addition to the timing requirement, as such it would appear to be appropriate to increment the VSL based on failure to review, submit or confirm no changes in addition to the timing requirements. The VSL's

below permit the entity to be up to 29 days late on submissions to the RC. B. REQUIREMENT RX COMMENTS ON VSLS SDT Proposed Lower VSL: The Transmission Operator did not submit the reviewed restoration plan or confirmation of no change within twenty-nine calendar days of the pre-determined schedule. CEDRP Proposed Lower VSL: The Transmission Operator performed a review of the plan within the agreed upon time, determined no changes were necessary, but failed to provide confirmation to the Reliability Coordinator after the predetermined schedule, but within 30 days of the pre-determined schedule. SDT Proposed Moderate VSL: The Transmission Operator did not submit the reviewed restoration plan or confirmation of no change within thirty to fifty-nine calendar days of the pre-determined schedule. CEDRP Proposed Moderate VSL: The Transmission Operator performed a review of its plan, made changes to its plan, provided the updated plan to its Reliability Coordinator after the predetermined schedule, but within 30 days of the predetermined schedule. OR. The Transmission Operator performed a review of the plan within the agreed upon time, determined no changes were necessary, but provided confirmation to the Reliability Coordinator 31 days or more after the pre-determined schedule. SDT Proposed High VSL: The Transmission Operator did not submit the reviewed restoration plan or confirmation of no change within sixty to eighty-nine calendar days of the pre-determined schedule. CEDRP Proposed High VSL: The Transmission Operator performed a review of its plan, made changes to its plan, but provided the updated plan to its Reliability Coordinator 31 days or more after the predetermined schedule. SDT Proposed Severe VSL: The Transmission Operator did not submit the reviewed restoration plan or confirmation of no change within ninety calendar days of the pre-determined schedule. CEDRP Proposed Severe VSL: The Transmission Operator did not perform a review of its plan. C. REQUIREMENT RX COMMENTS ON FERC GUIDANCE FOR VSLS: 15. Will the VSL assignment signal entities that less compliance than has been historically achieved is condoned? Possibly (see discussion) 16. Is the VSL assignment a binary requirement? Yes 17. Is it truly a "binary" requirement? No 18. If yes, is the VSL assignment consistent with other binary requirement assignments? 19. Is the VSL language clear & measurable (ambiguity removed)? If no, does the requirement or measure need to be revised? Yes 20. Does the VSL redefine or undermine the stated requirement? No 21. Is the VSL based on a single violation of the requirement (not multiple violations)? Yes D. REQUIREMENT RX COMMENTS ON ADDITIONAL COMPLIANCE ELEMENTS: Compliance Enforcement Authority: n/a Compliance Monitoring Period and Reset Time Frame: n/a Compliance Monitoring and Enforcement Processes: n/a Data Retention: Data retention for this requirement should match R1. Additional Compliance Information: Additional Comments: A. Standard – R4 EOP-005 Requirement (including sub-requirements) R4. Each Transmission Operator shall update its restoration plan within ninety calendar days after identifying any unplanned permanent System modifications, or prior to implementing a planned System modification, that would change the implementation of its restoration plan. [Violation Risk Factor = Medium] [Time Horizon = Operations Planning] R4.1. Each Transmission Operator shall submit its revised restoration plan to its Reliability Coordinator for approval within the same ninety calendar day period. Proposed Measure Each Transmission Operator shall have documentation such as dated review signature sheets, revision histories, e-mails with receipts, or registered mail receipts, that it has updated its restoration plan and submitted it to its Reliability Coordinator in accordance with Requirement R4. Attributes of the requirement Binary Timing xx Omission Communication Quality Other Discussion: The requirement is unclear whether the restoration needs to be updated only for permanent planned changes. The wording appears to require updates for temporary planned changes as well. Suggest clarification be considered. The requirement is unclear re. submission to the RC for planned changes, it appears that 90 days after implementation is allowed. Is that the intent? If not, see alternate suggestion for Lower VSL and rewrite requirement to clarify. B. REQUIREMENT RX COMMENTS ON VSLS SDT Proposed Lower VSL: The Transmission Operator failed to update and submit its restoration plan to the Reliability Coordinator within ninety calendar days of the change. CEDRP Proposed Lower VSL: The Transmission Operator failed to update and submit its restoration plan to the Reliability Coordinator within ninety calendar days of an unplanned change OR The Transmission Operator failed to update its restoration plan prior to implementation of a planned change or failed to submit it to the RC within ninety calendar days of the implementation of the plan. (Alternate proposal: The Transmission Operator failed to update and submit its restoration plan to the Reliability Coordinator within ninety calendar days of an unplanned change or prior to implementation for a planned change.) SDT Proposed Moderate VSL: The Transmission Operator failed to update and submit its restoration plan to the Reliability Coordinator within 120 calendar days of the change. CEDRP Proposed Moderate VSL: n/a SDT Proposed High VSL: The Transmission Operator has failed to update and submit its restoration plan to the Reliability Coordinator within 150 calendar days of the change. CEDRP Proposed High VSL: n/a SDT Proposed Severe VSL: The Transmission Operator has failed to update and submit its restoration plan to the Reliability Coordinator within 180 calendar days of the change. CEDRP Proposed Severe VSL: n/a C. REQUIREMENT RX COMMENTS ON FERC GUIDANCE FOR VSLS: 22. Will the VSL assignment signal entities that less compliance than has been historically achieved is condoned? no 23. Is the VSL assignment a binary requirement? yes 24. Is it truly a "binary" requirement? no 25. If yes, is

the VSL assignment consistent with other binary requirement assignments? 26. Is the VSL language clear & measurable (ambiguity removed)? If no, does the requirement or measure need to be revised? no 27. Does the VSL redefine or undermine the stated requirement? Lower VSL may undermine intent to revise plan prior to planned changes. 28. Is the VSL based on a single violation of the requirement (not multiple violations)? yes D. REQUIREMENT RX COMMENTS ON ADDITIONAL COMPLIANCE ELEMENTS: Compliance Enforcement Authority: n/a Compliance Monitoring Period and Reset Time Frame: n/a Compliance Monitoring and Enforcement Processes: n/a Data Retention: Data retention requirement should match R1. Additional Compliance Information: n/a Additional Comments: n/a A. Standard – R5 EOP-005 Requirement (including sub-requirements) R5. Each Transmission Operator shall have a copy of its latest Reliability Coordinator approved restoration plan within its primary and backup control rooms and available to all of its System Operators prior to its implementation date. [Violation Risk Factor = Lower] [Time Horizon = Operations Planning] Proposed Measure Each Transmission Operator shall have documentation that it has made the latest Reliability Coordinator approved copy of its restoration plan available in its primary and backup control rooms and to each of its System Operators prior to its implementation date in accordance with Requirement R5. Attributes of the requirement Binary xxxxxx Timing Omission X Communication Quality Other Discussion: Note the requirement only specifies that the plans be provided prior to its implementation date. Is the intent really to have it specifically provided to the System Operators prior to implementation and a copy available in the control rooms at all times? If so, suggest the requirement be clarified, VSL's modified and the measure include meeting agendas or training records as above and that the control room copy be produced for inspection to compliance or other authorized personnel at any time. B. REQUIREMENT RX COMMENTS ON VSLs SDT Proposed Lower VSL: N/A CEDRP Proposed Lower VSL: The Transmission Operator did not make the Reliability Coordinator approved restoration plan available in its primary and backup control rooms and available to all of its System Operators prior to its implementation date BUT the plan included only administrative changes [title changes, signatory changes, document numbering changes, reorganization of document with some editing, elimination of redundant sections] from the available plan OR the plan had significant changes and was not provided by the implementation date, but was provided within 15 calendar days of the implementation date OR the plan included only minor changes from the available plan but was not provided within 60 days of the implementation date. SDT Proposed Moderate VSL: N/A CEDRP Proposed Moderate VSL: The Transmission Operator did not make the Reliability Coordinator approved restoration plan available in its primary and backup control rooms and available to all of its System Operators prior to its implementation date BUT the plan included only minor changes from the available plan [e.g. inclusion of information that was available in another document, changes in strategy or scope that did not affect the restoration steps, addition of detail to clarify or expand upon what is in the available plan, for example, addition of locations of sync check breakers or synchroscopes while those listed in the available document are still valid] that would not likely effect restoration efforts OR the plan had significant changes and was provided 16 to 30 days after implementation. SDT Proposed High VSL: The current plan has significant changes from the available plan and was provided 31 to 45 days after implementation. CEDRP Proposed High VSL: n/a SDT Proposed Severe VSL: The Transmission Operator did not make the latest Reliability Coordinator approved restoration plan available in its primary and backup control rooms and available to all of its System Operators prior to its implementation date. CEDRP Proposed Severe VSL: The Transmission Operator did not make the Reliability Coordinator approved restoration plan available in its primary and backup control rooms and available to all of its System Operators prior to its implementation date AND the plan included significant changes from the available plan OR no plan was available. C. REQUIREMENT RX COMMENTS ON FERC GUIDANCE FOR VSLs: 29. Will the VSL assignment signal entities that less compliance than has been historically achieved is condoned? Potentially. The wording "latest Reliability Coordinator approved" could be construed to mean only the current version and not any prior plans that may not have been made available. Then an entity only need update his plan and provide it and TA DA it's compliant. 30. Is the VSL assignment a binary requirement? no 31. Is it truly a "binary" requirement? no 32. If yes, is the VSL assignment consistent with other binary requirement assignments? 33. Is the VSL language clear & measurable (ambiguity removed)? If no, does the requirement or measure need to be revised? No (see comment for #29) 34. Does the VSL redefine or undermine the stated requirement? Possibly (see comment for #29) 35. Is the VSL based on a single violation of the requirement (not multiple violations)? yes D. REQUIREMENT RX COMMENTS ON ADDITIONAL COMPLIANCE ELEMENTS: Compliance Enforcement Authority: n/a Compliance Monitoring Period and Reset Time Frame: n/a Compliance Monitoring and Enforcement Processes: n/a Data Retention: Data retention should match R1. Additional Compliance Information: n/a Additional Comments: n/a A. Standard – R6 XXX-XXX Requirement (including sub-requirements) R6. Each Transmission Operator shall verify through analysis of actual events, steady state and dynamic simulations, or testing that its restoration plan accomplishes its intended function. This shall be completed every five years at a minimum. Such analysis, simulations or testing shall verify: [Violation Risk Factor = Medium] [Time

Horizon = Long-term Planning] R6.1 The capability of Blackstart Resources to meet the Real and Reactive Power requirements of the Cranking Paths and to supply initial Loads. R6.2. The location and magnitude of Loads required to control voltages and frequency within acceptable operating limits. R6.3. The capability of generating resources required to control voltages and frequency within acceptable operating limits. Proposed Measure M6. Each Transmission Operator shall have documentation such as power flow outputs, that it has verified that its latest restoration plan will accomplish its intended function in accordance with Requirement R6. Attributes of the requirement Binary Timing Omission X Communication Quality xx Other Discussion: The language of the requirement may be construed to imply that every element of the plan be verified. Is that the intent? For example, if the plan included restoration from other substations or tie lines, but a blackstart unit if those are not available, is verifying the blackstart option sufficient, or must the entity verify all options? Should graduate the time frames for overdue verifications, the suggestions below can be easily altered to the desired time-frames. What if the entity only verifies some of the items in the sub-requirements, but not all? B. REQUIREMENT RX COMMENTS ON VSLS SDT Proposed Lower VSL: The Transmission Operator performed the verification but did not complete it within the five year period. CEDRP Proposed Lower VSL: n/a SDT Proposed Moderate VSL: N/A CEDRP Proposed Moderate VSL: The Transmission Operator performed the verification but was more than 90 days late SDT Proposed High VSL: N/A CEDRP Proposed High VSL: The Transmission Operator performed the verification but was more than 180 days late or did not verify one of the sub-requirements. SDT Proposed Severe VSL: The Transmission Operator did not perform the verification, did not verify two of the sub-requirements or it took more than six years to complete the verification. CEDRP Proposed Severe VSL: n/a C. REQUIREMENT RX COMMENTS ON ADDITIONAL COMPLIANCE ELEMENTS: Compliance Enforcement Authority: n/a Compliance Monitoring Period and Reset Time Frame: n/a Compliance Monitoring and Enforcement Processes: n/a Data Retention: As stated is unclear, and could result in varying requirements for data retention, up to 10 years or more, but also a very short period if plans are change frequently and in a minor way that would not change the verification results (allowing non-compliance to disappear). It might be simpler to require that the entity verification results be kept 3 years after a subsequent verification is completed. That way you pick each one up in an audit, but the entity is not usually retaining more than the current one, and any others that were superceded since the previous audit. Additional Compliance Information: n/a Additional Comments: n/a A. Standard – R7 EOP-005 Requirement (including sub-requirements) R7. Following a Disturbance in which one or more areas of the BES shuts down and the use of Blackstart Resources is required to restore the shut down area to service, each affected Transmission Operator shall implement its restoration plan. If the restoration plan cannot be executed as expected because actual conditions do not match the studied conditions, the Transmission Operator shall utilize its restoration plan strategies to facilitate restoration. [Violation Risk Factor = High] [Time Horizon = Real-time Operations] Proposed Measure M7. If there has been a Disturbance in which Blackstart Resources have been utilized in restoring the shut down area of the System to service, each Transmission Operator involved shall have evidence such as voice recordings, e-mail, dated computer printouts, or operator logs, that it implemented its restoration plan or restoration plan strategies in accordance with Requirement R7. Attributes of the requirement Binary x x Timing Omission Communication Quality Other Discussion: As the requirement is currently written – it likely is a “binary” requirement, trying to develop valid VSLs for anything other than binary (yes or no) would not be practical – the CEDRP would suggest that the SDT re-evaluate the need to have a “strategies” requirement included in the standard as a requirement (appears to be more of a reference document subject). B. REQUIREMENT RX COMMENTS ON VSLS SDT Proposed Lower VSL: N/A CEDRP Proposed Lower VSL: n/a SDT Proposed Moderate VSL: N/A CEDRP Proposed Moderate VSL: n/a SDT Proposed High VSL: N/A CEDRP Proposed High VSL: n/a SDT Proposed Severe VSL: The Transmission Operator did not implement its restoration plan following a Disturbance in which Blackstart Resources have been utilized in restoring the shut down area of the System. Or, if the restoration plan cannot be executed as expected because actual conditions do not match the studied conditions, the Transmission Operator did not utilize its restoration plan strategies to facilitate restoration. CEDRP Proposed Severe VSL: The Transmission Operator did not implement a material element of its restoration plan following a Disturbance in which Blackstart Resources have been utilized in restoring the shut down area of the System. Or, if the restoration plan could not be executed as expected because actual conditions did not match the studied conditions, the Transmission Operator did not utilize its restoration plan strategies to facilitate restoration. C. REQUIREMENT RX

COMMENTS ON FERC GUIDANCE FOR VSLs: 43. Will the VSL assignment signal entities that less compliance than has been historically achieved is condoned? no 44. Is the VSL assignment a binary requirement? yes 45. Is it truly a "binary" requirement? Yes 46. If yes, is the VSL assignment consistent with other binary requirement assignments? yes 47. Is the VSL language clear & measurable (ambiguity removed)? If no, does the requirement or measure need to be revised? yes 48. Does the VSL redefine or undermine the stated requirement? yes 49. Is the VSL based on a single violation of the requirement (not multiple violations)? yes D. REQUIREMENT RX COMMENTS ON ADDITIONAL COMPLIANCE ELEMENTS: Compliance Enforcement Authority: n/a Compliance Monitoring Period and Reset Time Frame: n/a Compliance Monitoring and Enforcement Processes: n/a Data Retention: n/a Additional Compliance Information: n/a Additional Comments: n/a A. Standard – R8 EOP-005 Requirement (including sub-requirements) R8. Following a Disturbance in which one or more areas of the BES shuts down and the use of Blackstart Resources is required to restore the shut down area to service, the Transmission Operator shall resynchronize area(s) with neighboring Transmission Operator area(s) only with the authorization of the Reliability Coordinator or in accordance with the established procedures of the Reliability Coordinator. [Violation Risk Factor = High] [Time Horizon = Real-time Operations] Proposed Measure M8. If there has been a Disturbance in which Blackstart Resources have been utilized in restoring the shut down area of the System to service, each Transmission Operator involved in such an event shall have evidence, such as voice recordings, e-mail, dated computer printouts, or operator logs, that it resynchronized shut down areas in accordance with Requirement R8. Attributes of the requirement Binary xx Timing Omission Communication Quality Other Discussion: B. REQUIREMENT RX COMMENTS ON VSLs SDT Proposed Lower VSL: N/A CEDRP Proposed Lower VSL: n/a SDT Proposed Moderate VSL: N/A CEDRP Proposed Moderate VSL: n/a SDT Proposed High VSL: N/A CEDRP Proposed High VSL: n/a SDT Proposed Severe VSL: The Transmission Operator resynchronized without approval of the Reliability Coordinator or not in accordance with the established procedures of the Reliability Coordinator following a Disturbance in which Blackstart Resources have been utilized in restoring the shut down area of the System to service. CEDRP Proposed Severe VSL: n/a C. REQUIREMENT RX COMMENTS ON FERC GUIDANCE FOR VSLs: 50. Will the VSL assignment signal entities that less compliance than has been historically achieved is condoned? no 51. Is the VSL assignment a binary requirement? yes 52. Is it truly a "binary" requirement? yes 53. If yes, is the VSL assignment consistent with other binary requirement assignments? yes 54. Is the VSL language clear & measurable (ambiguity removed)? If no, does the requirement or measure need to be revised? yes 55. Does the VSL redefine or undermine the stated requirement? no 56. Is the VSL based on a single violation of the requirement (not multiple violations)? yes D. REQUIREMENT RX COMMENTS ON ADDITIONAL COMPLIANCE ELEMENTS: Compliance Enforcement Authority: n/a Compliance Monitoring Period and Reset Time Frame: n/a Compliance Monitoring and Enforcement Processes: n/a Data Retention: n/a Additional Compliance Information: n/c Additional Comments: n/c A. Standard – R9 EOP-005 Requirement (including sub-requirements) R9. Each Transmission Operator shall have Blackstart Resource testing requirements to verify that each Blackstart Resource is capable of meeting the requirements of its restoration plan. These Blackstart Resource testing requirements shall include: [Violation Risk Factor = Medium] [Time Horizon = Operations Planning] R9.1. The frequency of testing such that each Blackstart Resource is tested at least once every three years. R9.2. A list of required tests including: R9.2.1. The ability to start the unit when isolated with no support from the BES or when designed to remain energized without connection to the remainder of the System. R9.2.2. The ability to energize a bus. If it is not possible to energize a bus during the test, the testing entity must affirm that the unit has the capability to energize a bus such as verifying that the breaker close coil relay can be energized with the voltage and frequency monitor controls disconnected. R9.3. The minimum duration of each of the required tests. Proposed Measure M9. Each Transmission Operator shall have documented Blackstart Resource testing requirements in accordance with Requirement R9. Attributes of the requirement Binary X Timing Omission X Communication Quality Other Discussion: This requirement is not a "true binary" requirement ; CEDRP assumption - the SDT determined that all sub-requirements were equally important to meeting the objective of the standard – as such not meeting one sub-requirement results in a complete failure to meet the entire requirement. If that assumption is correct the VSL would be appropriate; if not the VSL should be incremented based on the omission of one or more sub-requirements. B. REQUIREMENT RX COMMENTS ON VSLs SDT Proposed Lower VSL: n/a CEDRP Proposed Lower VSL: n/c SDT Proposed Moderate VSL: n/a CEDRP Proposed Moderate VSL: n/c SDT Proposed High VSL: n/a CEDRP Proposed High VSL: n/c SDT Proposed Severe VSL: The Transmission Operator's Blackstart Resource testing requirements do not address one or more of the sub-requirements of Requirement R9. CEDRP Proposed Severe VSL: n/c C. REQUIREMENT RX COMMENTS ON FERC GUIDANCE FOR VSLs: 57. Will the VSL assignment signal entities that less compliance than has been historically achieved is condoned? no 58. Is the VSL assignment a binary requirement? yes 59. Is it truly a "binary" requirement? yes 60. If yes, is the VSL assignment consistent with other binary requirement assignments? yes 61. Is the VSL language clear & measurable (ambiguity removed)? If no, does the requirement or

measure need to be revised? no 62. Does the VSL redefine or undermine the stated requirement? no 63. Is the VSL based on a single violation of the requirement (not multiple violations)? yes D. REQUIREMENT RX COMMENTS ON ADDITIONAL COMPLIANCE ELEMENTS: Compliance Enforcement Authority: n/a Compliance Monitoring Period and Reset Time Frame: n/a Compliance Monitoring and Enforcement Processes: n/a Data Retention: There is no "verification process" nor "results" in this requirement, only a procedural document (see requirement and measures). Is it the intention for the entity to keep only the current procedure and one previous, which could cover a very short period of time? Why not "three years" or matching the data retention requirements of R1? Additional Compliance Information: n/c Additional Comments: n/c A. Standard – R10 EOP-005 Requirement (including sub-requirements) R10. Each Transmission Operator shall include within its operations training program, annual System restoration training to its System Operators to assure the proper execution of its restoration plan. This training program shall include training on the following: [Violation Risk Factor = Medium] [Time Horizon = Operations Planning] R10.1. System restoration plan including coordination with the Reliability Coordinator and Generator Operators included in the restoration plan. R10.2. Restoration priorities. R10.3. Building of cranking paths. R10.4. Synchronizing (re-energized sections of the System). Proposed Measure M10. Each Transmission Operator shall have an electronic or hard copy of the training program material provided to its System Operators for System restoration training in accordance with Requirement R10. Attributes of the requirement Binary Timing X Omission X Communication Quality Other Discussion: Might consider including "coordination with the Reliability Coordinator and Generator Operators" and "Restoration priorities" in R1 or eliminating from R10.1 and R10.2 or it is confusing. The measure should include records to demonstrate System Operators received this training annually. Consider that having training requirements outside the PER standards makes tracking of training and evidence difficult for the entity. Might consider moving the training requirements into the PER group to reduce the likelihood of errors in developing and administering training programs. B. REQUIREMENT RX COMMENTS ON VSLS SDT Proposed Lower VSL: The Transmission Operator's training does not address one of the sub-requirements of Requirement R10. CEDRP Proposed Lower VSL: The Transmission Operator's training does not address one of the sub-requirements of Requirement R10 OR there were System Operators which did not receive this training during an annual training cycle. SDT Proposed Moderate VSL: The Transmission Operator's training does not address two of the sub-requirements of Requirement R10. CEDRP Proposed Moderate VSL: The Transmission Operator's training does not address two of the sub-requirements of Requirement R10 OR more than 25% of its System Operators did not receive this training during an annual training cycle. SDT Proposed High VSL: The Transmission Operator's training does not address three or more of the sub-requirements of Requirement R10. CEDRP Proposed High VSL: The Transmission Operator's training does not address three or more of the sub-requirements of Requirement R10 OR more than 50% of its System Operators did not receive this training during an annual training cycle. SDT Proposed Severe VSL: The Transmission Operator has not included System restoration training in its operations training program. CEDRP Proposed Severe VSL: The Transmission Operator has not included System restoration training in its operations training program OR more than 75% of its System Operators did not receive this training during an annual training cycle. C. REQUIREMENT RX COMMENTS ON FERC GUIDANCE FOR VSLS: 64. Will the VSL assignment signal entities that less compliance than has been historically achieved is condoned? Yes (see discussion re. evidence training occurred) 65. Is the VSL assignment a binary requirement? no 66. Is it truly a "binary" requirement? no 67. If yes, is the VSL assignment consistent with other binary requirement assignments? 68. Is the VSL language clear & measurable (ambiguity removed)? If no, does the requirement or measure need to be revised? yes 69. Does the VSL redefine or undermine the stated requirement? Yes (does not require evidence training occurred) 70. Is the VSL based on a single violation of the requirement (not multiple violations)? yes D. REQUIREMENT RX COMMENTS ON ADDITIONAL COMPLIANCE ELEMENTS: Compliance Enforcement Authority: n/a Compliance Monitoring Period and Reset Time Frame: n/a Compliance Monitoring and Enforcement Processes: n/a Data Retention: Need to include training records. Additional Compliance Information: n/a Additional Comments: n/a A. Standard – R11 EOP-005 Requirement (including sub-requirements) R11. Each Transmission Operator, each applicable Transmission Owner, and each applicable Distribution Provider shall provide a minimum of two hours of System restoration training every two years to their field switching personnel identified as performing unique tasks associated with the Transmission Operator's restoration plan that are outside of their normal tasks. [Violation Risk Factor = Lower] [Time Horizon = Operations Planning] Proposed Measure M11. Each Transmission Operator, each applicable Transmission Owner, and each applicable Distribution Provider shall have an electronic or hard copy of the training program material provided to their field switching personnel for System restoration training and the corresponding training records including training dates and duration in accordance with Requirement R11. Attributes of the requirement Binary Timing Omission Communication Quality Other Discussion: The VSL's only provide a level of compliance if NO personnel are trained. Consider lower VSL's if only a small portion of personnel were not trained. Again consider moving training requirements to PER

standards to better ensure consistency of the standards and to facilitate compliance and tracking by the entity. B. REQUIREMENT RX COMMENTS ON VSLS SDT Proposed Lower VSL: N/A CEDRP Proposed Lower VSL: The TOP failed to train 1% to 10% of its identified personnel within a two-year training cycle. SDT Proposed Moderate VSL: N/A CEDRP Proposed Moderate VSL: The TOP failed to train 10 to 15% of its identified personnel within a two-year training cycle. SDT Proposed High VSL: N/A CEDRP Proposed High VSL: The TOP failed to train 16% to 20% of its identified personnel within a two-year training cycle. SDT Proposed Severe VSL: The Transmission Operator, applicable Transmission Owner, or applicable Distribution Provider did not supply any training to the personnel required by Requirement R11 within a two year period. CEDRP Proposed Severe VSL: The TOP failed to train more than 21% of its identified personnel within a two-year training cycle. C. REQUIREMENT RX COMMENTS ON FERC GUIDANCE FOR VSLS: 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 3. Is it truly a "binary" requirement? no 4. If yes, is the VSL assignment consistent with other binary requirement assignments? no 5. Is the VSL language clear & measurable (ambiguity removed)? If no, does the requirement or measure need to be revised? yes 6. Does the VSL redefine or undermine the stated requirement? no 7. Is the VSL based on a single violation of the requirement (not multiple violations)? no D. REQUIREMENT RX COMMENTS ON ADDITIONAL COMPLIANCE ELEMENTS: Compliance Enforcement Authority: n/a Compliance Monitoring Period and Reset Time Frame: n/a Compliance Monitoring and Enforcement Processes: n/c Data Retention: Add retention requirements for training records. Additional Compliance Information: n/c Additional Comments: n/c A. Standard – R12 EOP-005 Requirement (including sub-requirements) R12. Each Transmission Operator shall participate in its Reliability Coordinator's restoration drills, exercises, or simulations as requested by its Reliability Coordinator. [Violation Risk Factor = Medium] [Time Horizon = Operations Planning] Proposed Measure M12. Each Transmission Operator shall have evidence, such as training records, that it participated in the Reliability Coordinator's restoration drills, exercises, or simulations as requested in accordance with Requirement R12. Attributes of the requirement Binary Timing Omission Communication Quality Other Discussion: B. REQUIREMENT RX COMMENTS ON VSLS SDT Proposed Lower VSL: N/A. CEDRP Proposed Lower VSL: n/c SDT Proposed Moderate VSL: N/A. CEDRP Proposed Moderate VSL: n/c SDT Proposed High VSL: N/A. CEDRP Proposed High VSL: n/c SDT Proposed Severe VSL: The Transmission Operator has failed to comply with a request for their participation from the Reliability Coordinator. CEDRP Proposed Severe VSL: n/c C. REQUIREMENT RX COMMENTS ON FERC GUIDANCE FOR VSLS: 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 3. Is it truly a "binary" requirement? no 4. If yes, is the VSL assignment consistent with other binary requirement assignments? 5. Is the VSL language clear & measurable (ambiguity removed)? If no, does the requirement or measure need to be revised? yes 6. Does the VSL redefine or undermine the stated requirement? no 7. Is the VSL based on a single violation of the requirement (not multiple violations)? yes D. REQUIREMENT RX COMMENTS ON ADDITIONAL COMPLIANCE ELEMENTS: Compliance Enforcement Authority: n/c Compliance Monitoring Period and Reset Time Frame: n/c Compliance Monitoring and Enforcement Processes: n/c Data Retention: Is it the intention to require that an entity keep this data to be kept for two full audit cycles, that is, six years? This seems longer than has generally been considered necessary throughout the rest of the standard, and beyond what is needed for the RE to ensure compliance over each audit cycle. Additional Compliance Information: The data retention requirements are a bit out of order. Consider a numbering system for these to match them with the requirements and measurements. Additional Comments: n/c A. Standard – R13 EOP-005 Requirement (including sub-requirements) R13. Each Transmission Operator and Generator Operator with a Blackstart Resource shall have written Blackstart Resource Agreements or mutually agreed upon procedures or protocols, specifying the terms and conditions of their arrangement. Such Agreements shall include references to the Blackstart Resource testing requirements. [Violation Risk Factor = Medium] [Time Horizon = Operations Planning] Proposed Measure M13. Each Transmission Operator and Generator Operator with a Blackstart Resource shall have the dated Blackstart Resource Agreements or mutually agreed upon procedures or protocols in accordance with Requirement R13. Attributes of the requirement Binary Timing Omission X Communication Quality Other Discussion: B. REQUIREMENT RX COMMENTS ON VSLS SDT Proposed Lower VSL: N/A CEDRP Proposed Lower VSL: n/c SDT Proposed Moderate VSL: The Transmission Operator and Generator Operator with a Blackstart Resource do not reference Blackstart Resource Testing requirements in their written Blackstart Resource Agreements or mutually agreed upon procedures or protocols. CEDRP Proposed Moderate VSL: n/c SDT Proposed High VSL: N/A CEDRP Proposed High VSL: n/c SDT Proposed Severe VSL: The Transmission Operator and Generator Operator with a Blackstart resource do not have a written Blackstart Resource Agreement or mutually agreed upon procedures or protocols. CEDRP Proposed Severe VSL: n/c C. REQUIREMENT RX COMMENTS ON FERC GUIDANCE FOR VSLS: 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? 3. Is it truly a "binary"

requirement? 4. If yes, is the VSL assignment consistent with other binary requirement assignments? 5. Is the VSL language clear & measurable (ambiguity removed)? If no, does the requirement or measure need to be revised? yes 6. Does the VSL redefine or undermine the stated requirement? no 7. Is the VSL based on a single violation of the requirement (not multiple violations)? yes D. REQUIREMENT RX COMMENTS ON ADDITIONAL COMPLIANCE ELEMENTS: Compliance Enforcement Authority: n/c Compliance Monitoring Period and Reset Time Frame: n/c Compliance Monitoring and Enforcement Processes: n/c Data Retention: n/c Additional Compliance Information: n/c Additional Comments: n/c A. Standard – R14 EOP-005 Requirement (including sub-requirements) R14. Each Generator Operator with a Blackstart Resource shall have documented procedures for starting each Blackstart Resource and energizing a bus. [Violation Risk Factor = Medium] [Time Horizon = Operations Planning] Proposed Measure M14. Each Generator Operator with a Blackstart Resource shall have dated documented procedures on file for starting each unit and energizing a bus in accordance with Requirement R14. Attributes of the requirement Binary Timing Omission X Communication Quality X Other Discussion: The VSL for this requirement can be based on the lack of “documented procedure for starting” and “energizing a bus”. B. REQUIREMENT RX COMMENTS ON VSLs SDT Proposed Lower VSL: N/A CEDRP Proposed Lower VSL: n/c SDT Proposed Moderate VSL: N/A CEDRP Proposed Moderate VSL: n/c SDT Proposed High VSL: N/A CEDRP Proposed High VSL: SDT Proposed Severe VSL: The Generator Operator does not have documented starting and bus energizing procedures for each Blackstart Resource. CEDRP Proposed Severe VSL: n/c C. REQUIREMENT RX COMMENTS ON FERC GUIDANCE FOR VSLs: 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? yes 3. Is it truly a “binary” requirement? 4. If yes, is the VSL assignment consistent with other binary requirement assignments? 5. Is the VSL language clear & measurable (ambiguity removed)? If no, does the requirement or measure need to be revised? yes 6. Does the VSL redefine or undermine the stated requirement? no 7. Is the VSL based on a single violation of the requirement (not multiple violations)? yes D. REQUIREMENT RX COMMENTS ON ADDITIONAL COMPLIANCE ELEMENTS: Compliance Enforcement Authority: n/c Compliance Monitoring Period and Reset Time Frame: n/c Compliance Monitoring and Enforcement Processes: n/c Data Retention: n/c Additional Compliance Information: n/c Additional Comments: n/c A. Standard – R15 EOP-005 Requirement (including sub-requirements) R15. Each Generator Operator with a Blackstart Resource shall notify its Transmission Operator of any known changes to the capabilities of that Blackstart Resource within twenty-four hours following such change. [Violation Risk Factor = Medium] [Time Horizon = Operations Planning] Proposed Measure M15. Each Generator Operator with a Blackstart Resource shall provide evidence, such as e-mails with receipts or registered mail receipts, showing that it notified its Transmission Operator of any known changes to its Blackstart Resource capabilities within twenty-four hours of such changes in accordance with Requirement R15. Attributes of the requirement Binary Timing xx Omission Communication X Quality Other Discussion: B. REQUIREMENT RX COMMENTS ON VSLs SDT Proposed Lower VSL: The Generator Operator with a Blackstart Resource did not notify the Transmission Operator of a change in Blackstart Resource capability within twenty-four hours. CEDRP Proposed Lower VSL: The Generator Operator with a Blackstart Resource notified the Transmission Operator of a change in Blackstart Resource capability after twenty-four hours, but prior to forty-eight hours. SDT Proposed Moderate VSL: The Generator Operator with a Blackstart Resource did not notify the Transmission Operator of a change in Blackstart Resource capability within seventy-two hours. CEDRP Proposed Moderate VSL: The Generator Operator with a Blackstart Resource notified the Transmission Operator of a change in Blackstart Resource capability after hours forty-eight, but prior to seventy-two hours SDT Proposed High VSL: The Generator Operator with a Blackstart Resource did not notify the Transmission Operator of a change in Blackstart Resource capability within ninety-six hours. CEDRP Proposed High VSL: The Generator Operator with a Blackstart Resource notified the Transmission Operator of a change in Blackstart Resource capability after seventy-two hours, but prior to ninety-six hours SDT Proposed Severe VSL: The Generator Operator with a Blackstart Resource did not notify the Transmission Operator of a change in Blackstart Resource capability for more than ninety-six hours. CEDRP Proposed Severe VSL: n/c C. REQUIREMENT RX COMMENTS ON FERC GUIDANCE FOR VSLs: 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 3. Is it truly a “binary” requirement? no 4. If yes, is the VSL assignment consistent with other binary requirement assignments? 5. Is the VSL language clear & measurable (ambiguity removed)? If no, does the requirement or measure need to be revised? yes 6. Does the VSL redefine or undermine the stated requirement? no 7. Is the VSL based on a single violation of the requirement (not multiple violations)? yes D. REQUIREMENT RX COMMENTS ON ADDITIONAL COMPLIANCE ELEMENTS: Compliance Enforcement Authority: n/c Compliance Monitoring Period and Reset Time Frame: n/c Compliance Monitoring and Enforcement Processes: n/c Data Retention: n/c Additional Compliance Information: n/c Additional Comments: A. Standard – R16 EOP-005 Requirement (including sub-requirements) R16. Each Generator Operator with a Blackstart Resource shall perform Blackstart Resource

tests, and maintain records of such testing, in accordance with the testing requirements set by the Transmission Operator to verify that the Blackstart Resource can perform as specified in the restoration plan. [Violation Risk Factor = Medium] [Time Horizon = Operations Planning]

R16.1. Testing records shall include at a minimum: name of the Blackstart Resource, unit tested, date of the test, duration of the test, time required to start the unit, an indication of any testing requirements not met under Requirement R9. R16.2. Each Generator Operator shall provide the blackstart test results within thirty calendar days following a request from its Reliability Coordinator or Transmission Operator. Proposed Measure M16. Each Generator Operator with a Blackstart Resource shall maintain dated documentation of its Blackstart Resource test results and shall have evidence such as e-mails with receipts or registered mail receipts, that it provided these records to its Reliability Coordinator and Transmission Operator when requested in accordance with Requirement R16. Attributes of the requirement Binary Timing X Omission X Communication X Quality Other Discussion: VSL's do not address testing that has occurred, but been completed late (after the three year period). B. REQUIREMENT RX COMMENTS ON VSLS SDT Proposed Lower VSL: The Generator Operator with a Blackstart Resource did not maintain testing records for one of the requirements for a Blackstart Resource. Or The Generator Operator with a Blackstart Resource did not supply the Blackstart Resource testing records as requested within fifty-nine calendar days of the request. CEDRP Proposed Lower VSL: The Generator Operator with a Blackstart Resource did not maintain testing records for one of the requirements for a Blackstart Resource. Or The Generator Operator with a Blackstart Resource did provide the Blackstart Resource testing records as requested after thirty calendar days but prior to forty-five days of the request. Or The Generator Operator failed to test a Blackstart Resource in the time-frame required by its policy. SDT Proposed Moderate VSL: The Generator Operator with a Blackstart Resource did not maintain testing records for two of the requirements for a Blackstart Resource. Or The Generator Operator with a Blackstart Resource did not supply the Blackstart Resource testing records as requested for sixty days to eighty-nine calendar days after the request. CEDRP Proposed Moderate VSL: The Generator Operator with a Blackstart Resource did not maintain testing records for two of the requirements for a Blackstart Resource. Or The Generator Operator with a Blackstart Resource did provide the Blackstart Resource testing records as requested after forty-five calendar days but prior to sixty days of the request. Or The Generator Operator failed to test a Blackstart Resource within six months of the time-frame required by its policy. SDT Proposed High VSL: The Generator Operator with a Blackstart Resource did not maintain testing records for three of the requirements for a Blackstart Resource. Or The Generator Operator with a Blackstart Resource did not supply the Blackstart Resource testing records as requested for ninety to 119 calendar days after the request. CEDRP Proposed High VSL: The Generator Operator with a Blackstart Resource did not maintain testing records for two of the requirements for a Blackstart Resource. Or The Generator Operator with a Blackstart Resource did provide the Blackstart Resource testing records as requested after sixty calendar days but prior to ninety days of the request Or The Generator Operator failed to test a Blackstart Resource within twelve months of the time-frame required by its policy. SDT Proposed Severe VSL: The Generator Operator with a Blackstart Resource did not maintain testing records for a Blackstart Resource. Or The Generator Operator with a Blackstart Resource did not supply the Blackstart Resource testing records as requested for 120 days or more after the request. CEDRP Proposed Severe VSL: The Generator Operator with a Blackstart Resource did not maintain testing records for two of the requirements for a Blackstart Resource. Or The Generator Operator with a Blackstart Resource did not supply the Blackstart Resource testing records as requested within ninety calendar days of the request. Or The Generator Operator failed to test a Blackstart Resource within eighteen months of the time-frame required by its policy. C. REQUIREMENT RX COMMENTS ON FERC GUIDANCE FOR VSLS: 1. Will the VSL assignment signal entities that less compliance than has been historically achieved is condoned? 2. Is the VSL assignment a binary requirement? 3. Is it truly a "binary" requirement? 4. If yes, is the VSL assignment consistent with other binary requirement assignments? 5. Is the VSL language clear & measurable (ambiguity removed)? If no, does the requirement or measure need to be revised? 6. Does the VSL redefine or undermine the stated requirement? No VSL assigned for testing a blackstart unit outside the timeframe of the entity's procedure. No violation apparent for failing to meet the 30 day requirement for providing testing results upon request until 30 days late. 7. Is the VSL based on a single violation of the requirement (not multiple violations)? D. REQUIREMENT RX COMMENTS ON ADDITIONAL COMPLIANCE ELEMENTS: Compliance Enforcement Authority: Compliance Monitoring Period and Reset Time Frame: Compliance Monitoring and Enforcement Processes: Data Retention: This data retention requirement could result in an entity not keeping records for a long enough period of time for the RE to verify compliance over an audit period. For example, if an entity tests annually, instead of every three years, then the test records could only cover a little over a year of the period. Further, an entity that has failed to test a unit in the three year period could potentially hide a violation by revising their testing interval to monthly, and then they only have a couple months of data. Might consider revising retention period to three years or since previous audit. Additional Compliance Information: Additional Comments: A. Standard – 17

EOP-005 Requirement (including sub-requirements) R17. Each Generator Operator with a Blackstart Resource shall provide a minimum of two hours of training every two years to each of its operating personnel responsible for the startup of its Blackstart Resource generation units and energizing a bus. The training program shall include training on the following: [Violation Risk Factor = Medium] [Time Horizon = Operations Planning] R17.1. System restoration plan including coordination with the Transmission Operator. R17.2. The procedures documented in Requirement R14. Proposed Measure M17. Each Generator Operator with a Blackstart Resource shall have an electronic or hard copy of the training program material provided to its operating personnel responsible for the startup and synchronization of its Blackstart Resource generation units and a copy of its dated training records including training dates and durations showing that it has provided training in accordance with Requirement R17. Attributes of the requirement Binary Timing X Omission X Communication Quality Other Discussion: The inclusion of the word "dated" prior to "training records" in the measure is confusing in the context of this sentence. The VSL's do not account for partially meeting the standard, such as failing to train some, but not all operating personnel, or failing to include a portion of the required training. B. REQUIREMENT RX COMMENTS ON VSLS SDT Proposed Lower VSL: N/A CEDRP Proposed Lower VSL: The GOP did not train or only partially trained 1% to 10% of its operating personnel responsible for the startup and synchronization of the Blackstart Resource generating units. SDT Proposed Moderate VSL: N/A CEDRP Proposed Moderate VSL: The GOP did not train or only partially trained 11% to 20% of its operating personnel responsible for the startup and synchronization of the Blackstart Resource generating units. SDT Proposed High VSL: N/A CEDRP Proposed High VSL: The GOP did not train or only partially trained 21% to 30% of its operating personnel responsible for the startup and synchronization of the Blackstart Resource generating units. OR The GOP did not include one of the sub-requirements in its training program. SDT Proposed Severe VSL: The Generator Operator with a Blackstart Resource did not supply any of the training required by Requirement R17 within a two year period to each operator responsible for startup of its Blackstart Resource generation units and energizing a bus. CEDRP Proposed Severe VSL: The GOP did not train or only partially trained 31% or more of its operating personnel responsible for the startup and synchronization of the Blackstart Resource generating units. OR The GOP did not have documentation of its training program indicating inclusion of the sub-requirements. C. REQUIREMENT RX COMMENTS ON FERC GUIDANCE FOR VSLS: 1. Will the VSL assignment signal entities that less compliance than has been historically achieved is condoned? 2. Is the VSL assignment a binary requirement? 3. Is it truly a "binary" requirement? 4. If yes, is the VSL assignment consistent with other binary requirement assignments? 5. Is the VSL language clear & measurable (ambiguity removed)? If no, does the requirement or measure need to be revised? 6. Does the VSL redefine or undermine the stated requirement? 7. Is the VSL based on a single violation of the requirement (not multiple violations)? D. REQUIREMENT RX COMMENTS ON ADDITIONAL COMPLIANCE ELEMENTS: Compliance Enforcement Authority: Compliance Monitoring Period and Reset Time Frame: Compliance Monitoring and Enforcement Processes: Data Retention: n/c Additional Compliance Information: Additional Comments: A. Standard – R18 EOP-005 Requirement (including sub-requirements) R18. Each Generator Operator shall participate in the Reliability Coordinator's restoration drills, exercises, or simulations as requested by the Reliability Coordinator. [Violation Risk Factor = Medium] [Time Horizon = Operations Planning] Proposed Measure M18. Each Generator Operator shall have evidence, such as dated training records, that it participated in the Reliability Coordinator's restoration drills, exercises, or simulations if requested to do so in accordance with Requirement R18. Attributes of the requirement Binary X Timing Omission Communication Quality Other Discussion: n/c B. REQUIREMENT RX COMMENTS ON VSLS SDT Proposed Lower VSL: N/A CEDRP Proposed Lower VSL: n/c SDT Proposed Moderate VSL: N/A CEDRP Proposed Moderate VSL: n/c SDT Proposed High VSL: N/A CEDRP Proposed High VSL: n/c SDT Proposed Severe VSL: The Generator Operator has failed to comply with a request for its participation from the Reliability Coordinator. CEDRP Proposed Severe VSL: n/c C. REQUIREMENT RX COMMENTS ON FERC GUIDANCE FOR VSLS: 1. Will the VSL assignment signal entities that less compliance than has been historically achieved is condoned? 2. Is the VSL assignment a binary requirement? 3. Is it truly a "binary" requirement? 4. If yes, is the VSL assignment consistent with other binary requirement assignments? 5. Is the VSL language clear & measurable (ambiguity removed)? If no, does the requirement or measure need to be revised? 6. Does the VSL redefine or undermine the stated requirement? 7. Is the VSL based on a single violation of the requirement (not multiple violations)? D. REQUIREMENT RX COMMENTS ON ADDITIONAL COMPLIANCE ELEMENTS: Compliance Enforcement Authority: Compliance Monitoring Period and Reset Time Frame: Compliance Monitoring and Enforcement Processes: Data Retention: n/c Additional Compliance Information: Additional Comments:



VSL/CEA Job Aid Work Sheet Requirement Attributes Guidelines Link SIS SME: John Blazekovich CEDRP SME: Virginia Cook A. Standard – R1 EOP-006 Requirement (including

sub-requirements) R1. Each Reliability Coordinator shall have a Reliability Coordinator Area restoration plan. The scope of the Reliability Coordinator's restoration plan starts when Blackstart Resources are utilized to re-energize a shut down area of the Bulk Electric System (BES), or separation has occurred between neighboring Reliability Coordinators, or an energized island has been formed on the BES within the Reliability Coordinator Area. The scope of the Reliability Coordinator's restoration plan ends when all of its Transmission Operators are interconnected and it its Reliability Coordinator Area is connected to all of its neighboring Reliability Coordinator Areas. The restoration plan shall include: [Violation Risk Factor = High] [Time Horizon = Operations Planning] R1.1. A description of the high level strategy to be employed during restoration events for restoring the Interconnection including minimum blackstart capability requirements. R1.2. Processes for restoring the Interconnection. R1.3. Descriptions of the elements of coordination between individual Transmission Operator restoration plans. R1.4. Descriptions of the elements of coordination of restoration plans with neighboring Reliability Coordinators. R1.5. Criteria and conditions for reestablishing interconnections between neighboring Transmission Operators and Reliability Coordinator Areas. R1.6. Identification of acceptable voltage and frequency limits during restoration. R1.7. Reporting requirements for the entities within the Reliability Coordinator Area during a restoration event. R1.8. Criteria for sharing information regarding restoration with neighboring Reliability Coordinators and with Transmission Operators and Balancing Authorities within its Reliability Coordinator Area. R1.9. Identification of the Reliability Coordinator as the primary contact for disseminating information regarding restoration to neighboring Reliability Coordinators, and to Transmission Operators, and Balancing Authorities within its Reliability Coordinator Area. R1.10. Criteria for transferring operations and authority back to the Balancing Authority. Proposed Measure M1. Each Reliability Coordinator shall have available a dated copy of its restoration plan in accordance with Requirement R1. Attributes of the requirement Binary Timing Omission X Communication X Quality Other Discussion: B. REQUIREMENT RX COMMENTS ON VSLs SDT Proposed Lower VSL: The Reliability Coordinator failed to include one sub-requirement of Requirement R1 within its restoration plan. CEDRP Proposed Lower VSL: n/c SDT Proposed Moderate VSL: The Reliability Coordinator failed to include two sub-requirements of requirement R1 within its restoration plan. CEDRP Proposed Moderate VSL: n/c SDT Proposed High VSL: The Reliability Coordinator has failed to include three of the sub-requirements of Requirement R1 within its restoration plan. . CEDRP Proposed High VSL: n/c SDT Proposed Severe VSL: The Reliability Coordinator has failed to include four or more of the sub-requirements within its restoration plan. CEDRP Proposed Severe VSL: n/c C. REQUIREMENT RX COMMENTS ON FERC GUIDANCE FOR VSLs: 1. Will the VSL assignment signal entities that less compliance than has been historically achieved is condoned? 2. Is the VSL assignment a binary requirement? 3. Is it truly a "binary" requirement? 4. If yes, is the VSL assignment consistent with other binary requirement assignments? 5. Is the VSL language clear & measurable (ambiguity removed)? If no, does the requirement or measure need to be revised? 6. Does the VSL redefine or undermine the stated requirement? 7. Is the VSL based on a single violation of the requirement (not multiple violations)? D. REQUIREMENT RX COMMENTS ON ADDITIONAL COMPLIANCE ELEMENTS: Compliance Enforcement Authority: Compliance Monitoring Period and Reset Time Frame: Compliance Monitoring and Enforcement Processes: Data Retention: n/c Additional Compliance Information: Additional Comments: A. Standard – R2 EOP-006 Requirement (including sub-requirements) R2. The Reliability Coordinator shall distribute its most recent Reliability Coordinator Area restoration plan to each of its Transmission Operators and neighboring Reliability Coordinators within thirty calendar days of creation or revision. [Violation Risk Factor = Lower] [Time Horizon = Operations Planning] Proposed Measure M2. Each Reliability Coordinator shall provide evidence such as e-mails with receipts or registered mail receipts, that its most recent restoration plan has been distributed in accordance with Requirement R2. Attributes of the requirement Binary Timing X Omission Communication X Quality Other Discussion: B. REQUIREMENT RX COMMENTS ON VSLs SDT Proposed Lower VSL: The Reliability Coordinator distributed the most recent Reliability Coordinator Area restoration plan to the entities identified in Requirement R2 but was more than thirty days late. CEDRP Proposed Lower VSL: The Reliability Coordinator distributed the most recent Reliability Coordinator Area restoration plan to the entities identified in Requirement R2 more than thirty days, but less than sixty days after its creation or revision. SDT Proposed Moderate VSL: The Reliability Coordinator distributed the most recent Reliability Coordinator Area restoration plan to the entities identified in Requirement R2 but was more than sixty days late. CEDRP Proposed Moderate VSL: The Reliability Coordinator distributed the most recent Reliability Coordinator Area restoration plan to the entities identified in Requirement R2 more than sixty days, but less than ninety days after its creation or revision. SDT Proposed High VSL: The Reliability Coordinator distributed the most recent Reliability Coordinator Area restoration plan to the entities identified in Requirement R2 but was more than ninety days late. CEDRP Proposed High VSL: The Reliability Coordinator distributed the most recent Reliability Coordinator Area restoration plan to the entities identified in Requirement R2 more than ninety days, but less than 120 days after its creation or revision. SDT Proposed Severe VSL: The Reliability Coordinator distributed the most recent Reliability Coordinator Area

restoration plan to entities identified in Requirement R2 but was more than 120 days late. CEDRP Proposed Severe VSL: The Reliability Coordinator distributed the most recent Reliability Coordinator Area restoration plan to the entities identified in Requirement R2 more than 120 days after its creation or revision. C. REQUIREMENT RX COMMENTS ON FERC GUIDANCE FOR VSLS: 8. Will the VSL assignment signal entities that less compliance than has been historically achieved is condoned? Yes, as written, the Lower VSL implies that it is "okay" not to make the new plan available for up to 60 days. It is confusing to the entity and the auditor as stated. 9. Is the VSL assignment a binary requirement? 10. Is it truly a "binary" requirement? 11. If yes, is the VSL assignment consistent with other binary requirement assignments? 12. Is the VSL language clear & measurable (ambiguity removed)? If no, does the requirement or measure need to be revised? 13. Does the VSL redefine or undermine the stated requirement? 14. Is the VSL based on a single violation of the requirement (not multiple violations)? D. REQUIREMENT RX COMMENTS ON ADDITIONAL COMPLIANCE ELEMENTS: Compliance Enforcement Authority: Compliance Monitoring Period and Reset Time Frame: Compliance Monitoring and Enforcement Processes: Data Retention: Should match that for R1. Additional Compliance Information: Additional Comments: A. Standard – R3 EOP-006 Requirement (including sub-requirements) R3. Each Reliability Coordinator shall review its restoration plan within thirteen months of the last review. [Violation Risk Factor = Medium] [Time Horizon = Operations Planning] Proposed Measure M3. Each Reliability Coordinator shall provide evidence such as a review signature sheet, or revision histories, that it has reviewed its restoration plan within thirteen months of the last review in accordance with Requirement R3. Attributes of the requirement Binary Timing xx Omission Communication Quality Other Discussion: It is unusual for requirements of this time to be all or nothing. Is it as bad to be a little late in reviewing as it is to be very late? B. REQUIREMENT RX COMMENTS ON VSLS SDT Proposed Lower VSL: N/A CEDRP Proposed Lower VSL: The RC reviewed its restoration plan after thirteen months but prior to fourteen months of the last review. SDT Proposed Moderate VSL: N/A CEDRP Proposed Moderate VSL: The RC reviewed its restoration plan after fourteen months but prior to fifteen months of the last review. SDT Proposed High VSL: N/A CEDRP Proposed High VSL: The RC reviewed its restoration plan after fifteen months but prior to sixteen months of the last review SDT Proposed Severe VSL: The Reliability Coordinator did not review its restoration plan within thirteen months of the last review. CEDRP Proposed Severe VSL: The RC did not review its restoration plan within sixteen months of the last review. C. REQUIREMENT RX COMMENTS ON FERC GUIDANCE FOR VSLS: 15. Will the VSL assignment signal entities that less compliance than has been historically achieved is condoned? 16. Is the VSL assignment a binary requirement? 17. Is it truly a "binary" requirement? 18. If yes, is the VSL assignment consistent with other binary requirement assignments? 19. Is the VSL language clear & measurable (ambiguity removed)? If no, does the requirement or measure need to be revised? 20. Does the VSL redefine or undermine the stated requirement? 21. Is the VSL based on a single violation of the requirement (not multiple violations)? D. REQUIREMENT RX COMMENTS ON ADDITIONAL COMPLIANCE ELEMENTS: Compliance Enforcement Authority: Compliance Monitoring Period and Reset Time Frame: Compliance Monitoring and Enforcement Processes: Data Retention: The elements in the data retention do not match the documents suggested in the measure. Suggest changing to state that it is the review signature sheets or revision histories that may be kept. Also, the data retention period should match that of R1. Additional Compliance Information: Additional Comments: A. Standard – R4 EOP-006 Requirement (including sub-requirements) R4. Each Reliability Coordinator shall review their neighboring Reliability Coordinator's restoration plans. [Violation Risk Factor = Medium] [Time Horizon = Operations Planning] R4.1. If the Reliability Coordinator finds conflicts between its restoration plans and any of its neighbors, the conflicts shall be resolved in thirty days. Proposed Measure M4. Each Reliability Coordinator shall provide evidence such as dated review signature sheets that it has reviewed its neighboring Reliability Coordinator's restoration plans and resolved any conflicts within thirty days in accordance with Requirement R4. Attributes of the requirement Binary Timing xx Omission Communication Quality X Other Discussion: B. REQUIREMENT RX COMMENTS ON VSLS SDT Proposed Lower VSL: The Reliability Coordinator did not review and resolve conflicts with the submitted restoration plans from its neighboring Reliability Coordinators within thirty days. CEDRP Proposed Lower VSL: The Reliability Coordinator performed its review and resolved conflicts with the submitted restoration plans from its neighboring Reliability Coordinators after thirty days but prior to sixty days. SDT Proposed Moderate VSL: The Reliability Coordinator did not review and resolve conflicts with the submitted restoration plans from its neighboring Reliability Coordinators within sixty days. CEDRP Proposed Moderate VSL: The Reliability Coordinator performed its review and resolved conflicts with the submitted restoration plans from its neighboring Reliability Coordinators after sixty days.. SDT Proposed High VSL: The Reliability Coordinator did not review and resolve conflicts with the submitted restoration plans from its neighboring Reliability Coordinators within ninety days. CEDRP Proposed High VSL: n/c SDT Proposed Severe VSL: The Reliability Coordinator did not review and resolve conflicts with the submitted restoration plans from its neighboring Reliability Coordinators within 120 days. CEDRP Proposed Severe VSL: The Reliability Coordinator did not perform a review of the submitted restoration plans from its neighboring Reliability








Coordinators. C. REQUIREMENT RX COMMENTS ON FERC GUIDANCE FOR VSLs: 22. Will the VSL assignment signal entities that less compliance than has been historically achieved is condoned? 23. Is the VSL assignment a binary requirement? 24. Is it truly a "binary" requirement? 25. If yes, is the VSL assignment consistent with other binary requirement assignments? 26. Is the VSL language clear & measurable (ambiguity removed)? If no, does the requirement or measure need to be revised? 27. Does the VSL redefine or undermine the stated requirement? 28. Is the VSL based on a single violation of the requirement (not multiple violations)? D. REQUIREMENT RX COMMENTS ON ADDITIONAL COMPLIANCE ELEMENTS: Compliance Enforcement Authority: Compliance Monitoring Period and Reset Time Frame: Compliance Monitoring and Enforcement Processes: Data Retention: n/c Additional Compliance Information: Additional Comments: A. Standard – R5 EOP-006 Requirement (including sub-requirements) R5. Each Reliability Coordinator shall review the restoration plans required by EOP-005 of the Transmission Operators within its Reliability Coordinator Area and neighboring Reliability Coordinators, when received. [Violation Risk Factor = Medium] [Time Horizon = Operations Planning] R5.1. The Reliability Coordinator shall determine whether the Transmission Operator's restoration plan is coordinated and compatible with the Reliability Coordinator's restoration plan and other Transmission Operators' restoration plans within its Reliability Coordinator Area. The Reliability Coordinator shall approve or disapprove, with stated reasons, the Transmission Operator's submitted restoration plan within thirty calendar days following the receipt of the restoration plan from the Transmission Operator. Proposed Measure M5. Each Reliability Coordinator shall provide evidence, such as a review signature sheet or emails, that it has reviewed, approved or disapproved, and notified its Transmission Operator's, and reviewed its neighboring Reliability Coordinator's, submitted restoration plan(s) and updated its restoration plan, if necessary, in accordance with Requirement R5. Attributes of the requirement Binary Timing X Omission Communication Quality X Other Discussion: Anytime an entity is dependent on another entity for compliance it is problematic. Unless the RC is also held liable, multiple rejections of restoration plans for minor reasons could put a TOP in a non-compliance situation. Might wish to consider placing a requirement for them to come to agreement within that period, similar to R4. Suggest that to reduce confusion, move the requirement to review the neighboring RC's plans to R4. Additionally "when received" is ambiguous. B. REQUIREMENT RX COMMENTS ON VSLs SDT Proposed Lower VSL: The Reliability Coordinator did not review and approve/disapprove the submitted restoration plans from its Transmission Operators and neighboring Reliability Coordinators within thirty days of receipt. Or, the Reliability Coordinator failed to notify the Transmission Operator of its approval or disapproval with stated reasons for disapproval within thirty days of receipt. CEDRP Proposed Lower VSL: The Reliability Coordinator notified the Transmission Operator of its approval or disapproval with stated reasons for disapproval after thirty days, but prior to forty-five days of receipt. [First statement is redundant] SDT Proposed Moderate VSL: The Reliability Coordinator did not review and approve/disapprove the submitted restoration plans from its Transmission Operators and neighboring Reliability Coordinators within forty-five calendar days of receipt. Or, the Reliability Coordinator failed to notify the Transmission Operator of its approval or disapproval with stated reasons for disapproval within forty-five days of receipt. CEDRP Proposed Moderate VSL: The Reliability Coordinator notified the Transmission Operator of its approval or disapproval with stated reasons for disapproval after forty-five days, but prior to sixty days of receipt. SDT Proposed High VSL: The Reliability Coordinator did not review and approve/disapprove the submitted restoration plans from its Transmission Operators and neighboring Reliability Coordinators within sixty calendar days of receipt. Or, the Reliability Coordinator failed to notify the Transmission Operator of its approval or disapproval with stated reasons for disapproval within sixty days of receipt. Or the Reliability Coordinator failed to revise its restoration plan after identifying changes required by new or revised restoration plans received from its Transmission Operators and neighboring Reliability Coordinators within ninety calendar days of receipt. he Reliability Coordinator failed to notify the Transmission Operator of its approval or disapproval with stated reasons for disapproval within forty-five days of receipt. CEDRP Proposed High VSL: The Reliability Coordinator notified the Transmission Operator of its approval or disapproval with stated reasons for disapproval after sixty days, but prior to ninety days of receipt. [This requirement does not state that the RC must revise its restoration plans...if that is the intent, need to revise statement of requirement] SDT Proposed Severe VSL: The Reliability Coordinator did not review and approve/disapprove the submitted restoration plans from its Transmission Operators and neighboring Reliability Coordinators within ninety calendar days of receipt. Or, the Reliability Coordinator failed to notify the Transmission Operator of its approval or disapproval with stated reasons for disapproval within ninety days of receipt. Or the Reliability Coordinator failed to revise its restoration plan after identifying changes required by new or revised restoration plans received from its Transmission Operators and neighboring Reliability Coordinators within 150 calendar days of receipt. CEDRP Proposed Severe VSL: The Reliability Coordinator failed to notify the Transmission Operator of its approval or disapproval with stated reasons for disapproval within ninety days of receipt. [This requirement does not state that the RC must revise its restoration plans... if that is the intent, need to revise statement



of requirement] C. REQUIREMENT RX COMMENTS ON FERC GUIDANCE FOR VSLS: 29. Will the VSL assignment signal entities that less compliance than has been historically achieved is condoned? 30. Is the VSL assignment a binary requirement? 31. Is it truly a "binary" requirement? 32. If yes, is the VSL assignment consistent with other binary requirement assignments? 33. Is the VSL language clear & measurable (ambiguity removed)? If no, does the requirement or measure need to be revised? 34. Does the VSL redefine or undermine the stated requirement? 35. Is the VSL based on a single violation of the requirement (not multiple violations)? D. REQUIREMENT RX COMMENTS ON ADDITIONAL COMPLIANCE ELEMENTS: Compliance Enforcement Authority: Compliance Monitoring Period and Reset Time Frame: Compliance Monitoring and Enforcement Processes: Data Retention: n/c Additional Compliance Information: Additional Comments: A. Standard – R6 EOP-006 Requirement (including sub-requirements) R6. Each Reliability Coordinator shall have a copy of its latest restoration plan and copies of the latest approved restoration plan of each Transmission Operator in its Reliability Coordinator Area within its primary and backup control rooms and available to all of its System Operators prior to the implementation date. [Violation Risk Factor = Lower] [Time Horizon = Operations Planning] Proposed Measure M6. Each Reliability Coordinator shall have documentation such as e-mail receipts that it has made the latest copy of its restoration plan and copies of the latest approved restoration plan of each Transmission Operator in its Reliability Coordinator Area available in its primary and backup control rooms and to each of its System Operators prior to the implementation date in accordance with Requirement R6. Attributes of the requirement Binary Timing X Omission X Communication Quality Other Discussion: Is it the intent of the requirement only that the plans be provided to the control rooms prior to implementation, or that the current plans be available in the control rooms at all times? Current wording supports the former statement. VSL's do not address plans not being in the control rooms at any other time. Consider ability to spot check presence of appropriate plans in control rooms. B. REQUIREMENT RX COMMENTS ON VSLS SDT Proposed Lower VSL: The Reliability Coordinator did not make its latest restoration plan and the latest approved restoration plan of each Transmission Operator in its Reliability Coordinator Area available to all of its System Operators in its primary and backup control rooms prior to the implementation date. CEDRP Proposed Lower VSL: n/c SDT Proposed Moderate VSL: The Reliability Coordinator did not make its latest restoration plan and the latest approved restoration plan of each Transmission Operator in its Reliability Coordinator Area available to all of its System Operators in its primary and backup control rooms within fifteen calendar days of its implementation date. CEDRP Proposed Moderate VSL: n/c SDT Proposed High VSL: The Reliability Coordinator did not make its latest restoration plan and the latest approved restoration plan of each Transmission Operator in its Reliability Coordinator Area available to all of its System Operators in its primary and backup control rooms within twenty calendar days of its implementation date. CEDRP Proposed High VSL: n/c SDT Proposed Severe VSL: The Reliability Coordinator did not make its latest restoration plan and the latest approved restoration plan of each Transmission Operator in its Reliability Coordinator Area available to all of its System Operators in its primary and backup control rooms within twenty-five calendar days of its implementation date. CEDRP Proposed Severe VSL: n/c C. REQUIREMENT RX COMMENTS ON FERC GUIDANCE FOR VSLS: 36. Will the VSL assignment signal entities that less compliance than has been historically achieved is condoned? 37. Is the VSL assignment a binary requirement? 38. Is it truly a "binary" requirement? 39. If yes, is the VSL assignment consistent with other binary requirement assignments? 40. Is the VSL language clear & measurable (ambiguity removed)? If no, does the requirement or measure need to be revised? 41. Does the VSL redefine or undermine the stated requirement? 42. Is the VSL based on a single violation of the requirement (not multiple violations)? D. REQUIREMENT RX COMMENTS ON ADDITIONAL COMPLIANCE ELEMENTS: Compliance Enforcement Authority: Compliance Monitoring Period and Reset Time Frame: Compliance Monitoring and Enforcement Processes: Data Retention: n/c Additional Compliance Information: Additional Comments: A. Standard – R7 EOP-007 Requirement (including sub-requirements) R7. Each Reliability Coordinator shall work with its affected Generator Operators, and Transmission Operators as well as neighboring Reliability Coordinators to monitor restoration progress, coordinate restoration, and take actions to restore the BES frequency within acceptable operating limits. If the restoration plan cannot be completed as expected because actual conditions do not match the studied conditions, the Reliability Coordinator shall utilize its restoration plan strategies to facilitate System restoration. [Violation Risk Factor = High] [Time Horizon = Real-time Operations] Proposed Measure M7. Each Reliability Coordinator involved shall have evidence such as voice recordings, e-mail, dated computer printouts, or operator logs, that it monitored and coordinated restoration progress in accordance with Requirement R7. Attributes of the requirement Binary Timing X Omission X Communication X Quality X Other Discussion: The VSL for this requirement can be based on the failure to include all parties involved in the restoration, lack of coordination (communication) and the inability to utilize restoration strategies for configurations that do not match study conditions. Based on the assignment of only "severe" VSL the CEDRP assumes that SDT view the inability to meet any single element of this requirement prevents the entity from meeting the objective of this requirement. B.
































REQUIREMENT RX COMMENTS ON VSLS SDT Proposed Lower VSL: N/A CEDRP Proposed Lower VSL: n/c SDT Proposed Moderate VSL: N/A CEDRP Proposed Moderate VSL: n/c SDT Proposed High VSL: N/A CEDRP Proposed High VSL: n/c SDT Proposed Severe VSL: The Reliability Coordinator did not work with its affected Generator Operators and Transmission Operators as well as neighboring Reliability Coordinators to monitor restoration progress, coordinate restoration, and take actions to restore the BES frequency within acceptable operating limits. CEDRP Proposed Severe VSL: n/c C. REQUIREMENT RX COMMENTS ON FERC GUIDANCE FOR VSLS: 43. Will the VSL assignment signal entities that less compliance than has been historically achieved is condoned? 44. Is the VSL assignment a binary requirement? 45. Is it truly a "binary" requirement? 46. If yes, is the VSL assignment consistent with other binary requirement assignments? 47. Is the VSL language clear & measurable (ambiguity removed)? If no, does the requirement or measure need to be revised? 48. Does the VSL redefine or undermine the stated requirement? 49. Is the VSL based on a single violation of the requirement (not multiple violations)? D. REQUIREMENT RX COMMENTS ON ADDITIONAL COMPLIANCE ELEMENTS: Compliance Enforcement Authority: Compliance Monitoring Period and Reset Time Frame: Compliance Monitoring and Enforcement Processes: Data Retention: Review wording, appears some words are missing. Perhaps "evidence of" after "event". Also, the word "rolling" does not make sense in this context. Additional Compliance Information: Additional Comments: A. Standard – R8 EOP-006 Requirement (including sub-requirements) R8. The Reliability Coordinator shall coordinate or authorize resynchronizing islanded areas that bridge boundaries between Transmission Operators or Reliability Coordinators. If the resynchronization cannot be completed as expected because actual conditions do not match the studied conditions, the Reliability Coordinator shall utilize its restoration plan strategies to facilitate resynchronization. [Violation Risk Factor = High] [Time Horizon = Real-time Operations] Proposed Measure M8. If there has been a resynchronizing of an islanded area, each Reliability Coordinator involved shall have evidence such as voice recordings, e-mail, or operator logs, that it coordinated and authorized resynchronizing in accordance with Requirement R8. Attributes of the requirement Binary Timing Omission Communication X Quality X Other Discussion: B. REQUIREMENT RX COMMENTS ON VSLS SDT Proposed Lower VSL: N/A CEDRP Proposed Lower VSL: n/c SDT Proposed Moderate VSL: N/A CEDRP Proposed Moderate VSL: n/c SDT Proposed High VSL: N/A CEDRP Proposed High VSL: The Reliability Coordinator did not utilize restoration plan strategies after experiencing conditions or configurations that did not match studied conditions. SDT Proposed Severe VSL: The Reliability Coordinator did not coordinate or authorize resynchronizing islanded areas that bridge boundaries between Transmission Operators or Reliability Coordinators. CEDRP Proposed Severe VSL: n/c C. REQUIREMENT RX COMMENTS ON FERC GUIDANCE FOR VSLS: 50. Will the VSL assignment signal entities that less compliance than has been historically achieved is condoned? 51. Is the VSL assignment a binary requirement? 52. Is it truly a "binary" requirement? 53. If yes, is the VSL assignment consistent with other binary requirement assignments? 54. Is the VSL language clear & measurable (ambiguity removed)? If no, does the requirement or measure need to be revised? 55. Does the VSL redefine or undermine the stated requirement? 56. Is the VSL based on a single violation of the requirement (not multiple violations)? D. REQUIREMENT RX COMMENTS ON ADDITIONAL COMPLIANCE ELEMENTS: Compliance Enforcement Authority: Compliance Monitoring Period and Reset Time Frame: Compliance Monitoring and Enforcement Processes: Data Retention: The term "rolling" does not make sense in this context. Might consider deleting it. Additional Compliance Information: Additional Comments: A. Standard – R9 EOP-006 Requirement (including sub-requirements) R9. Each Reliability Coordinator shall include within its operations training program, annual System restoration training for its System Operators to assure the proper execution of its restoration plan. This training program shall address the following: [Violation Risk Factor = Medium] [Time Horizon = Operations Planning] R9.1. The coordination role of the Reliability Coordinator. R9.2. Reestablishing the Interconnection. Proposed Measure M9. Each Reliability Coordinator shall have an electronic or hard copy of its training records available showing that it has provided training in accordance with Requirement R9. Attributes of the requirement Binary Timing xx Omission X Communication Quality Other Discussion: Unclear why a delay in training should suddenly become Severe at 2 calendar years, suggest graduating the time frame out. If it is important to have training within 1 calendar year of the previous, then consider rewording the requirement. Current wording allows training in Jan 07 and then Dec 09 while remaining compliant. Does one more month makes that big of a difference? If it does, simply state that failing to train during the annual cycle is severe. B. REQUIREMENT RX COMMENTS ON VSLS SDT Proposed Lower VSL: N/A CEDRP Proposed Lower VSL: The Reliability Coordinator provided training that addresses all sub-requirements, but the training occurred after, but no more than 30 days after the required time frame. SDT Proposed Moderate VSL: N/A CEDRP Proposed Moderate VSL: The Reliability Coordinator provided training that addresses all sub-requirements, but the training occurred more than 30 days after, but no more than 90 days after the required time frame. SDT Proposed High VSL: N/A CEDRP Proposed High VSL: The Reliability Coordinator provided training that addresses all sub-requirements, but the training occurred more than 90 days after the required time frame. SDT Proposed Severe VSL: The Reliability Coordinator supplied

annual System restoration training but did not address both of the sub-requirements. Or the Reliability Coordinator supplied the required System restoration training but it was over two calendar years from the last training offered. CEDRP Proposed Severe VSL: The Reliability Coordinator supplied annual System restoration training but did not address one or both of the sub-requirements. C. REQUIREMENT RX COMMENTS ON FERC GUIDANCE FOR VSLs: 57. Will the VSL assignment signal entities that less compliance than has been historically achieved is condoned? 58. Is the VSL assignment a binary requirement? 59. Is it truly a "binary" requirement? 60. If yes, is the VSL assignment consistent with other binary requirement assignments? 61. Is the VSL language clear & measurable (ambiguity removed)? If no, does the requirement or measure need to be revised? 62. Does the VSL redefine or undermine the stated requirement? 63. Is the VSL based on a single violation of the requirement (not multiple violations)? D. REQUIREMENT RX COMMENTS ON ADDITIONAL COMPLIANCE ELEMENTS: Compliance Enforcement Authority: Compliance Monitoring Period and Reset Time Frame: Compliance Monitoring and Enforcement Processes: Data Retention: Did not mention training records of operators. Additional Compliance Information: Additional Comments: A. Standard – R10 EOP-005 Requirement (including sub-requirements) R10. Each Reliability Coordinator shall conduct two System restoration drills, exercises, or simulations per calendar year, which shall include the Transmission Operators and Generator Operators as dictated by the particular scope of the drill, exercise, or simulation that is being conducted. [Violation Risk Factor = Medium] [Time Horizon = Operations Planning] R10.1. Each Reliability Coordinator shall request each Transmission Operator and Generator Operator identified in its restoration plan to participate in a drill, exercise, or simulation at least every two calendar years. Proposed Measure M10. Each Reliability Coordinator shall have evidence that it conducted two System restoration drills, exercises, or simulations per year and that Transmission Operators and Generator Operators included in the Reliability Coordinator's restoration plan were invited in accordance with Requirement R10. Attributes of the requirement Binary Timing X Omission X Communication X Quality Other Discussion: B. REQUIREMENT RX COMMENTS ON VSLs SDT Proposed Lower VSL: The Reliability Coordinator only held one restoration drill, exercise, or simulation during the calendar year. CEDRP Proposed Lower VSL: SDT Proposed Moderate VSL: The Reliability Coordinator did not invite a Transmission Operator or Generator Operator identified in its restoration plan to participate in a drill, exercise, or simulation within two calendar years. CEDRP Proposed Moderate VSL: No Comment SDT Proposed High VSL: The Reliability Coordinator did not invite more than 20% of the Transmission Operators or Generator Operators identified in its restoration plan to participate in a drill, exercise, or simulation within two calendar years. CEDRP Proposed High VSL: SDT Proposed Severe VSL: The Reliability Coordinator did not hold a restoration drill, exercise, or simulation during the calendar year. CEDRP Proposed Severe VSL: The Reliability Coordinator did not hold a restoration drill, exercise, or simulation during the calendar year OR the Reliability Coordinator did not invite more than 30% of the Transmission Operators or Generator Operators identified in its restoration plan to participate in a drill, exercise, or simulation within two calendar years. C. REQUIREMENT RX COMMENTS ON FERC GUIDANCE FOR VSLs: 64. Will the VSL assignment signal entities that less compliance than has been historically achieved is condoned? 65. Is the VSL assignment a binary requirement? 66. Is it truly a "binary" requirement? 67. If yes, is the VSL assignment consistent with other binary requirement assignments? 68. Is the VSL language clear & measurable (ambiguity removed)? If no, does the requirement or measure need to be revised? 69. Does the VSL redefine or undermine the stated requirement? 70. Is the VSL based on a single violation of the requirement (not multiple violations)? D. REQUIREMENT RX COMMENTS ON ADDITIONAL COMPLIANCE ELEMENTS: Compliance Enforcement Authority: Compliance Monitoring Period and Reset Time Frame: Compliance Monitoring and Enforcement Processes: Data Retention: Consider changing to 5 years. This ensures all time periods are covered in audits and simplifies the retention cycle for the entity. Additional Compliance Information: Additional Comments:

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|  | |
|  | |
|  | Individual |
|  | Kathleen Goodman |
|  | ISO New England Inc |
|  | No |














Did the Drafting Team intended R18 to apply to Generator Operators with black start resources as with the other requirements, or to all Generators? If the Drafting Team intended applicability to Generator Operators with black start resources then we suggest rewording as follows: "R18. Each Generator Operator with a Blackstart Resource shall participate in the Reliability Coordinator's restoration drills, exercises, or simulations as requested by the

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| | <p>Reliability Coordinator. [Violation Risk Factor = Medium] [Time Horizon = Operations Planning]" R16.2. Should be revised to read: Each Generator Operator "with a Blackstart Resource shall provide..." Requirement R1.2 remains unclear. Specifically, "a description of the manner" is confusing. The SDT response to Draft 3 comments and/or questions does not provide meaningful understanding of what is expected in this requirement. Suggest rewording or this requirement be moved to the Nuclear Plant Interface Coordination requirements NUC-001. R7 stipulates that if the restoration plan cannot be executed as expected because actual conditions do not match the studied conditions, the Transmission Operator shall utilize its restoration plan strategies to facilitate restoration. This standard does not require the TOP to develop restoration plan strategies; it only requires the TOP to follow the the high level strategies for restoring the Interconnection as outlined in the Transmission Operator's Reliability Coordinator restoration plan (R1.1). We suggest to reword R7 according to R1.1. Further, we suggest to change the word "match" to "resemble" since "match" requires one on one identical conditions which may not be achieved whereas "resemble" provides some flexibility.</p> |
| | Yes |
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| | No |
| | <p>Compliance by the TOP with this standard is partially based on the action of the RC due to the requirement that "Each Transmission Operator shall have a restoration plan approved by its Reliability Coordinator". Although both the requirements and measures state that the plan must be approved by the RC, it is omitted from the VSLs completely.</p> |
| | No |
| | <p>Conducting two system restoration drills/exercises annually is excessive. At least one annual comprehensive exercise is sufficient, unless there are significant changes to the Reliability Coordinator system restoration plan. For R7 and R8, we suggest to delete the words "because actual conditions do not match the studied conditions" leaving the sentence as "If the restoration plan cannot be completed as expected the Reliability Coordinator shall utilize its restoration plan strategies to facilitate System restoraton". This change covers situations that can arise beyond 'studied conditions' such as a loss of operator voice channel loss, monitoring &/or control degradations, etc. R5 requires that Reliability Coordinators review the restoration plans of the neighbouring Reliability Coordinators. This requirement has already been stated in R.4. and therefore not needed here. We recommend that "and neighbouring Reliability Coordinators" be removed from the wording of R5. For more changes see comments below on M5. R9.1. states that the training program for the Reliability Coordinator's system operators should address "the coordination role of the Reliability Coordinator." We believe that this training should focus on system operators' role in the system restoration plan and furthermore, address the coordination with other operational entities identified in the plan. Hence, we recommend that R9.1. use the following wording: "The System Operators' role in the system restoration plan, including coordination with other operational entities identified in the plan." R1.1. We believe that the standard needs to define "minimum blackstart capability requirement" since otherwise, there can not be any applicable measures. Therefore, we suggest that R1.1 be reworded to: "A description of the high level strategy to be employed during restoration events for restoring the interconnection, including minimum blackstart requirements."</p> |
| | Yes |
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| | Yes |
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| | Yes |
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| | No |
| | <p>We believe that conducting two system restoration drills/exercises annually is excessive. One annual comprehensive exercise is sufficient, unless specific triggers occur that require an additional system restoration drill, exercise or simulation per year. We believe that the Standards Drafting Team should give consideration to defining these triggers, which should be easy to measure in an audit.</p> |
| | No |
| | Please address comments above before balloting. |
| | Individual |

| | |
|---|--|
|  | Howard Rulf |
|  | We Energies |
|  | No |
|  | Baffling that the SDT added Transmission Owners and Distribution Providers to Section 4 Applicability, yet does not acknowledge that the Balancing Authority has a role in the process. The closest the standard comes to recognizing the BA is R1.9 Criteria for transferring operations and authority back to the Balancing Authority. This is troubling too. What Operations and Authority are transferred back? Presumably, the Transmission Operator - who may know nothing about balancing and exchange - is given total authority over BA operations during a system restoration effort. But this is not explicitly stated in the standard. Is that the authority transferred back to the BA? EOP-005-2 needs to include the Balancing Authority. Suggest R1.2 use the NERC defined term "Nuclear Plant Interface Requirements." |
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|  | Yes |
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|  | Yes |
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|  | Yes |
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|  | No |
|  | The SDT needs to recognize the Balancing Authority role during system restoration events. |
|  | Individual |
|  | John Bussman |
|  | AECI |
|  | No |
|  | R.1 AECI does not believe the RC should be approving the restoration plan. It is understood that the RC would be required to have the entities restoration plan, and be able to comment on the plan and the entity would be required to reply to the comments in a timely manner. However, the statement implies, by having the RC Approve the plan, the RC will take ownership of the plan. If this was the intent we believe the process is going to become bogged down with the RC having to perform thorough reviews of each entities restoration plan. The RC will have to become an auditing function to ensure the plan can be implemented as written and that the resources that the entity states is adequate to restore the system is really what is required. Previously the RRO was responsible for determining the plan and the generators required. Is this no longer going to be the case? R.5 Again, is the RC the correct overseer to provide the restoration plan for the area? R.6 AECI has no pproblem with R.6, however if the RC is the approving organization than they will want the analysis for review and this will be time consuming. We believe the entity should be responsible for its control area and the RC needs to be aware the the plan and accept the plan or provide comments but not approve or have an entity wait for approval to initiate the plan. R.11 Provide a definition of what are considered unique tasks so there is no misunderstanding during an audit of this requirement. AECI has contractors that performs switching functions all the time. However, they do not necessarily perform the required switching that the restoration plan calls for. Would this be considered a unique task? We don't believe it is. R.13 Can you distinguish between entities that are the GO and TOP vs those that are not? |
|  | No |
|  | M1. AECI is not sure the RC is the authorizing authority for approving a restoration plan. Will the RC take responsibility for the plan if it fails? Also what is the period of time the RC has to |

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| | approve a plan after it has received the restoration plan. |
| | Yes |
| | No new comments |
| | no comment |
| | no comment |
| | no comments |
| | no comment |
| | No |
| | The plan should be owned by the entity. The plan implies the RC will take ownership of the plan when it approves the plan. |
| | No |
| | Clarifications need to be made with the RC approval process. Time lines need to be made known within the standard and if we were an RC we would want to know the consequences if an entity's plan fails. |
| | Individual |
| | Alice Druffel |
| | Xcel Energy |
| | No |
| | R15 states that the GOP with a Blackstart Resource shall notify its TOP of any known changes to the "capabilities" of the Blackstart Resource... Is the intent to know changes to outputs of MWs and MVARs? Or changes that would not allow the Blackstart Resource to start and energize a bus. Please clarify the intent. 24 hours seems restrictive and this should only apply to blackstart resources. TOP-002 R14 notifies the TOP of operating restraints and VAR-002 covers restrictive limits, is there the possibility of double jeopardy if these items are covered elsewhere? |
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| | No |
| | We would like to see our comments to question #1 addressed before it is placed in ballot. |
| | Individual |
| | William Franklin |
| | Entergy |
| | Yes |
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
















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| Yes |
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| Yes |
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| Yes |
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| Yes |
| |
| Individual |
| David Kiguel |
| Hydro One Networks Inc. |
| No |
| Clarification is required on the intent of the SDT with respect to the applicability of R18. Is it to Generator Operators with black start resources as with the other requirements, or to all Generators? If the Drafting Team intended applicability to Generator Operators with black start resources then we suggest rewording as follows: "R18. Each Generator Operator with a Blackstart Resource shall participate in the Reliability Coordinator's restoration drills, exercises, or simulations as requested by the Reliability Coordinator. [Violation Risk Factor = Medium] [Time Horizon = Operations Planning]" R16.2. Should be revised to read: Each Generator Operator "with a Blackstart Resource shall provide..." Requirement R1.2 remains unclear. Specifically, "a description of the manner" is confusing. The SDT response to Draft 3 comments and/or questions does not provide meaningful understanding of what is expected in this requirement. We suggest rewording. Alternatively, this requirement could be moved to the Nuclear Plant Interface Coordination requirements NUC-001. R4 - an update to the plan within 90 calendar days due to an unplanned permanent change may be in some cases achievable. However in some jurisdictions approval could take longer (e.g. up to 2 years). The entire plan may not need to be updated and approved within a set timeframe; rather notification and integration of the change should be concluded within the 90 days window after the permanent change has been made. R11 - For someone performing unique non-routine tasks to receive 2 hours of training per year on system restoration seems disjointed with the intent behind this form of training. In practiced for only 2 hours per year, it will be likely forgotten - or worse the individual may freeze by being placed in the position of action on something they are uncomfortable with. This requirement should be expanded to clearly identify what is meant by 'unique' or move this to a PER standard addressing personnel training. |
| Yes |
| We suggest using a consistent format (i.e., text or number) when specifying calendar days and/or years. Reference VSL for R2, R3, R4, R6, R11, R15, R16 & R17. |
| Yes |
| |
| No |
| R1 - We do not agree that the scope of the RC's plan is over when all interconnections are established. An interconnection may be lost for many reasons. As written, this plan could extend to weeks/months if one of the above were true. R1.2 - We suggest the words...'Description of the' be placed in front of processes. This then makes everything consistent within the section and nullifies the requirement to have the plan contain every process. As written, it would seem impossible to maintain and keep up-to-date. R10 - We believe conducting two system restoration drills/exercises annually might be excessive. At least one annual comprehensive exercise is sufficient, unless there are significant changes to the Reliability Coordinator system restoration plan. We support conducting 2 restoration drills/exercises but both not all encompassing. There is benefit in doing one large overall exercise, but there is far more benefit in having a one or more smaller ones to actually test performance and understanding in specific areas. |
| Yes |
| We suggest using a consistent format (i.e., text or number) when specifying calendar days and/or years. Reference VSL for R2, R3, R4 R5, R6, & R10. |














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|  | Yes |
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|  | Yes |
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|  | No |
|  | As proposed, the standards would become effective at different times depending on whether regulatory approval is or is not required in a given jurisdiction. This is not conducive to ensuring reliability. The standards should become effective on the same date in all North America, and only after all regulatory approvals have been obtained. |
|  | No |
|  | See our comments above. |
|  | Individual |
|  | Jay Seitz |
|  | US Bureau of Reclamation |
|  | No |
|  | R13 which requires the Transmission Operator and Generator Operator to have a documented Blackstart Resource Agreement in place is such a major element of the standard we recommend making it the first requirement in the standard. Recommend that a new R1 be developed that focuses on the Agreement and the elements to be included. As such the testing requirements, of R9 should be included in the Blackstart Resources Agreement. The standard should emphasize the testing is mutually agreed upon by the Transmission Operator and Generator Operator. R1 requires the Transmisison Operator to have a restoration plan and the sub-requirements include the required elements of the plan. Also embedded in this R1 is a definition of when service is considered to be restored. To make the language of the requirement more crisp, we suggest the embedded definition be removed and added to the Definitions and Terms part of the standard. R1.3 makes the Transmission Operator responsible for procedures for restoring interconnections with other Transmission Operators. This requirement overlaps with Requirement R1.2 of EOP-006-2 - System Restoration Coordination which makes the RC's responsible for restoring the Interconnection. The exact role of each entity must be clearly stated; the existing language in the two standards does not presently make this distinction. Suggest changing R1.4 to the following: R1.4. Identification of each Blackstart Resource and its characteristics as agreed to including but not limited to the following: the name of the Blackstart Resource, location, megawatt and megavar capacity, and type of unit. The "but not limited to" language in R1.4 allows additional characteristics to be added to those in the standard. If there are other characteristics that are needed for the reliability of the BES, they must be included in language of the standard. Also suggest the language "as agreed to" be added after the word "characteristics" to require the characteristics are coordinated with the GOP. Suggest changing R1.5 to the following: R1.5. Identification of Cranking Paths and initial switching requirements as agreed to between each Blackstart Resource and the unit(s) to be started. Same reason as R1.4 above. Suggest changing R1.6 to the following: R1.6. Identification of acceptable operating voltage and frequency limits during restoration that are mutually acceptable with the Blackstart Resources. For R1.9 suggest adding the criteria for transferring operations be coordinated with the BA. Requirement R6, if actual testing is used to verify the plan, involvement of the Generator Operator will be required. Suggest changing R6 to the following: R6. Each Transmission Operator shall verify through analysis of actual events, steady state and dynamic simulations, or testing that its documented restoration plan accomplishes its intended function. If testing is used the Transmission Operator will coordinate the mutally agreed participation of the Generator Operator. This shall be completed every five years at a minimum. Such analysis, simulations or testing shall analyze verify: [Violation Risk Factor = Medium] [Time Horizon = Long-term Planning] R6.1. The capability of Blackstart Resources to meet the Real and Reactive Power requirements of the Cranking Paths and to supply initial Loads. R6.2. The location and magnitude of Loads required to control voltages and frequency within acceptable operating limits. R6.3. The capability of generating resources required to control voltages and frequency within acceptable operating limits. Requirement R7 requires the Transmission Operator to "utilize its restoration plan strategies to facilitate restoration" in the event the restoration plan cannot be executed as planned. It is unclear where this strategy is developed and who is responsible for developing it. Requirement R1.1 requires the Transmission Operator's plan to describe how it follows the "high level strategies" outlined in the RC's restoration plan but there is no clear requirement that the Transmission Operator have developed a separate restoration strategy. Standard EOP-006, R1.1 applicable to the Reliability Coordinator requires a" description of the high level strategy to be employed during |

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| | restoration events for restoring the interconnection...". It is unclear if there are to be one or more strategies. If R7 (of EOP-005) is referring to the Reliability Coordinator's strategy it should clearly state that. R16.1 states testing records shall include at a minimum and lists several data items. The "at a minimum" language is open ended and should be removed; if more items are required they should be included in the standard. |
| No | |
| M2 | Seems like there should be more to it than just the Transmission Operator informing the other participants identified in the restoration plan of changes to their roles and tasks. There must be evidence of agreement/buy-in by the other participants. |
| Yes | |
| | |
| No | |
| R2 | requires the Reliability Coordinator its restoration plan to each of the Transmission Operators in its area. Recommend that the Reliability Coordinator also distribute the plan to Generator Operators included in the plan. R7 (of EOP-005-2) requires the Transmission Operator to "utilize its restoration plan strategies to facilitate restoration" in the event the restoration plan cannot be executed as planned. It is unclear where this strategy is developed and who is responsible for developing it. Requirement R1.1 requires the Transmission Operator's plan to describe how it follows the "high level strategies" outlined in the RC's restoration plan but there is no clear requirement that the Transmission Operator have developed a separate restoration strategy. Standard EOP-006, R1.1 applicable to the Reliability Coordinator requires a "description of the high level strategy to be employed during restoration events for restoring the interconnection...". It is unclear if there are to be one or more strategies. If R7 (of EOP-005) is referring to the Reliability Coordinator's strategy it should clearly state that. |
| Yes | |
| | |
| Yes | |
| | |
| Yes | |
| Yes | in general the concept of a high level Reliability Coordinator strategy and the Transmission Operator implementation of that strategy is a good one. However, as commented earlier, EOP-005-2, R7 implies the TOP has also developed a "restoration strategy" to be followed when the restoration plan cannot be implemented. It should be clarified that only the Reliability Coordinator is required to develop the high level strategy. |
| Yes | |
| Yes | - the 24 month period seems appropriate |
| No | |
| Because of the number of industry comments it is appropriate for another draft to be posted for another round of comments. | |
| Individual | |
| Randy Schimka | |
| San Diego Gas and Electric Co. | |
| No | |
| SDG&E Comment for R1: This requirement is unclear (sentence is too long and the overall requirement is confusing). We suggest re-writing it. SDG&E Edit for R1: Each Transmission Operator shall have a restoration plan approved by its Reliability Coordinator. The restoration plan shall allow for restoring the Transmission Operator's System following a Disturbance in which one or more areas of the Bulk Electric System (BES) shuts down and the use of Blackstart Resources is required to restore the shut down area to service. <Begin Edit> The restoration plan ends when <End Edit> the choice of the next Load to be restored is not driven by the need to control frequency or voltage regardless of whether the Blackstart Resource is located within the Transmission Operator's System. SDG&E Edit for R1.5: R1.5. Identification of Cranking Paths and initial switching requirements between each Blackstart Resource and the <Begin Edit> other <End Edit> unit(s) to be started. SDG&E Comment for R1.6: We'd like to suggest changing the words "acceptable" and "limits" to the more flexible "guidelines" in this requirement. During restoration, each resource may have different characteristics or peculiarities. Hard limits can sometimes slow the restoration process if the resource is incapable of responding, which is why we prefer the more flexible term | |
















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| | <p>"guidelines" in this Requirement. SDG&E Edit for R1.6: R1.6. Identification of operating voltage and frequency <Begin Edit> guidelines <End Edit> during restoration. SDG&E Comment for R2: We were unclear as to the meaning of "Operational Entities", and made the above change to try to clarify. Please consider additional language as necessary to clarify what an Operational Entity consists of. SDG&E Edit for R2: R2. Each Transmission Operator shall provide the <Begin Edit> BA, TOP, or GOP as <End Edit> identified in its approved restoration plan with a description of any changes to their roles and specific tasks prior to the implementation date of the plan. SDG&E Comment for R4.1: R3 and R4 require submitting restoration plans or revisions to the RC for approval. We suggest a 30 day time period for RC approval of restoration plans or revisions. If the RC doesn't approve submittals within 30 days for any reason, we suggest that the restoration plan in question is assumed to be approved. SDG&E Comment for R5: We suggest changing the wording "prior to implementation" to "by its effective date" in this Requirement (and that of the associated Measure as well). SDG&E Comment for R6: We suggest that the above wording "steady state and dynamic" be changed to "steady state or dynamic" since both are not necessary to successfully verify that the restoration plan accomplishes its intended function. SDG&E Edit for R7: Following a Disturbance in which one or more areas of the BES shuts down and the use of Blackstart Resources is required to restore the shut down area to service, each affected Transmission Operator shall implement its restoration plan. If the restoration plan cannot be executed as expected because actual conditions do not match the studied conditions, the Transmission Operator shall utilize its restoration plan strategies <Begin Edit> as developed per R1.1 <End Edit> to facilitate restoration. SDG&E Comment for R9: We believe this testing should be coordinated by the Reliability Coordinator. SDG&E Comment for R11: We suggest that the two hour portion of the minimum training requirement be removed. Depending on the training topic and knowledge level of the employee, training can be shorter or more lengthy, and not all relevant training will be 2 hours in length. SDG&E Edit for R11: Each Transmission Operator, each applicable Transmission Owner, and each applicable Distribution Provider shall provide System restoration training <Begin Edit> initially, and <End Edit> every two years to their field switching personnel identified as performing unique tasks associated with the Transmission Operator's restoration plan that are outside of their normal tasks. SDG&E Comment for R17: We suggest the training be specified as an initial requirement and an ongoing requirement to accommodate new or transferred employees SDG&E Edit for R17: Each Generator Operator with a Blackstart Resource shall provide a minimum of two hours of training, <Begin Edit> initially, and <End Edit> every two years to each of its operating personnel responsible for the startup of its Blackstart Resource generation units and energizing a bus. The training program shall include training on the following: SDG&E Edit for R17.1: System restoration plan including <Begin Edit> roles, responsibilities, and coordination as required by the Transmission Operator's plan <End Edit>.</p> |
| | No |
| | Yes and No. Please see comments and edits submitted in question #1. |
| | No |
| | <p>SDG&E Comments on VSL for R5: We believe this Requirement should have some gradient in the VSL, because of the multiple requirements (primary & backup center, all System Operators). Perhaps the levels would be based upon how many days late beyond the Entity's effective date. SDG&E Comment on VSL for R11: We believe that some gradient should be applied to this VSL. There is a difference between training none of the personnel vs. training all but one, or training most personnel within the two-year timeframe but one person went 2.5 years between training sessions. Having gradients in the VSL fields will help differentiate severity levels. SDG&E Comment on VSL for R17: We believe that some gradient should be applied to this VSL. There is a difference between training none of the personnel vs. training all but one, or training most of them within the two-year timeframe but one person went 2.5 years between training sessions. Having gradients in the VSL fields will help differentiate severity levels.</p> |
| | No |
| | <p>SDG&E Edit to R6: Each Reliability Coordinator shall have a copy of its latest restoration plan and copies of the latest approved restoration plan of each Transmission Operator in its Reliability Coordinator Area within each of its primary and backup control centers rooms and available to all of its control room personnel System Operators prior to the implementation date</p> |
| | Yes |
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| | Yes |
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| | Yes |

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| | Yes |
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| | No |
| | We appreciate the level of dedication and effort that the drafting team has put into the Standards so far. They are definitely an improvement. Please see SDG&E's comments and edits suggested in previous questions. |
| | Group |
| | FirstEnergy |
| | Dave Folk |
| | FirstEnergy Corp. |
| | Yes |
| | <p>R1 - While we agree with many of the changes the drafting team made to these requirements, there are still some additional issues that should be addressed. R1 is still two requirements embedded in one. The first is to have your restoration plan approved by the RC and the second is to have the plan. Sentence one should be a stand alone requirement. That action is independent of the development of the plan. R1.1 - This requirement may be problematic in that the RC may not develop its restoration plan until after each of the Transmission Operators has developed their plans. Then most likely the RC will determine its high level strategies (per EOP-006 R1.1) based on the TOP plans. This may require the TOP to readjust its plan to reflect the high level strategies, and then those TOP adjustments may drive more RC adjustments to its high level strategies, etc. Per the implementation plan of EOP-006, the RC has 24-months to comply with R1.1, and subsequently may not give any time to the TOP to get into compliance with EOP-005 R1.1. We suggest that the implementation for EOP-006 R1.1 and EOP-005 be staggered to allow 1) allow sufficient time for the iterations described above to take place, 2) to allow the RC sufficient time to complete its process, and 3) to allow sufficient time for the TOP to then adjust its plan accordingly. This may require the RC be in compliance with R1.1 before the TOP, and then both entities still be in compliance within 24-months. R1.4 - We suggest the drafting team delete the phrase "but not limited to." Since NERC Standards represent the minimum acceptable requirement, the phrase "but not limited to" is unnecessary. R5 - The phrase "implementation date" is vague. Is this the date when the plan is actually used to restore the system or the date the plan becomes effective and approved for use? We suggest revising the requirement by replacing "implementation date" with "the date the plan becomes effective and approved for use." R11 - We suggest deleting the word "unique" because the phrase "tasks associated with the Transmission Operator's restoration plan that are outside of their normal tasks" already describes those tasks that would be unique to system restoration. General - In this standard, depending on the subject, the term "restoration" is sometimes used on its own, and sometimes the term "System restoration" is used. We suggest the SDT assure they provide consistency throughout the standard in the use of "System".</p> |
| | Yes |
| | The measure for R5 does not specify the types of documents that an entity can use to establish the date the restoration plan was placed in its primary and backup control rooms and available to all of its System Operators. This information should be added. If the team is unable to identify types of documents for this information, the VSL for R5 should be revised to state that a copy of the plan was not found in the primary or backup control room. In addition, levels of severity could be built by the drafting team by making the High VSL for R5 that the plan was not found in the primary or backup control room with a Severe VSL for R5 that the plan was not found in the primary and backup control rooms. |
| | Yes |
| | |
| | Yes |
| | <p>While we agree with many of the changes the drafting team made to these requirements, there are still some additional issues that should be addressed. EOP-006 R6 indicates that the RC shall have a copy of its restoration plan AND copies of the restoration plan for each TOP. We believe this means that the RC could have a plan which is different than the TOP's requiring that the Generator Operators see the RC plan prior to conducting the restoration drills required in EOP-006 R10. In EOP-006 R7 the RC shall work with the GOP and TOP to restore BES frequency within acceptable limits. If the RC's restoration plan cannot be followed, the RC shall use its restoration plan strategies to facilitate restoration. Again the GOP needs to review the RC's restoration plan in order to understand the plan's strategies.</p> |

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| | <p>With the requirements of R6 and R7 in mind, we recommend R2 be revised to state, "The Reliability Coordinator shall distribute its most recent Reliability Coordinator Area restoration plan to each of its Transmission Operators, Generator Operators, and neighboring Reliability Coordinators within thirty calendar days of creation or revision." In R9 it is not clear why the drafting team chose the word "address" over "include". The meaning of "address" is less precise than the meaning of the word "include." We suggest revising this to the previous terminology that stated, "...include..."</p> |
|  | Yes |
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|  | Yes |
|  | |
|  | Yes |
|  | <p>R1.1 - This requirement may be problematic in that the RC may not develop its restoration plan until after each of the Transmission Operators has developed their plans. Then most likely the RC will determine its high level strategies (per EOP-006 R1.1) based on the TOP plans. This may require the TOP to readjust its plan to reflect the high level strategies, and then those TOP adjustments may drive more RC adjustments to its high level strategies, etc. Per the implementation plan of EOP-006, the RC has 24-months to comply with R1.1, and subsequently may not give any time to the TOP to get into compliance with EOP-005 R1.1. We suggest that the implementation for EOP-006 R1.1 and EOP-005 be staggered to allow 1) allow sufficient time for the iterations described above to take place, 2) to allow the RC sufficient time to complete its process, and 3) to allow sufficient time for the TOP to then adjust its plan accordingly. This may require the RC be in compliance with R1.1 before the TOP, and then both entities still be in compliance within 24-months.</p> |
|  | Yes |
|  | Except for the need for staggered implementation of R1.1 per our previous comments. |
|  | Yes |
|  | We agree the standards are ready for balloting but would like to see some clarifying changes made to the standards per our previous comments. |
|  | Individual |
|  | Individual |
|  | Oncor Electric Delivery |
|  | Yes |
|  | |
|  | Yes |
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|  | Yes |
|  | |
|  | Yes |
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|  | Yes |
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























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|  | Greg Rowland |
|  | Duke Energy Corporation |
|  | No |
|  | We appreciate the opportunity to recommend the following changes to the proposed the Standards. Some of our comments will be redundant to those submitted by other SERC members. Specific comments: R1.1 There is no reliability benefit for including this statement in the Standard. If the RC were to change its high level view or plan, it is their responsibility to submit it to the TOP. The TOP would then make changes to their plans and submit it to the RC for review and approval. This is creating additional administration burden to those entities in our opinion. We suggest it be eliminated. R1.9 - Is this really necessary? Where did the standard transfer operations and authority away from the BA? Wouldn't this requirement take care of itself via declaring an emergency (thus suspending Standards of Conduct) and coming out of the emergency? We recommend that this statement be replaced with a requirement for the TOP to coordinate with the GOPs, TOs, DPs and BAs. R2. We suggest replacing "approved" with "coordinated" in keeping with our suggestion that the RC should not have approval over the TOP plans. R4. Replace "system modifications" with "cranking path". This is to avoid numerous changes to a restoration plan if detailed requirements remain in the Standard R4.1. Replace "for approval" with "for review". R6. Replace "steady state and dynamic simulations" with "steady state and/or dynamic simulations". R7. We suggest replacing "plan" with "strategy" and eliminating the second sentence. R10. This is already covered in the Personnel Training Standard and should not be duplicated. This requirement is in PER-005-1, R3, which could result in double jeopardy. |
|  | No |
|  | As with the standards, the measures have also moved in a positive direction. We have suggested several changes to the requirements and request the SDT to make corresponding changes to the measures. If the SDT does not accept the suggestions that the RC should not have approval authority of the TOP restoration plan, then the following specific comment is applicable: M1 - Implies that a "written approval letter" is necessary to prove RC approval of the plan. This was not stated as the only way to meet the requirement, so we suggest that M1 should have other options available. EOP-006-2 M5 states that "Each Reliability Coordinator shall provide evidence, such as a review signature sheet or emails, that it has reviewed, approved or disapproved..." EOP-005-2 M1 should align with this. |
|  | No |
|  | We have suggested several changes to the requirements and request the SDT to make corresponding changes to the compliance elements. |
|  | No |
|  | 1.2 This is covered in R1.1 and should be deleted. R1.5 Add "within its RC area" after Transmission Operators and add "neighboring" before Reliability Coordinator Areas. R1.6 This is more appropriately included in the Transmission Operator restoration plan and should be removed from the Reliability Coordinator plan. R1.9. Does this pose problems if it is viewed that the RC is the only communications contact? Concern is that people will not be willing to talk to one another if there is an issue without going through the RC for issues or compliance violations. This seems to be a potential for impeding communications. R1.10 should be removed. See statements from EOP-005-R1.9 R5. Add the phrase "the plans of" before "neighboring Reliability Coordinators, when received". In addition, R5 should require the RC to update its plan, if necessary, based on the review of the plans within its area (Reference the VSLs and M5). R5.1 Replace the last sentence with; "The Reliability Coordinator shall coordinate with the Transmission operators within its footprint to resolve any issues or questions resulting from their review of the TOP plans within thirty calendar days following the receipt of the restoration plan from the Transmission Operator. R6. Change "latest" to "current" and change "approved" to "coordinated". R9. This would be more appropriately handled in the Personnel Training Standard. This requirement is in PER-005-1, R3, which could result in double jeopardy. R10. A minimum of one restoration drill per year should be sufficient for most RCs - RCs that need to conduct more than one drill in order to have participation of all the entities in their footprint have the option to schedule more than one. |
|  | No |
|  | All measures for EOP-006 should be checked for consistency with proposed changes to requirements. M5. The measure for this requirement states that the RC must revise its restoration plan based on review of TOPs and neighboring RCs, however, the requirement does not state that an update of the RC's own plan is required. The Violation Severity Level for M5 does not seem to be consistent with the requirement. M8. Needs to comply with R8 - change "coordinated and authorized" to "coordinated or authorized" |
|  | Yes |

















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| | We have suggested several changes to the requirements and request the SDT to make corresponding changes to the compliance elements. |
| | No |
| | Please see comments in Questions 1 and 4 above. |
| | Yes |
| | |
| | No |
| | The two standards, while greatly simplified since the last round of comments, continued additions of requirements in the procedures require additional review by the industry before ballot. |
| | Individual |
| | Ed Davis |
| | Entergy Services |
| | No |
| | <p>* R1 is rather long, making it difficult to follow. Suggest breaking the second sentence into two. End the sentence after "service" and before "to a state whereby..." The second part could read, "The plan should cover restoration to a state whereby the choice of the next Load to be restored is not driven by the need to control frequency or voltage, regardless of whether the Blackstart Resource is located within the Transmission Operator's System." * R1.1 While we feel that the TOPs, as good businesses practices, should track the information suggested in R1.1, we do not feel that it should be included as a requirement. Properly written plans with appropriate details will inherently demonstrate this without an extra requirement to map the TOP plans to the RC plans. This seems to be an exercise for audits and updates and not a requirement. * R1.2. We suggest simpler wording by replacing this requirement with the following: "A description of the Agreements or mutually agreed upon procedures or protocols to include priority of restoration for off-site power to Nuclear power plants." * R1.3 - Suggest changing "direction" to "coordination and direction" to align with the wording in EOP-006-2 R8 which states the RC "shall coordinate or authorize." * R1.5. Remove the phrase "and initial switching requirements", in keeping with our concept of making this a high level plan. * R1.9 - Is this really necessary? Where did the standard transfer operations and authority away from the BA? Wouldn't this requirement take care of itself via declaring an emergency (thus suspending Standards of Conduct) and coming out of the emergency? We recommend that this statement be replaced with a requirement for the TOP to coordinate with the GOPs, TOs, DPs and BAs. * R4. Replace "system modifications" with "changes to cranking paths". This is to avoid numerous changes to a restoration plan if detailed requirements remain in the Standard * R5. Change "latest" to "current". * R6 - Replace "steady state and dynamic simulations" with "steady state and/or dynamic simulations" since it would be better to break those out to reduce confusion for applicable entities and audit teams. * R7. We suggest replacing "plan" with "strategy" and eliminating the second sentence. * R10. This is at least partially covered in the latest draft of the Personnel Training Standard, PER-005-1 R3. While we realize that past responses from the SDT quoted FERC Order 693 verbiage to support inclusion of the training in the EOP standards, having the requirement in both standards could result in double jeopardy. We suggest that the SDT includes a reference to the PER requirement and a statement that clarifies that the training required in PER-005-1 R3 also satisfies EOP-005-2 R10. * R10.1. Add the word "those" before "Generator Operators included in the restoration plan" * R13 - Blackstart Resource Agreement is not a defined term. Suggest not capitalizing it or include as an official term.</p> |
| | No |
| | As with the standards, the measures have also moved in a positive direction. One comment to consider: * M1 - Implies that a "written approval letter" is necessary to prove RC approval of the plan. This was not stated as the only way to meet the requirement, so we suggest that M1 should have other options available. EOP-006-2 M5 states that "Each Reliability Coordinator shall provide evidence, such as a review signature sheet or emails, that it has reviewed, approved or disapproved..." EOP-005-2 M1 should align with this measure. |
| | No |
| | We have suggested several changes to the requirements and request the SDT to make any corresponding changes to the compliance elements. |
| | No |
| | <p>* R1.2 is covered in R1.1 and should be deleted. * R1.5 - Add "within its RC area" after Transmission Operators and add "neighboring" before Reliability Coordinator Areas. * R1.6 - This is more appropriately included in the Transmission Operator restoration plan and should</p> |





























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|  | <p>be removed from the Reliability Coordinator plan. * R1.9 - Does this pose problems if it is interpreted that the RC is the only communications contact? Will this overload the RCs to the detriment of reliability? R1.10 - R1.10 should be removed. * R5 - R5 should require the RC to update its plan, if necessary, based on the review of the plans within its area (Reference the VSLs and M5). * R6 - Change "latest" to "current" * R9 - This is at least partially covered in the latest draft of the Personnel Training Standard, PER-005-1 R3. While we realize that past responses from the SDT quoted FERC Order 693 verbiage to support inclusion of the training in the EOP standards, having the requirement in both standards could result in double jeopardy. We suggest that the SDT include a reference to the PER requirement and a statement that clarifies that the training required in PER-005-1 R3 also satisfies EOP-006-2 R9. * R10 - A minimum of one restoration drill per year should be sufficient for most RCs - RCs with larger footprints that need to conduct more than one drill in order to have participation of all the entities in their footprint have the option to schedule more than one.</p> |
|  | <p>No</p> |
|  | <p>*M5 - The measure for this requirement states that the RC must revise its restoration plan based on review of TOPs and neighboring RCs, however, the requirement does not state that an update of the RC's own plan is required. The Violation Severity Level for M5 does not seem to be consistent with the requirement.</p> |
|  | <p>No</p> |
|  | <p>We have suggested several changes to the requirements and request the SDT to make any corresponding changes to the compliance elements.</p> |
|  | <p>No</p> |
|  | <p>Please see comments in Questions 1 and 4 above.</p> |
|  | <p>No</p> |
|  | <p>The new timeline is better, but not ideal. Since some requirements are dependent on others being completed beforehand, if certain ones are not completed until the last minute other requirements will not be able to be implemented on time. It seems a simple, but a better solution would be to have the RC applicable requirements due in advance of the other requirements.</p> |
|  | <p>No</p> |
|  | <p>In general, the SDT changes have moved the standard's development in the right direction; however, we have two proposed changes that impact both standards and span multiple requirements. These two changes are: 1. The Restoration Plan should be a high level restoration philosophy or principles of how a system would be restored based on the conditions and availability of facilities following a disturbance. Low level details of switching and other requirements are more appropriately included in company operating procedures. 2. There needs to be additional requirements included in EOP-005-2 and EOP-006-2 to fully implement the blackout plan approval process. There are no provisions in the standards for the scenario where the RC fails to approve a TOP plan. The standards speak to mandatory requests for approval and mandatory responses on approval/disapproval/etc. but no details on how to reconcile any issues so that ultimately approval is the end result. Without this, the TOP has incredible exposure. In this scenario, there is an issue of who has the liability for non-compliance. There need to be clear requirements/measures to ensure that the TOP and RC work together in order to work through issues and approval is reached in a timely manner.</p> |
|  | <p>Individual</p> |
|  | <p>Dan Rochester</p> |
|  | <p>Independent Electricity System Operator (IESO) - Ontario</p> |
|  | <p>No</p> |
| | <p>We do not agree with adding Transmission Owners and Distribution Providers to the Applicability Section. These two entities are added only to provide the 2 hour training to their field switching personnel. This addition is unnecessary and not all inclusive (for example, missing Generator Owner, Balancing Authority, etc. who may have a role in the restoration plan). To ensure training is provided, we suggest R11 be revised to: "R11. Each Transmission Operator, and each operational entity identified in the Transmission Operator's approved restoration plan shall provide a minimum of two hours of System restoration training every two years to their field switching personnel identified as performing unique tasks associated with the Transmission Operator's restoration plan that are outside of their normal tasks." R7 stipulates that if the restoration plan cannot be executed as expected because actual conditions do not match the studied conditions, the Transmission Operator shall utilize its restoration plan strategies to facilitate restoration. This standard does not require the TOP to develop restoration plan strategies; it only requires the TOP to follow the the high level strategies for restoring the Interconnection as outlined in the Transmission Operator's</p> |



















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| | <p>Reliability Coordinator restoration plan (R1.1). We suggest to reword R7 according to R1.1. Further, we suggest to change the word "match" to "resemble" since "match" requires one on one identical conditions which may not be achieved whereas "resemble" provides some flexibility. R4.1 requires that the Transmission Operator submit its revised restoration plan to the Reliability Coordinator for approval "within the same ninety calendar day period." With the changes suggested to R4, it is unclear whether the ninety days applies to both revisions due to planned and unplanned system modifications. Furthermore, we believe that the timeline for submitting a revised restoration plan for approval should mirror the Reliability Coordinator's obligation to submit its most recent restoration plan to its Transmission Operators within "thirty days of creation or revision" (see suggested changes in R2. in EOP-006-02). We therefore recommend the following wording for R4.1: "Each Transmission Operator shall submit its revised restoration plan to its Reliability Coordinator for approval within thirty days of creation or revision." R17.1 requires that the training program provided by each Generator Operator with a Blackstart Resource include the "System restoration plan, including coordination with the Transmission Operator." We believe that the Generator Operator should focus their training on their role within the restoration plan, and not the entire restoration plan developed by the Transmission Operator. Hence, we recommend that R17.1 is reworded to: "The Generator Operator's role in the restoration plan, including coordination with the Transmission Operator."</p> |
| | <p>No</p> |
| | <p>If the above suggested changes are accepted, M7 and M11 need to be revised accordingly. M6 asks for evidence that the Transmission Operator verify through analysis of actual events, steady state and dynamic simulations, or testing that its restoration plan accomplishes its intended function. R6 also contains a timing requirement for this verification but the M6 does not have any element to assess this timing. This is not a serious problem; but the VSLs that are developed based on the timing requirement and a simple Yes or No (performing the verification) without consideration of any of the subrequirements in R6 is a disconnect.</p> |
| | <p>No</p> |
| | <p>Data retention requirements for M7 and M11 need to be revised if the suggestions to revise R7 and R11 are accepted. VSL for R6: As indicated under Q2, the VSLs for R6 are developed based on the timing requirement (for Lower) and a simple Yes or No (performing the verification for Severe) without consideration of any of the subrequirements in R6 leaves some of the conditions of non-compliance not addressed. For example, the TOP verifies its restoration plan within the 5 year period but fail to meet one of the subrequirements R6.1 to R6.3. This condition is not covered. We suggest to expand the VSLs to cover these conditions under Medium and High. VSLs for R7 and R11 need to be reworded if the suggestions to revise these two requirements under Q1 are accepted. VSL for R10: A High VSL is assigned if the TOP fails to address three or more of the topics mentioned in the subrequirements. R10 has 4 subrequirements, failing to address more than 3 subrequirements is a complete violation of the intent of R10. We suggest that the High VSL be reworded to "...failing to address 3 subrequirements". Alternatively, if the SDT wishes to retain the 3 or more condition, then we suggest the conditions in Lower, Medium and High be moved up by one level each, and eliminate the condition currently under Severe.</p> |
| | <p>No</p> |
| | <p>For R7 and R8, we suggest to delete the words "because actual conditions do not match the studied conditions" leaving the sentence as "If the restoration plan cannot be completed as expected the Reliability Coordinator shall utilize its restoration plan strategies to facilitate System restoration". This change covers situations that can arise beyond 'studied conditions' such as a loss of operator voice channel loss, monitoring and/or control degradations, etc. R5 requires that Reliability Coordinators review the restoration plans of the neighbouring Reliability Coordinators. This requirement has already been stated in R.4. and therefore not needed here. We recommend that "and neighbouring Reliability Coordinators" be removed from the wording of R5. For more changes see comments below on M5. R9.1. states that the training program for the Reliability Coordinator's system operators should address "the coordination role of the Reliability Coordinator." We believe that this training should focus on system operators' role in the system restoration plan and furthermore, address the coordination with other operational entities identified in the plan. Hence, we recommend that R9.1. use the following wording: "The System Operators' role in the system restoration plan, including coordination with other operational entities identified in the plan." We believe that the standard needs to define "minimum blackstart capability requirement" since otherwise, there can not be any applicable measures. Therefore, we suggest that R1.1 be reworded to: "A description of the high level strategy to be employed during restoration events for restoring the interconnection, including minimum blackstart requirements. "</p> |
| | <p>No</p> |
| | <p>If the comments above are accepted, M5 should not include the wording "and reviewed its neighboring Reliability Coordinator's". Furthermore, the wording in M5 "and updated its</p> |

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| | restoration plan, if necessary" is not reflected in R5, where the Reliability Coordinator is required to review but not necessarily update its restoration plan. We suggest that similar wording is added to R5. |
| | Yes |
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| | Yes |
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| | Yes |
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| | Yes |
| | |
| | Individual |
| | Michael Ayotte |
| | ITC Transmission and METC |
| | No |
| | ITC agrees with the changes with the exception of the addition of R1.9. The same requirement was added to EOP-006 creating potential confusion regarding who has the authority and responsibility to transfer authority back to the BA. It would seem this responsibility would be better aligned with the RC responsibilities in EOP-006. Whatever the criteria is, the RC and TOP should have the same criteria for decision making. ITC suggests either removing R1.9 from EOP-005 or adding the words "as outlined in the RC's restoration plan". In Requirement 5, suggest replacing the "implementation date" with "effective date" for clarity. |
| | Yes |
| | The measure for R5 should specify the types of documents that an entity can use to establish the date the restoration plan was placed in its primary and backup control rooms. |
| | No |
| | The retention period for several elements is "the current year plus three prior calendar years", which is essentially four calendar years. The retention period should simple be "three calendar years" which aligns with other data retention requirements and the audit schedule. The Severe VSL for R5 should be revised to state that a copy of the plan was not found in the primary or backup control room. In addition, levels of severity could be built by the drafting team by making the VSLs time based as previously drafted. |
| | No |
| | In R1.1., it is not clear what specifically is meant by "minimum blackstart capability requirement". This should be defined or removed from the requirement. |
| | Yes |
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| | Yes |
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| | Yes |
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| | Yes |
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| | ITC agrees with the SDT assessment that the previous implementation plan was too complex. The SDT should consider a staged approach of 12 months and 24 months after regulatory approval in order to expediate the effective dates of the majority of the requirements, given their level of improvement over the existing standards. |
| | Yes |
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| | Individual |
| | Rick White |
| | Northeast Utilities |

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|  | No |
|  | R1.7 & R1.8 - Suggest adding "Description of the" in front of processes. This removes the potential unreasonable quantity of, or possible ambiguity about, the documentation required to demonstrate compliance. R6 - The technical data required for such analysis is difficult to obtain in a de-regulated environment. It should be clear that Generator Operators are required to provide data to accomplish this requirement (and not only to the extent that it is mutually agreed upon in a blackstart resource agreement). R11 - Training requirements should be determined based on a systematic approach to training. i.e. - A specific time requirement should not be mandated in the standard. The requirement should only address the need to include in one's (systematic) evaluation of training requirements for field personnel, activities/tasks associated with system restoration. Also, the meaning of the phrase "unique tasks" makes this requirement problematic, from a compliance standpoint. R16.2 - "with a Blackstart Resource" should be added after Generator Operator. R18 - Is this requirement intended to apply to GOPs with blackstart resources as with the other requirements, or to all GOPs? |
|  | Yes |
|  | |
|  | Yes |
|  | |
|  | Yes |
|  | R1.2 - Suggest adding "Description of the" in front of processes. This removes the potential unreasonable quantity of, or possible ambiguity about, the documentation required to demonstrate compliance. |
|  | Yes |
|  | |
|  | Yes |
|  | |
|  | Yes |
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|  | Yes |
|  | |
|  | No |
|  | Pending resolution of the issues above. |
|  | Individual |
|  | Jason Shaver |
|  | American Transmission Company |
|  | No |
|  | EOP-005 R4: For a planned system modification when does the 90-day clock start? Would it start at the beginning of the planned system modification or when the planned system modification is completed? What does the SDT mean by "implementing a planned system modification"? The requirement should either be re-written or footnoted for clarity. EOP-005 R3, R4 and R6: Requirement 3 requires TOP's to review their plan annually. Requirement 4 requires updates to the plan within 90 of a change. Requirement 6 requires analysis of the plan on a five years interval. For requirement 3 what reliability risk is the SDT attempting to cover? It seems that Requirement 3 is covered by Requirement 4 and Requirement 6. ATC recommends that Requirement 3 be deleted. |
|  | No |
|  | see our comments to question 1. |
|  | No |
|  | see our comment to question 9 |
|  | No |
|  | EOP-006 R1.1 Requirement 1.1 states that the RC has to provide "minimum blackstart capability requirements", but the standard does not provide any guidance to the RC on what has to be included in their "minimum blackstart capability requirements". ATC believes that |













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|  | <p>the standard should contain a list of items that must be included in the "minimum blackstart capability requirements". If the SDT disagrees with our position then we request a technical justification as to why each RCs "blackstart capability requirements" would be so diverse that a minimum list should not be included. EOP-006 R1.9 Requirement should be rewritten in order to clarify the role of RC when communicating system restoration efforts. ATC believes that the language should only specify that the RC is responsible for disseminating and communicating information regarding restoration to neighboring RCs. Requirement 1.7 already covers communication within the RC's area.</p> |
|  | <p>No</p> |
|  | <p>see our comments to question 4</p> |
|  | <p>No</p> |
|  | <p>see our comments to question 9</p> |
|  | <p>No</p> |
|  | <p>see our comment in question 4 about Requirement 1.1 in standard EOP-006.</p> |
|  | <p>No</p> |
|  | <p>EOP-005 and EOP-006 The proposed effective date should be re-written in order to have the standards effective in all jurisdictions at the same time. The problem with the current language is that it does not account for TOs, GOs, TOPs and DP that are in a different jurisdiction then their RC. (Cross boarder areas) Example: EOP-005-2 R1.1 Requirement 1.1 requires the TOP's restoration plan to follow the high-level strategies contained in their RC's plan. EOP-006-2 R1.1 Requirement 1.1 requires the RC to develop a high-level strategy for system restoration. Timeline issue: EOP-006-2 starts effectively 12 months after regulatory approval EOP-005-2 starts effectively 24 months after regulatory approval For this example the RC is regulated by FERC and the TOP is regulated by a Canadian entity. The Canadian regulator approved the standard on June 1, 2009, and FERC approves the standard November 30, 2009. The TOP will then be required to have a plan by July 1, 2011 but their RC will not have to have their plan until January 1, 2011. In this example the Canadian entity only gets six months to get their plan into compliance. ATC recommends that the language be updated to state that the clock starts when all jurisdictions approve the standard. For those areas that currently do not have a regulatory approval process then the clock starts when the last regulatory area approves the standard</p> |
|  | <p>No</p> |
|  | <p>VSL: ATC believes that all the VSL should be reviewed in light of FERC clarification on when they are looking at when approving VSL's. Many of the VSL's seem to violate FERC rule that the VSL be based on a single violation.</p> |
|  | <p>Individual</p> |
|  | <p>Patrick Brown</p> |
|  | <p>PJM</p> |
|  | <p>No</p> |
|  | <p>In the Applicability section, the additional wording that states -identified in the Transmission Operator's restoration plan- is not needed. All TOs and DPs need to be involved in the restoration plan to the level defined by the requirements in the standard. TOP to TOP coordination of restoration plans seems to be missing. Is it now handled only through the RC? In R3, replace -the Transmission Operator's restoration plan- with -its restoration plan. R4 has two requirements that are very similar but dealt with very differently. If an unplanned change occurs, the TOP has 90 days to update the Restoration Plan but if the change is planned, the Restoration Plan change must be prior to the system change. Some leeway must be given. It's almost impossible to comply without two plans existing at the same time. One plan would have the changes for a new element and would have to have an implementation date seconds before that new line goes into service. Please allow some post system change period to implement the new Restoration Plan, maybe 24 hours to five days or so. R5 - Same comment as R4 above. R7 - Change -shall utilize its restoration plan strategies- to -shall utilize strategies similar to its restoration plan. I think this is the intent but the old wording seems to imply that the strategies exist in the plan. R7 should be moved up to R1 to signify its importance to this standard. R11 and R17 - While putting a time period on training seems to be straight forward we think it is the wrong way to go. NERC espouses to using a Systematic Approach to Training that utilizes methods to determine the proper amount of training needed for each employee. For example a new employee may require more than two hours of EOP training where a seasoned employee may only require 30 minutes. R9 in EOP-006 is a good example of how this should be handled. We also recommend that this training requirement be moved to the PER standards.</p> |





















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|  | Yes |
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|  | No |
|  | VSLs for R4 do not cover the requirement for updating the plan - prior to implementing a planned System modification. |
|  | No |
|  | In R6, change the words -within its primary and backup control rooms and available to- to -readily accessible. This allows more flexibility in distributing the plan. R7 - Change -shall utilize its restoration plan strategies- to -shall utilize strategies similar to its restoration plan. I think this is the intent but the old wording seems to imply that the strategies exist in the plan. R7 should be moved up to R1 to signify its importance to this standard. |
|  | Yes |
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|  | Yes |
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|  | Yes |
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|  | Yes |
|  | |
|  | Yes |
|  | |
|  | No |
|  | Please address comments above before balloting. |
|  | Group |
|  | Santee Cooper |
|  | Terry L. Blackwell |
|  | South Carolina Public Service Authority |
|  | No |
|  | Santee Cooper recommends that the standard be rewritten to reflect that a restoration plan be developed in such a manner that it provides guidance and allows for flexibility to address many different sets of conditions and events. Restoration plans that are developed for one specific set of conditions will probably bear no resemblance to what actually occurs. The wording in R7 acknowledges that a specific restoration plan would probably be of little use. In R1 and R4.1 the RC should have input to the TOP's restoration plan not approval of the plan. Recommend rewording both these requirements to reflect submittal of restoration plans to the RC are an opportunity for the RC to provide input. R1.1 There is no reliability benefit for including this statement in the Standard. We suggest it be eliminated. R1.3. Replace the phrase "under the direction of" with "in coordination with". R1.9 We recommend that this statement be replaced with a requirement for the TOP to coordinate with the GOPs, TOs, DPs and BAs. R2. We suggest replacing "approved" with "coordinated" in keeping with our suggestion that the RC should not have approval over the TOP plans. R4. Maintenance of initial switching requirements can be overly burdensome and could result in never having a "current" plan due to constant system changes. R4.1. Replace "for approval" with "for review". R5. Change "latest" to "current" and remove "Reliability Coordinator approved". R6. Replace "steady state and dynamic simulations" with "steady state and/or dynamic simulations". R7. We suggest replacing "plan" with "strategy" and eliminating the second sentence. R10. This is already covered in the proposed PER-005-1 Personnel Training Standard and should not be duplicated as could result in double jeopardy. |
|  | No |
|  | The measures should reflect that a specific system restoration plan is not required or that it requires approval from the RC. M1 - There should be other options besides a "written approval letter" to verify the RC approved the plan. RC approval should be removed and replaced with RC review. Evidence could include a review signature sheet or emails. |
|  | No |
|  | The Violation Severity Levels were changed for R11 and R17 to have only a Severe VSL. If one person that is identified to receive training misses that training in the two year window, is that a Severe VSL? Shouldn't the levels of severity be based on the number of personnel trained and/or amount of training received. In addition, we have suggested several changes |

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| | to the requirements and request the SDT to make corresponding changes to the compliance elements. |
|  | No |
|  | The RC should have input to the TOP's restoration plan not approval of the plan. Recommend rewording R5.1 to reflect the RC has reviewed and provided input into the TOP's restoration plan. R1.1 There is no reliability benefit for including this statement in the Standard. We suggest it be eliminated. R1.5 Recommend rewording this requirement to read "Criteria and conditions for reestablishing interconnections with Transmission Operators in a neighboring Reliability Coordinator Area." R1.6 This is more appropriately included in the Transmission Operator restoration plan and should be removed from the Reliability Coordinator plan. R1.9 Recommend changing the requirement to mean the RC is the primary contact for disseminating information to neighboring RCs. The RC should not be held responsible for disseminating information to other TOPs and BAs within their footprint. During a restoration event, TOPs will be sharing information with adjacent TOPs while at the same time providing the same information to the RC. R1.10 should be removed. R5.1 Replace the last sentence with; "The Reliability Coordinator shall coordinate with the Transmission operators within its footprint to resolve any issues or questions resulting from their review of the TOP plans within thirty calendar days following the receipt of the restoration plan from the Transmission Operator. R5. Add a secondary requirement to R5 that requires the RC to update its plan if necessary based on the review of the plans of the TOPs within its RC Area and neighboring RCs. R6. Change "latest" to "current" and change "approved" to "coordinated". R7. and R8. Recommend deleting the last sentence and replace with the following: "If the restoration plan or resynchronization cannot be completed as planned, the RC will utilize its restoration plan strategies to facilitate System restoration." R9. This is already covered in the proposed PER-005-1 Personnel Training Standard and should not be duplicated as could result in double jeopardy. R10. A minimum of one restoration drill per year should be sufficient for most RCs - RCs that need to conduct more than one drill in order to have participation of all the entities in their footprint have the option to schedule more than one. |
|  | No |
|  | The RC should not be tasked with approving TOP's restoration plan. M8. Change "coordinated and authorized" to "coordinated". |
|  | No |
|  | We have suggested several changes to the requirements and request the SDT to make corresponding changes to the compliance elements. |
|  | No |
|  | See comments above. |
|  | No |
|  | The RC requirements that directly affect a TOPs requirements need to be due in advance of the other requirements or a TOP could get caught with no time to complete their requirements. |
|  | No |
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|  | Group |
|  | MRO NERC Standards Review Subcommittee |
|  | David Rudolph |
|  | BEPC |
|  | No |
|  | In R1.7 and R1.8 The MRO does not agree with replacing the word Procedures with Processes. The word Procedures is an electric utility industry widely recognized term used to refer to operating and switching procedures. Please change Processes back to Procedures. R15 states that the GOP with a Blackstart Resource shall notify its TOP of any known changes to the "capabilities" of the Blackstart Resource... Is the intent to know changes to outputs of MWs and MVARs or changes that would not allow the Blackstart Resource to start and energize a bus? Please clarify the intent. 24 hours seems restrictive and this should only apply to blackstart resources. TOP-002 R14 notifies the TOP of operating restraints and VAR-002 covers restrictive limits, is there the possibility of double jeopardy if these items are covered elsewhere? In R1, The MRO believes that the statement "to a state whereby the choice of the next Load to be restored is not driven by the need to control frequency or voltage regardless of whether the Blackstart Resource is located within the Transmission Operator's System" is explanatory and not necessary, please remove. In R1.4, The MRO would like to see "limitations" added to the list of characteristics. In R9.1, The MRO would like the testing time |

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| | <p>frame to be increased from 3 years to 5 years to be consistent with the analysis requirement in R6. The MRO and WECC have gone to 5 years for other generator testing requirements. In R14 & R17, The MRO realizes the SDT is referencing the Blackstart bus but the requirements are open to any bus. These requirements should be restated to clarify the energization of the blackstart bus. The violation severity level for R17 and the retention period wording for R14 both have vague wording as well perhaps they could be reworded.</p> |
| | No |
| | <p>In M1, the last part of the measure states "as shown with the written approval letter from its Reliability Coordinator" the MRO would like to see this statement removed from the measure to be in line with R1. The requirement does not say that we need written approval, there are other forms of approval such as e-mail.</p> |
| | No |
| | <p>Retention periods, measures, & violation severity levels for R7 and R8 mention the word "System" but the requirements mention the Bulk Electric System (BES). This is not consistent. The measures, retention periods, & violation severity levels should be consistent with the requirements and reference the BES. The MRO believes that the VSLs for R3 are not consistent with the requirement, please clarify. For R17, the severe VSL does not specify which bus is to be energized. The MRO believes that this VSL compliance issue should be a percentage of total operators trained or a total amount of training time, but not ALL or NONE.</p> |
| | No |
| | <p>In R1.2 the MRO do not agree with replacing the word Procedures with Processess. The word Procedures is an electric utility industry widely recognized term used to refer to operating and switching procedures. Please change Processess back to Procedures. MRO believes that a "minimum blackstart capability requirements" should not be set by the RC. If by "minimum blackstart capability" the SDT intention is for the RC to set the number, location, strategy of restoration, or other minimum standard, this should either be set by the RRO, TOP or by a NERC standard with basis.</p> |
| | Yes |
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| | Yes |
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| | Yes |
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| | Yes |
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| | No |
| | <p>Based on the comments provided above, the MRO would like to see our comments addressed before it is placed in ballot.</p> |
| | Individual |
| | Chris Norton |
| | American Municipal Power - Ohio, Inc. (AMP-Ohio) |
| | No |
| | <p>R16.2. should specify Generation Operators with a Blackstart Resource. R18. should specify Generation Operator with a Blackstart Resource. R2. should contain a requirement for the TOP to ensure that owners of current Blackstart Resources or facilities in cranking paths are notified of their inclusion in the TOP's restoration plan.</p> |
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| | Group |
| | Bonneville Power Administration |
| | Denise Koehn |
| | Transmission Reliability Program |
| | No |
| | Applicability: I don't think 4.3 and 4.4 are needed unless they have a designated special switching role in the restoration plan. Language matching R2/R11 wording only applicable if a unique roles. Change the definition of Blackstart Resource back to Generation Facility. Otherwise OK. Reword R5 to clarify by relocating RC approval phrase: ...a copy of its latest restoration plan "approved by the Reliability Coordinator" within each ... |
| | Yes |
| | OK, except for addition of TO/DO needed for clarification. |
| | Yes |
| | Coordinate data retention with the implementation date (2 years from standard approval) e.g. retroactive retention of last 3 years of plans (approval by RC only starts with proposed implementation, currently Standard 1 just indicates coordination with RC). |
| | Yes |
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| | Yes |
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| | Yes |
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| | Yes |
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| | No |
| | EOP-005 doesn't address the necessary coordination needed between the GO, who is the provider of the Blackstart Resource, and the Transmission Operator. Recommend that Requirement 13 be modified to add a reference to "including Blackstart Resource Generator Owner coordination". Suggest rewording R 1.4 to "Identification of each Blackstart Resource and its characteristics as agreed to including the following: ..." R1.4 as written is a 'fill in the gap' requirement. Remove "but not limited to". |
| | Individual |
| | John Jonte |
| | CenterPoint Energy |
| | No |
| | An overlap between reliability standards requirements should be avoided wherever possible. There are several requirements in this proposed standard that address training. An active NERC project in the Personnel Performance, Training, and Qualifications category, PER-005-1 – System Personnel Training (Project 2006-01), is presently addressing training, including system restoration from blackstart. CenterPoint Energy recommends training requirements, such as, R10, R11, and R17, be deleted from this standard. Such training requirements should be vetted with Project 2006-01. |
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|  | Group |
|  | SERC OC Standards Review Group |
|  | Jim Griffith, Chair - SERC OC |
|  | Southern Company Transmission |
|  | No |
|  | <p>In general, the SERC OC Standards Review Group feels that the SDT changes have moved the standard's development in the right direction; however, we have two basic changes that we are proposing that impact several requirements which are similarly addressed in addition to suggested changes for other specific requirements. These two changes are: 1. The Restoration Plan should be a high level restoration philosophy or principles of how a system would be restored based on the conditions and availability of facilities following a disturbance. Low level details of switching and other requirements are more appropriately included in company operating procedures. 2. The RC should not have approval authority over the TOP's restoration plan. What would happen if the RC fails to approve a TOP plan? If an RC does have approval of a plan and the plan fails, does this pass liability for non-compliance on to the RC? Specific comments: R1. We suggest changing the first sentence to: "Each Transmission Operator shall develop a restoration plan in coordination with its Reliability Coordinator. Also suggest breaking the second sentence into two sentences by inserting a period after the word "service" and inserting the phrase "The plan should cover restoration" before "to a state whereby....". R1.1 There is no reliability benefit for including this statement in the Standard. We suggest it be eliminated. R1.2. We suggest replacing this requirement with the following: "A description of the Agreements or mutually agreed upon procedures or protocols to include priority of restoration for off-site power to Nuclear power plants." R1.3. Replace the phrase "under the direction of" with "in coordination with". R1.5. Remove the phrase "and initial switching requirements", in keeping with our concept of making this a high level plan. R1.9 - Is this really necessary? Where did the standard transfer operations and authority away from the BA? Wouldn't this requirement take care of itself via declaring an emergency (thus suspending Standards of Conduct) and coming out of the emergency? We recommend that this statement be replaced with a requirement for the TOP to coordinate with the GOPs, TOs, DPs and BAs. R2. We suggest replacing "approved" with "coordinated" in keeping with our suggestion that the RC should not have approval over the TOP plans. R3. Plans should be reviewed in coordination with the Reliability Coordinator. Delete "the Transmission Operator's" and restore "its". R4. Replace "system modifications" with "cranking path". This is to avoid numerous changes to a restoration plan if detailed requirements remain in the Standard R4.1. Replace "for approval" with "for review". R5. Change "latest" to "current". R6. Replace "steady state and dynamic simulations" with "steady state and/or dynamic simulations". R7. We suggest replacing "plan" with "strategy" and eliminating the second sentence. R10. This is already covered in the Personnel Training Standard and should not be duplicated. This requirement is in PER-005-1, R3, which could result in double jeopardy. R10.1. Add the word "those" before "Generator Operators included in the restoration plan" R11. The requirement should be modified to clarify that field operators must be trained on the unique tasks they perform outside their normal tasks and not necessarily trained on the restoration plan. We suggest that the two (2) hour training requirement may be too prescriptive and should be removed.</p> |
|  | No |
|  | <p>As with the standards, the measures have also moved in a positive direction. We have suggested several changes to the requirements and request the SDT to make corresponding changes to the measures. If the SDT does not accept the suggestions that the RC should not have approval authority of the TOP restoration plan, then the following specific comment is applicable: M1 - Implies that a "written approval letter" is necessary to prove RC approval of the plan. This was not stated as the only way to meet the requirement, so we suggest that M1 should have other options available. EOP-006-2 M5 states that "Each Reliability Coordinator shall provide evidence, such as a review signature sheet or emails, that it has reviewed, approved or disapproved..." EOP-005-2 M1 should align with this.</p> |
|  | No |
|  | <p>We have suggested several changes to the requirements and request the SDT to make corresponding changes to the compliance elements. In general, in the VSLs, please use the numeric designation consistently (i.e., text or number) when specifying calendar days and/or years. Reference VSL for R2, R3, R4, R6, R11, R15, R16 & R17.</p> |
|  | No |
|  | <p>1.2 This is covered in R1.1 and should be deleted. R1.5 Add "within its RC area" after Transmission Operators and add "neighboring" before Reliability Coordinator Areas. R1.6 This</p> |

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|  | <p>is more appropriately included in the Transmission Operator restoration plan and should be removed from the Reliability Coordinator plan. R1.9. Does this pose problems if it is viewed that the RC is the only communications contact? R1.10 should be removed. R5. Add the phrase "the plans of" before "neighboring Reliability Coordinators, when received". In addition, R5 should require the RC to update its plan, if necessary, based on the review of the plans within its area (Reference the VSLs and M5). R5.1 Replace the last sentence with; "The Reliability Coordinator shall coordinate with the Transmission operators within its footprint to resolve any issues or questions resulting from their review of the TOP plans within thirty calendar days following the receipt of the restoration plan from the Transmission Operator. R6. Change "latest" to "current" and change "approved" to "coordinated". R9. This would be more appropriately handled in the Personnel Training Standard. This requirement is in PER-005-1, R3, which could result in double jeopardy. R10. A minimum of one restoration drill per year should be sufficient for most RCs - RCs that need to conduct more than one drill in order to have participation of all the entities in their footprint have the option to schedule more than one.</p> |
|  | <p>No</p> |
|  | <p>All measures for EOP-006 should be checked for consistency with proposed changes to requirements. M5. The measure for this requirement states that the RC must revise its restoration plan based on review of TOPs and neighboring RCs, however, the requirement does not state that an update of the RC's own plan is required. The Violation Severity Level for M5 does not seem to be consistent with the requirement. M8. Needs to comply with R8 – change "coordinated and authorized" to "coordinated or authorized"</p> |
|  | <p>No</p> |
|  | <p>We have suggested several changes to the requirements and request the SDT to make corresponding changes to the compliance elements. We also suggest using a consistent format (i.e., text or number) when specifying calendar days and/or years. Reference VSL for R2, R3, R4 R5, R6, & R10.</p> |
|  | <p>No</p> |
|  | <p>Please see comments in Questions 1 and 4 above.</p> |
|  | <p>No</p> |
|  | <p>The new timeline is better, but not ideal. Since some requirements are dependent on others being completed beforehand, if certain ones are not completed until the last minute other requirements will not be able to be implemented on time. It seems a simple, but better solution would be to have the RC applicable requirements due in advance of the other requirements.</p> |
|  | <p></p> |
|  | <p>Individual</p> |
|  | <p>Roger Champagne</p> |
|  | <p>Hydro-Québec TransÉnergie</p> |
|  | <p>No</p> |
|  | <p>Did the Drafting Team intended R18 to apply to Generator Operators with black start resources as with the other requirements, or to all Generators? If the Drafting Team intended applicability to Generator Operators with black start resources then we suggest rewording as follows: "R18. Each Generator Operator with a Blackstart Resource shall participate in the Reliability Coordinator's restoration drills, exercises, or simulations as requested by the Reliability Coordinator. [Violation Risk Factor = Medium] [Time Horizon = Operations Planning]" R16.2. Should be revised to read: Each Generator Operator "with a Blackstart Resource shall provide..." Requirement R1.2 remains unclear. Specifically, "a description of the manner" is confusing. The SDT response to Draft 3 comments and/or questions does not provide meaningful understanding of what is expected in this requirement. Suggest rewording or this requirement be moved to the Nuclear Plant Interface Coordination requirements NUC-001.</p> |
|  | <p>Yes</p> |
|  | <p>Suggest using a consistent format (i.e., text or number) when specifying calendar days and/or years. Reference VSL for R2, R3, R4, R6, R11, R15, R16 & R17.</p> |
|  | <p>No</p> |
|  | <p>Compliance by the TOP with this standard is partially based on the action of the RC due to the requirement that "Each Transmission Operator shall have a restoration plan approved by its Reliability Coordinator". Although both the requirements and measures state that the plan must be approved by the RC, it is omitted from the VSLs completely.</p> |
|  | <p>No</p> |

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| | <p>HQT believes conducting two system restoration drills/exercises annually is excessive. At least one annual comprehensive exercise is sufficient, unless there are significant changes to the Reliability Coordinator system restoration plan. R5 requires that Reliability Coordinators review the restoration plans of the neighbouring Reliability Coordinators. This requirement has already been stated in R.4. and therefore not needed here. We recommend that "and neighbouring Reliability Coordinators" be removed from the wording of R5. R9.1. states that the training program for the Reliability Coordinator's system operators should address "the coordination role of the Reliability Coordinator." We believe that this training should focus on system operators' role in the system restoration plan and furthermore, address the coordination with other operational entities identified in the plan. Hence, we recommend that R9.1. use the following wording: "The System Operators' role in the system restoration plan, including coordination with other operational entities identified in the plan."</p> |
| | <p>Yes</p> |
| | <p>Suggest using a consistent format (i.e., text or number) when specifying calendar days and/or years. Reference VSL for R2, R3, R4 R5, R6, & R10.</p> |
| | <p>Yes</p> |
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| | <p>Yes</p> |
| | |
| | <p>No</p> |
| | <p>We believe that conducting two system restoration drills/exercises annually is excessive. One annual comprehensive exercise is sufficient, unless specific triggers occur that require an additional system restoration drill, exercise or simulation per year. We believe that the Standards Drafting Team should give consideration to defining these triggers, which should be easy to measure in an audit.</p> |
| | <p>No</p> |
| | <p>Subject to addressing comments provided above.</p> |
| | <p>Group</p> |
| | <p>IRC Standards Review Committee</p> |
| | <p>Charles Yeung</p> |
| | <p>Southwest Power Pool</p> |
| | <p>No</p> |
| | <p>We do not agree with adding Transmission Owners and Distribution Providers to the Applicability Section. These two entities are added only to provide the 2 hour training to their field switching personnel. This addition is unnecessary and not all inclusive (for example, missing Generator Owner, Balancing Authority, etc. who may have a role in the restoration plan). To ensure training is provided, we suggest R11 be revised to: "R11. Each Transmission Operator, and each operational entity identified in the Transmission Operator's approved restoration plan shall provide a minimum of two hours of System restoration training every two years to their field switching personnel identified as performing unique tasks associated with the Transmission Operator's restoration plan that are outside of their normal tasks." R1.2 remains unclear. Specifically, "a description of the manner" is confusing. The SDT response to Draft 3 comments and/or questions does not provide meaningful understanding of what is expected in this requirement. Suggest rewording or moving this requirement to the Nuclear Plant Interface Coordination requirements in standard NUC-001. R18. If the Drafting Team intended applicability to Generator Operators with black start resources then we suggest rewording as follows: "R18. Each Generator Operator with a Blackstart Resource shall participate in the Reliability Coordinator's restoration drills, exercises, or simulations as requested by the Reliability Coordinator. [Violation Risk Factor = Medium] [Time Horizon = Operations Planning]" R16.2. Should be revised to read: Each Generator Operator "with a Blackstart Resource shall provide..." In R3, replace "the Transmission Operator's restoration plan" with "its restoration plan". R7 stipulates that if the restoration plan cannot be executed as expected because actual conditions do not match the studied conditions, the Transmission Operator shall utilize its restoration plan strategies to facilitate restoration. This standard does not require the TOP to develop restoration plan strategies; it only requires the TOP to follow the the high level strategies for restoring the Interconnection as outlined in the Transmission Operator's Reliability Coordinator restoration plan (R1.1). We suggest to reword R7 according to R1.1. Further, we suggest to change the word "match" to "resemble" since "match" requires one on one identical conditions which may not be achieved whereas "resemble"</p> |

provides some flexibility. R4 has two requirements that are very similar but dealt with very differently. If an unplanned change occurs, the TOP has 90 days to update the Restoration Plan but if the change is planned, the Restoration Plan change must be prior to the system change. Some leeway must be given. It's almost impossible to comply without two plans existing at the same time. One plan would have the changes for a new element and would have to have an implementation date seconds before that new line goes into service. Please allow some post system change period to implement the new Restoration Plan, maybe 24 hours to five days or so. R4.1 requires that the Transmission Operators submit its revised restoration plan to the Reliability Coordinator for approval "within the same ninety calendar day period." With the changes suggested to R4, it is unclear whether the ninety days applies to both revisions due to planned and unplanned system modifications. Furthermore, we believe that the timeline for submitting a revised restoration plan for approval should mirror the Reliability Coordinator's obligation to submit its most recent restoration plan to its Transmission Operators within "thirty days of creation or revision" (see suggested changes in R2. in EOP-006-02). We therefore recommend the following wording for R4.1: "Each Transmission Operator shall submit its revised restoration plan to its Reliability Coordinator for approval within thirty days of creation or revision.", which will be applicable to changes due to both planned and unplanned system modifications. R17.1 requires that the training program provided by each Generator Operator Operator with a Blackstart Resource include the "System restoration plan, including coordination with the Transmission Operator." We believe that the Generator Operator should focus their training on their role within the restoration plan, and not the entire restoration plan developed by the Transmission Operator. Hence, we recommend that R17.1 is reworded to: "The Generator Operator's role in the restoration plan, including coordination with the Transmission Operator." R11 and R17 - While putting a time period on training seems to be straight forward, we think it is the wrong way to go, since this is dependent on the amount of training needed for each employee. For example a new employee may require more than two hours of EOP training where a seasoned employee may only require 30 minutes. We also recommend that this training requirement be moved to the PER standards. R9 in EOP-006 is a good example of how this should be handled.

No

If the above suggested changes are accepted, M7 and M11 need to be revised accordingly. M6 asks for evidence that the Transmission Operator verify through analysis of actual events, steady state and dynamic simulations, or testing that its restoration plan accomplishes its intended function. R6 also contains a timing requirement for this verification but the M6 does not have any element to assess this timing. This is not a serious problem; but the VSLs that are developed based on the timing requirement and a simple Yes or No (performing the verification) without consideration of any of the subrequirements in R6 is a disconnect.

No

Data retention requirements for M7 and M11 need to be revised if the suggestions to revise R7 and R11 are accepted. Compliance by the TOP with this standard is partially based on the action of the RC due to the requirement that "Each Transmission Operator shall have a restoration plan approved by its Reliability Coordinator". Although both the requirements and measures state that the plan must be approved by the RC, it is omitted from the VSLs completely. VSL for R6: As indicated under Q2, the VSLs for R6 are developed based on the timing requirement (for Lower) and a simple Yes or No (performing the verification for Severe) without consideration of any of the subrequirements in R6 leaves some of the conditions of non-compliance not addressed. For example, the TOP verifies its restoration plan within the 5 year period but fail to meet one of the subrequirements R6.1 to R6.3. This condition is not covered. We suggest to expand the VSLs to cover these conditions under Medium and High. VSLs for R4, R7 and R11 need to be reworded if the suggestions to revise these two requirements under Q1 are accepted. VSLs for R4 do not cover the requirement for updating the plan - prior to implementing a planned System modification. VSL for R10: A High VSL is assigned if the TOP fails to address three or more of the topics mentioned in the subrequirements. R10 has 4 subrequirements, failing to address more than 3 subrequirements is a complete violation of the intent of R10. We suggest that the High VSL be reworded to "... failing to address 3 subrequirements". Alternatively, if the SDT wishes to retain the 3 or more condition, then we suggest the conditions in Lower, Medium and High be moved up by one level each, and eliminate the condition currently under Severe.

No

For R7 and R8, we suggest to delete the words "because actual conditions do not match the studied conditions" leaving the sentence as "If the restoration plan cannot be completed as expected the Reliability Coordinator shall utilize its restoration plan strategies to facilitate System restorator". This change covers situations that can arise beyond 'studied conditions' such as a loss of operator voice channel loss, monitoring &/or control degradations, etc. R5 requires that Reliability Coordinators review the restoration plans of the neighbouring Reliability Coordinators. This requirement has already been stated in R.4. and therefore not

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| | <p>needed here. We recommend that "and neighbouring Reliability Coordinators" be removed from the wording of R5. For more changes see comments below on M5. R9.1. states that the training program for the Reliability Coordinator's system operators should address "the coordination role of the Reliability Coordinator." We believe that this training should focus on system operators' role in the system restoration plan and furthermore, address the coordination with other operational entities identified in the plan. Hence, we recommend that R9.1. use the following wording: "The System Operators' role in the system restoration plan, including coordination with other operational entities identified in the plan." R1.1. We believe that the standard needs to define "minimum blackstart capability requirement" since otherwise, there can not be any applicable measures. Therefore, we suggest that R1.1 be reworded to: "A description of the high level strategy to be employed during restoration events for restoring the interconnection, including minimum blackstart requirements. ". Furthermore, we believe that minimum blackstart requirements should not be set by the RC. If by "minimum blackstart capability" the SDT's intention is for the RC to set the number, location, strategy of restoration, or other minimum standard, this should either be set by the RRO, TOP or by a NERC standard with basis.</p> |
| | No |
| | <p>If the comments above are accepted, M5 should not include the wording "and reviewed its neighboring Reliability Coordinator's". Furthermore, the wording in M5 "and updated its restoration plan, if necessary" is not reflected in R5, where the Reliability Coordinator is required to review but not necessarily update its restoration plan. We suggest that similar wording is added to R5.</p> |
| | Yes |
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| | Yes |
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| | No |
| | <p>In EOP-006-2, R10 and M10 require that 2 system restoration drills, exercises or simulations be conducted annually. We believe that conducting two system restoration drills/exercises annually is excessive. One annual comprehensive exercise is sufficient, unless specific triggers occur that require an additional system restoration drill, exercise or simulation per year. We believe that the Standards Drafting Team should give consideration to defining these triggers, which should be easy to measure in an audit.</p> |
| | No |
| | Please address comments above before balloting. |
| | Group |
| | Midwest ISO Stakeholder Standards Collaborators |
| | Jason L. Marshall |
| | Midwest ISO |
| | Yes |
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| | Yes |
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| | Yes |
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| | No |
| | <p>Regarding EOP-006 R1.1, we believe that a "minimum blackstart capability requirement" should not be set by the RC. If by "minimum blackstart capability" the SDT's intention is for the RC to set the number, location, strategy of restoration, or other minimum standard, this should either be set by the RRO, TOP or by a NERC standard with basis. We question if this requirement conflicts with the EAct which says the ERO will not develop standards that require building of generation or transmission. Setting a minimum blackstart capability may certainly require building either.</p> |
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| | Yes |
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| | Group |
| | Southern Company |
| | Roman Carter |
| | Southern Company Transmission |
| | No |
| | <p>General comment: The Restoration Plan should be a high level restoration philosophy or principles of how a system would be restored based on the conditions and availability of facilities following a disturbance. Low level details of switching and other requirements are more appropriately included in company operating procedures. Recommend changing the definition of Blackstart Resource to the following: A generating unit(s) and its associated set of equipment which has the ability to be started without support from the System or is designed to remain energized without connection to the remainder of the System, with the ability to energize a bus, meeting the Transmission Operator's restoration plan needs for real and reactive power capability, frequency and voltage control, and that has been included in the Transmission Operator's restoration plan as a resource used to start another unit(s) via a Cranking Path. *R1 - Recommend replacing "approved by its RC" to "shared with and reviewed by its RC". *R1.1 - There is no reliability benefit for including this statement in the standard. We suggest it be eliminated. *R1.3 - Suggest changing "under the direction" to "and in coordination with" to better reflect the relationship between the TOP and the RC during restoration." *R1.5. Remove the phrase "and initial switching requirements". In *R1.9 - Recommend adding a requirement that the TOP coordinate with the BA, GOP, TO, and DP during the restoration process. * R2 - Suggest rewording from "identified in its approved restoration plan" to " identified in its coordinated restoration plan". It would appear that the RC would assume liability if it approved the plan and the plan failed. If the RC is held liable, what is the source of revenue that the RC would utilize to pay any fines? *R4.1 - Suggest changing the wording from "Reliability Coordinator for approval" to "Reliability Coordinator for review". What is the RC approving? Is the RC approving the plan will work? If so, then if the plan doesn't work in real time, will the RC then be liable for failure of the plan to work. Next, is the RC approving the plan to be compliant with the standards requiring the TOP to develop a plan. This then places the RC as compliance entity, which it is not. *R5 - Recommend replacing the word "approved" with "reviewed". The reason is similar to the logic provided in our comments for R4.1 and R2 above. Also, replace "latest" to "current". *R6 - Replace "steady state and dynamic simulations" with "steady state and/or dynamic simulations". Also clarify what is meant by dynamic simulations. * R9 - Should NERC standards be setting testing criteria? Allowing each TOP to develop their own criteria will result in numerous (possibly a different criteria for every TOP) versions. *R10 - This is already covered in PER-005-1, under R3. Being in this standard is a duplication. *R11. The requirement should be modified to clarify that field operators are required to be trained on their unique tasks performed outside their normal tasks under normal conditions and not on the restoration plan. The TOP should define those unique tasks. *R11.1. Add the word "those" before "Generator Operators included in the restoration plan." * R9.1: It is recommended that a grace period be permitted on the testing frequency to accommodate extenuating circumstances (e.g., system conditions, environmental issues) that can delay a scheduled test. A grace period of 3 months is recommended. * R9.2.2: Please clarify the phrase 'with the voltage and frequency monitor control disconnected.' Are these items related to synchronizing circuits? * R9.3: Please clarify the interpretation of 'minimum duration of each of the required test.' It is not clear how test duration applies to Requirement 9. * R15: The scope of this requirement is not clear. Is it asking for updates on design related items (unit rating changes, etc) or is it asking for outage information? * R16.1: This requirement includes a list of data the GOP must record and maintain for each BS test. The list includes two different times. The first is the duration of the test and the second is the time required to black start the unit. The meaning of this latter term is not clear. Are you seeking the time it takes to bring the BS unit up to minimum output, or to maximum output, etc.?</p> |
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| | No |
| | It is not apparent why R14 and R17 are ranked higher than most of the other requirements. Thus, a medium risk factor is recommended for both. |
| | No |
| | <p>R1.2 This is covered in R1.1 and should be deleted. R1.5 Add "within its RC area" after Transmission Operator and add "neighboring" before Reliability Coordinator. R1.6 This is more appropriately included in the Transmission Operator restoration plan and should be removed from the Reliability Coordinator plan. R5. Add the phrase "the plans of" before "neighboring Reliability Coordinators, when received". The Violation Severity Level for R5 does not seem to be consistent with the requirement. R5.1 Replace the last sentence with; "The Reliability Coordinator shall coordinate with the Transmission operators within its footprint to resolve any issues or questions resulting from their review of the TOP plans. R6. Remove "approved" and replace with "coordinated" within the sentence and replace "latest" to "current". R9. This would be more appropriately handled in the Personnel Training Standard. However, if it is to stay in this standard, training needs to incorporate not only the planned events but the unplanned events not in the plan. In other words, since not all possible restoration scenarios can be determined (there could be thousands of possible scenarios), the operating personnel performing the TOP function should be trained on what to do in the event than an unplanned restoration event should occur. *R10 -This is already covered in the Personnel training Standard and should not be duplicated. However, if it does stay in the standard, it should state:"The RC, TOP and GOP shall have as a minimum 1 joint drill per calendar year".</p> |
| | No |
| | M8. Needs to comply with R8 – change "coordinated and authorized" to "coordinated or authorized" |
| | Yes |
| | |
| | Yes |
| | This will create more work, but could be justified. |
| | No |
| | <p>The new timeline is better, but not ideal. Since some requirements are dependent on others being completed beforehand, if certain ones are not completed until the last minute, other requirements will not be able to be implemented on time. It seems that a simple, but better solution would be to have the RC applicable requirements due in advance of the other requirements.</p> |
| | No |
| | The numerous recommended changes suggested in this comment form should be addressed prior to being balloted. |

Consideration of Comments on 4th Draft of EOP-005-2 and EOP-006-2 — Project 2006-03

The System Restoration and Blackstart Standard Drafting Team thanks all commenters who submitted comments on the 4th draft of standards EOP-005-2 — System Restoration from Blackstart Resources and EOP-006-2 — System Restoration – Coordination. These standards were posted for a 30-day public comment period from October 21, 2008 through November 18, 2008. The stakeholders were asked to provide feedback on the standards through a special Electronic Comment Form. There were 37 sets of comments, including comments from more than 100 different people from approximately 50 companies representing 8 of the 10 Industry Segments as shown in the table on the following pages.

The SDT reviewed the industry comments and revised several items in the two standards:

EOP-005-2: R1.9, R2, R3, R5, R6, R7, R9.2.2, R13, and R15; M1, M5, M7 and M8; D5, D7, and D8; VSL: R2, R3, R4, R5, R6.1, R7, R8, R11 and R17.

EOP-006-2: R1.1, R1.2, R1.5, R5, R6, R7, R8, and R101; M2, M5 and M8; VSL: R2, R4, R5 and R6.

There are several minority viewpoints that have been expressed by industry commenters during the review process:

- Inclusion of the Balancing Authority in EOP-005-2: Several commenters are of the opinion that the Balancing Authority should be an integral part of the restoration process. The SDT disagrees with this position and has explained its reasoning in the comment responses. Balancing Authorities, while they directly communicate with Generator Operators, are routinely involved in controlling transactions and net interchange, activities that do not occur in the stages of restoration covered by this standard. EOP-005-2, Requirement R1.9 was written to ensure that the Balancing Authority is brought back into the picture at the appropriate moment in time. The SDT believes that restoration will be more efficient with the Transmission Operator directly dealing with the Generator Operators. Nothing prohibits the Transmission Operator from adding the Balancing Authority to its plan if so desired. .
- Training – Several commenters expressed their opinion that all training should be incorporated in the PER standards and therefore no training should be part of EOP-005-2 or EOP-006-2. In Order 693, the Commission requires the ERO to include personnel training for system restoration in the restoration standards and the SDT agrees with this concept.

However, in the opinion of the SDT, all changes made were of a clarifying nature and no changes were made to the intent of the standards or to context. Therefore, the SDT is recommending that the SC move these standards to the balloting stage of the process.

http://www.nerc.com/filez/standards/System_Restoration_Blackstart.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

1. The SDT has made a number of clarifying changes to the requirements of EOP-005-2 based on industry comments from the third posting. Do you agree with the changes that were made? If not, please provide specific suggestions for change. 10
2. The SDT has made a number of clarifying changes to the measures in EOP-005-2 based on industry comments from the third posting. Do you agree with the changes that were made? If not, please provide specific suggestions for change. 53
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6. The SDT has made a number of clarifying changes to the compliance elements in EOP-006-2 based on industry comments from the third posting. Do you agree with the changes that were made? If not, please provide specific suggestions for change. 125
7. The SDT added a new subrequirement for the Reliability Coordinator's restoration plan to include a high level description of the Reliability Coordinator's strategies for restoring the interconnection - and an associated requirement for the Transmission Operator's restoration plan to document how it supports the Reliability Coordinator's restoration strategies. Do you agree with these additions? If no, please identify why not. 128
8. The SDT has completely re-worked the Implementation Plan based on industry comments from the third posting. Do you agree with the changes that were made? If not, please provide specific suggestions for change. 132
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Consideration of Comments on 4th Draft of EOP-005-2 and EOP-006-2 — Project 2006-03

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. | Group | Guy Zito | NPCC | | | | | | | | | | | | ✓ |
| | Additional Member | Additional Organization | Region | Segment Selection | | | | | | | | | | | |
| | 1. Ralph Rufrano | New York Power Authority | NPCC | 5 | | | | | | | | | | | |
| | 2. Roger Champagne | Hydro-Quebec TransEnergie | NPCC | 2 | | | | | | | | | | | |
| | 3. Rick White | Northeast Utilities | NPCC | 1 | | | | | | | | | | | |
| | 4. Greg Campoli | New York Independent System Operator | NPCC | 2 | | | | | | | | | | | |
| | 5. Mike Garton | Dominion Resources Services, Inc. | NPCC | 5 | | | | | | | | | | | |
| | 6. Chris De Graffenried | Consolidated Edison Company of New York, Inc. | NPCC | 1 | | | | | | | | | | | |
| | 7. Alan Adamson | New York State Reliability Council | NPCC | 10 | | | | | | | | | | | |
| | 8. Kurtis Chong | Independent Electricity System Operator | NPCC | 2 | | | | | | | | | | | |
| | 9. Brian Gooder | Ontario Power Generation Incorporated | NPCC | 5 | | | | | | | | | | | |
| | 10. David Kiguel | Hydro One Networks Inc. | NPCC | 1 | | | | | | | | | | | |
| | 11. Lee Pedowicz | Northeast Power Coordinating Council | NPCC | 10 | | | | | | | | | | | |
| | 12. Kathleen Goodman | ISO - New England | NPCC | 2 | | | | | | | | | | | |
| | 13. Brian Evans-Mongeon | Utility Services, LLC | NPCC | 6 | | | | | | | | | | | |
| | 14. Mike Gildea | Constellation Energy | NPCC | 6 | | | | | | | | | | | |

Consideration of Comments on 4th Draft of EOP-005-2 and EOP-006-2 — Project 2006-03

| | | Commenter | Organization | Industry Segment | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| | | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2. | Individual | Rick Terrill | Luminant Power | | | | | ✓ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3. | Group | John Blazekovich - Excelon Corp | Standards Interface Subcommittee/Compliance Elements Development Resource Pool | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4. | Group | Dave Folk | FirstEnergy Corp. | ✓ | | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | <table border="1"> <thead> <tr> <th>Additional Member</th> <th>Additional Organization</th> <th>Region</th> <th>Segment</th> <th>Selection</th> </tr> </thead> <tbody> <tr> <td>1. John Reed</td> <td>FE</td> <td>RFC</td> <td></td> <td></td> </tr> <tr> <td>2. John Martinez</td> <td>FE</td> <td>RFC</td> <td></td> <td></td> </tr> <tr> <td>3. Ed Stein</td> <td>FE</td> <td>RFC</td> <td></td> <td></td> </tr> <tr> <td>4. Ken Dresner</td> <td>FE</td> <td>RFC</td> <td></td> <td></td> </tr> <tr> <td>5. Steve Megay</td> <td>FE</td> <td>RFC</td> <td></td> <td></td> </tr> <tr> <td>6. Doug Hohlbaugh</td> <td>FE</td> <td>RFC</td> <td></td> <td></td> </tr> <tr> <td>7. Sam Ciccone</td> <td>FE</td> <td>RFC</td> <td></td> <td></td> </tr> </tbody> </table> | | | | | | | | | | | | | Additional Member | Additional Organization | Region | Segment | Selection | 1. John Reed | FE | RFC | | | 2. John Martinez | FE | RFC | | | 3. Ed Stein | FE | RFC | | | 4. Ken Dresner | FE | RFC | | | 5. Steve Megay | FE | RFC | | | 6. Doug Hohlbaugh | FE | RFC | | | 7. Sam Ciccone | FE | RFC | | |
| Additional Member | Additional Organization | Region | Segment | Selection | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1. John Reed | FE | RFC | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2. John Martinez | FE | RFC | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3. Ed Stein | FE | RFC | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4. Ken Dresner | FE | RFC | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5. Steve Megay | FE | RFC | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6. Doug Hohlbaugh | FE | RFC | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7. Sam Ciccone | FE | RFC | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5. | Group | Terry L. Blackwell - South Carolina Public Service Authority | Santee Cooper | ✓ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| 1. S. T. Abrams | Santee Cooper | SERC | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2. Glenn Stephens | Santee Cooper | SERC | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3. Vicky Budreau | Santee Cooper | SERC | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4. Rene' Free | Santee Cooper | SERC | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5. Kristi Boland | Santee Cooper | SERC | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6. | Group | David Rudolph - BEPC | MRO NERC Standards Review Subcommittee | ✓ | | ✓ | | ✓ | ✓ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| Additional Member | Additional Organization | Region | Segment | Selection | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1. Neal Balu | WPS | MRO | 3, 4, 5, 6 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2. Terry Bilke | MISO | MRO | 2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Consideration of Comments on 4th Draft of EOP-005-2 and EOP-006-2 — Project 2006-03

| | Commenter | Organization | Industry Segment | | | | | | | | | | | | | | | | | |
|----|--------------------------|---|---------------------------------|--------------------------|---|---|---|---|---|---|---|----|--|--|--|--|--|--|--|--|
| | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | | | | | | | | |
| | 3. Carol Gerou | MP | MRO | 1, 3, 5, 6 | | | | | | | | | | | | | | | | |
| | 4. Jim Haigh | WAPA | MRO | 1, 6 | | | | | | | | | | | | | | | | |
| | 5. Charles Lawrence | ATC | MRO | 1 | | | | | | | | | | | | | | | | |
| | 6. Ken Goldsmith | ALTW | MRO | 4 | | | | | | | | | | | | | | | | |
| | 7. Terry Harbour | MEC | MRO | 1, 3, 5, 6 | | | | | | | | | | | | | | | | |
| | 8. Pam Sordet | XCEL | MRO | 1, 3, 5, 6 | | | | | | | | | | | | | | | | |
| | 9. Eric Ruskamp | LES | MRO | 1, 3, 5, 6 | | | | | | | | | | | | | | | | |
| | 10. Joseph Knight | GRE | MRO | 1, 3, 5, 6 | | | | | | | | | | | | | | | | |
| | 11. Joe DePoorter | MGE | MRO | 3, 4, 5, 6 | | | | | | | | | | | | | | | | |
| | 12. Larry Brusseau | MRO | MRO | 10 | | | | | | | | | | | | | | | | |
| | 13. Michael Brytowski | MRO | MRO | 10 | | | | | | | | | | | | | | | | |
| 7. | Group | Denise Koehn - Transmission Reliability Program | Bonneville Power Administration | | ✓ | | ✓ | | ✓ | ✓ | | | | | | | | | | |
| | Additional Member | Additional Organization | Region | Segment Selection | | | | | | | | | | | | | | | | |
| | 1. James Burns | Transmission Technical Operations | WECC | 1 | | | | | | | | | | | | | | | | |
| | 2. Rebecca Berdahl | Power Long Term Sales & Purchases | WECC | 3 | | | | | | | | | | | | | | | | |
| | 3. Robin Chung | Generation Support | WECC | 3, 5, 6 | | | | | | | | | | | | | | | | |
| 8. | Group | Jim Griffith, Chair - SERC OC | SERC OC Standards Review Group | | ✓ | | ✓ | | ✓ | | | | | | | | | | | |
| | Additional Member | Additional Organization | Region | Segment Selection | | | | | | | | | | | | | | | | |
| | 1. Eugene Warnecke | Ameren | SERC | 1, 3, 5 | | | | | | | | | | | | | | | | |
| | 2. John Butler | ACES Power Marketing | SERC | 6 | | | | | | | | | | | | | | | | |
| | 3. Julio Trujillo | Oglethorpe Power Corp. | SERC | 5 | | | | | | | | | | | | | | | | |
| | 4. Tim Hattaway | PowerSouth Energy Coop. | SERC | 1, 3, 4, 5 | | | | | | | | | | | | | | | | |
| | 5. Michelle Bourg | Entergy | SERC | 1, 3 | | | | | | | | | | | | | | | | |
| | 6. Robert Thomasson | Big Rivers Electric Coop. | SERC | 1, 3, 5 | | | | | | | | | | | | | | | | |
| | 7. Gary Hutson | SMEPA | SERC | 1, 3, 4, 5 | | | | | | | | | | | | | | | | |
| | 8. Roman Carter | Southern Company Transmission | SERC | 3, 5, 1 | | | | | | | | | | | | | | | | |

Consideration of Comments on 4th Draft of EOP-005-2 and EOP-006-2 — Project 2006-03

| | Commenter | Organization | Industry Segment | | | | | | | | | | | | | | | | | |
|-----|-----------------------------|--------------------------------------|---|--------------------------|---|---|---|---|---|---|---|----|--|--|--|--|--|--|--|--|
| | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | | | | | | | | |
| | 9. Dave Pond | Tennessee Valley Authority | SERC | 1, 3, 5, 9 | | | | | | | | | | | | | | | | |
| | 10. Vicky Budreau | South Carolina Public Service Auth. | SERC | 1, 3, 5, 9 | | | | | | | | | | | | | | | | |
| | 11. Glenn Stephens | South Carolina Public Service Auth. | SERC | 1, 3, 5, 9 | | | | | | | | | | | | | | | | |
| | 12. Paul Turner | Georgia System Operations Corp. | SERC | 1, 3, 5 | | | | | | | | | | | | | | | | |
| | 13. Lloyd Snyder | Georgia System Operations Corp. | SERC | 1, 3, 5 | | | | | | | | | | | | | | | | |
| | 14. Greg Rowland | Duke Energy Carolinas | SERC | 1, 3, 5 | | | | | | | | | | | | | | | | |
| | 15. Phil Creech | Progress Energy | SERC | 1, 3, 5 | | | | | | | | | | | | | | | | |
| | 16. Jason Witt | East Kentucky Power Coop. | SERC | 1, 3, 5 | | | | | | | | | | | | | | | | |
| | 17. Sam Holeman | Duke Energy Carolinas | SERC | 1, 3, 5 | | | | | | | | | | | | | | | | |
| | 18. Jalal Babik | Dominion Virginia Power | SERC | 1, 3, 5 | | | | | | | | | | | | | | | | |
| | 19. Louis Slade | Dominion Virginia Power | SERC | 1, 3, 5 | | | | | | | | | | | | | | | | |
| | 20. Edd Forsythe | Tennessee Valley Authority | SERC | 1, 3, 5 | | | | | | | | | | | | | | | | |
| 9. | Group | Charles Yeung - Southwest Power Pool | IRC Standards Review Committee | | ✓ | | | | | | | | | | | | | | | |
| | Additional Member | Additional Organization | Region | Segment Selection | | | | | | | | | | | | | | | | |
| | 1. Patrick Brown | PJM | RFC | 2 | | | | | | | | | | | | | | | | |
| | 2. Jim Castle | NYISO | NPCC | 2 | | | | | | | | | | | | | | | | |
| | 3. Dan Rochester | IESO | NPCC | 2 | | | | | | | | | | | | | | | | |
| | 4. Matt Goldberg | ISONE | NPCC | 2 | | | | | | | | | | | | | | | | |
| | 5. Lourdes Estrada-Salinero | CAISO | WECC | 2 | | | | | | | | | | | | | | | | |
| | 6. Anita Lee | AESO | WECC | 2 | | | | | | | | | | | | | | | | |
| | 7. Steve Myers | ERCOT | ERCOT | 2 | | | | | | | | | | | | | | | | |
| | 8. Bill Phillips | MISO | RFC | 2 | | | | | | | | | | | | | | | | |
| 10. | Group | Jason L. Marshall | Midwest ISO Stakeholder Standards Collaborators | | ✓ | | | | | | | | | | | | | | | |
| | Additional Member | Additional Organization | Region | Segment Selection | | | | | | | | | | | | | | | | |
| | 1. Jim Cyrulewski | JDRJC Associates | RFC | 8 | | | | | | | | | | | | | | | | |
| | 2. Dede Subakti | Midwest ISO | MRO | 2 | | | | | | | | | | | | | | | | |

Consideration of Comments on 4th Draft of EOP-005-2 and EOP-006-2 — Project 2006-03

| | | Commenter | Organization | Industry Segment | | | | | | | | | | |
|-----|------------|--------------------------|--------------------------------|------------------|----------------|------------------|---|---|---|---|---|---|----|--|
| | | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | |
| 11. | Group | Roman Carter | Southern Company | ✓ | | | | ✓ | | | | | | |
| | | Additional Member | Additional Organization | Region | Segment | Selection | | | | | | | | |
| | | 1. Jim Busbin | Southern Transmission | SERC | 1 | | | | | | | | | |
| | | 2. Marc Butts | Southern Transmission | SERC | 1 | | | | | | | | | |
| | | 3. JT Wood | Southern Transmission | SERC | 1 | | | | | | | | | |
| | | 4. Tom Higgins | Southern Generation | SERC | 5 | | | | | | | | | |
| | | 5. Mike Oatts | Southern Transmission | SERC | 1 | | | | | | | | | |
| | | 6. | | | | | | | | | | | | |
| 12. | Individual | Jianmei Chai | Consumers Energy Company | | | ✓ | ✓ | ✓ | | | | | | |
| 13. | Individual | Karl Bryan | US Army Corps of Engineers | | | | | ✓ | | | | | | |
| 14. | Individual | Thad Ness | AEP | ✓ | | ✓ | | ✓ | ✓ | | | | | |
| 15. | Individual | Virginia Cook | JEA | ✓ | | ✓ | | ✓ | | | | | | |
| 16. | Individual | John L. Shaner | Allegheny Power | ✓ | | ✓ | | | | | | | | |
| 17. | Individual | Craig McLean | Manitoba Hydro | ✓ | | ✓ | | ✓ | ✓ | | | | | |
| 18. | Individual | Kirit Shah | Ameren | ✓ | | ✓ | | ✓ | ✓ | | | | | |
| 19. | Individual | Kathleen Goodman | ISO New England Inc | | ✓ | | | | | | | | | |
| 20. | Individual | Howard Rulf | We Energies | | | ✓ | ✓ | ✓ | | | | | | |
| 21. | Individual | John Bussman | AECI | ✓ | | | | ✓ | ✓ | | | | | |
| 22. | Individual | Alice Druffel | Xcel Energy | ✓ | | ✓ | | ✓ | ✓ | | | | | |
| 23. | Individual | William Franklin | Entergy | | | | | | ✓ | | | | | |

Consideration of Comments on 4th Draft of EOP-005-2 and EOP-006-2 — Project 2006-03

| | | Commenter | Organization | Industry Segment | | | | | | | | | | | | |
|-----|------------|-----------------|--|------------------|---|---|---|---|---|---|---|---|----|--|--|--|
| | | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | | | |
| 24. | Individual | David Kiguel | Hydro One Networks Inc. | ✓ | | ✓ | | | | | | | | | | |
| 25. | Individual | Jay Seitz | US Bureau of Reclamation | | | | | ✓ | | | | | | | | |
| 26. | Individual | Randy Schimka | San Diego Gas and Electric Co. | ✓ | | ✓ | | ✓ | | | | | | | | |
| 27. | Individual | Darryl Curtis | Oncor Electric Delivery | ✓ | | | | | | | | | | | | |
| 28. | Individual | Greg Rowland | Duke Energy Corporation | ✓ | | ✓ | | ✓ | ✓ | | | | | | | |
| 29. | Individual | Ed Davis | Entergy Services | ✓ | | ✓ | | ✓ | ✓ | | | | | | | |
| 30. | Individual | Dan Rochester | Independent Electricity System Operator (IESO) - Ontario | | ✓ | | | | | | | | | | | |
| 31. | Individual | Michael Ayotte | ITC Transmission and METC | ✓ | | | | | | | | | | | | |
| 32. | Individual | Rick White | Northeast Utilities | ✓ | | | | | | | | | | | | |
| 33. | Individual | Jason Shaver | American Transmission Company | ✓ | | | | | | | | | | | | |
| 34. | Individual | Patrick Brown | PJM | | ✓ | | | | | | | | | | | |
| 35. | Individual | Chris Norton | American Municipal Power - Ohio, Inc. (AMP-Ohio) | | | | ✓ | | | | | | | | | |
| 36. | Individual | John Jonte | CenterPoint Energy | ✓ | | | | | | | | | | | | |
| 37. | Individual | Roger Champagne | Hydro-Québec Transenergie | ✓ | | | | | | | | | | | | |

1. The SDT has made a number of clarifying changes to the requirements of EOP-005-2 based on industry comments from the third posting. Do you agree with the changes that were made? If not, please provide specific suggestions for change.

Summary Consideration:

There were relatively few negative comments and the SDT made only minor changes to provide clarity in addressing industry concerns in the following areas:

- R1.1** [Strategies for system restoration that are coordinated with the Reliability Coordinator's high level strategy](#) ~~A description of how the plan follows the high level strategies~~ for restoring the Interconnection ~~as outlined in the Transmission Operator's Reliability Coordinator restoration plan.~~
- R1.2** A description of ~~the manner in which~~ [how](#) all Agreements or mutually agreed upon procedures or protocols for off-site power requirements of nuclear power plants, including priority of restoration, will be fulfilled during System restoration.
- R1.9** ~~Criteria~~ [Operating Processes](#) for transferring ~~operations and~~ authority back to the Balancing Authority [in accordance with the Reliability Coordinator's criteria.](#)
- R2** Each Transmission Operator shall provide the ~~operational~~ entities identified in its approved restoration plan with a description of any changes to their roles and specific tasks prior to the implementation date of the plan.
- R3.** Each Transmission Operator shall review ~~the Transmission Operator's its~~ restoration plan and submit it to its Reliability Coordinator annually on a mutually agreed predetermined schedule.
- R6.1** The capability of Blackstart Resources to meet the Real and Reactive Power requirements of the Cranking Paths and [the dynamic capability](#) to supply initial Loads.
- R7** Following a Disturbance in which one or more areas of the BES shuts down and the use of Blackstart Resources is required to restore the shut down area to service, each affected Transmission Operator shall implement its restoration plan. If the restoration plan cannot be executed as expected ~~because actual conditions do not match the studied conditions,~~ the Transmission Operator shall utilize its restoration ~~plan~~ strategies to facilitate restoration.
- R9.2.2** The ability to energize a bus. If it is not possible to energize a bus during the test, the testing entity must affirm that the unit has the capability to energize a bus such as verifying that the breaker close coil relay can be energized with the voltage and frequency monitor controls disconnected [from the synchronizing circuits.](#)
- R13** Each Transmission Operator and [each](#) Generator Operator with a Blackstart Resource shall have written Blackstart Resource Agreements or mutually agreed upon procedures or protocols, specifying the terms and conditions of their arrangement. Such Agreements shall include references to the Blackstart Resource testing requirements.
- R15:** Each Generator Operator with a Blackstart Resource shall notify its Transmission Operator of any known changes to the capabilities of that Blackstart Resource [affecting the ability to meet the Transmission Operator's restoration plan](#) within twenty-four hours following such change.

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| Organization | Yes or No | Comment |
|--|-----------|---|
| NPCC | No | <p>NPCC participating members request clarification. Did the Drafting Team intend R18 to apply to Generator Operators with black start resources as with the other requirements, or to all Generators? If the Drafting Team intended applicability to Generator Operators with black start resources then we suggest rewording as follows: "R18. Each Generator Operator with a Blackstart Resource shall participate in the Reliability Coordinator's restoration drills, exercises, or simulations as requested by the Reliability Coordinator. [Violation Risk Factor = Medium] [Time Horizon = Operations Planning]"</p> <p>R16.2. Should be revised to read: Each Generator Operator "with a Blackstart Resource shall provide?"</p> <p>Requirement R1.2 remains unclear. Specifically, "a description of the manner" is confusing. The SDT response to Draft 3 comments and/or questions does not provide a meaningful understanding of what is expected in this requirement. Suggest rewording, or this requirement be moved to the Nuclear Plant Interface Coordination requirements NUC-001.</p> |
| <p>Response: R18 –The RC determines and requests which GOPs to include in the drills. Therefore, there is no need to include qualifying statements in the standard.</p> <p>R16.2 – This is a sub-requirement that applies to a GOP with Blackstart Resources so no change is necessary.</p> <p>R1.2 – The phrase was re-worded to try to provide clarity of intent.</p> <p>R1.2 A description of the manner in which <u>how</u> all Agreements or mutually agreed upon procedures or protocols for off-site power requirements of nuclear power plants, including priority of restoration, will be fulfilled during System restoration.</p> | | |
| FirstEnergy Corp. | Yes | <p>R1 - While we agree with many of the changes the drafting team made to these requirements, there are still some additional issues that should be addressed. R1 is still two requirements embedded in one. The first is to have your restoration plan approved by the RC and the second is to have the plan. Sentence one should be a stand alone requirement. That action is independent of the development of the plan.</p> <p>R1.1 - This requirement may be problematic in that the RC may not develop its restoration plan until after each of the Transmission Operators has developed their plans. Then most likely the RC will determine its high level strategies (per EOP-006 R1.1) based on the TOP plans. This may require the TOP to readjust its plan to reflect the high level strategies, and then those TOP adjustments may drive more RC adjustments to its high level strategies, etc. Per the implementation plan of EOP-006, the RC has 24-months to comply with R1.1, and subsequently may not give any time to the TOP to get into compliance with EOP-005 R1.1. We suggest that the implementation for EOP-006 R1.1 and EOP-005 be staggered to allow 1) allow sufficient time for the iterations described above to take place, 2) to allow the RC sufficient time to complete its process, and 3) to allow sufficient time for the TOP to then adjust its plan accordingly. This may require the RC be in compliance with R1.1 before the TOP, and then both entities still be in compliance within 24-</p> |

Consideration of Comments on 4th Draft of EOP-005-2 and EOP-006-2 — Project 2006-03

| Organization | Yes or No | Comment |
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| | | <p>months.</p> <p>R1.4 - We suggest the drafting team delete the phrase "but not limited to." Since NERC Standards represent the minimum acceptable requirement, the phrase "but not limited to" is unnecessary.</p> <p>R5 - The phrase "implementation date" is vague. Is this the date when the plan is actually used to restore the system or the date the plan becomes effective and approved for use? We suggest revising the requirement by replacing "implementation date" with "the date the plan becomes effective and approved for use."</p> <p>R11 - We suggest deleting the word "unique" because the phrase "tasks associated with the Transmission Operator's restoration plan that are outside of their normal tasks" already describes those tasks that would be unique to system restoration.</p> <p>General - In this standard, depending on the subject, the term "restoration" is sometimes used on its own, and sometimes the term "System restoration" is used. We suggest the SDT assure they provide consistency throughout the standard in the use of "System".</p> |
| <p>Response: R1 – The SDT feels that the requirement is clear. You can't have a plan that isn't approved. Including the sub-requirements as to what needs to be in the plan does not create a new requirement.</p> <p>R1.1 – The SDT recognizes this is a start-up problem and that there are many interacting requirements between EOP-005-2 and EOP-006-2. The RCs and TOPs will have to coordinate during that time period. However, once you go through the implementation process, you will always have an approved plan. Please note that RCs and TOPs are already required to have a restoration plan. The wording in the sub-requirement was changed to provide additional clarity as to the SDT's intent. The strategies need to be documented so the standard coordinates with EOP-005-2, Requirement R1.1 and EOP-005-2, Requirement R7 where the TOP must follow its "strategies" in a Real-time restoration event when the System restoration plan can't be executed as planned.</p> <p>R1.1 Strategies for system restoration that are coordinated with the Reliability Coordinator's high level strategy A description of how the plan follows the high level strategies for restoring the Interconnection as outlined in the Transmission Operator's Reliability Coordinator restoration plan.</p> <p>R1.4 – The TOP can always identify additional characteristics if so desired. Therefore, no change was made.</p> <p>R5 – The intent is to grant the TOP sufficient time to distribute the approved restoration plan prior to its effective date. The SDT feels that the suggested wording is equivalent and no change was made.</p> <p>R11 – The SDT feels it is necessary to keep the wording in order to properly focus the training requirements.</p> | | |

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| Organization | Yes or No | Comment |
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| <p>General – Since this is a System restoration standard, there should be no confusion.</p> | | |
| <p>Santee Cooper</p> | <p>No</p> | <p>Santee Cooper recommends that the standard be rewritten to reflect that a restoration plan be developed in such a manner that it provides guidance and allows for flexibility to address many different sets of conditions and events. Restoration plans that are developed for one specific set of conditions will probably bear no resemblance to what actually occurs. The wording in R7 acknowledges that a specific restoration plan would probably be of little use.</p> <p>In R1 and R4.1 the RC should have input to the TOP's restoration plan not approval of the plan. Recommend rewording both these requirements to reflect submittal of restoration plans to the RC are an opportunity for the RC to provide input.</p> <p>R1.1 There is no reliability benefit for including this statement in the Standard. We suggest it be eliminated.</p> <p>R1.3. Replace the phrase "under the direction of" with "in coordination with".</p> <p>R1.9 We recommend that this statement be replaced with a requirement for the TOP to coordinate with the GOPs, TOs, DPs and BAs.</p> <p>R2. We suggest replacing "approved" with "coordinated" in keeping with our suggestion that the RC should not have approval over the TOP plans.</p> <p>R4. Maintenance of initial switching requirements can be overly burdensome and could result in never having a "current" plan due to constant system changes.</p> <p>R4.1. Replace "for approval" with "for review".</p> <p>R5. Change "latest" to "current" and remove "Reliability Coordinator approved".</p> <p>R6. Replace "steady state and dynamic simulations" with "steady state and/or dynamic simulations".</p> <p>R7. We suggest replacing "plan" with "strategy" and eliminating the second sentence.</p> <p>R10. This is already covered in the proposed PER-005-1 Personnel Training Standard and should not be duplicated as could result in double jeopardy.</p> |
| <p>Response: General – The wording of the various sub-requirements of Requirement R1 make it clear that the restoration plan is meant to be</p> | | |

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| Organization | Yes or No | Comment |
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| | | <p>flexible. Requirement R7 re-enforces that concept. No change made.</p> <p>R1, R2, and R4.1 - In Order 693, the Commission proposal is that the Reliability Coordinators should be involved in the development and approval of the restoration plans. The SDT feels that the approval of the plans is consistent with the role of the Reliability Coordinator as defined in the Functional Model and does not add additional liability to the Reliability Coordinator.</p> <p>R1.1 –The wording has been changed to provide additional clarity as to the SDT’s intent. The strategies need to be documented so the standard coordinates with EOP-005-2, Requirement R1.1 and EOP-005-2, Requirement R7 where the TOP must follow its “strategies” in a Real-time restoration event when the System restoration plan can’t be executed as planned.</p> <p>R1.1 Strategies for system restoration that are coordinated with the Reliability Coordinator’s high level strategy A description of how the plan follows the high level strategies for restoring the Interconnection as outlined in the Transmission Operator’s Reliability Coordinator restoration plan.</p> <p>R1.3 – Under the direction is what is required and no change was made.</p> <p>R1.9 – This phrase was added as a result of responses to comments in previous postings. It is required as part of the process of returning to normal operations. No change made.</p> <p>R4 does not address initial switching requirements, but the implementation of the plan. System changes that do not affect the restoration plan do not trigger a requirement to revise the restoration plan.</p> <p>R5 – The SDT believes the wording is necessary. No change made.</p> <p>R6 – The SDT believes that both steady state and dynamic simulations are needed if not replaced by analysis of an actual event or by testing. However, a change was made to Requirement R6.1 in an attempt to provide clarity as to what is required.</p> <p>R6.1 The capability of Blackstart Resources to meet the Real and Reactive Power requirements of the Cranking Paths and <u>the dynamic capability</u> to supply initial Loads.</p> <p>R7 – The SDT believes that the suggested rewording would reduce the value of the plan.</p> <p>R10 – In Order 693, the Commission requires the ERO to include personnel training for system restoration in the restoration standards and the requirement cited is not duplication. PER-005 deals with the over-all training and EOP-005 just states that the training in PER-005 must include system restoration. Therefore this is not a double jeopardy situation.</p> |
| MRO NERC Standards Review Subcommittee | No | In R1.7 and R1.8 The MRO does not agree with replacing the word Procedures with Processes. The word Procedures is an electric utility industry widely recognized term used to refer to operating and switching |

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| Organization | Yes or No | Comment |
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| | | <p>procedures. Please change Processes back to Procedures.</p> <p>R15 states that the GOP with a Blackstart Resource shall notify its TOP of any known changes to the "capabilities" of the Blackstart Resource? Is the intent to know changes to outputs of MWs and MVARs or changes that would not allow the Blackstart Resource to start and energize a bus? Please clarify the intent. 24 hours seems restrictive and this should only apply to blackstart resources. TOP-002 R14 notifies the TOP of operating restraints and VAR-002 covers restrictive limits, is there the possibility of double jeopardy if these items are covered elsewhere?</p> <p>In R1, The MRO believes that the statement "to a state whereby the choice of the next Load to be restored is not driven by the need to control frequency or voltage regardless of whether the Blackstart Resource is located within the Transmission Operator's System" is explanatory and not necessary, please remove.</p> <p>In R1.4, The MRO would like to see "limitations" added to the list of characteristics.</p> <p>In R9.1, The MRO would like the testing time frame to be increased from 3 years to 5 years to be consistent with the analysis requirement in R6. The MRO and WECC have gone to 5 years for other generator testing requirements.</p> <p>In R14 & R17, The MRO realizes the SDT is referencing the Blackstart bus but the requirements are open to any bus. These requirements should be restated to clarify the energization of the blackstart bus. The violation severity level for R17 and the retention period wording for R14 both have vague wording as well perhaps they could be reworded.</p> |
| <p>Response: R1.7 and R1.8 – Procedures include specific steps, Processes is more general.</p> <p>R15 has been modified to clarify the intent. The requirement was already restricted to just Blackstart Resources. The SDT feels that the clarification to the standard should eliminate any concerns about possible double jeopardy.</p> <p>R15: Each Generator Operator with a Blackstart Resource shall notify its Transmission Operator of any known changes to the capabilities of that Blackstart Resource <u>affecting the ability to meet the Transmission Operator's restoration plan</u> within twenty-four hours following such change.</p> <p>R1 – The SDT believes the phrase defines the limits of the standard. No change made.</p> <p>R1.4 – The requirement permits any Transmission Operator to add more, but the SDT does not see this as needed to identify the Blackstart Resource in the restoration plan. No change made.</p> | | |

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| Organization | Yes or No | Comment |
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| <p>R9.1 – No other party has indicated this concern. No change made.</p> | | |
| <p>R14 and R17 – The SDT does not see any confusion or need for further clarification. No change made.</p> | | |
| <p>Bonneville Power Administration</p> | <p>No</p> | <p>Applicability: I don't think 4.3 and 4.4 are needed unless they have a designated special switching role in the restoration plan. Language matching R2/R11 wording only applicable if a unique roles.</p> <p>Change the definition of Blackstart Resource back to Generation Facility. Otherwise OK.</p> <p>Reword R5 to clarify by relocating RC approval phrase: "a copy of its latest restoration plan "approved by the Reliability Coordinator" within each"</p> |
| <p>Response: Applicability - 4.3 and 4.4 – The SDT feels that they are applicable entities as shown in Requirement R11.</p> | | |
| <p>Definition – Facility is a defined term in the Glossary and is more inclusive than the SDT intended. No change made.</p> | | |
| <p>R5 – The current wording is equivalent. No change made.</p> | | |
| <p>SERC OC Standards Review Group</p> | <p>No</p> | <p>In general, the SERC OC Standards Review Group feels that the SDT changes have moved the standard's development in the right direction; however, we have two basic changes that we are proposing that impact several requirements which are similarly addressed in addition to suggested changes for other specific requirements. These two changes are: 1. The Restoration Plan should be a high level restoration philosophy or principles of how a system would be restored based on the conditions and availability of facilities following a disturbance. Low level details of switching and other requirements are more appropriately included in company operating procedures.</p> <p>2. The RC should not have approval authority over the TOP's restoration plan. What would happen if the RC fails to approve a TOP plan? If an RC does have approval of a plan and the plan fails, does this pass liability for non-compliance on to the RC "</p> <p>Specific comments: R1. We suggest changing the first sentence to: "Each Transmission Operator shall develop a restoration plan in coordination with its Reliability Coordinator. Also suggest breaking the second sentence into two sentences by inserting a period after the word "service" and inserting the phrase "The plan should cover restoration" before "to a state whereby?".</p> <p>R1.1 There is no reliability benefit for including this statement in the Standard. We suggest it be eliminated.</p> <p>R1.2. We suggest replacing this requirement with the following: "A description of the Agreements or</p> |

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| Organization | Yes or No | Comment |
|--------------|-----------|--|
| | | <p>mutually agreed upon procedures or protocols to include priority of restoration for off-site power to Nuclear power plants."</p> <p>R1.3. Replace the phrase "under the direction of"with" in coordination with".</p> <p>R1.5. Remove the phrase "and initial switching requirements", in keeping with our concept of making this a high level plan.</p> <p>R1.9 - Is this really necessary? Where did the standard transfer operations and authority away from the BA? Wouldn't this requirement take care of itself via declaring an emergency (thus suspending Standards of Conduct) and coming out of the emergency? We recommend that this statement be replaced with a requirement for the TOP to coordinate with the GOPs, TOs, DPs and BAs.</p> <p>R2. We suggest replacing "approved" with coordinated" in keeping with our suggestion that the RC should not have approval over the TOP plans.</p> <p>R3. Plans should be reviewed in coordination with the Reliability Coordinator. Delete "the Transmission Operator's" and restore "its" .</p> <p>R4. Replace "system modifications" with "cranking path". This is to avoid numerous changes to a restoration plan if detailed requirements remain in the Standard</p> <p>R4.1. Replace "for approval" with "for review".</p> <p>R5. Change "latest" to "current".</p> <p>R6. Replace "steady state and dynamic simulations" with "steady state and/or dynamic simulations".</p> <p>R7. We suggest replacing "plan" with "strategy" and eliminating the second sentence.</p> <p>R10. This is already covered in the Personnel Training Standard and should not be duplicated. This requirement is in PER-005-1, R3, which could result in double jeopardy.</p> <p>R10.1. Add the word "those" before "Generator Operators included in the restoration plan"</p> <p>R11. The requirement should be modified to clarify that field operators must be trained on the unique tasks they perform outside their normal tasks and not necessarily trained on the restoration plan. We suggest</p> |

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| Organization | Yes or No | Comment |
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| | | that the two (2) hour training requirement may be too prescriptive and should be removed. |
| <p>Response: In general, the plan needs to be in sufficient detail to permit verification through analysis and simulation as required by Requirement R6. The SDT agrees that there must also be a guiding philosophy or principles as required in Requirements R1.1 and R7. Switching requirements are only pertinent to Cranking Paths and Requirement R7 always allows for flexibility in the switching process. No change made.</p> | | |
| <p>In Order 693, the Commission proposal is that the Reliability Coordinators should be involved in the development and approval of the restoration plans. The SDT feels that the approval of the plans is consistent with the role of the Reliability Coordinator as defined in the Functional Model and does not add additional liability to the Reliability Coordinator.</p> | | |
| <p>R1 – see above for RC approval. The SDT believes the wording is equivalent.</p> | | |
| <p>R1.1 –The wording has been changed to provide additional clarity as to the SDT’s intent. The strategies need to be documented so the standard coordinates with EOP-005-2, Requirement R1.1 and EOP-005-2, Requirement R7 where the TOP must follow its “strategies” in a Real-time restoration event when the System restoration plan can’t be executed as planned.</p> | | |
| <p>R1.1 <u>Strategies for system restoration that are coordinated with the Reliability Coordinator's high level strategy</u> A description of how the plan follows the high level strategies for restoring the Interconnection as outlined in the Transmission Operator's Reliability Coordinator restoration plan.</p> | | |
| <p>R1.2 – A wording change was made in an attempt to provide additional clarity.</p> | | |
| <p>R1.2 A description of the manner in which <u>how</u> all Agreements or mutually agreed upon procedures or protocols for off-site power requirements of nuclear power plants, including priority of restoration, will be fulfilled during System restoration.</p> | | |
| <p>R1.3 – Under the direction is what is required and no change was made.</p> | | |
| <p>R1.5 - In general, the plan needs to be in sufficient detail to permit verification through analysis and simulation as required by Requirement R6. The SDT agrees that there must also be a guiding philosophy or principles as required in Requirements R1.1 and R7. Switching requirements are only pertinent to Cranking Paths and Requirement R7 always allows for flexibility in the switching process. No change made</p> | | |
| <p>R1.9 – Balancing Authorities, while they directly communicate with Generator Operators, are routinely involved in controlling transactions and net interchange, activities that do not occur in the stages of restoration covered by this standard. The SDT agrees with the statement made in the comment that declaration of an emergency is the point where the initial transfer takes place. The return is not always as clear cut and thus Requirement R1.9 was written to cover this situation. The SDT believes that restoration will be more efficient with the Transmission Operator directly dealing with the Generator Operators. Nothing prohibits the Transmission Operator from adding the Balancing Authority to its plan if so desired. No change made.</p> | | |

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| Organization | Yes or No | Comment |
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| | | <p>R2 – In Order 693, the Commission proposal is that the Reliability Coordinators should be involved in the development and approval of the restoration plans. The SDT feels that the approval of the plans is consistent with the role of the Reliability Coordinator as defined in the Functional Model and does not add additional liability to the Reliability Coordinator.</p> <p>R3 – Wording change was made.</p> <p>R3. Each Transmission Operator shall review the Transmission Operator's <u>its</u> restoration plan and submit it to its Reliability Coordinator annually on a mutually agreed predetermined schedule.</p> <p>R4 – The issue is larger than Cranking Paths. No change made.</p> <p>R4.1 - In general, the plan needs to be in sufficient detail to permit verification through analysis and simulation as required by Requirement R6. The SDT agrees that there must also be a guiding philosophy or principles as required in Requirements R1.1 and R7. Switching requirements are only pertinent to Cranking Paths and Requirement R7 always allows for flexibility in the switching process. No change made</p> <p>R5 – Suggested wording is considered equivalent so no change made.</p> <p>R6 – The SDT believes that both steady state and dynamic simulations are needed if not replaced by analysis of an actual event or by testing. However, a slight change was made to the wording of Requirement R6.1 in an attempt to provide clarification of what is required.</p> <p>R6.1 The capability of Blackstart Resources to meet the Real and Reactive Power requirements of the Cranking Paths and <u>the dynamic capability</u> to supply initial Loads.</p> <p>R7 – The SDT believes that the suggested rewording would reduce the value of the plan. No change made.</p> <p>R10 – In Order 693, the Commission requires the ERO to include personnel training for system restoration in the restoration standards and the requirement cited is not duplication. PER-005 deals with the over-all training and EOP-005 just states that the training in PER-005 must include system restoration. Therefore this is not a double jeopardy situation.</p> <p>R10.1 – The current wording is sufficient. No change made.</p> <p>R11 – In Order 693, the Commission stated its belief that inclusion of periodic system restoration drills and training and review of restoration plans in a system restoration Reliability Standard is the most effective way of achieving the desired goal of ensuring that all participants are trained in system restoration. Further, the Commission directed the ERO to develop a modification to EOP-005-1 through the Reliability Standards development process that identifies time frames for training.</p> |
| IRC Standards Review Committee | No | We do not agree with adding Transmission Owners and Distribution Providers to the Applicability Section. These two entities are added only to provide the 2 hour training to their field switching personnel. This addition is unnecessary and not all inclusive (for example, missing Generator Owner, Balancing Authority, |

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| Organization | Yes or No | Comment |
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| | | <p>etc. who may have a role in the restoration plan). To ensure training is provided, we suggest R11 be revised to: R11. Each Transmission Operator, and each operational entity identified in the Transmission Operator's approved restoration plan shall provide a minimum of two hours of System restoration training every two years to their field switching personnel identified as performing unique tasks associated with the Transmission Operator's restoration plan that are outside of their normal tasks.?</p> <p>R1.2 remains unclear. Specifically, "a description of the manner" is confusing. The SDT response to Draft 3 comments and/or questions does not provide meaningful understanding of what is expected in this requirement. Suggest rewording or moving this requirement to the Nuclear Plant Interface Coordination requirements in standard NUC-001.</p> <p>R18. If the Drafting Team intended applicability to Generator Operators with black start resources then we suggest rewording as follows: "R18. Each Generator Operator with a Blackstart Resource shall participate in the Reliability Coordinator's restoration drills, exercises, or simulations as requested by the Reliability Coordinator. [Violation Risk Factor = Medium] [Time Horizon = Operations Planning]"</p> <p>R16.2. Should be revised to read: Each Generator Operator "with a Blackstart Resource shall provide"</p> <p>In R3, replace "the Transmission Operator's restoration plan" with "its restoration plan".</p> <p>R7 stipulates that if the restoration plan cannot be executed as expected because actual conditions do not match the studied conditions, the Transmission Operator shall utilize its restoration plan strategies to facilitate restoration. This standard does not require the TOP to develop restoration plan strategies; it only requires the TOP to follow the high level strategies for restoring the Interconnection as outlined in the Transmission Operator' Reliability Coordinator restoration plan (R1.1). We suggest rewording R7 according to R1.1. Further, we suggest to change the word "match" to "resemble" since "match" requires one on one identical conditions which may not be achieved whereas "resemble" provides some flexibility.</p> <p>R4 has two requirements that are very similar but dealt with very differently. If an unplanned change occurs, the TOP has 90 days to update the Restoration Plan but if the change is planned, the Restoration Plan change must be prior to the system change. Some leeway must be given. It's almost impossible to comply without two plans existing at the same time. One plan would have the changes for a new element and would have to have an implementation date seconds before that new line goes into service. Please allow some post system change period to implement the new Restoration Plan, maybe 24 hours to five days or so.</p> <p>R4.1 requires that the Transmission Operators submit its revised restoration plan to the Reliability Coordinator for approval "within the same ninety calendar day period." With the changes suggested to R4,</p> |

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| | | <p>it is unclear whether the ninety days applies to both revisions due to planned and unplanned system modifications. Furthermore, we believe that the timeline for submitting a revised restoration plan for approval should mirror the Reliability Coordinator's obligation to submit its most recent restoration plan to its Transmission Operators within "thirty days of creation or revision" (see suggested changes in R2. in EOP-006-02). We therefore recommend the following wording for R4.1: "Each Transmission Operator shall submit its revised restoration plan to its Reliability Coordinator for approval within thirty days of creation or revision.", which will be applicable to changes due to both planned and unplanned system modifications.</p> <p>R17.1 requires that the training program provided by each Generator Operator with a Blackstart Resource include the "System restoration plan, including coordination with the Transmission Operator." We believe that the Generator Operator should focus their training on their role within the restoration plan, and not the entire restoration plan developed by the Transmission Operator. Hence, we recommend that R17.1 is reworded to: "The Generator Operator's role in the restoration plan, including coordination with the Transmission Operator."</p> <p>R11 and R17 - While putting a time period on training seems to be straight forward, we think it is the wrong way to go, since this is dependent on the amount of training needed for each employee. For example a new employee may require more than two hours of EOP training where a seasoned employee may only require 30 minutes. We also recommend that this training requirement be moved to the PER standards. R9 in EOP-006 is a good example of how this should be handled.</p> |
| <p>Response: General – Applicability cannot be hidden in a requirement; it is defined in the Applicability section.</p> <p>R1.2 – A wording change was made in an attempt to provide additional clarity.</p> <p>R1.2 A description of the manner in which <u>how</u> all Agreements or mutually agreed upon procedures or protocols for off-site power requirements of nuclear power plants, including priority of restoration, will be fulfilled during System restoration.</p> <p>R18 –The RC determines and requests which GOPs to include in the drills. Therefore, there is no need to include qualifying statements in the standard.</p> <p>R16.2 – This is a sub-requirement that applies to a GOP with Blackstart Resources so no change is necessary.</p> <p>R3 – Wording change made.</p> <p>R3. Each Transmission Operator shall review the Transmission Operator's <u>its</u> restoration plan and submit it to its Reliability Coordinator annually on a mutually agreed predetermined schedule</p> | | |

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| | | <p>R1.1 & R7 – Changes have been made to provide additional clarity. The strategies need to be documented so the standard coordinates with EOP-005-2, Requirement R1.1 and EOP-005-2, Requirement R7 where the TOP must follow its “strategies” in a Real-time restoration event when the System restoration plan can’t be executed as planned.</p> <p>R1.1 Strategies for system restoration that are coordinated with the Reliability Coordinator’s high level strategy A description of how the plan follows the high level strategies for restoring the Interconnection as outlined in the Transmission Operator’s Reliability Coordinator restoration plan.</p> <p>R7 Following a Disturbance in which one or more areas of the BES shuts down and the use of Blackstart Resources is required to restore the shut down area to service, each affected Transmission Operator shall implement its restoration plan. If the restoration plan cannot be executed as expected because actual conditions do not match the studied conditions, the Transmission Operator shall utilize its restoration plan strategies to facilitate restoration.</p> <p>R4 – The SDT believes the described situation is contrived. If system changes dramatically change the restoration plan, operators would need to be trained concerning the changes before they were in service. The SDT expects that there will be times when there will be two restoration plans available to operators, but only one is effective. The intent is to have orderly updates for planned changes and reasonable time for unplanned changes.</p> <p>R4.1 – The “ninety calendar day period” refers to unplanned changes. There is no time requirement for planned changes except before the changes are in service. No change made.</p> <p>R17.1 – The SDT believes it is important for the Generator Operator to understand where they fit in the restoration process. The level of detail is not defined. No change made.</p> <p>R11 and R17 – The SDT picked 2 hours as a reasonable, minimum amount of time for this training. One can always do more. .</p> |
| Southern Company | No | <p>General comment: The Restoration Plan should be a high level restoration philosophy or principles of how a system would be restored based on the conditions and availability of facilities following a disturbance. Low level details of switching and other requirements are more appropriately included in company operating procedures.</p> <p>Recommend changing the definition of Blackstart Resource to the following: A generating unit(s) and its associated set of equipment which has the ability to be started without support from the System or is designed to remain energized without connection to the remainder of the System, with the ability to energize a bus, meeting the Transmission Operator’s restoration plan needs for real and reactive power capability, frequency and voltage control, and that has been included in the Transmission Operator’s restoration plan as a resource used to start another unit(s) via a Cranking Path.*</p> |

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| | | <p>R1 - Recommend replacing "approved by its RC" to "shared with and reviewed by its RC". *</p> <p>R1.1 - There is no reliability benefit for including this statement in the standard. We suggest it be eliminated. *</p> <p>R1.3 - Suggest changing "under the direction" to "and in coordination with" to better reflect the relationship between the TOP and the RC during restoration." *</p> <p>R1.5. Remove the phrase "and initial switching requirements".</p> <p>In *R1.9 - Recommend adding a requirement that the TOP coordinate with the BA, GOP, TO, and DP during the restoration process.*</p> <p>R2 - Suggest rewording from "identified in its approved restoration plan" to "identified in its coordinated restoration plan". It would appear that the RC would assume liability if it approved the plan and the plan failed. If the RC is held liable, what is the source of revenue that the RC would utilize to pay any fines? *</p> <p>R4.1 - Suggest changing the wording from "Reliability Coordinator for approval" to "Reliability Coordinator for review". What is the RC approving? Is the RC approving the plan will work? If so, then if the plan doesn't work in real time, will the RC then be liable for failure of the plan to work. Next, is the RC approving the plan to be compliant with the standards requiring the TOP to develop a plan. This then places the RC as compliance entity, which it is not. *</p> <p>R5 - Recommend replacing the word "approved" with "reviewed". The reason is similar to the logic provided in our comments for R4.1 and R2 above. Also, replace "latest" to "current".*</p> <p>R6 - Replace "steady state and dynamic simulations" with "steady state and/or dynamic simulations". Also clarify what is meant by dynamic simulations.*</p> <p>R9 - Should NERC standards be setting testing criteria? Allowing each TOP to develop their own criteria will result in numerous (possibly a different criteria for every TOP) versions.*</p> <p>R10 - This is already covered in PER-005-1, under R3. Being in this standard is a duplication.*</p> <p>R11. The requirement should be modified to clarify that field operators are required to be trained on their unique tasks performed outside their normal tasks under normal conditions and not on the restoration plan. The TOP should define those unique tasks. *</p> |

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| | | <p>R11.1. Add the word "those" before "Generator Operators included in the restoration plan."*</p> <p>R9.1: It is recommended that a grace period be permitted on the testing frequency to accommodate extenuating circumstances (e.g., system conditions, environmental issues) that can delay a scheduled test. A grace period of 3 months is recommended. *</p> <p>R9.2.2: Please clarify the phrase 'with the voltage and frequency monitor control disconnected.' Are these items related to synchronizing circuits? *</p> <p>R9.3: Please clarify the interpretation of 'minimum duration of each of the required test.' It is not clear how test duration applies to Requirement 9.*</p> <p>R15: The scope of this requirement is not clear. Is it asking for updates on design related items (unit rating changes, etc) or is it asking for outage information? *</p> <p>R16.1: This requirement includes a list of data the GOP must record and maintain for each BS test. The list includes two different times. The first is the duration of the test and the second is the time required to black start the unit. The meaning of this latter term is not clear. Are you seeking the time it takes to bring the BS unit up to minimum output, or to maximum output, etc.?</p> |
| <p>Response: The SDT doesn't feel the wording suggested adds anything to the definition. No change made.</p> <p>R1 – In Order 693, the Commission proposal is that the Reliability Coordinators should be involved in the development and approval of the restoration plans.</p> <p>R1.1 – The wording has been changed so as to provide clarity as to the SDT's intent. The strategies need to be documented so the standard coordinates with EOP-005-2, Requirement R1.1 and EOP-005-2, Requirement R7 where the TOP must follow its "strategies" in a Real-time restoration event when the System restoration plan can't be executed as planned.</p> <p><u>R1.1 Strategies for system restoration that are coordinated with the Reliability Coordinator's high level strategy</u> A description of how the plan follows the high level strategies for restoring the Interconnection as outlined in the Transmission Operator's Reliability Coordinator restoration plan.</p> <p>R1.3 – Under the direction is what is required and no change was made.</p> <p>R1.5 – The SDT feels this is a necessary component of cranking path information.</p> <p>R1.9 – Balancing Authorities, while they directly communicate with Generator Operators, are routinely involved in controlling transactions and net</p> | | |

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| | | interchange, activities that do not occur in the stages of restoration covered by this standard. The SDT agrees with the statement made in the comment that declaration of an emergency is the point where the initial transfer takes place. The return is not always as clear cut and thus Requirement R1.9 was written to cover this situation. The SDT believes that restoration will be more efficient with the Transmission Operator directly dealing with the Generator Operators. Nothing prohibits the Transmission Operator from adding the Balancing Authority to its plan if so desired. No change made. |
| | | R2, R4.1 and R5 – In Order 693, the Commission proposal is that the Reliability Coordinators should be involved in the development and approval of the restoration plans. The SDT feels that the approval of the plans is consistent with the role of the Reliability Coordinator as defined in the Functional Model and does not add additional liability to the Reliability Coordinator. |
| | | R6 – The SDT believes that both steady state and dynamic simulations are needed if not replaced by analysis of an actual event or by testing. The sub-requirements state what the simulations must cover. A slight change was made to the wording in an attempt to provide clarity as to what is required. |
| | | R6.1 The capability of Blackstart Resources to meet the Real and Reactive Power requirements of the Cranking Paths and the dynamic capability to supply initial Loads. |
| | | R9 – The SDT believes that the listed elements to be considered provide reasonable consistency across the ERO. |
| | | R10 – In Order 693, the Commission requires the ERO to include personnel training for system restoration in the restoration standards and the requirement cited is not duplication. PER-005 deals with the over-all training and EOP-005 just states that the training in PER-005 must include system restoration. Therefore this is not a double jeopardy situation. |
| | | R11 – The SDT feels that the requirement is clear. No change made. |
| | | There is no R11.1. If you meant R17.1, then the SDT believes it is important for the Generator Operator to understand where they fit in the restoration process. The level of detail is not defined. No change made. |
| | | R9.1 – Agreements should cover any grace period issues. No change made. |
| | | R9.2.2 – The requirement has been modified to provide clarification. |
| | | R9.2.2 The ability to energize a bus. If it is not possible to energize a bus during the test, the testing entity must affirm that the unit has the capability to energize a bus such as verifying that the breaker close coil relay can be energized with the voltage and frequency monitor controls disconnected from the synchronizing circuits . |
| | | R9.3 – The SDT does not see a need to clarify – no other party has raised this issue. |

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| <p>R15 – A change has been made to the requirement to clarify the issue.</p> <p>R15: Each Generator Operator with a Blackstart Resource shall notify its Transmission Operator of any known changes to the capabilities of that Blackstart Resource <u>affecting the ability to meet the Transmission Operator's restoration plan</u> within twenty-four hours following such change.</p> <p>R16.1 – The SDT feels the current terminology is clear. No change made.</p> | | |
| Consumers Energy Company | No | <p>(R1.5) The Transmission Operator needs to coordinate with the Generator Operators when identifying acceptable operating voltage and frequency limits during restoration. Generator underfrequency relaying and terminal bus voltage limits will affect the acceptable limits.</p> <p>(R16) What occurs if the Transmission Operator and Generator Operator cannot come to agreement on the terms and conditions of a Blackstart Agreement? Is the Generator Operator subject to unreasonable testing requirements and unreasonable financial compensation mandated by the Transmission Operator?</p> |
| <p>Response: R1.5 – The SDT assumes R1.6 is meant. The SDT feels that the requirement is clear. No change made.</p> | | |
| <p>R16 – If there is no agreement, the resource cannot be a Blackstart Resource and cannot be included in the TOP's restoration plan. The SDT believes there are sufficient incentives for all parties. Compensation is not a part of reliability standards.</p> | | |
| US Army Corps of Engineers | No | <p>The Blackstart Resource definition implies that a specific generating unit(s) at a facility will be identified as the Blackstart Resource. For large hydroelectric facilities this either implies that all of the units within the powerhouse are blackstart resources or a specific unit on a specific transmission line/yard bus is the blackstart resource. A better approach would be for the expected amount of generation or expected number of generators on the transmission line/yard bus be specified and leave it up to the GO to meet the blackstart resource obligation. Many of our power plants have 4 generators per transformer/powerhouse line/yard bus and specifying a particular unit amongst those 4 would greatly impact the ability to perform major generator/turbine overhaul maintenance. A more realistic approach that we have been using has been to use any unit for blackstart on that powerhouse line. This has been acceptable to the TO and TOP. Should the present definition be approved with the proposed Reliability Standard, I will have to request a formal interpretation. To save time and effort, I propose that the following wording be used for the Blackstart Resource definition: Blackstart Resource: A generation Facility, or a set number of generating unit(s) from a multi-generator generation Facility, and its associated set of equipment which has the ability to be started without support from the System or is designed to remain energized without connection to the remainder of the System, with the ability to energize a bus, meeting the Transmission Operator's restoration plan needs for real and reactive power capability, frequency and voltage control, and that has been included in the Transmission Operator's restoration plan.</p> |

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| | | <p>In R1 the wording for when the blackstart phase of system restoration is no longer needed is difficult to follow, recommend "RESTORED SERVICE" be added to the definitions section to define that stage of system restoration. Propose "Restored Service" be defined as follows: RESTORED SERVICE: A state whereby the choice of the next Load to be restored is not driven by the need to control frequency or voltage regardless of whether the Blackstart Resource is located within the Transmission Operator's System.</p> <p>Recommend that a new R1 be developed that focuses on the requirement for the TOP and GOP to mutually develop a Blackstart Resource Agreement. Recommended wording is: Each Transmission Operator and Generator Operator with a Blackstart Resources shall have written Blackstart Resource Agreements or mutually agreed upon procedures or protocols, specifying the terms and conditions of their arrangement including Blackstart Resource testing requirements. [Violation Risk Factor = Medium] [Time Horizon = Operations Planning].</p> <p>Recommend that the old R1 become R2, the intent is for the TOP and GOP to agree to a blackstart plan and then submit the blackstart plan to the RC for approval. The RC role per EOP-006 would be to take each TOP blackstart plan within the RC's coordination area and meld the plans into an interconnection blackstart restoration plan. Recommended wording is: Each Transmission Operator shall have a restoration plan approved by its Reliability Coordinator. The restoration plan shall allow for restoring the Transmission Operator's System following a Disturbance in which one or more areas of the Bulk Electric System (BES) shuts down and the use of Blackstart Resources is required to restore the shut down area to Restored Service The TOP needs to negotiate with the blackstart resource provider on what role each party, GOP and TOP, is expected to perform for blackstarting and system restoration. The outcome of those negotiations would be the agreed to roles/responsibilities/operational configurations/constraints of the blackstart resource and of the power system as it is being reenergized (restored). The black start resource provider has to agree with the expectations of the TOP in terms of what providing assistance for system restoration. The TOP may have unrealistic expectations as to what the blackstart resource provider can provide, for example what level of reactive line support the generator is capable of, generator terminal voltage minimum operational levels, etc.</p> <p>There needs to be a requirement that the TOP has worked with the GOP (the blackstart resource provider) in developing blackstart system restoration plans that recognize operational constraints on the generators. The following requirements need to include recognition of the need for such an agreement: R1.4, R1.5, R1.6, R2 (note these Requirements are using the present numbering system). Below are suggested changes to the requirements recognizing the need for an agreement between the TOP and the GOP. R1.4 Identification of each Blackstart Resource and its agreed to characteristics including but not limited to the following: the name of the Blackstart Resource, location, megawatt and megavar capacity, and type of unit. R1.5 Identification of Cranking Paths and agreed to initial switching requirements between each Blackstart Resource and the unit(s) to be started. R1.6 Identification of agreed to operating voltage and</p> |

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| | | <p>frequency limits during system restoration.</p> <p>R1.9 The BA role is what this requirement covers and the "Applicability" section of this Reliability Standard presently fails to recognize the role the BA has in black start resource system restoration. The hand off criteria from the TOP to the BA after the system is restored should be a part of the negotiated agreements that are the foundation for the system restoration plan. Recommend the "Applicability" have BA added. Recommend this requirement be rewritten so that it can be measured. Here is proposed rewording: Post disturbance/system restoration criteria for transferring operations and authority back to the BA as well as the detailed operating processes and procedures for transferring operations and authority back to the BA.</p> <p>R2 Each Transmission Operator shall provide the operational entities identified in its agreed to and approved restoration plan with a description of any changes to their agreed to roles and specific tasks prior to the implementation date of the plan.</p> <p>R7. Where is the requirement for the TOP to develop a restoration plan strategy? The strategy is the foundation for the restoration plans used by the TOP. Isn't the strategy something that the TOP and the RC should be developing together? After the coordinated strategy is developed, then the TOP would develop a blackstart restoration plan with the blackstart resource providers (GOPs). The underlying basis for the blackstart restoration plans has to be the restoration plan strategy, but this Reliability Standard doesn't have an applicable role for the RC. So either add the RC to the applicability section or put the development of a restoration plan strategy in EOP-006 and add TOP to the EOP-006 applicability section.</p> <p>Recommend that R9 be developed into a "Testing" section and then the roles the TOP and the GOP have to perform be listed as subsections of the "Testing" requirement. Recommend actual testing be required, for example in the present R9.2.2, ability to energize a bus, unless you test it you can't be sure that you can actually energize a bus. Verifying that you can close a breaker without synch check is not good enough. Newer excitation systems and synchronizer relays have many protections built into them to prevent closing in on a dead bus or picking up large amounts of reactive and these protections need to be bypassed for dead bus energization. Also, M14 appears to require bus energization. Without testing, how can the GOP actually know when R15, change in system equipment/configuration, will prevent energizing a dead bus? The only sure way of verifying that the proper procedures are in place for blackstart is to test the equipment and the procedures. All of my blackstart plants in the Federal Columbia River Power System perform a monthly test of the equipment and the procedures and they rotate which operator will perform the test. The benefit is that each operator gets actual experience at least once a year and the procedure/equipment are verified for functional ability to blackstart. I am aware that R13 talks about an agreement between the GOP and TOP and this should be made into R1 (see proposed wording above). I also think the above proposed modifications to R1.4, R1.5, R1.6, R2 need to be made to illustrate how important the agreements is.</p> |

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| | | <p>R16, this appears redundant with R9. Propose that a single section for testing be developed with the roles for the TOP and GOP listed in the testing section.</p> <p>R17, I would prefer a minimum of 2 hours every year for every generator operator because it is too easy to forget the seldom used techniques for blackstart restoration. Considering how important blackstart is, annual 2 hours of training is appropriate.</p> <p>R17.1 should include recognition of the TOP/GOP blackstart resource agreements. Recommend the following wording: R17.1 Agreed to system restoration plan including coordination with the Transmission Operator. Recommend deletion of all references to "or mutually agreed upon procedures or protocols in force". The TOP/GOP blackstart agreement should be the only procedure used, this would help in the auditing process as well as force the TOP/GOP to keep the blackstart agreement up to date and on file with the RC. The "or mutually agreed upon procedures or protocols in force" Doesn't appear to have any check/balance like the blackstart agreement has.</p> |
| <p>Response: Definition - The Agreement should cover this issue.</p> <p>R1 – The definition is not needed since the purpose of the statement is to define the scope of this standard.</p> <p>While the scenario outlined is possible, there are incentives for all parties to come to agreement. If there is no agreement, then the resource is not a Blackstart Resource and the TOP must find other alternatives. The SDT believes the intent of the standard will be diluted if the agreement is made the first requirement.</p> <p>R1.9 – Balancing Authorities, while they directly communicate with Generator Operators, are routinely involved in controlling transactions and net interchange, activities that do not occur in the stages of restoration covered by this standard. The SDT agrees with the statement made in the comment that declaration of an emergency is the point where the initial transfer takes place. The return is not always as clear cut and thus Requirement R1.9 was written to cover this situation. The SDT believes that restoration will be more efficient with the Transmission Operator directly dealing with the Generator Operators. Nothing prohibits the Transmission Operator from adding the Balancing Authority to its plan if so desired. No change made.</p> <p>R2 – The SDT does not feel that adding 'agreed' provides any benefit. No change made.</p> <p>R7 – The SDT believes that Requirement R1.1 addresses this concern. No change made.</p> <p>R9 - No other party has indicated this concern. The SDT believes that the listed elements to be considered provide reasonable consistency across the ERO. No change made.</p> <p>R9.2.2 – The requirement has been modified to provide clarification.</p> | | |

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| <p>R9.2.2 The ability to energize a bus. If it is not possible to energize a bus during the test, the testing entity must affirm that the unit has the capability to energize a bus such as verifying that the breaker close coil relay can be energized with the voltage and frequency monitor controls disconnected <u>from the synchronizing circuits</u>.</p> <p>R16 – The SDT has already isolated the TOP requirements from the GOP requirements. No change made.</p> <p>R17 – The standard describes minimum requirements. Nothing prevents more stringent processes or practices.</p> <p>R17.1 – No change was made here since the above changes weren't made. .</p> | | |
| AEP | No | <p>EOP 005-2 Purpose statement uses the "Ensure plans, Facilities, and personnel?." Recommend "Assure plans, Facilities, and personnel.."</p> <p>R1.2 - This is already covered under NERC Standard NUC-001-1 that has been approved by NERC BOT and FERC.</p> <p>R12 - Need to specify the required number of requested drills that the Transmission Operator must participate in annually.</p> <p>R18 - Was the requirement "Each Generator Operator shall participate..." intended to include all Generation Operators opposed to only those with Black Start Resources, such as the wording included in R17.</p> |
| <p>Response: Purpose – Ensure is the correct term. No change made.</p> <p>R1.2 – Order 693 stated that this standard should explicitly cover nuclear power plant requirements.</p> <p>R12 – The SDT has left this to the discretion of the Reliability Coordinator.</p> <p>R18 –The RC determines and requests which GOPs to include in the drills. Therefore, there is no need to include qualifying statements in the standard.</p> | | |
| JEA | No | <p>R1 This standard appears to allow TOP's full discretion over whether they even have a "Blackstart Resource" by simply choosing whether or not to include it in its plan (see definition), whereas the prior standard allowed the Region to determine the blackstart resources needed. Was this the intent? This requirement causes entities to be dependent on the actions of another entity in order to be compliant (timely response by Reliability Coordinator in approving plans). Unless it is intended that only the INITIAL plan get the approval of the RC (as there are 24 months), this could result in delays in updating/improving plans (the entity would be incented to simply notify the RC that no change was needed) potentially harming reliability by incenting entities to avoid making changes to its plan. Consider something like initial approval</p> |

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| | | <p>by effective date of standard and ongoing notification of updates to RC with RC right to object and direct changes within 60 days.</p> <p>R1.3 is confusing. How would the procedure differ from?do what the RC tells me?? Then just direct the entities do so in a different requirement.</p> <p>R1.8 The auditors will look for each of these items or a statement that it is not applicable, is that the intent? If meant only to give examples, may want to clarify with a MAY include or examples are or similar wording.</p> <p>R1.9 Some TOP's are also the BA and this requirement is problematic for them. Consider this requirement applying only to TOP's that are not also the BA.</p> <p>R2. What is meant by operational entities? Requirement 1 did not direct that operational entities and their roles and specific tasks be identified. Additionally, why shouldn't the requirement just be that these "operational entities" be provided with updated plans? Why should the TOP have to spell out for them what these changes are in a separate communication?</p> <p>R3. See comments for R1 regarding approval. As written, it is unclear what the approval requirements are for the annual review/update.R4. Again, there are issues with the approval aspect of the RC. Once the plan is submitted to the RC, but while awaiting approval, which plan is in force for the entity, the old one (approved, but possibly not relevant to current system) or the new one (updated, but not approved)? Either way, the entity is in a compliance quandary with regards to R1. Suggest again, submittal with RC right to direct changes.</p> <p>R5 The standard should require that the current plan is available in the primary and backup control centers, not just that it was provided prior to implementation and then after that it's okay if it gets lost.</p> <p>R9. Might consider moving this requirement up next to R6 because there may be some overlap. Also, move R16 next to this one as it is confusing to have the testing requirement separate from the procedure. Might consider placing minimum requirements on the entity for the actual testing only. Requirements that the entity develop procedures and then implement them encourage the entity to develop procedures that minimally meet the standard. Requirements that the entity complete a minimum level of activity or set of tasks, encourage the entity to set procedures that go above and beyond in order to give themselves cushion for errors. Because R16 requires the documentation of the actual testing of the blackstart unit and this is not an activity executed under emergency or operational timeframes, the absence of the procedure does not preclude adequate testing of the blackstart unit, this requirement is administrative/documentation and failure to comply is unlikely to adversely affect the BES on its own, so might consider that the VRF of</p> |

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| Organization | Yes or No | Comment |
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| | | <p>this requirement is Lower.</p> <p>R11. What is meant by "unique tasks"? If someone performs switching during normal operating conditions? you would ask the same person to perform switching during restoration (you wouldn't take some from a clerk position and send them to the field). I think most entities would just say that their field switching personnel would not be performing any "unique" tasks, and this will end up being a useless requirement.</p> <p>R13. The term "Blackstart Resource Agreement" is not in the current NERC glossary, but is capitalized here. Need to define.</p> <p>Consider putting R6, R9 and R16 in sequence in the standard, and reviewing to prevent overlap.</p> |
| <p>Response: R1 –The SDT suggests that you look at this in tandem with EOP-006-2 where the RC is required to set minimum blackstart requirements. No change made.</p> <p>R1.3 – The Reliability Coordinator would set the general direction and provide overview but the Transmission Operator then needs Procedures as to how to follow through. No change made.</p> <p>R1.8 – The standard is clear that these are items that may be addressed in the plan. No change made.</p> <p>R1.9 – For a Transmission Operator that is also a Balancing Authority, there is no problem. The SDT has members who are in this situation. No change made.</p> <p>R2 – Operational has been deleted. The TOP is the responsible party and needs to provide the information.</p> <p>R2 Each Transmission Operator shall provide the operational entities identified in its approved restoration plan with a description of any changes to their roles and specific tasks prior to the implementation date of the plan.</p> <p>R3 and R4 – The SDT recognizes this is a start-up problem and that there are many interacting requirements between EOP-005-2 and EOP-006-2. The RCs and TOPs will have to coordinate during that time period. However, once you go through the implementation process, you will always have an approved plan. Please note that RCs and TOPs are already required to have a restoration plan.</p> <p>R5 states that the Transmission Operator “shall have a copy of its latest Reliability Coordinator approved restoration plan”.</p> <p>R9 – The purpose of this requirement is for the Transmission Operator to have defined tests.</p> <p>R16 - The SDT has kept requirements separate except for Requirement R13, the requirement for an agreement between the two. This is not an administrative/documentation issue but a testing with documentation issue and as such warrants a Medium VRF.</p> | | |

Consideration of Comments on 4th Draft of EOP-005-2 and EOP-006-2 — Project 2006-03

| Organization | Yes or No | Comment |
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| <p>R11 – The SDT anticipates that unique tasks are those not performed in routine operation, such as resynchronizing subsections of the Transmission Operators system or with a neighboring system.</p> | | |
| <p>R13 – Blackstart Resource (new definition) will be a defined term and Agreement is a defined term.</p> | | |
| <p>R6, R9 and R16 - The SDT has kept requirements separate except for Requirement R13, the requirement for an agreement between the two</p> | | |
| Ameren | No | <p>According to the response provided on page 32 by the Standard Drafting Team Consideration of Comments, Requirement R6.2 was deleted in preparing the fourth draft of the standards. However, the latest draft of EOP-005-2 still has the text of Requirement R6.2 included as in the previous draft with no modification. Requirement R6.2 should be deleted.</p> |
| <p>Response: R6.2 – The SDT apologizes for any confusion but upon review believes that the sub-requirements are correct. No change made. .</p> | | |
| ISO New England Inc | No | <p>Did the Drafting Team intended R18 to apply to Generator Operators with black start resources as with the other requirements, or to all Generators? If the Drafting Team intended applicability to Generator Operators with black start resources then we suggest rewording as follows:"R18. Each Generator Operator with a Blackstart Resource shall participate in the Reliability Coordinator's restoration drills, exercises, or simulations as requested by the Reliability Coordinator. [Violation Risk Factor = Medium] [Time Horizon = Operations Planning]"</p> <p>R16.2. Should be revised to read: Each Generator Operator "with a Blackstart Resource shall provide?"</p> <p>Requirement R1.2 remains unclear. Specifically, "a description of the manner" is confusing. The SDT response to Draft 3 comments and/or questions does not provide meaningful understanding of what is expected in this requirement. Suggest rewording or this requirement be moved to the Nuclear Plant Interface Coordination requirements NUC-001.</p> <p>R7 stipulates that if the restoration plan cannot be executed as expected because actual conditions do not match the studied conditions, the Transmission Operator shall utilize its restoration plan strategies to facilitate restoration. This standard does not require the TOP to develop restoration plan strategies; it only requires the TOP to follow the the high level strategies for restoring the Interconnection as outlined in the Transmission Operator's Reliability Coordinator restoration plan (R1.1). We suggest to reword R7 according to R1.1. Further, we suggest to change the word "match" to "resemble" since "match" requires one on one identical conditions which may not be achieved whereas "resemble" provides some flexibility.</p> |
| <p>Response: R18 –The RC determines and requests which GOPs to include in the drills. Therefore, there is no need to include qualifying statements in the standard.</p> | | |

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| Organization | Yes or No | Comment |
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| | | <p>R16.2 – This is a sub-requirement that applies to a GOP with Blackstart Resources so no change is necessary.</p> <p>R1.2 – A wording change was made in an attempt to provide additional clarity.</p> <p>R1.2 A description of the manner in which <u>how</u> all Agreements or mutually agreed upon procedures or protocols for off-site power requirements of nuclear power plants, including priority of restoration, will be fulfilled during System restoration.</p> <p>R7 – Changes were made to provide clarification.</p> <p>R7 Following a Disturbance in which one or more areas of the BES shuts down and the use of Blackstart Resources is required to restore the shut down area to service, each affected Transmission Operator shall implement its restoration plan. If the restoration plan cannot be executed as expected because actual conditions do not match the studied conditions, the Transmission Operator shall utilize its restoration plan strategies to facilitate restoration</p> |
| We Energies | No | <p>Baffling that the SDT added Transmission Owners and Distribution Providers to Section 4 Applicability, yet does not acknowledge that the Balancing Authority has a role in the process. The closest the standard comes to recognizing the BA is R1.9 Criteria for transferring operations and authority back to the Balancing Authority. This is troubling too. What Operations and Authority are transferred back? Presumably, the Transmission Operator - who may know nothing about balancing and exchange - is given total authority over BA operations during a system restoration effort. But this is not explicitly stated in the standard. Is that the authority transferred back to the BA? EOP-005-2 needs to include the Balancing Authority.</p> <p>Suggest R1.2 use the NERC defined term "Nuclear Plant Interface Requirements."</p> |
| <p>Response: R1.9 – Balancing Authorities, while they directly communicate with Generator Operators, are routinely involved in controlling transactions and net interchange, activities that do not occur in the stages of restoration covered by this standard. The SDT agrees with the statement made in the comment that declaration of an emergency is the point where the initial transfer takes place. The return is not always as clear cut and thus Requirement R1.9 was written to cover this situation. The SDT believes that restoration will be more efficient with the Transmission Operator directly dealing with the Generator Operators. Nothing prohibits the Transmission Operator from adding the Balancing Authority to its plan if so desired. No change made.</p> <p>R1.2 – Agreement is a broader term and the SDT believes it is the correct choice here. No change made.</p> | | |
| AECI | No | <p>R.1 AECI does not believe the RC should be approving the restoration plan. It is understood that the RC would be required to have the entities restoration plan, and be able to comment on the plan and the entity would be required to reply to the comments in a timely manner. However, the statement implies, by having the RC Approve the plan, the RC will take ownership of the plan. If this was the intent we believe the process is going to become bogged down with the RC having to perform thorough reviews of each entities restoration plan. The RC will have to become an auditing function to ensure the plan can be implemented as written and that the resources that the entity states is adequate to restore the system is really what is</p> |

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| Organization | Yes or No | Comment |
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| | | <p>required. Previously the RRO was responsible for determining the plan and the generators required. Is this no longer going to be the case?</p> <p>R.5 Again, is the RC the correct overseer to provide the restoration plan for the area?</p> <p>R.6 AECI has no problem with R.6, however if the RC is the approving organization than they will want the analysis for review and this will be time consuming. We believe the entity should be responsible for its control area and the RC needs to be aware the plan and accept the plan or provide comments but not approve or have an entity wait for approval to initiate the plan.</p> <p>R.11 Provide a definition of what are considered unique tasks so there is no misunderstanding during an audit of this requirement. AECI has contractors that performs switching functions all the time. However, they do not necessarily perform the required switching that the restoration plan calls for. Would this be considered a unique task? We don't believe it is.</p> <p>R.13 Can you distinguish between entities that are the GO and TOP vs. those that are not?</p> |
| <p>Response: R1 and R5, R6 – In Order 693, the Commission proposal is that the Reliability Coordinators should be involved in the development and approval of the restoration plans. The SDT feels that the approval of the plans is consistent with the role of the Reliability Coordinator as defined in the Functional Model and does not add additional liability to the Reliability Coordinator.</p> <p>R11 – The SDT anticipates that unique tasks are those not performed in routine operation, such as resynchronizing subsections of the Transmission Operators system or with a neighboring system.</p> <p>R13 – Wording changed for clarity.</p> <p>R13 Each Transmission Operator and <u>each</u> Generator Operator with a Blackstart Resource shall have written Blackstart Resource Agreements or mutually agreed upon procedures or protocols, specifying the terms and conditions of their arrangement. Such Agreements shall include references to the Blackstart Resource testing requirements.</p> | | |
| Xcel Energy | No | <p>R15 states that the GOP with a Blackstart Resource shall notify its TOP of any known changes to the "capabilities" of the Blackstart Resource? Is the intent to know changes to outputs of MWs and MVARs? Or changes that would not allow the Blackstart Resource to start and energize a bus. Please clarify the intent. 24 hours seems restrictive and this should only apply to blackstart resources. TOP-002 R14 notifies the TOP of operating restraints and VAR-002 covers restrictive limits, is there the possibility of double jeopardy if these items are covered elsewhere?</p> |
| <p>Response: R15 has been modified to clarify the intent. The requirement was already restricted to just Blackstart Resources. The SDT feels that the clarification to the standard should eliminate any concerns about possible double jeopardy.</p> | | |

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| Organization | Yes or No | Comment |
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| <p>R15: Each Generator Operator with a Blackstart Resource shall notify its Transmission Operator of any known changes to the capabilities of that Blackstart Resource <u>affecting the ability to meet the Transmission Operator’s restoration plan</u> within twenty-four hours following such change.</p> | | |
| Hydro One Networks Inc. | No | <p>Clarification is required on the intent of the SDT with respect to the applicability of R18. Is it to Generator Operators with black start resources as with the other requirements, or to all Generators? If the Drafting Team intended applicability to Generator Operators with black start resources then we suggest rewording as follows:"R18. Each Generator Operator with a Blackstart Resource shall participate in the Reliability Coordinator’s restoration drills, exercises, or simulations as requested by the Reliability Coordinator. [Violation Risk Factor = Medium] [Time Horizon = Operations Planning]"</p> <p>R16.2. Should be revised to read: Each Generator Operator "with a Blackstart Resource shall provide?" Requirement R1.2 remains unclear. Specifically, "a description of the manner" is confusing. The SDT response to Draft 3 comments and/or questions does not provide meaningful understanding of what is expected in this requirement. We suggest rewording. Alternatively, this requirement could be moved to the Nuclear Plant Interface Coordination requirements NUC-001.</p> <p>R4 - an update to the plan within 90 calendar days due to an unplanned permanent change may be in some cases achievable. However in some jurisdictions approval could take longer (e.g. up to 2 years). The entire plan may not need to be updated and approved within a set timeframe; rather notification and integration of the change should be concluded within the 90 days window after the permanent change has been made.</p> <p>R11 - For someone performing unique non-routine tasks to receive 2 hours of training per year on system restoration seems disjointed with the intent behind this form of training. In practiced for only 2 hours per year, it will be likely forgotten - or worse the individual may freeze by being placed in the position of action on something they are uncomfortable with. This requirement should be expanded to clearly identify what is meant by 'unique' or move this to a PER standard addressing personnel training.</p> |
| <p>Response: R18 –The RC determines and requests which GOPs to include in the drills. Therefore, there is no need to include qualifying statements in the standard.</p> | | |
| <p>R16.2 – This is a sub-requirement that applies to a GOP with Blackstart Resources so no change is necessary.</p> | | |
| <p>R1.2 – A wording change was made in an attempt to provide additional clarity. .</p> | | |
| <p>R1.2 A description of the manner in which <u>how</u> all Agreements or mutually agreed upon procedures or protocols for off-site power requirements of nuclear power plants, including priority of restoration, will be fulfilled during System restoration.</p> | | |

| Organization | Yes or No | Comment |
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| <p>R4 – The SDT feels that 90 days is adequate. No change made.</p> | | |
| <p>R11 – The SDT anticipates that unique tasks are those not performed in routine operation, such as resynchronizing subsections of the Transmission Operators system or with a neighboring system.</p> | | |
| <p>US Bureau of Reclamation</p> | <p>No</p> | <p>R13 which requires the Transmission Operator and Generator Operator to have a documented Blackstart Resource Agreement in place is such a major element of the standard we recommend making it the first requirement in the standard. Recommend that a new R1 be developed that focuses on the Agreement and the elements to be included. As such the testing requirements, of R9 should be included in the Blackstart Resources Agreement. The standard should emphasize the testing is mutually agreed upon by the Transmission Operator and Generator Operator.</p> <p>R1 requires the Transmission Operator to have a restoration plan and the sub-requirements include the required elements of the plan. Also embedded in this R1 is a definition of when service is considered to be restored. To make the language of the requirement more crisp, we suggest the embedded definition be removed and added to the Definitions and Terms part of the standard.</p> <p>R1.3 makes the Transmission Operator responsible for procedures for restoring interconnections with other Transmission Operators. This requirement overlaps with Requirement R1.2 of EOP-006-2 - System Restoration Coordination which makes the RC's responsible for restoring the Interconnection. The exact role of each entity must be clearly stated; the existing language in the two standards does not presently make this distinction.</p> <p>Suggest changing R1.4 to the following: R1.4. Identification of each Blackstart Resource and its characteristics as agreed to including but not limited to the following: the name of the Blackstart Resource, location, megawatt and megavar capacity, and type of unit. The "but not limited to" language in R1.4 allows additional characteristics to be added to those in the standard. If there are other characteristics that are needed for the reliability of the BES, they must be included in language of the standard. Also suggest the language "as agreed to" be added after the word "characteristics" to require the characteristics are coordinated with the GOP.</p> <p>Suggest changing R1.5 to the following: R1.5. Identification of Cranking Paths and initial switching requirements as agreed to between each Blackstart Resource and the unit(s) to be started. Same reason as R1.4 above.</p> <p>Suggest changing R1.6 to the following: R1.6. Identification of acceptable operating voltage and frequency limits during restoration that are mutually acceptable with the Blackstart Resources.</p> |

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| Organization | Yes or No | Comment |
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| | | <p>For R1.9 suggest adding the criteria for transferring operations be coordinated with the BA.</p> <p>Requirement R6, if actual testing is used to verify the plan, involvement of the Generator Operator will be required. Suggest changing R6 to the following: R6. Each Transmission Operator shall verify through analysis of actual events, steady state and dynamic simulations, or testing that its documented restoration plan accomplishes its intended function. If testing is used the Transmission Operator will coordinate the mutually agreed participation of the Generator Operator. This shall be completed every five years at a minimum. Such analysis, simulations or testing shall analyze verify: [Violation Risk Factor = Medium] [Time Horizon = Long-term Planning] R6.1. The capability of Blackstart Resources to meet the Real and Reactive Power requirements of the Cranking Paths and to supply initial Loads. R6.2. The location and magnitude of Loads required to control voltages and frequency within acceptable operating limits. R6.3. The capability of generating resources required to control voltages and frequency within acceptable operating limits.</p> <p>Requirement R7 requires the Transmission Operator to "utilize its restoration plan strategies to facilitate restoration" in the event the restoration plan cannot be executed as planned. It is unclear where this strategy is developed and who is responsible for developing it. Requirement R1.1 requires the Transmission Operator's plan to describe how it follows the "high level strategies" outlined in the RC's restoration plan but there is no clear requirement that the Transmission Operator have developed a separate restoration strategy. Standard EOP-006, R1.1 applicable to the Reliability Coordinator requires a description of the high level strategy to be employed during restoration events for restoring the interconnection??. It is unclear if there are to be one or more strategies. If R7 (of EOP-005) is referring to the Reliability Coordinator's strategy it should clearly state that.</p> <p>R16.1 states testing records shall include at a minimum and lists several data items. The "at a minimum" language is open ended and should be removed; if more items are required they should be included in the standard.</p> |
| <p>Response: R13 – The numbering of the requirements is not an indication of the sequence of actions or importance for reliability. Still, the SDT believes it is proper to emphasize the requirement to have an approved plan as the first requirement.</p> <p>R9 – The intent is to make the testing requirements available to those who may consider proposing a new Blackstart Resource.</p> <p>R1 – The SDT does not feel that this is an embedded definition but rather a statement of scope.</p> <p>R1.3 – While the Reliability Coordinator will have authority and oversight, the Transmission Operator still needs procedures. The Reliability Coordinator is the highest authority. The Reliability Coordinator will establish the separation of tasks.</p> <p>R1.4 – The requirement permits any Transmission Operator to add more, but the SDT does not see this as needed to identify the Blackstart</p> | | |

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| Organization | Yes or No | Comment |
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| | | <p>Resource in the restoration plan. Requirement R13 assures that the Transmission Operator will not be dictating requirements.</p> <p>R1.5 – This is a requirement for the Transmission Operator. While there may be a reason for the Transmission Operator to coordinate with the Blackstart Resource operator, this is not a joint responsibility.</p> <p>R1.6 – The acceptable limits will be driven by the limits of generators as well as other system and equipment requirements. This is not a joint responsibility.</p> <p>R1.9 – The SDT is allowing the TOP to set the criteria that best fits their particular situation. No change made.</p> <p>R6 – Actual testing is an inherent responsibility and would be covered in the Agreement. No change made.</p> <p>R7 – The SDT changed Requirement R1.1 to address this concern. The strategies need to be documented so the standard coordinates with EOP-005-2, Requirement R1.1 and EOP-005-2, Requirement R7 where the TOP must follow its “strategies” in a Real-time restoration event when the System restoration plan can’t be executed as planned.</p> <p>R1.1 Strategies for system restoration that are coordinated with the Reliability Coordinator’s high level strategy. A description of how the plan follows the high level strategies for restoring the Interconnection as outlined in the Transmission Operator’s Reliability Coordinator restoration plan.</p> <p>R16.1 – The Transmission Operator can always request more items and could include such in the Agreement. No change made</p> |
| San Diego Gas and Electric Co. | No | <p>SDG&E Comment for R1: This requirement is unclear (sentence is too long and the overall requirement is confusing). We suggest re-writing it. SDG&E Edit for R1: Each Transmission Operator shall have a restoration plan approved by its Reliability Coordinator. The restoration plan shall allow for restoring the Transmission Operator’s System following a Disturbance in which one or more areas of the Bulk Electric System (BES) shuts down and the use of Blackstart Resources is required to restore the shut down area to service. <Begin Edit> The restoration plan ends when <End Edit> the choice of the next Load to be restored is not driven by the need to control frequency or voltage regardless of whether the Blackstart Resource is located within the Transmission Operator’s System.</p> <p>SDG&E Edit for R1.5:R1.5. Identification of Cranking Paths and initial switching requirements between each Blackstart Resource and the <Begin Edit>other <End Edit> unit(s) to be started. SDG&E Comment for R1.6: We’d like to suggest changing the words "acceptable" and "limits" to the more flexible "guidelines" in this requirement. During restoration, each resource may have different characteristics or peculiarities. Hard limits can sometimes slow the restoration process if the resource is incapable of responding, which is why we prefer the more flexible term "guidelines" in this Requirement.</p> <p>SDG&E Edit for R1.6:R1.6. Identification of operating voltage and frequency <Begin Edit> guidelines <End</p> |

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| Organization | Yes or No | Comment |
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| | | <p>Edit> during restoration.</p> <p>SDG&E Comment for R2: We were unclear as to the meaning of "Operational Entities", and made the above change to try to clarify. Please consider additional language as necessary to clarify what an Operational Entity consists of.</p> <p>SDG&E Edit for R2:R2. Each Transmission Operator shall provide the <Begin Edit> BA, TOP, or GOP as <End Edit> identified in its approved restoration plan with a description of any changes to their roles and specific tasks prior to the implementation date of the plan.</p> <p>SDG&E Comment for R4.1:R3 and R4 require submitting restoration plans or revisions to the RC for approval. We suggest a 30 day time period for RC approval of restoration plans or revisions. If the RC doesn't approve submittals within 30 days for any reason, we suggest that the restoration plan in question is assumed to be approved.</p> <p>SDG&E Comment for R5: We suggest changing the wording "prior to implementation" to "by its effective date" in this Requirement (and that of the associated Measure as well).</p> <p>SDG&E Comment for R6: We suggest that the above wording "steady state and dynamic" be changed to "steady state or dynamic" since both are not necessary to successfully verify that the restoration plan accomplishes its intended function.</p> <p>SDG&E Edit for R7: Following a Disturbance in which one or more areas of the BES shuts down and the use of Blackstart Resources is required to restore the shut down area to service, each affected Transmission Operator shall implement its restoration plan. If the restoration plan cannot be executed as expected because actual conditions do not match the studied conditions, the Transmission Operator shall utilize its restoration plan strategies <Begin Edit> as developed per R1.1 <End Edit> to facilitate restoration.</p> <p>SDG&E Comment for R9: We believe this testing should be coordinated by the Reliability Coordinator.</p> <p>SDG&E Comment for R11: We suggest that the two hour portion of the minimum training requirement be removed. Depending on the training topic and knowledge level of the employee, training can be shorter or more lengthy, and not all relevant training will be 2 hours in length.SDG&E Edit for R11:Each Transmission Operator, each applicable Transmission Owner, and each applicable Distribution Provider shall provide System restoration training <Begin Edit> initially, and <End Edit> every two years to their field switching personnel identified as performing unique tasks associated with the Transmission Operator's restoration plan that are outside of their normal tasks.</p> |

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| Organization | Yes or No | Comment |
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| | | <p>SDG&E Comment for R17:We suggest the training be specified as an initial requirement and an ongoing requirement to accommodate new or transferred employeesSDG&E Edit for R17:Each Generator Operator with a Blackstart Resource shall provide a minimum of two hours of training, <Begin Edit> initially, and <End Edit> every two years to each of its operating personnel responsible for the startup of its Blackstart Resource generation units and energizing a bus. The training program shall include training on the following:SDG&E Edit for R17.1:System restoration plan including <Begin Edit> roles, responsibilities, and coordination as required by the Transmission Operator's plan <End Edit>.</p> |
| <p>Response: R1 - The SDT believes the wording is equivalent. No change made.</p> <p>R1.5 – The SDT feels this is a necessary component of cranking path information. No change made.</p> <p>R1.6 – The SDT believes that the studies and resulting plans will determine hard limits. Procedures are likely to be more conservative, and Requirement R7 anticipates that actual restoration may be different.</p> <p>R2 – Wording changed to remove ‘operational’ which should avoid any possible confusion.</p> <p style="padding-left: 40px;">R2 Each Transmission Operator shall provide the operational entities identified in its approved restoration plan with a description of any changes to their roles and specific tasks prior to the implementation date of the plan.</p> <p>R4.1 – The SDT feels that the requirement is clear. You can’t have a plan that isn’t approved. The SDT recognizes that there might be a start-up problem and that there are many interacting requirements between EOP-005-2 and EOP-006-2. The RCs and TOPs will have to coordinate during that time period. Please note that RCs and TOPs are already required to have a restoration plan. However, once you go through the implementation process, you will always have an approved plan.</p> <p>R5 – Suggested wording is considered equivalent so no change made.</p> <p>R6 – The SDT believes that both steady state and dynamic simulations are needed if not replaced by analysis of an actual event or by testing. The sub-requirements state what the simulations must cover. A slight change was made to the wording for clarity.</p> <p style="padding-left: 40px;">R6. Each Transmission Operator shall verify through analysis of actual events, steady state <u>simulations</u>, and dynamic simulations, or testing that its restoration plan accomplishes its intended function. This shall be completed every five years at a minimum. Such analysis, simulations or testing shall verify</p> <p>R7 – The SDT believes the additional wording is not necessary.</p> <p>R9 - No other party has indicated this concern. No change made.</p> | | |

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| Organization | Yes or No | Comment |
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| <p>R11 & R17 – The SDT feels that ‘initially’ refers to the 2 year period in the Implementation Plan. No change made.</p> | | |
| <p>Duke Energy Corporation</p> | <p>No</p> | <p>We appreciate the opportunity to recommend the following changes to the proposed the Standards. Some of our comments will be redundant to those submitted by other SERC members. Specific comments: R1.1 There is no reliability benefit for including this statement in the Standard. If the RC were to change its high level view or plan, it is their responsibility to submit it to the TOP. The TOP would then make changes to their plans and submit it to the RC for review and approval. This is creating additional administration burden to those entities in our opinion. We suggest it be eliminated.</p> <p>R1.9 - Is this really necessary? Where did the standard transfer operations and authority away from the BA? Wouldn't this requirement take care of itself via declaring an emergency (thus suspending Standards of Conduct) and coming out of the emergency? We recommend that this statement be replaced with a requirement for the TOP to coordinate with the GOPs, TOs, DPs and BAs.</p> <p>R2. We suggest replacing "approved" with "coordinated" in keeping with our suggestion that the RC should not have approval over the TOP plans.</p> <p>R4. Replace "system modifications" with "cranking path". This is to avoid numerous changes to a restoration plan if detailed requirements remain in the Standard</p> <p>R4.1. Replace "for approval" with "for review".</p> <p>R6. Replace "steady state and dynamic simulations" with "steady state and/or dynamic simulations".</p> <p>R7. We suggest replacing "plan" with "strategy" and eliminating the second sentence.</p> <p>R10. This is already covered in the Personnel Training Standard and should not be duplicated. This requirement is in PER-005-1, R3, which could result in double jeopardy.</p> |
| <p>Response: R1.1 – This sub-requirement makes it clear that the intent is to have a process and philosophy.</p> <p>R1.9 – Balancing Authorities, while they directly communicate with Generator Operators, are routinely involved in controlling transactions and net interchange, activities that do not occur in the stages of restoration covered by this standard. The SDT agrees with the statement made in the comment that declaration of an emergency is the point where the initial transfer takes place. The return is not always as clear cut and thus Requirement R1.9 was written to cover this situation. The SDT believes that restoration will be more efficient with the Transmission Operator directly dealing with the Generator Operators. Nothing prohibits the Transmission Operator from adding the Balancing Authority to its plan if so desired. No change made.</p> | | |

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| Organization | Yes or No | Comment |
|------------------|-----------|---|
| | | <p>R2 & R4.1 – In Order 693, the Commission proposal is that the Reliability Coordinators should be involved in the development and approval of the restoration plans. The SDT feels that the approval of the plans is consistent with the role of the Reliability Coordinator as defined in the Functional Model and does not add additional liability to the Reliability Coordinator.</p> <p>R4 – There could be system changes not affecting a Cranking Path but that affect other parts of rebuilding the system. No change made.</p> <p>R6 – The SDT believes that both steady state and dynamic simulations are needed if not replaced by analysis of an actual event. A slight change was made to the wording for clarity.</p> <p>R6. Each Transmission Operator shall verify through analysis of actual events, steady state <u>simulations</u>, and dynamic simulations, or testing that its restoration plan accomplishes its intended function. This shall be completed every five years at a minimum. Such analysis, simulations or testing shall verify</p> <p>R7 – Changes made to provide clarity.</p> <p>R7 Following a Disturbance in which one or more areas of the BES shuts down and the use of Blackstart Resources is required to restore the shut down area to service, each affected Transmission Operator shall implement its restoration plan. If the restoration plan cannot be executed as expected because actual conditions do not match the studied conditions, the Transmission Operator shall utilize its restoration plan strategies to facilitate restoration</p> <p>R10 – In Order 693, the Commission requires the ERO to include personnel training for system restoration in the restoration standards and the requirement cited is not duplication. PER-005 deals with the over-all training and EOP-005 just states that the training in PER-005 must include system restoration. Therefore this is not a double jeopardy situation</p> |
| Entergy Services | No | <p>* R1 is rather long, making it difficult to follow. Suggest breaking the second sentence into two. End the sentence after "service" and before "to a state whereby?" The second part could read, "The plan should cover restoration to a state whereby the choice of the next Load to be restored is not driven by the need to control frequency or voltage, regardless of whether the Blackstart Resource is located within the Transmission Operator's System."*</p> <p>R1.1 While we feel that the TOPs, as good businesses practices, should track the information suggested in R1.1, we do not feel that it should be included as a requirement. Properly written plans with appropriate details will inherently demonstrate this without an extra requirement to map the TOP plans to the RC plans. This seems to be an exercise for audits and updates and not a requirement.*</p> <p>R1.2. We suggest simpler wording by replacing this requirement with the following: "A description of the Agreements or mutually agreed upon procedures or protocols to include priority of restoration for off-site power to Nuclear power plants."*</p> |

Consideration of Comments on 4th Draft of EOP-005-2 and EOP-006-2 — Project 2006-03

| Organization | Yes or No | Comment |
|--|-----------|--|
| | | <p>R1.3 - Suggest changing "direction" to "coordination and direction" to align with the wording in EOP-006-2 R8 which states the RC "shall coordinate or authorize." *</p> <p>R1.5. Remove the phrase "and initial switching requirements", in keeping with our concept of making this a high level plan.*</p> <p>R1.9 - Is this really necessary? Where did the standard transfer operations and authority away from the BA? Wouldn't this requirement take care of itself via declaring an emergency (thus suspending Standards of Conduct) and coming out of the emergency? We recommend that this statement be replaced with a requirement for the TOP to coordinate with the GOPs, TOs, DPs and BAs. *</p> <p>R4. Replace "system modifications" with "changes to cranking paths". This is to avoid numerous changes to a restoration plan if detailed requirements remain in the Standard*</p> <p>R5. Change "latest" to "current".*</p> <p>R6 - Replace "steady state and dynamic simulations" with "steady state and/or dynamic simulations" since it would be better to break those out to reduce confusion for applicable entities and audit teams.*</p> <p>R7. We suggest replacing "plan" with "strategy" and eliminating the second sentence. *</p> <p>R10. This is at least partially covered in the latest draft of the Personnel Training Standard, PER-005-1 R3. While we realize that past responses from the SDT quoted FERC Order 693 verbiage to support inclusion of the training in the EOP standards, having the requirement in both standards could result in double jeopardy. We suggest that the SDT includes a reference to the PER requirement and a statement that clarifies that the training required in PER-005-1 R3 also satisfies EOP-005-2 R10.* R10.1. Add the word "those" before "Generator Operators included in the restoration plan"*</p> <p>R13 - Blackstart Resource Agreement is not a defined term. Suggest not capitalizing it or include as an official term.</p> |
| <p>Response: R1 - The SDT believes the wording is equivalent. No change made.</p> | | |
| <p>R1.1 – The wording has been clarified to address this concern. The strategies need to be documented so the standard coordinates with EOP-005-2, Requirement R1.1 and EOP-005-2, Requirement R7 where the TOP must follow its “strategies” in a Real-time restoration event when the System restoration plan can’t be executed as planned.</p> | | |
| <p>R1.1 Strategies for system restoration that are coordinated with the Reliability Coordinator's high level strategy A description of how the</p> | | |

Consideration of Comments on 4th Draft of EOP-005-2 and EOP-006-2 — Project 2006-03

| Organization | Yes or No | Comment |
|--------------|-----------|---|
| | | <p>plan follows the high level strategies for restoring the Interconnection as outlined in the Transmission Operator's Reliability Coordinator restoration plan.</p> |
| | | <p>R1.2 – A wording change was made in an attempt to provide additional clarity.</p> <p>R1.2 A description of the manner in which <u>how</u> all Agreements or mutually agreed upon procedures or protocols for off-site power requirements of nuclear power plants, including priority of restoration, will be fulfilled during System restoration.</p> |
| | | <p>R1.3 – This requirement relates to the plan. EOP-006-2, R8 refers to actual restoration events. No change made.</p> |
| | | <p>R1.5 – The SDT feels this is a necessary component of cranking path information. No change made.</p> |
| | | <p>R1.9 – Balancing Authorities, while they directly communicate with Generator Operators, are routinely involved in controlling transactions and net interchange, activities that do not occur in the stages of restoration covered by this standard. The SDT agrees with the statement made in the comment that declaration of an emergency is the point where the initial transfer takes place. The return is not always as clear cut and thus Requirement R1.9 was written to cover this situation. The SDT believes that restoration will be more efficient with the Transmission Operator directly dealing with the Generator Operators. Nothing prohibits the Transmission Operator from adding the Balancing Authority to its plan if so desired. No change made.</p> |
| | | <p>R4 – There could be system changes not affecting a Cranking Path but that do affect other parts of rebuilding the system.</p> |
| | | <p>R5 – Suggested wording is considered equivalent so no change made.</p> |
| | | <p>R6 – The SDT believes that both steady state and dynamic simulations are needed if not replaced by analysis of an actual event or by testing.</p> |
| | | <p>R7 – Changes made to provide clarity.</p> <p>R7 Following a Disturbance in which one or more areas of the BES shuts down and the use of Blackstart Resources is required to restore the shut down area to service, each affected Transmission Operator shall implement its restoration plan. If the restoration plan cannot be executed as expected because actual conditions do not match the studied conditions, the Transmission Operator shall utilize its restoration plan strategies to facilitate restoration</p> |
| | | <p>R10 – In Order 693, the Commission requires the ERO to include personnel training for system restoration in the restoration standards and the requirement cited is not duplication. PER-005 deals with the over-all training and EOP-005 just states that the training in PER-005 must include system restoration. Therefore this is not a double jeopardy situation.</p> |
| | | <p>R13 – Blackstart Resource (new definition) will be a defined term and Agreement is a defined term.</p> |

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| Organization | Yes or No | Comment |
|---|-----------|--|
| Independent Electricity System Operator (IESO) — Ontario | No | <p>We do not agree with adding Transmission Owners and Distribution Providers to the Applicability Section. These two entities are added only to provide the 2 hour training to their field switching personnel. This addition is unnecessary and not all inclusive (for example, missing Generator Owner, Balancing Authority, etc. who may have a role in the restoration plan). To ensure training is provided, we suggest R11 be revised to: R11. Each Transmission Operator, and each operational entity identified in the Transmission Operator's approved restoration plan shall provide a minimum of two hours of System restoration training every two years to their field switching personnel identified as performing unique tasks associated with the Transmission Operator's restoration plan that are outside of their normal tasks.?</p> <p>R7 stipulates that if the restoration plan cannot be executed as expected because actual conditions do not match the studied conditions, the Transmission Operator shall utilize its restoration plan strategies to facilitate restoration. This standard does not require the TOP to develop restoration plan strategies; it only requires the TOP to follow the high level strategies for restoring the Interconnection as outlined in the Transmission Operator's Reliability Coordinator restoration plan (R1.1). We suggest rewording R7 according to R1.1. Further, we suggest to change the word "match" to "resemble" since "match" requires one on one identical condition which may not be achieved whereas "resemble" provides some flexibility.</p> <p>R4.1 requires that the Transmission Operator submit its revised restoration plan to the Reliability Coordinator for approval "within the same ninety calendar day period." With the changes suggested to R4, it is unclear whether the ninety days applies to both revisions due to planned and unplanned system modifications. Furthermore, we believe that the timeline for submitting a revised restoration plan for approval should mirror the Reliability Coordinator's obligation to submit its most recent restoration plan to its Transmission Operators within "thirty days of creation or revision" (see suggested changes in R2. in EOP-006-02). We therefore recommend the following wording for R4.1: "Each Transmission Operator shall submit its revised restoration plan to its Reliability Coordinator for approval within thirty days of creation or revision."</p> <p>R17.1 requires that the training program provided by each Generator Operator with a Blackstart Resource include the "System restoration plan, including coordination with the Transmission Operator." We believe that the Generator Operator should focus their training on their role within the restoration plan, and not the entire restoration plan developed by the Transmission Operator. Hence, we recommend that R17.1 is reworded to: "The Generator Operator's role in the restoration plan, including coordination with the Transmission Operator."</p> |
| <p>Response: General – Applicability cannot be hidden in a requirement; it is defined in the Applicability section.</p> <p>R7 – Changes made to provide clarity.</p> | | |

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| Organization | Yes or No | Comment |
|---|-----------|--|
| | | <p>R7 Following a Disturbance in which one or more areas of the BES shuts down and the use of Blackstart Resources is required to restore the shut down area to service, each affected Transmission Operator shall implement its restoration plan. If the restoration plan cannot be executed as expected because actual conditions do not match the studied conditions, the Transmission Operator shall utilize its restoration plan strategies to facilitate restoration</p> <p>R4.1 – see above.</p> <p>R17.1 – The SDT believes it is important for the Generator Operator to understand where they fit in the restoration process. The level of detail is not defined.</p> |
| ITC Transmission and METC | No | <p>ITC agrees with the changes with the exception of the addition of R1.9. The same requirement was added to EOP-006 creating potential confusion regarding who has the authority and responsibility to transfer authority back to the BA. It would seem this responsibility would be better aligned with the RC responsibilities in EOP-006. Whatever the criteria is, the RC and TOP should have the same criteria for decision making.</p> <p>ITC suggests either removing R1.9 from EOP-005 or adding the words "as outlined in the RC's restoration plan".</p> <p>In Requirement 5, suggest replacing the "implementation date" with "effective date" for clarity.</p> |
| <p>Response: R1.9 – The SDT agrees and has changed the wording to address the issue.</p> | | |
| <p>R1.9 Criteria Operating Processes for transferring operations and authority back to the Balancing Authority <u>in accordance with the Reliability Coordinator's criteria.</u></p> | | |
| <p>R5 – Suggested wording is considered equivalent so no change made.</p> | | |
| Northeast Utilities | No | <p>R1.7 & R1.8 - Suggest adding "Description of the" in front of processes. This removes the potential unreasonable quantity of, or possible ambiguity about, the documentation required to demonstrate compliance.</p> <p>R6 - The technical data required for such analysis is difficult to obtain in a de-regulated environment. It should be clear that Generator Operators are required to provide data to accomplish this requirement (and not only to the extent that it is mutually agreed upon in a blackstart resource agreement).</p> <p>R11 - Training requirements should be determined based on a systematic approach to training. i.e. - A specific time requirement should not be mandated in the standard. The requirement should only address the need to include in one's (systematic) evaluation of training requirements for field personnel, activities/tasks associated with system restoration. Also, the meaning of the phrase "unique tasks" makes</p> |

Consideration of Comments on 4th Draft of EOP-005-2 and EOP-006-2 — Project 2006-03

| Organization | Yes or No | Comment |
|--|-----------|--|
| | | <p>this requirement problematic, from a compliance standpoint.</p> <p>R16.2 - "with a Blackstart Resource" should be added after Generator Operator.</p> <p>R18 - Is this requirement intended to apply to GOPs with blackstart resources as with the other requirements, or to all GOPs?</p> |
| <p>Response: R1.7 and R1.8 – The SDT believes that the current wording is correct. No change made.</p> <p>R6 – There are other standards that dictate data requirements. No change made.</p> <p>R11 – In Order 693, the Commission stated its belief that inclusion of periodic system restoration drills and training and review of restoration plans in a system restoration Reliability Standard is the most effective way of achieving the desired goal of ensuring that all participants are trained in system restoration. Further, the Commission directed the ERO to develop a modification to EOP-005-1 through the Reliability Standards development process that identifies time frames for training. The SDT anticipates that unique tasks are those not performed in routine operation, such as resynchronizing subsections of the Transmission Operators system or with a neighboring system.</p> <p>R16.2 – This is a sub-requirement that applies to a GOP with Blackstart Resources so no change is necessary.</p> <p>R18 –The RC determines and requests which GOPs to include in the drills. Therefore, there is no need to include qualifying statements in the standard.</p> | | |
| American Transmission Company | No | <p>EOP-005 R4: For a planned system modification when does the 90-day clock start? Would it start at the beginning of the planned system modification or when the planned system modification is completed? What does the SDT mean by "implementing a planned system modification "The requirement should either be re-written or footnoted for clarity.</p> <p>EOP-005 R3, R4 and R6: Requirement 3 requires TOP's to review their plan annually. Requirement 4 requires updates to the plan within 90 of a change. Requirement 6 requires analysis of the plan on a five years interval. For requirement 3 what reliability risk is the SDT attempting to cover? It seems that Requirement 3 is covered by Requirement 4 and Requirement 6.ATC recommends that Requirement 3 be deleted.</p> |
| <p>Response: R4.1 – The “ninety calendar day period” refers to unplanned changes. There is no time requirement for planned changes except before the changes are in service.</p> <p>R3 – The requirement assures review of the plan at least annually. Annual review is meant to assure that the effect of minor changes has not been overlooked.</p> | | |

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| Organization | Yes or No | Comment |
|--|-----------|--|
| PJM | No | <p>In the Applicability section, the additional wording that states -identified in the Transmission Operator's restoration plan- is not needed. All TOs and DPs need to be involved in the restoration plan to the level defined by the requirements in the standard.</p> <p>TOP to TOP coordination of restoration plans seems to be missing. Is it now handled only through the RC?</p> <p>In R3, replace -the Transmission Operator's restoration plan- with -its restoration plan.</p> <p>R4 has two requirements that are very similar but dealt with very differently. If an unplanned change occurs, the TOP has 90 days to update the Restoration Plan but if the change is planned, the Restoration Plan change must be prior to the system change. Some leeway must be given. It's almost impossible to comply without two plans existing at the same time. One plan would have the changes for a new element and would have to have an implementation date seconds before that new line goes into service. Please allow some post system change period to implement the new Restoration Plan, maybe 24 hours to five days or so.</p> <p>R5 - Same comment as R4 above.</p> <p>R7 - Change -shall utilize its restoration plan strategies- to -shall utilize strategies similar to its restoration plan. I think this is the intent but the old wording seems to imply that the strategies exist in the plan. R7 should be moved up to R1 to signify its importance to this standard.</p> <p>R11 and R17 - While putting a time period on training seems to be straight forward we think it is the wrong way to go. NERC espouses to using a Systematic Approach to Training that utilizes methods to determine the proper amount of training needed for each employee. For example a new employee may require more than two hours of EOP training where a seasoned employee may only require 30 minutes. R9 in EOP-006 is a good example of how this should be handled. We also recommend that this training requirement be moved to the PER standards.</p> |
| <p>Response: Applicability – The SDT sees this as equivalent wording. No change made.</p> <p>TOP to TOP – The SDT believes the wording is sufficient to cover this condition. No change made.</p> <p>R3 – Wording change made.</p> <p>R3. Each Transmission Operator shall review the Transmission Operator's <u>its</u> restoration plan and submit it to its Reliability Coordinator annually on a mutually agreed predetermined schedule</p> | | |

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| Organization | Yes or No | Comment |
|--|-----------|---|
| | | <p>R4 and R5 – If system changes dramatically change the restoration plan, operators would need to be trained concerning the changes before they were in service. The SDT expects that there will be times when there will be two restoration plans available to operators, but only one is effective. The intent is to have orderly updates for planned changes and reasonable time for unplanned changes. The “ninety calendar day period” refers to unplanned changes. There is no time requirement for planned changes except before the changes are in service.</p> <p>R7 – Changes made to provide clarity.</p> <p>R7 Following a Disturbance in which one or more areas of the BES shuts down and the use of Blackstart Resources is required to restore the shut down area to service, each affected Transmission Operator shall implement its restoration plan. If the restoration plan cannot be executed as expected because actual conditions do not match the studied conditions, the Transmission Operator shall utilize its restoration plan-strategies to facilitate restoration</p> <p>R11 and R17 – In Order 693, the Commission stated its belief that inclusion of periodic system restoration drills and training and review of restoration plans in a system restoration Reliability Standard is the most effective way of achieving the desired goal of ensuring that all participants are trained in system restoration. Further, the Commission directed the ERO to develop a modification to EOP-005-1 through the Reliability Standards development process that identifies time frames for training.</p> |
| American Municipal Power — Ohio, Inc. (AMP-Ohio) | No | <p>R16.2. should specify Generation Operators with a Blackstart Resource.</p> <p>R18. should specify Generation Operator with a Blackstart Resource.</p> <p>R2. should contain a requirement for the TOP to ensure that owners of current Blackstart Resources or facilities in cranking paths are notified of their inclusion in the TOP's restoration plan.</p> |
| | | <p>Response: R16.2 – This is a sub-requirement that applies to a GOP with Blackstart Resources so no change is necessary.</p> <p>R18 –The RC determines and requests which GOPs to include in the drills. Therefore, there is no need to include qualifying statements in the standard.</p> <p>R2 – The wording was changed to remove ‘operational’ which should avoid any possible confusion.</p> <p>R2 Each Transmission Operator shall provide the operational-entities identified in its approved restoration plan with a description of any changes to their roles and specific tasks prior to the implementation date of the plan.</p> |
| CenterPoint Energy | No | <p>An overlap between reliability standards requirements should be avoided wherever possible. There are several requirements in this proposed standard that address training. An active NERC project in the Personnel Performance, Training, and Qualifications category, PER-005-1? System Personnel Training (Project 2006-01), is presently addressing training, including system restoration from blackstart. CenterPoint Energy recommends training requirements, such as, R10, R11, and R17, be deleted from this</p> |

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| Organization | Yes or No | Comment |
|---|-----------|---|
| | | standard. Such training requirements should be vetted with Project 2006-01. |
| <p>Response: R10, R11 and R17 – In Order 693, the Commission stated its belief that inclusion of periodic system restoration drills and training and review of restoration plans in a system restoration Reliability Standard is the most effective way of achieving the desired goal of ensuring that all participants are trained in system restoration. Further, the Commission directed the ERO to develop a modification to EOP-005-1 through the Reliability Standards development process that identifies time frames for training.</p> | | |
| Hydro-Quebec Transenergie | No | <p>Did the Drafting Team intended R18 to apply to Generator Operators with black start resources as with the other requirements, or to all Generators? If the Drafting Team intended applicability to Generator Operators with black start resources then we suggest rewording as follows:"R18. Each Generator Operator with a Blackstart Resource shall participate in the Reliability Coordinator's restoration drills, exercises, or simulations as requested by the Reliability Coordinator. [Violation Risk Factor = Medium] [Time Horizon = Operations Planning]"</p> <p>R16.2. Should be revised to read: Each Generator Operator "with a Blackstart Resource shall provide?"</p> <p>Requirement R1.2 remains unclear. Specifically, "a description of the manner" is confusing. The SDT response to Draft 3 comments and/or questions does not provide meaningful understanding of what is expected in this requirement. Suggest rewording or this requirement be moved to the Nuclear Plant Interface Coordination requirements NUC-001.</p> |
| <p>Response: R18 –The RC determines and requests which GOPs to include in the drills. Therefore, there is no need to include qualifying statements in the standard.</p> | | |
| <p>R16.2 – This is a sub-requirement that applies to a GOP with Blackstart Resources so no change is necessary.</p> | | |
| <p>R1.2 – A wording change was made in an attempt to provide additional clarity.</p> | | |
| <p>R1.2 A description of the manner in which <u>how</u> all Agreements or mutually agreed upon procedures or protocols for off-site power requirements of nuclear power plants, including priority of restoration, will be fulfilled during System restoration.</p> | | |
| Luminant Power | Yes | |
| Midwest ISO Stakeholder Standards Collaborators | Yes | |
| Allegheny Power | Yes | |

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| Organization | Yes or No | Comment |
|---|-----------|---------|
| Manitoba Hydro | Yes | |
| Oncor Electric Delivery | Yes | |
| Entergy | Yes | |
| Response: Thank you for your response. | | |

2. The SDT has made a number of clarifying changes to the measures in EOP-005-2 based on industry comments from the third posting. Do you agree with the changes that were made? If not, please provide specific suggestions for change.

Summary Consideration:

There were few negative comments and the SDT made only minor changes to provide clarity in addressing industry concerns in the following areas:

R5 Each Transmission Operator shall have a copy of its latest Reliability Coordinator approved restoration plan within its primary and backup control rooms ~~and~~so that it is available to all of its System Operators prior to its implementation date.

M1 Each Transmission Operator shall have a dated, documented System restoration plan developed in accordance with Requirement R1 that has been approved by its Reliability Coordinator as shown with the ~~written~~documented approval ~~letter~~ from its Reliability Coordinator.

M5 Each Transmission Operator shall have documentation that it has made the latest Reliability Coordinator approved copy of its restoration plan available in its primary and backup control rooms and ~~to each of~~ its System Operators prior to its implementation date in accordance with Requirement R5.

R5 VSL

| | | | | |
|----|-----|-----|-----|--|
| R5 | N/A | N/A | N/A | The Transmission Operator did not make the latest Reliability Coordinator approved restoration plan available in its primary and backup control rooms and available to all of its System Operators prior to its implementation date.. |
|----|-----|-----|-----|--|

R6 VSL

| | | | | |
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| R6 | The Transmission Operator performed the verification but did not complete it within the five year period. <u>The Transmission Operator performed the verification</u> | N/A <u>The Transmission Operator performed the verification within the required timeframe but did not comply with two of the sub-requirements</u> | N/A <u>The Transmission Operator performed the verification but did not complete it within the five calendar year period.</u> | The Transmission Operator did not perform the verification or it took more than six <u>calendar</u> years to complete the verification. |
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| | within the required timeframe but did not comply with one of the sub-requirements. | | | OR, The Transmission Operator performed the verification within the required timeframe but did not comply with any of the sub-requirements |
|--|--|--|--|---|

| Organization | Yes or No | Comment |
|--|-----------|---|
| NPCC | Yes | Suggest using a consistent format (i.e., text or number) when specifying calendar days and/or years. Reference VSL for R2, R3, R4, R6, R11, R15, R16 & R17. |
| Hydro-Quebec Transenergie | Yes | Suggest using a consistent format (i.e., text or number) when specifying calendar days and/or years. Reference VSL for R2, R3, R4, R6, R11, R15, R16 & R17. |
| Hydro One Networks Inc. | Yes | We suggest using a consistent format (i.e., text or number) when specifying calendar days and/or years. Reference VSL for R2, R3, R4, R6, R11, R15, R16 & R17. |
| <p>Response: The SDT has changed the numbering throughout the documents to reflect the NERC Style Guide which calls for text for numbers up to nine and numerals thereafter. .</p> | | |
| FirstEnergy Corp. | Yes | The measure for R5 does not specify the types of documents that an entity can use to establish the date the restoration plan was placed in its primary and backup control rooms and available to all of its System Operators. This information should be added. If the team is unable to identify types of documents for this information, the VSL for R5 should be revised to state that a copy of the plan was not found in the primary or backup control room. In addition, levels of severity could be built by the drafting team by making the High VSL for R5 that the plan was not found in the primary or backup control room with a Severe VSL for R5 that the plan was not found in the primary and backup control rooms. |
| <p>Response: Various logs are permitted – the SDT does not see a need to define.</p> <p>R5 and the VSL for R5 were changed to address this concern.</p> <p>R5 Each Transmission Operator shall have a copy of its latest Reliability Coordinator approved restoration plan within its primary and backup control rooms and so that it is available to all of its System Operators prior to its implementation date.</p> | | |

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| Organization | Yes or No | Comment | | |
|--|-----------|--|-----|---|
| R5 VSL | | | | |
| R5 | N/A | N/A | N/A | The Transmission Operator did not make the latest Reliability Coordinator approved restoration plan available in its primary and backup control rooms and available to all of its System Operators prior to its implementation date. |
| Santee Cooper | No | <p>The measures should reflect that a specific system restoration plan is not required or that it requires approval from the RC.</p> <p>M1 - There should be other options besides a "written approval letter" to verify the RC approved the plan. RC approval should be removed and replaced with RC review. Evidence could include a review signature sheet or emails.</p> | | |
| <p>Response: The SDT does not understand the comment.</p> | | | | |
| <p>M1 – Wording change made to address concern.</p> | | | | |
| <p>M1 Each Transmission Operator shall have a dated, documented System restoration plan developed in accordance with Requirement R1 that has been approved by its Reliability Coordinator as shown with the written <u>documented</u> approval letter from its Reliability Coordinator.</p> | | | | |
| MRO NERC Standards Review Subcommittee | No | <p>In M1, the last part of the measure states "as shown with the written approval letter from its Reliability Coordinator" the MRO would like to see this statement removed from the measure to be in line with R1. The requirement does not say that we need written approval, there are other forms of approval such as e-mail.</p> | | |
| <p>Response: M1 – Wording change made to address concern.</p> | | | | |
| <p>M1 Each Transmission Operator shall have a dated, documented System restoration plan developed in accordance with Requirement R1 that has been approved by its Reliability Coordinator as shown with the written <u>documented</u> approval letter from its Reliability Coordinator.</p> | | | | |
| Bonneville Power | Yes | <p>OK, except for addition of TO/DO needed for clarification.</p> | | |

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| Organization | Yes or No | Comment |
|---|-----------|--|
| Administration | | |
| Response: See the response to question 1. | | |
| SERC OC Standards Review Group | No | <p>As with the standards, the measures have also moved in a positive direction. We have suggested several changes to the requirements and request the SDT to make corresponding changes to the measures. If the SDT does not accept the suggestions that the RC should not have approval authority of the TOP restoration plan, then the following specific comment is applicable: M1 - Implies that a "written approval letter" is necessary to prove RC approval of the plan. This was not stated as the only way to meet the requirement, so we suggest that M1 should have other options available.</p> <p>EOP-006-2 M5 states that "Each Reliability Coordinator shall provide evidence, such as a review signature sheet or emails, that it has reviewed, approved or disapproved?" EOP-005-2 M1 should align with this.</p> |
| Duke Energy Corporation | No | <p>As with the standards, the measures have also moved in a positive direction. We have suggested several changes to the requirements and request the SDT to make corresponding changes to the measures. If the SDT does not accept the suggestions that the RC should not have approval authority of the TOP restoration plan, then the following specific comment is applicable: M1 - Implies that a "written approval letter" is necessary to prove RC approval of the plan. This was not stated as the only way to meet the requirement, so we suggest that M1 should have other options available.</p> <p>EOP-006-2 M5 states that "Each Reliability Coordinator shall provide evidence, such as a review signature sheet or emails, that it has reviewed, approved or disapproved?" EOP-005-2 M1 should align with this.</p> |
| Entergy Services | No | <p>As with the standards, the measures have also moved in a positive direction. One comment to consider: * M1 - Implies that a "written approval letter" is necessary to prove RC approval of the plan. This was not stated as the only way to meet the requirement, so we suggest that M1 should have other options available.</p> <p>EOP-006-2 M5 states that "Each Reliability Coordinator shall provide evidence, such as a review signature sheet or emails, that it has reviewed, approved or disapproved?" EOP-005-2 M1 should align with this measure.</p> |
| AECI | No | <p>M1. AECI is not sure the RC is the authorizing authority for approving a restoration plan. Will the RC take responsibility for the plan if it fails? Also what is the period of time the RC has to approve a plan after it has received the restoration plan.</p> |
| Response: M1 – Wording change made to address concern. | | |

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| Organization | Yes or No | Comment | | |
|--|--|---|---|---|
| <p>M1 Each Transmission Operator shall have a dated, documented System restoration plan developed in accordance with Requirement R1 that has been approved by its Reliability Coordinator as shown with the written <u>documented</u> approval letter from its Reliability Coordinator.</p> | | | | |
| IRC Standards Review Committee | No | <p>If the above suggested changes are accepted, M7 and M11 need to be revised accordingly.</p> <p>M6 asks for evidence that the Transmission Operator verify through analysis of actual events, steady state and dynamic simulations, or testing that its restoration plan accomplishes its intended function. R6 also contains a timing requirement for this verification but the M6 does not have any element to assess this timing. This is not a serious problem; but the VSLs that are developed based on the timing requirement and a simple Yes or No (performing the verification) without consideration of any of the subrequirements in R6 is a disconnect.</p> | | |
| Independent Electricity System Operator (IESO) — Ontario | No | <p>If the above suggested changes are accepted, M7 and M11 need to be revised accordingly.</p> <p>M6 asks for evidence that the Transmission Operator verify through analysis of actual events, steady state and dynamic simulations, or testing that its restoration plan accomplishes its intended function. R6 also contains a timing requirement for this verification but the M6 does not have any element to assess this timing. This is not a serious problem; but the VSLs that are developed based on the timing requirement and a simple Yes or No (performing the verification) without consideration of any of the subrequirements in R6 is a disconnect.</p> | | |
| <p>Response: No change is required to Measure M7 to match the changes in Requirement R7. No changes were made to Requirement R11.</p> | | | | |
| <p>M6 – No change is required here. The wording is sufficient. However, the VSL was changed to address the concern.</p> | | | | |
| <p>R6 VSL</p> | | | | |
| R6 | <p>The Transmission Operator performed the verification but did not complete it within the five year period. <u>The Transmission Operator performed the verification within the required timeframe but did not comply with one of the</u></p> | <p>N/A <u>The Transmission Operator performed the verification within the required timeframe but did not comply with two of the sub-requirements</u></p> | <p>N/A <u>The Transmission Operator performed the verification but did not complete it within the five calendar year period.</u></p> | <p>The Transmission Operator did not perform the verification or it took more than six <u>calendar</u> years to complete the verification.</p> <p><u>OR,</u></p> <p><u>The Transmission</u></p> |

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| Organization | Yes or No | Comment |
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| | sub-requirements. | Operator performed the verification within the required timeframe but did not comply with any of the sub-requirements |
| US Army Corps of Engineers | No | <p>M2 should require the TOP and GOP to have documentation showing that they mutually developed how the blackstart resource would be utilized and also documentation showing that they mutually agreed to any changes to their roles and specific tasks prior to the implementation date of the plan in accordance with Requirement R2</p> <p>M7, where is the requirement to develop a Restoration Plan Strategy? What is the definition of a Restoration Plan Strategy? Is this the overarching document developed by the RC with the TOPs that lays out the big picture blackstart restoration? Need to define "Strategy" as opposed to "Plan", I think the Strategy development should be done in concert with the RC. The Plan is how the TOP proposes to accomplish the goals of the Strategy.</p> <p>M9 should cover all aspects of Testing, both for the TOP and for the GOP. See my recommendations for R9.</p> <p>M13 Recommend deletion of all references to "or mutually agreed upon procedures or protocols in force?". The TOP/GOP blackstart agreement should be the only procedure used, this would help in the auditing process as well as force the TOP/GOP to keep the blackstart agreement up to date and on file with the RC. The "or mutually agreed upon procedures or protocols in force" doesn't appear to have any check/balance like the blackstart agreement has.</p> |
| <p>Response: M2 – Requirement R11 will cover any necessary coordination and data sharing.</p> | | |
| <p>M7 - R1.1 makes it clear that the intent is to have a process and philosophy. The strategies need to be documented so the standard coordinates with EOP-005-2, Requirement R1.1 and EOP-005-2, Requirement R7 where the TOP must follow its "strategies" in a Real-time restoration event when the System restoration plan can't be executed as planned. No change made.</p> | | |
| <p>M9 – see response to R9 comment above. No change made.</p> | | |
| <p>M13 – The intent is to permit something other than a formal Agreement for vertically integrated utilities. No change made.</p> | | |
| JEA | No | <p>R5 The measure should say something more like "Each Transmission Operator shall show that it has the latest Reliability Coordinator approved copy of its restoration plan available in each of its primary and backup control rooms upon request and provide documentation that it was provided to each of its control</p> |

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| Organization | Yes or No | Comment |
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| | | <p>room personnel System Operators prior to its implementation date in accordance with Requirement R5.</p> <p>R15 Include acknowledgements from the TOP that the information is received over the appropriate time period.</p> |
| <p>Response: R5, M5 - The SDT changed the wording to address this concern.</p> <p>R5 Each Transmission Operator shall have a copy of its latest Reliability Coordinator approved restoration plan within its primary and backup control rooms and <u>so that it is</u> available to all of its System Operators prior to its implementation date.</p> <p>M5 Each Transmission Operator shall have documentation that it has made the latest Reliability Coordinator approved copy of its restoration plan available in its primary and backup control rooms and to each of its System Operators prior to its implementation date in accordance with Requirement R5.</p> <p>R15 – The Agreement can specify such acknowledgement.</p> | | |
| US Bureau of Reclamation | No | M2? Seems like there should be more to it than just the Transmission Operator informing the other participants identified in the restoration plan of changes to their roles and tasks. There must be evidence of agreement/buy-in by the other participants. |
| <p>Response: The SDT sees the necessity of Agreements between the Transmission Operator and the Generator Operator of Blackstart Resources, but does not see a need to reach farther. Transmission Operators will arrange what they need for restoration.</p> | | |
| San Diego Gas and Electric Co. | No | Yes and No. Please see comments and edits submitted in question #1. |
| American Transmission Company | No | see our comments to question 1. |
| <p>Response: Please see response to question 1.</p> | | |
| ITC Transmission and METC | Yes | The measure for R5 should specify the types of documents that an entity can use to establish the date the restoration plan was placed in its primary and backup control rooms. |
| <p>Response: The SDT changed the wording to address this concern.</p> <p>M5 Each Transmission Operator shall have documentation that it has made the latest Reliability Coordinator approved copy of its restoration plan available in its primary and backup control rooms and to each of its System Operators prior to its implementation date in</p> | | |

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| Organization | Yes or No | Comment |
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| accordance with Requirement R5. | | |
| PJM | Yes | |
| Luminant Power | Yes | |
| Northeast Utilities | Yes | |
| Midwest ISO Stakeholder Standards Collaborators | Yes | |
| Oncor Electric Delivery | Yes | |
| AEP | Yes | |
| Allegheny Power | Yes | |
| Manitoba Hydro | Yes | |
| Ameren | Yes | |
| ISO New England Inc | Yes | |
| We Energies | Yes | |
| Xcel Energy | Yes | |
| Response: Thank you for your response. | | |

3. The SDT has made a number of clarifying changes to the compliance elements in EOP-005-2 based on industry comments from the third posting. Do you agree with the changes that were made? If not, please provide specific suggestions for change.

Summary Consideration:

There were few negative comments and the SDT made only minor changes to provide clarity in addressing industry concerns in the following areas:

M7 If there has been a Disturbance in which Blackstart Resources have been utilized in restoring the shut down area of the ~~System-BES~~ to service, each Transmission Operator involved shall have evidence such as voice recordings, e-mail, dated computer printouts, or operator logs, that it implemented its restoration plan or restoration plan strategies in accordance with Requirement R7.

M8 If there has been a Disturbance in which Blackstart Resources have been utilized in restoring the shut down area of the ~~System-BES~~ to service, each Transmission Operator involved in such an event shall have evidence, such as voice recordings, e-mail, dated computer printouts, or operator logs, that it resynchronized shut down areas in accordance with Requirement R8.

D5 The current, restoration plan approved by the Reliability Coordinator ~~restoration plan~~ and any restoration plans ~~in force~~ for the last three calendar years that was made available in its control rooms for Requirement R5, Measure M5.

D7 Implementation of its restoration plan or restoration plan strategies on any occasion for three calendar years if there has been a Disturbance in which Blackstart Resources have been utilized in restoring the shut down area of the ~~System-BES~~ to service for Requirement R7, Measure M7.

D8 Resynchronization of shut down areas on any occasion over three calendar years if there has been a Disturbance in which Blackstart Resources have been utilized in restoring the shut down area of the ~~System-BES~~ to service for Requirement R8, Measure M8.

R2 VSL

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| <p>R2</p> | <p>The Transmission Operator failed to provide one of the operational entities identified in its approved restoration plan with a description of any changes to their roles and specific tasks prior to the implementation date of the plan.</p> <p>OR_f</p> | <p>The Transmission Operator failed to provide two of the operational entities identified in its approved restoration plan with a description of any changes to their roles and specific tasks prior to the implementation date of the plan.</p> <p>OR_f</p> | <p>The Transmission Operator failed to provide three of the operational entities identified in its approved restoration plan with a description of any changes to their roles and specific tasks prior to the implementation date of the plan.</p> <p>OR_f</p> | <p>The Transmission Operator failed to provide four or more of the operational entities identified in its approved restoration plan with a description of any changes to their roles and specific tasks prior to the implementation date of the plan.</p> |
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| | † The Transmission Operator provided the information to all entities but was <u>up to thirty30 calendar</u> days late in doing so. | † The Transmission Operator provided the information to all entities but was <u>more than 30 and less than or equal to sixty 60 calendar</u> days or more late in doing so. | † The Transmission Operator provided the information to all entities but was <u>more than 60 and less than or equal to ninety 90 calendar</u> days or more late in doing so. | OR † The Transmission Operator provided the information to all entities but was <u>more than 90 calendar 120</u> days or more late in doing so. |
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R3 VSL

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| R3 | The Transmission Operator did not submit <u>submitted</u> the reviewed restoration plan or confirmation of no change within twenty-nine 30 calendar days of after the pre-determined schedule. | The Transmission Operator did not submit <u>submitted</u> the reviewed restoration plan or confirmation of no change within <u>more than thirty30 to fifty-nineand less than or equal to 60</u> calendar days of after the pre-determined schedule. | The Transmission Operator did not submit <u>submitted</u> the reviewed restoration plan or confirmation of no change within <u>more than sixty60 to eighty-nineand less than or equal to 90</u> calendar days of after the pre-determined schedule. | The Transmission Operator did not submit <u>submitted</u> the reviewed restoration plan or confirmation of no change within <u>more than ninety90</u> calendar days or longer after of the pre-determined schedule. |
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R4 VSL

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| R4 | The Transmission Operator failed to update and submit its restoration plan to the Reliability Coordinator within ninety90 calendar days of thean <u>unplanned</u> change. | The Transmission Operator failed to update and submit its restoration plan to the Reliability Coordinator within <u>more than 90 calendar days but less than</u> 120 calendar days of thean <u>unplanned</u> change. | The Transmission Operator has failed to update and submit its restoration plan to the Reliability Coordinator within <u>more than 120 calendar days but less than</u> 150 calendar days of the <u>unplanned</u> change. | The Transmission Operator has failed to update and submit its restoration plan to the Reliability Coordinator within 180 <u>more than 150</u> calendar days of thean <u>unplanned</u> change. Or R † The Transmission Operator failed to update and submit its restoration plan to the Reliability |
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| | | | | Coordinator prior to a planned BES modification. |
| R5 VSL | | | | |
| R5 | N/A | N/A | N/A | The Transmission Operator did not make the latest Reliability Coordinator approved restoration plan available in its primary and backup control rooms and available to all of its System Operators prior to its implementation date |
| R6 VSL | | | | |
| R6 | The Transmission Operator performed the verification but did not complete it within the five year period. The Transmission Operator performed the verification within the required timeframe but did not comply with one of the sub-requirements. | N/A The Transmission Operator performed the verification within the required timeframe but did not comply with two of the sub-requirements. | N/A The Transmission Operator performed the verification but did not complete it within the five calendar year period. | The Transmission Operator did not perform the verification or it took more than six calendar years to complete the verification. OR The Transmission Operator performed the verification within the required timeframe but did not comply with any of the sub-requirements |
| R7 VSL | | | | |
| R7 | N/A | N/A | N/A | The Transmission Operator did not |

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| | | | | implement its restoration plan following a Disturbance in which Blackstart Resources have been utilized in restoring the shut down area of the System BES . Or, if the restoration plan cannot be executed as expected because actual conditions do not match the studied conditions , the Transmission Operator did not utilize its restoration plan strategies to facilitate restoration. |
| R8 VSL | | | | |
| R8 | N/A | N/A | N/A | The Transmission Operator resynchronized without approval of the Reliability Coordinator or not in accordance with the established procedures of the Reliability Coordinator following a Disturbance in which Blackstart Resources have been utilized in restoring the shut down area of the System BES to service. |
| R11 VSL | | | | |
| R11 | The Transmission Operator, applicable Transmission Owner, or applicable Distribution Provider did not train less | The Transmission Operator, applicable Transmission Owner, or applicable Distribution Provider did not train more | The Transmission Operator, applicable Transmission Owner, or applicable Distribution Provider did not train more | The Transmission Operator, applicable Transmission Owner, or applicable Distribution Provider did not supply any |

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| | than or equal to 10% of the personnel required by Requirement R11 within a two calendar year period. N/A | than 10% and less than or equal to 25% of the personnel required by Requirement R11 within a two calendar year period. N/A | than 25% and less than or equal to 50% of the personnel required by Requirement R11 within a two calendar year period. N/A | training more than 50 % of the personnel required by Requirement R11 within a two calendar year period. |
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R15 VSL

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| R15 | The Generator Operator with a Blackstart Resource did not notify the Transmission Operator of a change in Blackstart Resource capability affecting the ability to meet the Transmission Operator's restoration plan within twenty-four 24 hours but did make the notification within 48 hours. | The Generator Operator with a Blackstart Resource did not notify the Transmission Operator of a change in Blackstart Resource capability affecting the ability to meet the Transmission Operator's restoration plan within seventy-two 24 hours, but did make the notification within 72 hours. | The Generator Operator with a Blackstart Resource did not notify the Transmission Operator of a change in Blackstart Resource capability affecting the ability to meet the Transmission Operator's restoration plan within ninety-six 24 hours, but did make the notification within 96 hours. | The Generator Operator with a Blackstart Resource did not notify the Transmission Operator of a change in Blackstart Resource capability affecting the ability to meet the Transmission Operator's restoration plan for more than ninety-six 96 hours. |
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R17 VSL

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| R17 | The Generator Operator with a Blackstart Resource did not train less than or equal to 10% of the personnel required by Requirement R17 within a two calendar year period. N/A | The Generator Operator with a Blackstart Resource did not train more than 10% and less than or equal to 25% of the personnel required by Requirement R17 within a two calendar year period. N/A | The Generator Operator with a Blackstart Resource did not train more than 25% and less than or equal to 50% of the personnel required by Requirement R17 within a two calendar year period. N/A | The Generator Operator with a Blackstart Resource did not supply any of the training more than 50% of the personnel required by Requirement R18 R17 within a two calendar year period to each operator responsible for startup of its Blackstart Resource generation units and energizing a bus. |
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| Organization | Yes or No | Comment |
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| Organization | Yes or No | Comment |
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| Standards Interface Subcommittee/Compliance Elements Development Resource Pool | | <p>VSL/CEA Job Aid Work Sheet Requirement Attributes Guidelines LinkSIS SME: John BlazekovichCEDRP SME: Virginia CookA. Standard ? R1 EOP-005Requirement (including sub-requirements) Each Transmission Operator shall have a restoration plan approved by its Reliability Coordinator. The restoration plan shall allow for restoring the Transmission Operator's System following a Disturbance in which one or more areas of the Bulk Electric System (BES) shuts down and the use of Blackstart Resources is required to restore the shut down area to service, to a state whereby the choice of the next Load to be restored is not driven by the need to control frequency or voltage regardless of whether the Blackstart Resource is located within the Transmission Operator's System. The restoration plan shall include: [Violation Risk Factor = High] [Time Horizon = Operations Planning] R1.1. A description of how the plan follows the high level strategies for restoring the Interconnection as outlined in the Transmission Operator's Reliability Coordinator restoration plan.R1.2. A description of the manner in which all Agreements or mutually agreed upon procedures or protocols for off-site power requirements of nuclear power plants, including priority of restoration, will be fulfilled during System restoration. R1.3. Procedures for restoring interconnections with other Transmission Operators under the direction of the Reliability Coordinator. R1.4. Identification of each Blackstart Resource and its characteristics including but not limited to the following: the name of the Blackstart Resource, location, megawatt and megavar capacity, and type of unit. R1.5. Identification of Cranking Paths and initial switching requirements between each Blackstart Resource and the unit(s) to be started. R1.6. Identification of acceptable operating voltage and frequency limits during restoration. R1.7. Operating Processes to reestablish connections within the Transmission Operator's System for areas that have been restored and are prepared for reconnection. R1.8. Operating Processes to restore Loads required to restore the System, such as station service for substations, units to be restarted or stabilized, the Load needed to stabilize generation and frequency, and provide voltage control. R1.9. Criteria for transferring operations and authority back to the Balancing Authority.Proposed MeasureEach Transmission Operator shall have a dated, documented System restoration plan developed in accordance with Requirement R1 that has been approved by its Reliability Coordinator as shown with the written approval letter from its Reliability Coordinator. Attributes of the requirement Binary Timing Omission xx Communication Quality Other Discussion:B. REQUIREMENT RX COMMENTS ON VSLSDT</p> <p>Proposed Lower VSL:The Transmission Operator failed to comply with one of the sub-requirements within the requirement. CEDRP Proposed Lower VSL:n/a</p> <p>SDT Proposed Moderate VSL:The Transmission Operator failed to comply with two of the sub-requirements within the requirement.CEDRP Proposed Moderate VSL:n/a</p> <p>SDT Proposed High VSL:The Transmission Operator has failed to comply with three of the sub-requirements within the requirement. CEDRP Proposed High VSL:n/a</p> |

| Organization | Yes or No | Comment |
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| | | <p>SDT Proposed Severe VSL:The Transmission Operator has failed to comply with four or more of the sub-requirements within the requirement.CEDRP Proposed Severe VSL:n/a</p> <p>C. REQUIREMENT RX COMMENTS ON FERC GUIDANCE FOR VSLS:</p> <p>1. Will the VSL assignment signal entities that less compliance than has been historically achieved is condoned?No</p> <p>2. Is the VSL assignment a binary requirement?No</p> <p>3. Is it truly a ?binary? requirement?n/a</p> <p>4. If yes, is the VSL assignment consistent with other binary requirement assignments?n/a</p> <p>5. Is the VSL language clear & measurable (ambiguity removed)? If no, does the requirement or measure need to be revised?Yes</p> <p>6. Does the VSL redefine or undermine the stated requirement?No</p> <p>7. Is the VSL based on a single violation of the requirement (not multiple violations)?Yes</p> <p>D. REQUIREMENT RX COMMENTS ON ADDITIONAL COMPLIANCE ELEMENTS: Compliance Enforcement Authority:n/aCompliance Monitoring Period and Reset Time Frame:n/aCompliance Monitoring and Enforcement Processes:n/aData Retention:okAdditional Compliance Information: n/aAdditional Comments: A. Standard ?</p> <p>R2 EOP-005Requirement (including sub-requirements) R2. Each Transmission Operator shall provide the operational entities identified in its approved restoration plan with a description of any changes to their roles and specific tasks prior to the implementation date of the plan. [Violation Risk Factor = Lower] [Time Horizon = Operations Planning]Proposed MeasureM2. Each Transmission Operator shall have evidence such as e-mails with receipts or registered mail receipts that it provided the operational entities identified in its approved restoration plan with a description of any changes to their roles and specific tasks prior to the implementation date of the plan in accordance with Requirement R2.Attributes of the requirement Binary Timing xx Omission X Communication Quality Other</p> <p>Discussion:The suggested set of VSL?s results in inconsistencies. If an entity did provide the information to all entities, but was 120 calendar days or more late in doing so, it would appear to be a High VSL, while if they didn't bother to do it at all, it would be lower. The choice should be made whether it is how long the</p> |

| Organization | Yes or No | Comment |
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| | | <p>entities went without the updated information OR how many entities did not have it is the overriding concern. Otherwise, accurate statement of the VSL's will be extremely complicated. The suggested VSL's below assumed the length of time was the overriding concern. The VSL's as written indicated that it was ?ok? for the entity to delay notification up to thirty days after plan implementation. If this is the case, it would be best to write the standard to so indicate, otherwise, will need to rewrite the Lower VSL (see alternate suggestion below). However, consider that having multiple requirements placed on an entity prior to implementing a plan will lengthen the time needed to update plans, which could have negative impacts on reliability also.</p> <p>B. REQUIREMENT RX</p> <p>COMMENTS ON VSLS</p> <p>SDT Proposed Lower VSL:The Transmission Operator failed to provide one of the operational entities identified in its approved restoration plan with a description of any changes to their roles and specific tasks prior to the implementation date of the plan. Or The Transmission Operator provided the information to all entities but was thirty calendar days late in doing so.</p> <p>CEDRP Proposed Lower VSL:The Transmission Operator provided the information to all entities, but it was not provided prior to the plan's implementation date, and it was provided within thirty calendar days after the implementation date of the plan.(Alternate suggestion: The Transmission Operator failed to provide the information to all entities prior to plan implementation.)</p> <p>SDT Proposed Moderate VSL:The Transmission Operator failed to provide two of the operational entities identified in its approved restoration plan with a description of any changes to their roles and specific tasks prior to the implementation date of the plan. Or The Transmission Operator provided the information to all entities but was sixty calendar days or more late in doing so.</p> <p>CEDRP Proposed Moderate VSL:The Transmission Operator failed to provide the information to all entities until thirty-one days after its implementation date but within sixty calendar days of the implementation date of the plan.</p> <p>SDT Proposed High VSL:The Transmission Operator failed to provide three of the operational entities identified in its approved restoration plan with a description of any changes to their roles and specific tasks prior to the implementation date of the plan. Or The Transmission Operator provided the information to all entities but was ninety calendar days or more late in doing so.</p> <p>CEDRP Proposed High VSL:The Transmission Operator failed to provide the information to all entities until sixty-one days after its implementation date but within ninety calendar days of the implementation date of</p> |

| Organization | Yes or No | Comment |
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| | | <p>the plan.</p> <p>SDT Proposed Severe VSL:The Transmission Operator failed to provide four or more of the operational entities identified in its approved restoration plan with a description of any changes to their roles and specific tasks prior to the implementation date of the plan. Or The Transmission Operator provided the information to all entities but was 120 calendar days or more late in doing so.</p> <p>CEDRP Proposed Severe VSL:The Transmission Operator failed to provide the information to all entities within ninety-one calendar days of the implementation date of the plan.</p> <p>C. REQUIREMENT RX COMMENTS ON FERC GUIDANCE FOR VSLS:</p> <p>8. Will the VSL assignment signal entities that less compliance than has been historically achieved is condoned?No9. Is the VSL assignment a binary requirement?Yes</p> <p>10. Is it truly a ?binary? requirement?No</p> <p>11. If yes, is the VSL assignment consistent with other binary requirement assignments?</p> <p>12. Is the VSL language clear & measurable (ambiguity removed)? If no, does the requirement or measure need to be revised?No (see discussion)</p> <p>13. Does the VSL redefine or undermine the stated requirement?No</p> <p>14. Is the VSL based on a single violation of the requirement (not multiple violations)?Yes</p> <p>D. REQUIREMENT RX COMMENTS ON ADDITIONAL COMPLIANCE ELEMENTS:Compliance Enforcement Authority:n/aCompliance Monitoring Period and Reset Time Frame:n/aCompliance Monitoring and Enforcement Processes:n/aData Retention:This requirement should have the same retention time period as R1.Additional Compliance Information: n/aAdditional Comments: A. Standard ?</p> <p>R3 EOP-005Requirement (including sub-requirements) R3. Each Transmission Operator shall review the Transmission Operator's restoration plan and submit it to its Reliability Coordinator annually on a mutually agreed predetermined schedule. [Violation Risk Factor = Medium] [Time Horizon = Operations Planning]R3.1. If there are no changes to the previously submitted restoration plan, the Transmission Operator shall confirm annually on a predetermined schedule to its Reliability Coordinator that it has reviewed its restoration plan and no changes were necessary.Proposed Measure Each Transmission Operator shall have documentation such as a dated review signature sheet, revision histories, e-mails with</p> |

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| Organization | Yes or No | Comment |
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| | | <p>receipts, or registered mail receipts, that it has annually reviewed and submitted the Transmission Operator's restoration plan to its Reliability Coordinator in accordance with Requirement R3. Attributes of the requirement Binary Timing Omission xx Communication X Quality Other</p> <p>Discussion: The attributes of this requirement include the need to ? Review the plan? Submit the plan to the RC? Confirmation of no changes In addition to the timing requirement, as such it would appear to be appropriate to increment the VSL based on failure to review, submit or confirm no changes in addition to the timing requirements. The VSL's below permit the entity to be up to 29 days late on submissions to the RC.B. REQUIREMENT RX</p> <p>COMMENTS ON VSLSSDT</p> <p>Proposed Lower VSL:The Transmission Operator did not submit the reviewed restoration plan or confirmation of no change within twenty-nine calendar days of the pre-determined schedule.</p> <p>CEDRP Proposed Lower VSL:The Transmission Operator performed a review of the plan within the agreed upon time, determined no changes were necessary, but failed to provide confirmation to the Reliability Coordinator after the predetermined schedule, but within 30 days of the pre-determined schedule.</p> <p>SDT Proposed Moderate VSL:The Transmission Operator did not submit the reviewed restoration plan or confirmation of no change within thirty to fifty-nine calendar days of the pre-determined schedule.</p> <p>CEDRP Proposed Moderate VSL:The Transmission Operator performed a review of its plan, made changes to its plan, provided the updated plan to its Reliability Coordinator after the predetermined schedule, but within 30 days of the predetermined schedule. OR. The Transmission Operator performed a review of the plan within the agreed upon time, determined no changes were necessary, but provided confirmation to the Reliability Coordinator 31 days or more after the pre-determined schedule.</p> <p>SDT Proposed High VSL:The Transmission Operator did not submit the reviewed restoration plan or confirmation of no change within sixty to eighty-nine calendar days of the pre-determined schedule. CEDRP Proposed High VSL:The Transmission Operator performed a review of its plan, made changes to its plan, but provided the updated plan to its Reliability Coordinator 31 days or more after the predetermined schedule.</p> <p>SDT Proposed Severe VSL:The Transmission Operator did not submit the reviewed restoration plan or confirmation of no change within ninety calendar days of the pre-determined schedule.</p> |

| Organization | Yes or No | Comment |
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| | | <p>CEDRP Proposed Severe VSL:The Transmission Operator did not perform a review of it's plan.</p> <p>C. REQUIREMENT RX COMMENTS ON FERC GUIDANCE FOR VSLS:</p> <p>15. Will the VSL assignment signal entities that less compliance than has been historically achieved is condoned? Possibly (see discussion)</p> <p>16. Is the VSL assignment a binary requirement?Yes</p> <p>17. Is it truly a ?binary? requirement?No</p> <p>18. If yes, is the VSL assignment consistent with other binary requirement assignments?</p> <p>19. Is the VSL language clear & measurable (ambiguity removed)? If no, does the requirement or measure need to be revised?Yes</p> <p>20. Does the VSL redefine or undermine the stated requirement?No</p> <p>21. Is the VSL based on a single violation of the requirement (not multiple violations)?Yes</p> <p>D. REQUIREMENT RX COMMENTS ON ADDITIONAL COMPLIANCE ELEMENTS:Compliance Enforcement Authority:n/aCompliance Monitoring Period and Reset Time Frame:n/aCompliance Monitoring and Enforcement Processes:n/aData Retention:Data retention for this requirement should match R1.Additional Compliance Information: Additional Comments: A. Standard ?</p> <p>R4 EOP-005Requirement (including sub-requirements) R4. Each Transmission Operator shall update its restoration plan within ninety calendar days after identifying any unplanned permanent System modifications, or prior to implementing a planned System modification, that would change the implementation of its restoration plan. [Violation Risk Factor = Medium] [Time Horizon = Operations Planning]R4.1. Each Transmission Operator shall submit its revised restoration plan to its Reliability Coordinator for approval within the same ninety calendar day period. Proposed Measure Each Transmission Operator shall have documentation such as dated review signature sheets, revision histories, e-mails with receipts, or registered mail receipts, that it has updated its restoration plan and submitted it to its Reliability Coordinator in accordance with Requirement R4. Attributes of the requirement Binary Timing xx Omission Communication Quality Other</p> <p>Discussion: The requirement is unclear whether the restoration needs to be updated only for permanent planned changes. The wording appears to require updates for temporary planned changes as well. Suggest</p> |

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| Organization | Yes or No | Comment |
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| | | <p>clarification be considered. The requirement is unclear re. submission to the RC for planned changes, it appears that 90 days after implementation is allowed. Is that the intent? If not, see alternate suggestion for Lower VSL and rewrite requirement to clarify.B. REQUIREMENT RX</p> <p>COMMENTS ON VSLSSDT</p> <p>Proposed Lower VSL:The Transmission Operator failed to update and submit its restoration plan to the Reliability Coordinator within ninety calendar days of the change.</p> <p>CEDRP Proposed Lower VSL:The Transmission Operator failed to update and submit its restoration plan to the Reliability Coordinator within ninety calendar days of an unplanned change OR The Transmission Operator failed to update its restoration plan prior to implementation of a planned change or failed to submit it to the RC within ninety calendar days of the implementation of the plan.(Alternate proposal: The Transmission Operator failed to update and submit its restoration plan to the Reliability Coordinator within ninety calendar days of an unplanned change or prior to implementation for a planned change.)</p> <p>SDT Proposed Moderate VSL:The Transmission Operator failed to update and submit its restoration plan to the Reliability Coordinator within 120 calendar days of the change.</p> <p>CEDRP Proposed Moderate VSL:n/a</p> <p>SDT Proposed High VSL:The Transmission Operator has failed to update and submit its restoration plan to the Reliability Coordinator within 150 calendar days of the change.</p> <p>CEDRP Proposed High VSL:n/a</p> <p>SDT Proposed Severe VSL:The Transmission Operator has failed to update and submit its restoration plan to the Reliability Coordinator within 180 calendar days of the change.</p> <p>CEDRP Proposed Severe VSL:n/a</p> <p>C. REQUIREMENT RX COMMENTS ON FERC GUIDANCE FOR VSLS:</p> <p>22. Will the VSL assignment signal entities that less compliance than has been historically achieved is condoned?no</p> <p>23. Is the VSL assignment a binary requirement?yes</p> |

| Organization | Yes or No | Comment |
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| | | <p>24. Is it truly a ?binary? requirement?no</p> <p>25. If yes, is the VSL assignment consistent with other binary requirement assignments?</p> <p>26. Is the VSL language clear & measurable (ambiguity removed)? If no, does the requirement or measure need to be revised?no</p> <p>27. Does the VSL redefine or undermine the stated requirement? Lower VSL may undermine intent to revise plan prior to planned changes.</p> <p>28. Is the VSL based on a single violation of the requirement (not multiple violations)?yes</p> <p>D. REQUIREMENT RX COMMENTS ON ADDITIONAL COMPLIANCE ELEMENTS:Compliance Enforcement Authority:n/aCompliance Monitoring Period and Reset Time Frame:n/aCompliance Monitoring and Enforcement Processes:n/aData Retention:Data retention requirement should match R1.Additional Compliance Information: n/aAdditional Comments:n/a A. Standard ?</p> <p>R5 EOP-005Requirement (including sub-requirements) R5. Each Transmission Operator shall have a copy of its latest Reliability Coordinator approved restoration plan within its primary and backup control rooms and available to all of its System Operators prior to its implementation date. [Violation Risk Factor = Lower] [Time Horizon = Operations Planning]Proposed Measure Each Transmission Operator shall have documentation that it has made the latest Reliability Coordinator approved copy of its restoration plan available in its primary and backup control rooms and to each of its System Operators prior to its implementation date in accordance with Requirement R5. Attributes of the requirement Binary xxxxxx Timing Omission X Communication Quality Other</p> <p>Discussion: Note the requirement only specifies that the plans be provided prior to its implementation date. Is the intent really to have it specifically provided to the System Operators prior to implementation and a copy available in the control rooms at all times? If so, suggest the requirement be clarified, VSL's modified and the measure include meeting agendas or training records as above and that the control room copy be produced for inspection to compliance or other authorized personnel at any time.B. REQUIREMENT RX</p> <p>COMMENTS ON VSLS</p> <p>SDT Proposed Lower VSL:N/A</p> <p>CEDRP Proposed Lower VSL:The Transmission Operator did not make the Reliability Coordinator approved restoration plan available in its primary and backup control rooms and available to all of its</p> |

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| Organization | Yes or No | Comment |
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| | | <p>System Operators prior to its implementation date BUT the plan included only administrative changes [title changes, signatory changes, document numbering changes, reorganization of document with some editing, elimination of redundant sections] from the available plan OR the plan had significant changes and was not provided by the implementation date, but was provided within 15 calendar days of the implementation date OR the plan included only minor changes from the available plan but was not provided within 60 days of the implementation date.</p> <p>SDT Proposed Moderate VSL:N/A</p> <p>CEDRP Proposed Moderate VSL:The Transmission Operator did not make the Reliability Coordinator approved restoration plan available in its primary and backup control rooms and available to all of its System Operators prior to its implementation date BUT the plan included only minor changes from the available plan [e.g. inclusion of information that was available in another document, changes in strategy or scope that did not affect the restoration steps, addition of detail to clarify or expand upon what is in the available plan, for example, addition of locations of sync check breakers or synchroscopes while those listed in the available document are still valid] that would not likely effect restoration efforts OR the plan had significant changes and was provided 16 to 30 days after implementation.</p> <p>SDT Proposed High VSL:The current plan has significant changes from the available plan and was provided 31 to 45 days after implementation.</p> <p>CEDRP Proposed High VSL:n/a</p> <p>SDT Proposed Severe VSL:The Transmission Operator did not make the latest Reliability Coordinator approved restoration plan available in its primary and backup control rooms and available to all of its System Operators prior to its implementation date.</p> <p>CEDRP Proposed Severe VSL:The Transmission Operator did not make the Reliability Coordinator approved restoration plan available in its primary and backup control rooms and available to all of its System Operators prior to its implementation date AND the plan included significant changes from the available plan OR no plan was available.</p> <p>C. REQUIREMENT RX COMMENTS ON FERC GUIDANCE FOR VSLS:</p> <p>29. Will the VSL assignment signal entities that less compliance than has been historically achieved is condoned? Potentially. The wording ?latest Reliability Coordinator approved? could be construed to mean only the current version and not any prior plans that may not have been made available. Then an entity only</p> |

| Organization | Yes or No | Comment |
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| | | <p>need update his plan and provide it and TA DA it's compliant.</p> <p>30. Is the VSL assignment a binary requirement?no</p> <p>31. Is it truly a ?binary? requirement?no</p> <p>32. If yes, is the VSL assignment consistent with other binary requirement assignments?</p> <p>33. Is the VSL language clear & measurable (ambiguity removed)? If no, does the requirement or measure need to be revised?No (see comment for #29)</p> <p>34. Does the VSL redefine or undermine the stated requirement? Possibly (see comment for #29)</p> <p>35. Is the VSL based on a single violation of the requirement (not multiple violations)?yes</p> <p>D. REQUIREMENT RX COMMENTS ON ADDITIONAL COMPLIANCE ELEMENTS:Compliance Enforcement Authority:n/aCompliance Monitoring Period and Reset Time Frame:n/aCompliance Monitoring and Enforcement Processes:n/aData Retention:Data retention should match R1.Additional Compliance Information: n/aAdditional Comments:n/a A. Standard ?</p> <p>R6 XXX-XXXRequirement (including sub-requirements) R6. Each Transmission Operator shall verify through analysis of actual events, steady state and dynamic simulations, or testing that its restoration plan accomplishes its intended function. This shall be completed every five years at a minimum. Such analysis, simulations or testing shall verify: [Violation Risk Factor = Medium] [Time Horizon = Long-term Planning]</p> <p>R6.1 The capability of Blackstart Resources to meet the Real and Reactive Power requirements of the Cranking Paths and to supply initial Loads. R6.2. The location and magnitude of Loads required to control voltages and frequency within acceptable operating limits. R6.3. The capability of generating resources required to control voltages and frequency within acceptable operating limits. Proposed MeasureM6. Each Transmission Operator shall have documentation such as power flow outputs, that it has verified that its latest restoration plan will accomplish its intended function in accordance with Requirement R6. Attributes of the requirement Binary Timing Omission X Communication Quality xx Other</p> <p>Discussion: The language of the requirement may be construed to imply that every element of the plan be verified. Is that the intent? For example, if the plan included restoration from other substations or tie lines, but a blackstart unit if those are not available, is verifying the blackstart option sufficient, or must the entity verify all options? Should graduate the time frames for overdue verifications, the suggestions below can be easily altered to the desired time-frames. What if the entity only verifies some of the items in the sub-</p> |

| Organization | Yes or No | Comment |
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| | | <p>requirements, but not all?B. REQUIREMENT RX</p> <p>COMMENTS ON VSLS</p> <p>SDT Proposed Lower VSL:The Transmission Operator performed the verification but did not complete it within the five year period.</p> <p>CEDRP Proposed Lower VSL:n/a</p> <p>SDT Proposed Moderate VSL:N/A</p> <p>CEDRP Proposed Moderate VSL:The Transmission Operator performed the verification but was more than 90 days late</p> <p>SDT Proposed High VSL:N/A</p> <p>CEDRP Proposed High VSL:The Transmission Operator performed the verification but was more than 180 days late or did not verify one of the sub-requirements.</p> <p>SDT Proposed Severe VSL:The Transmission Operator did not perform the verification, did not verify two of the sub-requirements or it took more than six years to complete the verification.</p> <p>CEDRP Proposed Severe VSL:n/a</p> <p>C. REQUIREMENT RX COMMENTS ON FERC GUIDANCE FOR VSLS:</p> <p>36. Will the VSL assignment signal entities that less compliance than has been historically achieved is condoned?No</p> <p>37. Is the VSL assignment a binary requirement?No</p> <p>38. Is it truly a ?binary? requirement?No</p> <p>39. If yes, is the VSL assignment consistent with other binary requirement assignments?</p> <p>40. Is the VSL language clear & measurable (ambiguity removed)? If no, does the requirement or measure</p> |

| Organization | Yes or No | Comment |
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| | | <p>need to be revised? Need to address partial completion of the sub-requirements.</p> <p>41. Does the VSL redefine or undermine the stated requirement?no</p> <p>42. Is the VSL based on a single violation of the requirement (not multiple violations)?yes</p> <p>D. REQUIREMENT RX COMMENTS ON ADDITIONAL COMPLIANCE ELEMENTS:Compliance Enforcement Authority:n/aCompliance Monitoring Period and Reset Time Frame:n/aCompliance Monitoring and Enforcement Processes:n/aData Retention:As stated is unclear, and could result in varying requirements for data retention, up to 10 years or more, but also a very short period if plans are change frequently and in a minor way that would not change the verification results (allowing non-compliance to disappear). It might be simpler to require that the entity verification results be kept 3 years after a subsequent verification is completed. That way you pick each one up in an audit, but the entity is not usually retaining more than the current one, and any others that were superceded since the previous audit. Additional Compliance Information: n/aAdditional Comments:n/a A. Standard ?</p> <p>R7 EOP-005Requirement (including sub-requirements) R7. Following a Disturbance in which one or more areas of the BES shuts down and the use of Blackstart Resources is required to restore the shut down area to service, each affected Transmission Operator shall implement its restoration plan. If the restoration plan cannot be executed as expected because actual conditions do not match the studied conditions, the Transmission Operator shall utilize its restoration plan strategies to facilitate restoration. [Violation Risk Factor = High] [Time Horizon = Real-time Operations] Proposed MeasureM7. If there has been a Disturbance in which Blackstart Resources have been utilized in restoring the shut down area of the System to service, each Transmission Operator involved shall have evidence such as voice recordings, e-mail, dated computer printouts, or operator logs, that it implemented its restoration plan or restoration plan strategies in accordance with Requirement R7. Attributes of the requirement Binary x x Timing Omission Communication Quality Other</p> <p>Discussion: As the requirement is currently written ? it likely is a ?binary? requirement, trying to develop valid VSLs for anything other than binary (yes or no) would not be practical ? the CEDRP would suggest that the SDT re-evaluate the need to have a ?strategies? requirement included in the standard as a requirement (appears to be more of a reference document subject).</p> <p>B. REQUIREMENT RX COMMENTS ON VSLs</p> <p>SDT Proposed Lower VSL:N/A</p> |

| Organization | Yes or No | Comment |
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| | | <p>CEDRP Proposed Lower VSL:n/a</p> <p>SDT Proposed Moderate VSL:N/A</p> <p>CEDRP Proposed Moderate VSL:n/a</p> <p>SDT Proposed High VSL:N/A</p> <p>CEDRP Proposed High VSL:n/a</p> <p>SDT Proposed Severe VSL:The Transmission Operator did not implement its restoration plan following a Disturbance in which Blackstart Resources have been utilized in restoring the shut down area of the System. Or, if the restoration plan cannot be executed as expected because actual conditions do not match the studied conditions, the Transmission Operator did not utilize its restoration plan strategies to facilitate restoration.</p> <p>CEDRP Proposed Severe VSL:The Transmission Operator did not implement a material element of its restoration plan following a Disturbance in which Blackstart Resources have been utilized in restoring the shut down area of the System. Or, if the restoration plan could not be executed as expected because actual conditions did not match the studied conditions, the Transmission Operator did not utilize its restoration plan strategies to facilitate restoration.</p> <p>C. REQUIREMENT RX COMMENTS ON FERC GUIDANCE FOR VSLS:</p> <p>43. Will the VSL assignment signal entities that less compliance than has been historically achieved is condoned?no</p> <p>44. Is the VSL assignment a binary requirement?yes</p> <p>45. Is it truly a ?binary? requirement?Yes</p> <p>46. If yes, is the VSL assignment consistent with other binary requirement assignments?yes</p> <p>47. Is the VSL language clear & measurable (ambiguity removed)? If no, does the requirement or measure need to be revised?yes</p> <p>48. Does the VSL redefine or undermine the stated requirement?yes</p> |

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| Organization | Yes or No | Comment |
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| | | <p>49. Is the VSL based on a single violation of the requirement (not multiple violations)?yes</p> <p>D. REQUIREMENT RX COMMENTS ON ADDITIONAL COMPLIANCE ELEMENTS:Compliance Enforcement Authority:n/aCompliance Monitoring Period and Reset Time Frame:n/aCompliance Monitoring and Enforcement Processes:n/aData Retention:n/aAdditional Compliance Information: n/aAdditional Comments:n/a A. Standard ?</p> <p>R8 EOP-005Requirement (including sub-requirements) R8. Following a Disturbance in which one or more areas of the BES shuts down and the use of Blackstart Resources is required to restore the shut down area to service, the Transmission Operator shall resynchronize area(s) with neighboring Transmission Operator area(s) only with the authorization of the Reliability Coordinator or in accordance with the established procedures of the Reliability Coordinator. [Violation Risk Factor = High] [Time Horizon = Real-time Operations] Proposed MeasureM8. If there has been a Disturbance in which Blackstart Resources have been utilized in restoring the shut down area of the System to service, each Transmission Operator involved in such an event shall have evidence, such as voice recordings, e-mail, dated computer printouts, or operator logs, that it resynchronized shut down areas in accordance with Requirement R8. Attributes of the requirement Binary xx Timing Omission Communication Quality Other Discussion:B. REQUIREMENT RX</p> <p>COMMENTS ON VSLS</p> <p>SDT Proposed Lower VSL:N/A</p> <p>CEDRP Proposed Lower VSL:n/a</p> <p>SDT Proposed Moderate VSL:N/A</p> <p>CEDRP Proposed Moderate VSL:n/a</p> <p>SDT Proposed High VSL:N/A</p> <p>CEDRP Proposed High VSL:n/a</p> <p>SDT Proposed Severe VSL:The Transmission Operator resynchronized without approval of the Reliability Coordinator or not in accordance with the established proc</p> |
| <p>Response: EOP-005-2, Requirement R2 VSL: Changes were made to address the concerns.</p> | | |

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| Organization | Yes or No | Comment | | |
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| R2 VSL | | | | |
| R2 | The Transmission Operator failed to provide one of the operational entities identified in its approved restoration plan with a description of any changes to their roles and specific tasks prior to the implementation date of the plan. Or, the Transmission Operator provided the information to all entities but was <u>up to thirty</u> 30 <u>calendar</u> days late in doing so- | The Transmission Operator failed to provide two of the operational entities identified in its approved restoration plan with a description of any changes to their roles and specific tasks prior to the implementation date of the plan. Or, the Transmission Operator provided the information to all entities but was <u>more than 30 and less than or equal to sixty</u> 60 <u>calendar</u> days or more late in doing so- | The Transmission Operator failed to provide three of the operational entities identified in its approved restoration plan with a description of any changes to their roles and specific tasks prior to the implementation date of the plan. Or, the Transmission Operator provided the information to all entities but was <u>more than 60 and less than or equal to ninety</u> 90 <u>calendar</u> days or more late in doing so. | The Transmission Operator failed to provide four or more of the operational entities identified in its approved restoration plan with a description of any changes to their roles and specific tasks prior to the implementation date of the plan. Or, the Transmission Operator provided the information to all entities but was <u>more than 90 calendar</u> 120 days or more late in doing so. |
| EOP-005-2, Requirement R3 VSL: Changes were made to address the concerns. | | | | |
| R3 VSL | | | | |
| R3 | The Transmission Operator did not submit <u>submitted</u> the reviewed restoration plan or confirmation of no change within twenty-nine <u>30</u> calendar days of after the pre-determined schedule. | The Transmission Operator did not submit <u>submitted</u> the reviewed restoration plan or confirmation of no change within more than thirty <u>30 to fifty-nine</u> and less than or equal to 60 calendar days of after the pre-determined schedule. | The Transmission Operator did not submit <u>submitted</u> the reviewed restoration plan or confirmation of no change within more than sixty <u>60 to eighty-nine</u> and less than or equal to 90 calendar days of after the pre-determined schedule. | The Transmission Operator did not submit <u>submitted</u> the reviewed restoration plan or confirmation of no change within more than ninety <u>90</u> calendar days or longer after of the pre-determined schedule. |

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| Organization | Yes or No | Comment | | |
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| EOP-005-2, R4: The requirement is clear: Any planned change that would change the implementation of the restoration plan includes “permanent or temporary”. No change made. | | | | |
| EOP-005-2, Requirement R4 VSL: Changes made to address concern. | | | | |
| R4 VSL | | | | |
| R4 | The Transmission Operator failed to update and submit its restoration plan to the Reliability Coordinator within ninety <u>90</u> calendar days of the <u>an unplanned</u> change. | The Transmission Operator failed to update and submit its restoration plan to the Reliability Coordinator within <u>more than 90 calendar days but less than</u> 120 calendar days of the <u>an unplanned</u> change. | The Transmission Operator has failed to update and submit its restoration plan to the Reliability Coordinator within <u>more than 120 calendar days but less than</u> 150 calendar days of the <u>unplanned</u> change. | The Transmission Operator has failed to update and submit its restoration plan to the Reliability Coordinator within 180 <u>more than 150</u> calendar days of the <u>an unplanned</u> change. <u>Or, the Transmission Operator failed to update and submit its restoration plan to the Reliability Coordinator prior to a planned BES modification.</u> |
| EOP-005-2, R5: The SDT has explained that the Implementation Plan provides a time for all TOPs to have an RC approved restoration plan. Once they have an approved plan, they will always have an approved plan, but it may not be the latest one proposed by the TOP. Nothing prevents a TOP from also providing its latest proposed restoration plan to its System Operators, and the SDT expects that a TOP would provide advance notice and updated training if needed. The SDT expects that the implementation date would be linked to the date of the System change. The SDT has also said that it expects there will be times when there may be two restoration plans in the control rooms, but only one will be effective. | | | | |
| EOP-005-2, Requirement R5 VSL: Changes made to address concern. | | | | |
| R5 VSL | | | | |
| R5 | N/A | N/A | N/A | The Transmission Operator did not make the latest Reliability |

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| Organization | Yes or No | Comment | | |
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| | | | | Coordinator approved restoration plan available in its primary and backup control rooms and available to all of its System Operators prior to its implementation date. |
| <p>EOP-005-2, R6: The requirement is clear. The verification is that its restoration plan accomplishes its intended function. Restoration following essentially the same cranking path but starting with a secure and robust source rather than a Blackstart Resource would be verified by simulations with the Blackstart Resource.</p> <p>EOP-005-2, D5: The SDT does not see the concern. Almost every data retention requirement is for current year plus previous 3 years, in keeping with the TOP and RC audit cycles of three years. GOPs are audited every six years. Verification is required every five years.</p> <p>EOP-005-2, Requirement R6 VSL: Changes made to address concern.</p> <p>R6 VSL</p> | | | | |
| R6 | <p>The Transmission Operator performed the verification but did not complete it within the five year period. <u>The Transmission Operator performed the verification within the required timeframe but did not comply with one of the sub-requirements.</u></p> | <p>N/A <u>The Transmission Operator performed the verification within the required timeframe but did not comply with two of the sub-requirements.</u></p> | <p>N/A <u>The Transmission Operator performed the verification but did not complete it within the five calendar year period.</u></p> | <p>The Transmission Operator did not perform the verification or it took more than six <u>calendar</u> years to complete the verification.</p> <p><u>OR</u></p> <p><u>The Transmission Operator performed the verification within the required timeframe but did not comply with any of the</u></p> |

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| Organization | Yes or No | Comment | | |
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| | | | | sub-requirements. |
| EOP-005-2, Requirement R7 VSL: The SDT does not agree with the addition of 'material element' as it is a vague and undefined term. No change made. | | | | |
| Santee Cooper | No | <p>The Violation Severity Levels were changed for R11 and R17 to have only a Severe VSL. If one person that is identified to receive training misses that training in the two year window, is that a Severe VSL? Shouldn't the levels of severity be based on the number of personnel trained and/or amount of training received.</p> <p>In addition, we have suggested several changes to the requirements and request the SDT to make corresponding changes to the compliance elements.</p> | | |
| Response: EOP-005-2, Requirements R11 and R17 VSL: Changes made to address concern. | | | | |
| R11 VSL | | | | |
| R11 | The Transmission Operator, applicable Transmission Owner, or applicable Distribution Provider did not train tles than or equal to 10% of the personnel required by Requirement R11 within a two calendar year period. N/A | The Transmission Operator, applicable Transmission Owner, or applicable Distribution Provider did not train more than 10% and less than or equal to 25% of the personnel required by Requirement R11 within a two calendar year period. N/A | The Transmission Operator, applicable Transmission Owner, or applicable Distribution Provider did not train more than 25% and less than or equal to 50% of the personnel required by Requirement R11 within a two calendar year period. N/A | The Transmission Operator, applicable Transmission Owner, or applicable Distribution Provider did not supply any supply any training more than 50 % of to the personnel required by Requirement R11 within a two calendar calendar year period. |
| R17 VSL | | | | |
| R17 | The Generator Operator with a Blackstart Resource did not train less than or equal to 10% of the | The Generator Operator with a Blackstart Resource did not train more than 10% and less than or | The Generator Operator with a Blackstart Resource did not train more than 25% and less than or qual | The Generator Operator with a Blackstart Resource did not supply any of the supply any of the training more than 50% of |

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| Organization | Yes or No | Comment | | |
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| | <p>personnel required by Requirement R17 within a two calendar year period.N/A</p> | <p>equal to 25% of the personnel required by Requirement R17 within a two calendar year period.N/A</p> | <p>to 50% of the personnel required by Requirement R17 within a two calendar year period.N/A</p> | <p>the personnel required by Requirement R18 R17 within a two calendar year period.to each operator responsible for startup of its Blackstart Resource generation units and energizing a bus.</p> |
| MRO NERC Standards Review Subcommittee | No | <p>Retention periods, measures, & violation severity levels for R7 and R8 mention the word "System" but the requirements mention the Bulk Electric System (BES). This is not consistent. The measures, retention periods, & violation severity levels should be consistent with the requirements and reference the BES.</p> <p>The MRO believes that the VSLs for R3 are not consistent with the requirement, please clarify.</p> <p>For R17, the severe VSL does not specify which bus is to be energized. The MRO believes that this VSL compliance issue should be a percentage of total operators trained or a total amount of training time, but not ALL or NONE.</p> | | |
| <p>Response: M7 and M8 as well as the data retention statements have been revised as suggested.</p> | | | | |
| <p>M7 If there has been a Disturbance in which Blackstart Resources have been utilized in restoring the shut down area of the System-BES to service, each Transmission Operator involved shall have evidence such as voice recordings, e-mail, dated computer printouts, or operator logs, that it implemented its restoration plan or restoration plan strategies in accordance with Requirement R7.</p> <p>M8 If there has been a Disturbance in which Blackstart Resources have been utilized in restoring the shut down area of the System-BES to service, each Transmission Operator involved in such an event shall have evidence, such as voice recordings, e-mail, dated computer printouts, or operator logs, that it resynchronized shut down areas in accordance with Requirement R8.</p> <p>D7 Implementation of its restoration plan or restoration plan strategies on any occasion for three calendar years if there has been a Disturbance in which Blackstart Resources have been utilized in restoring the shut down area of the System-BES to service for Requirement R7, Measure M7.</p> <p>D8 Resynchronization of shut down areas on any occasion over three calendar years if there has been a Disturbance in which Blackstart Resources have been utilized in restoring the shut down area of the System-BES to service for Requirement R8, Measure M8.</p> | | | | |
| <p>R3 – Changes made to address concern</p> | | | | |

Consideration of Comments on 4th Draft of EOP-005-2 and EOP-006-2 — Project 2006-03

| Organization | Yes or No | Comment | | |
|--|---|--|--|--|
| R3 VSL | | | | |
| R3 | The Transmission Operator did not submit <u>submitted</u> the reviewed restoration plan or confirmation of no change within twenty-nine <u>30</u> calendar days of <u>after</u> the pre-determined schedule. | The Transmission Operator did not submit <u>submitted</u> the reviewed restoration plan or confirmation of no change within <u>more than thirty</u> to fifty-nine <u>and less than or equal to 60</u> calendar days of <u>after</u> the pre-determined schedule. | The Transmission Operator did not submit <u>submitted</u> the reviewed restoration plan or confirmation of no change within <u>more than sixty</u> to eighty-nine <u>and less than or equal to 90</u> calendar days of <u>after</u> the pre-determined schedule. | The Transmission Operator did not submit <u>submitted</u> the reviewed restoration plan or confirmation of no change within <u>more than ninety</u> 90 calendar days or longer <u>after of</u> the pre-determined schedule. |
| R17 – The SDT does not see any confusion or need for further clarification on energizing a bus. No change made. .Changes made to VSL to address concern. | | | | |
| R17 VSL | | | | |
| R17 | <u>The Generator Operator with a Blackstart Resource did not train less than or equal to 10% of the personnel required by Requirement R17 within a two calendar year period.</u> N/A | <u>The Generator Operator with a Blackstart Resource did not train more than 10% and less than or equal to 25% of the personnel required by Requirement R17 within a two calendar year period.</u> N/A | <u>The Generator Operator with a Blackstart Resource did not train more than 25% and less than or equal to 50% of the personnel required by Requirement R17 within a two calendar year period.</u> N/A | The Generator Operator with a Blackstart Resource did not supply any of the training more than 50% of the personnel required by Requirement R18-R17 within a two calendar year period to each operator responsible for startup of its Blackstart Resource generation units and energizing a bus. |
| Bonneville Power Administration | Yes | Coordinate data retention with the implementation date (2 years from standard approval) e.g. retroactive retention of last 3 years of plans (approval by RC only starts with proposed implementation, currently Standard 1 just indicates coordination with RC). | | |
| Response: It is understood that retention starts with the conclusion of the implementation period. | | | | |

Consideration of Comments on 4th Draft of EOP-005-2 and EOP-006-2 — Project 2006-03

| Organization | Yes or No | Comment |
|---|-----------|--|
| SERC OC Standards Review Group | No | We have suggested several changes to the requirements and request the SDT to make corresponding changes to the compliance elements. In general, in the VSLs, please use the numeric designation consistently (i.e., text or number) when specifying calendar days and/or years. Reference VSL for R2, R3, R4, R6, R11, R15, R16 & R17. |
| <p>Response: The SDT has changed the numbering throughout the documents to reflect the NERC Style Guide which calls for text for numbers up to nine and numerals thereafter.</p> | | |
| IRC Standards Review Committee | No | <p>Data retention requirements for M7 and M11 need to be revised if the suggestions to revise R7 and R11 are accepted.</p> <p>Compliance by the TOP with this standard is partially based on the action of the RC due to the requirement that “Each Transmission Operator shall have a restoration plan approved by its Reliability Coordinator”. Although both the requirements and measures state that the plan must be approved by the RC, it is omitted from the VSLs completely.</p> <p>VSL for R6: As indicated under Q2, the VSLs for R6 are developed based on the timing requirement (for Lower) and a simple Yes or No (performing the verification for Severe) without consideration of any of the subrequirements in R6 leaves some of the conditions of non-compliance not addressed. For example, the TOP verifies its restoration plan within the 5 year period but fail to meet one of the subrequirements R6.1 to R6.3. This condition is not covered. We suggest to expand the VSLs to cover these conditions under Medium and High.</p> <p>VSLs for R4, R7 and R11 need to be reworded if the suggestions to revise these two requirements under Q1 are accepted.</p> <p>VSLs for R4 do not cover the requirement for updating the plan - prior to implementing a planned System modification.</p> <p>VSL for R10: A High VSL is assigned if the TOP fails to address three or more of the topics mentioned in the subrequirements. R10 has 4 subrequirements, failing to address more than 3 subrequirements is a complete violation of the intent of R10. We suggest that the High VSL be reworded to "failing to address 3 subrequirements". Alternatively, if the SDT wishes to retain the 3 or more condition, then we suggest the conditions in Lower, Medium and High be moved up by one level each, and eliminate the condition currently under Severe.</p> |
| <p>Response: Requirement R7 was changed but the change made does not require a change to the data retention statements. Requirement R11 was not changed.</p> | | |

Consideration of Comments on 4th Draft of EOP-005-2 and EOP-006-2 — Project 2006-03

| Organization | Yes or No | Comment | | |
|---|---|---|---|--|
| <p>R1 – The SDT recognizes this is a start-up problem and that there are many interacting requirements between EOP-005-2 and EOP-006-2. The RCs and TOPs will have to coordinate during that time period. However, once you go through the implementation process, you will always have an approved plan.</p> | | | | |
| <p>R6 – The SDT has re-written the VSL.</p> | | | | |
| <p>R6 VSL</p> | | | | |
| <p>R6</p> | <p>The Transmission Operator performed the verification but did not complete it within the five year period. The Transmission Operator performed the verification within the required timeframe but did not comply with one of the sub-requirements.</p> | <p>N/A The Transmission Operator performed the verification within the required timeframe but did not comply with two of the sub-requirements</p> | <p>N/A The Transmission Operator performed the verification but did not complete it within the five calendar year period.</p> | <p>The Transmission Operator did not perform the verification or it took more than six calendar years to complete the verification.</p> <p><u>OR</u></p> <p>The Transmission Operator performed the verification within the required timeframe but did not comply with any of the sub-requirements</p> |
| <p>.</p> | | | | |
| <p>R4, R7, and R11- Those changes were not made so there is no need to change the VSL.</p> | | | | |
| <p>R4 – The VSL has been revised.</p> | | | | |
| <p>R4 VSL</p> | | | | |
| <p>R4</p> | <p>The Transmission Operator failed to update and submit its restoration plan to the Reliability Coordinator within ninety90 calendar days of thean unplanned change.</p> | <p>The Transmission Operator failed to update and submit its restoration plan to the Reliability Coordinator within <u>more than 90 calendar days but less than</u>120 calendar</p> | <p>The Transmission Operator has failed to update and submit its restoration plan to the Reliability Coordinator within <u>more than 120 calendar days but less</u></p> | <p>The Transmission Operator has failed to update and submit its restoration plan to the Reliability Coordinator within 180<u>more than 150</u> calendar days of thean</p> |

Consideration of Comments on 4th Draft of EOP-005-2 and EOP-006-2 — Project 2006-03

| Organization | Yes or No | Comment | | |
|---|-----------|---|--|--|
| | | days of the <u>an unplanned</u> change. | <u>than</u> 150 calendar days of the <u>unplanned</u> change. | <u>unplanned</u> change. <u>OR</u> <u>The Transmission Operator failed to update and submit its restoration plan to the Reliability Coordinator prior to a planned BES modification.</u> |
| <p>R10 – The Severe VSL addresses an operations training program that has no restoration components whatsoever. The remaining VSL’s address lack of coverage of the elements listed in the sub-requirements. No change made.</p> | | | | |
| Southern Company | No | <p>It is not apparent why R14 and R17 are ranked higher than most of the other requirements. Thus, a medium risk factor is recommended for both.</p> | | |
| <p>Response: The VRF for Requirements R14 and R17 are both Medium.</p> | | | | |
| Ameren | Yes | <p>EOP-005-2, D, Section 1.4, the 5th bullet should be changed from ?The current, approved by the Reliability Coordinator restoration plan and any restoration plans in force for the last three calendar years was made available in its control rooms for Requirement R5, Measure M5.? to ?The current restoration plan approved by the Reliability Coordinator and any restoration plans in force for the last three calendar years was made available in its control rooms for Requirement R5, Measure M5.?2.</p> <p>Retention periods, measures, & violation severity levels for R7 and R8 mention the word "System" but the requirements mention the Bulk Electric System (BES). This is not consistent. The measures, retention periods, & violation severity levels should be consistent with the requirements and reference the BES.</p> | | |
| <p>Response: Change was made to address concern.</p> <p>D5 The current, <u>restoration plan</u> approved by the Reliability Coordinator restoration plan and any restoration plans in force for the last three calendar years <u>that</u> was made available in its control rooms for Requirement R5, Measure M5.</p> <p>The VSLs for R7 and R8 have been revised.</p> <p>R7 VSL</p> | | | | |

Consideration of Comments on 4th Draft of EOP-005-2 and EOP-006-2 — Project 2006-03

| Organization | Yes or No | Comment | | |
|---------------------|-----------|--|-----|---|
| R7 | N/A | N/A | N/A | <p>The Transmission Operator did not implement its restoration plan following a Disturbance in which Blackstart Resources have been utilized in restoring the shut down area of the SystemBES. Or, if the restoration plan cannot be executed as expected because actual conditions do not match the studied conditions, the Transmission Operator did not utilize its restoration plan strategies to facilitate restoration.</p> |
| R8 VSL | | | | |
| R8 | N/A | N/A | N/A | <p>The Transmission Operator resynchronized without approval of the Reliability Coordinator or not in accordance with the established procedures of the Reliability Coordinator following a Disturbance in which Blackstart Resources have been utilized in restoring the shut down area of the SystemBES to service.</p> |
| ISO New England Inc | No | <p>Compliance by the TOP with this standard is partially based on the action of the RC due to the requirement that ?Each Transmission Operator shall have a restoration plan approved by its Reliability Coordinator?.</p> | | |

Consideration of Comments on 4th Draft of EOP-005-2 and EOP-006-2 — Project 2006-03

| Organization | Yes or No | Comment | | |
|--|-----------|--|-----|--|
| | | Although both the requirements and measures state that the plan must be approved by the RC, it is omitted from the VSLs completely. | | |
| <p>Response: The SDT recognizes this is a start-up problem and that there are many interacting requirements between EOP-005-2 and EOP-006-2. The RCs and TOPs will have to coordinate during that time period. However, once you go through the implementation process, you will always have an approved plan.</p> | | | | |
| San Diego Gas and Electric Co. | No | <p>SDG&E Comments on VSL for R5: We believe this Requirement should have some gradient in the VSL, because of the multiple requirements (primary & backup center, all System Operators). Perhaps the levels would be based upon how many days late beyond the Entity's effective date.</p> <p>SDG&E Comment on VSL for R11: We believe that some gradient should be applied to this VSL. There is a difference between training none of the personnel vs. training all but one, or training most personnel within the two-year timeframe but one person went 2.5 years between training sessions. Having gradients in the VSL fields will help differentiate severity levels.</p> <p>SDG&E Comment on VSL for R17: We believe that some gradient should be applied to this VSL. There is a difference between training none of the personnel vs. training all but one, or training most of them within the two-year timeframe but one person went 2.5 years between training sessions. Having gradients in the VSL fields will help differentiate severity levels.</p> | | |
| <p>Response: R5 – A change was made to the R5 VSL to provide clarity. However, with regard to your comment, the SDT believes that this is in reality an all or nothing requirement. Grading the VSL to provide different penalties for skipping one of the locations just doesn't make any sense as they are both equally important. Similar reasoning applies to the System Operators.</p> | | | | |
| R5 VSL | | | | |
| R5 | N/A | N/A | N/A | The Transmission Operator did not make the latest Reliability Coordinator approved restoration plan available in its primary and backup control rooms and available to all of its System Operators prior to its implementation date |
| | | | | |

Consideration of Comments on 4th Draft of EOP-005-2 and EOP-006-2 — Project 2006-03

| Organization | Yes or No | Comment | | |
|---|-----------|--|--|--|
| R11 & R17 - Changes made to address concern. | | | | |
| R11 VSL | | | | |
| R11 | | The Transmission Operator, applicable Transmission Owner, or applicable Distribution Provider did not train more than or equal to 10% of the personnel required by Requirement R11 within a two calendar year period. N/A | The Transmission Operator, applicable Transmission Owner, or applicable Distribution Provider did not train more than 10% and less than or equal to 25% of the personnel required by Requirement R11 within a two calendar year period. N/A | The Transmission Operator, applicable Transmission Owner, or applicable Distribution Provider did not train more than 25% and less than or equal to 50% of the personnel required by Requirement R11 within a two calendar year period. N/A |
| The Transmission Operator, applicable Transmission Owner, or applicable Distribution Provider did not supply any training more than 50% of to the personnel required by Requirement R11 within a two calendar year period | | | | |
| R17 VSL | | | | |
| R17 | | The Generator Operator with a Blackstart Resource did not train to less than or equal to 10% of the personnel required by Requirement R17 within a two calendar year period. N/A | The Generator Operator with a Blackstart Resource did not train more than 10% and less than or equal to 25% of the personnel required by Requirement R17 within a two calendar year period. N/A | The Generator Operator with a Blackstart Resource did not train more than 25% and less than or equal to 50% of the personnel required by Requirement R17 within a two calendar year period. N/A |
| The Generator Operator with a Blackstart Resource did not supply any of the training more than 50% of the personnel required by Requirement R18-R17 within a two calendar year period to each operator responsible for startup of its Blackstart Resource generation units and energizing a bus. | | | | |
| Duke Energy Corporation | No | We have suggested several changes to the requirements and request the SDT to make corresponding changes to the compliance elements. | | |
| Entergy Services | No | We have suggested several changes to the requirements and request the SDT to make any corresponding changes to the compliance elements. | | |
| Response: The SDT has made changes consistent with changes in the requirements. | | | | |

Consideration of Comments on 4th Draft of EOP-005-2 and EOP-006-2 — Project 2006-03

| Organization | Yes or No | Comment |
|---|-----------|--|
| Independent Electricity System Operator (IESO) — Ontario | No | <p>Data retention requirements for M7 and M11 need to be revised if the suggestions to revise R7 and R11 are accepted.</p> <p>VSL for R6: As indicated under Q2, the VSLs for R6 are developed based on the timing requirement (for Lower) and a simple Yes or No (performing the verification for Severe) without consideration of any of the subrequirements in R6 leaves some of the conditions of non-compliance not addressed. For example, the TOP verifies its restoration plan within the 5 year period but fail to meet one of the subrequirements R6.1 to R6.3. This condition is not covered. We suggest to expand the VSLs to cover these conditions under Medium and High.</p> <p>VSLs for R7 and R11 need to be reworded if the suggestions to revise these two requirements under Q1 are accepted.</p> <p>VSL for R10: A High VSL is assigned if the TOP fails to address three or more of the topics mentioned in the subrequirements. R10 has 4 subrequirements, failing to address more than 3 subrequirements is a complete violation of the intent of R10. We suggest that the High VSL be reworded to "failing to address 3 subrequirements". Alternatively, if the SDT wishes to retain the 3 or more condition, then we suggest the conditions in Lower, Medium and High be moved up by one level each, and eliminate the condition currently under Severe.</p> |
| <p>Response: Requirement R7 was changed but the change made does not require a change to the data retention statements. Requirement R11 was not changed.</p> <p>R7, and R11- Those changes were not made so there is no need to change the VSL.</p> <p>R10 – The Severe VSL addresses an operations training program that has no restoration components whatsoever. The remaining VSL’s address lack of coverage of the elements listed in the sub-requirements. No change made.</p> | | |
| ITC Transmission and METC | No | <p>The retention period for several elements is "the current year plus three prior calendar years", which is essentially four calendar years. The retention period should simple be "three calendar years" which aligns with other data retention requirements and the audit schedule.</p> <p>The Severe VSL for R5 should be revised to state that a copy of the plan was not found in the primary or backup control room. In addition, levels of severity could be built by the drafting team by making the VSLs time based as previously drafted.</p> |
| <p>Response: Current year plus three preceding calendar years does not seem unreasonable. This is also consistent with the Compliance Guidelines.</p> | | |

Consideration of Comments on 4th Draft of EOP-005-2 and EOP-006-2 — Project 2006-03

| Organization | Yes or No | Comment | | |
|---|--|---|--|--|
| <p>R5 – A change was made to the R5 VSL to provide clarity. However, with regard to your comment, the SDT believes that this is in reality an all or nothing requirement. Grading the VSL to provide different penalties for skipping one of the locations just doesn't make any sense as they are both equally important. Similar reasoning applies to the System Operators.</p> | | | | |
| R5 VSL | | | | |
| R5 | N/A | N/A | N/A | The Transmission Operator did not make the latest Reliability Coordinator approved restoration plan available in its primary and backup control rooms and available to all of its System Operators prior to its implementation date |
| American Transmission Company | No | see our comment to question 9 | | |
| Response: Please see the response to question 9. | | | | |
| PJM | No | VSLs for R4 do not cover the requirement for updating the plan - prior to implementing a planned System modification. | | |
| Response: The VSL for R4 has been revised. | | | | |
| R4 VSL | | | | |
| R4 | The Transmission Operator failed to update and submit its restoration plan to the Reliability Coordinator within ninety 90 calendar days of the an unplanned change. | The Transmission Operator failed to update and submit its restoration plan to the Reliability Coordinator within <u>more than 90 calendar days but less than 120</u> calendar days of the an unplanned | The Transmission Operator has failed to update and submit its restoration plan to the Reliability Coordinator within <u>more than 120 calendar days but less than 150</u> calendar days of | The Transmission Operator has failed to update and submit its restoration plan to the Reliability Coordinator within 180 <u>more than 150</u> calendar days of the an |

Consideration of Comments on 4th Draft of EOP-005-2 and EOP-006-2 — Project 2006-03

| Organization | Yes or No | Comment |
|---|-----------|--|
| | | <p>change.</p> <p>the unplanned change.</p> <p>unplanned change.</p> <p><u>OR</u></p> <p>The Transmission Operator failed to update and submit its restoration plan to the Reliability Coordinator prior to a planned BES modification.</p> |
| Hydro-Quebec Transenergie | No | <p>Compliance by the TOP with this standard is partially based on the action of the RC due to the requirement that ?Each Transmission Operator shall have a restoration plan approved by its Reliability Coordinator?. Although both the requirements and measures state that the plan must be approved by the RC, it is omitted from the VSLs completely.</p> |
| <p>Response: The SDT recognizes this is a start-up problem and that there are many interacting requirements between EOP-005-2 and EOP-006-2. The RCs and TOPs will have to coordinate during that time period. However, once you go through the implementation process, you will always have an approved plan.</p> | | |
| NPCC | Yes | |
| Luminant Power | Yes | |
| Northeast Utilities | Yes | |
| Oncor Electric Delivery | Yes | |
| We Energies | Yes | |
| AECI | Yes | No new comments |
| Xcel Energy | Yes | |
| Hydro One Networks Inc. | Yes | |

Consideration of Comments on 4th Draft of EOP-005-2 and EOP-006-2 — Project 2006-03

| Organization | Yes or No | Comment |
|--|-----------|---------|
| US Bureau of Reclamation | Yes | |
| US Army Corps of Engineers | Yes | |
| AEP | Yes | |
| Allegheny Power | Yes | |
| Manitoba Hydro | Yes | |
| Midwest ISO Stakeholder Standards Collaborators | Yes | |
| FirstEnergy Corp. | Yes | |
| <p>Response: Thank you for your response.</p> | | |

|

4. The SDT has made a number of clarifying changes to the requirements of EOP-006-2 based on industry comments from the third posting. Do you agree with the changes that were made? If not, please provide specific suggestions for change.

Summary Consideration:

There were relatively few negative comments and the SDT made only minor changes to provide clarity in addressing industry concerns in the following areas

R1.1 A description of the high level strategy to be employed during restoration events for restoring the Interconnection including minimum ~~blackstart capability requirements~~ criteria for meeting the objectives of the Reliability Coordinator's restoration plan.

R1.2 Operating Processes for restoring the Interconnection.

R1.5 Criteria and conditions for reestablishing interconnections with other Transmission Operators within its Reliability Coordinator Area ~~between~~ with neighboring Transmission Operators ~~and in other~~ Reliability Coordinator Areas and with other Reliability Coordinators.

R5 Each Reliability Coordinator shall review the restoration plans required by EOP-005 of the Transmission Operators within its Reliability Coordinator Area ~~and neighboring Reliability Coordinators, when received.~~

R6 Each Reliability Coordinator shall have a copy of its latest restoration plan and copies of the latest approved restoration plan of each Transmission Operator in its Reliability Coordinator Area within its primary and backup control rooms ~~and~~ so that it is available to all of its System Operators prior to the implementation date.

R7 Each Reliability Coordinator shall work with its affected Generator Operators, and Transmission Operators as well as neighboring Reliability Coordinators to monitor restoration progress, coordinate restoration, and take actions to restore the BES frequency within acceptable operating limits. If the restoration plan cannot be completed as expected ~~because actual conditions do not match the studied conditions,~~ the Reliability Coordinator shall utilize its restoration plan strategies to facilitate System restoration.

R8 The Reliability Coordinator shall coordinate or authorize resynchronizing islanded areas that bridge boundaries between Transmission Operators or Reliability Coordinators. If the resynchronization cannot be completed as expected ~~because actual conditions do not match the studied conditions,~~ the Reliability Coordinator shall utilize its restoration plan strategies to facilitate resynchronization.

R10.1 Each Reliability Coordinator shall request each Transmission Operator ~~and Generator Operator~~ identified in its restoration plan and each Generator Operator identified in the Transmission Operators' restoration plans to participate in a drill, exercise, or simulation at least every two calendar years.

M2 Each Reliability Coordinator shall provide evidence such as e-mails with receipts, posting to a secure web site with notification to affected entities, or registered mail receipts, that its most recent restoration plan has been distributed in accordance with Requirement R2.

M5. Each Reliability Coordinator shall provide evidence, such as a review signature sheet or emails, that it has reviewed, approved or disapproved, and notified its Transmission Operator's; within 30 calendar days following the receipt of the restoration plan from the Transmission Operator ~~and reviewed its neighboring Reliability Coordinator's, submitted restoration plan(s) and updated its restoration plan, if necessary,~~ in accordance with Requirement R5.

R5 VSL

| | | | | |
|-----------|---|---|---|---|
| <p>R5</p> | <p>The Reliability Coordinator did not review and approve/disapprove the submitted restoration plans from its Transmission Operators and neighboring Reliability Coordinators within thirty <u>30</u> calendar days of receipt <u>but did review and approve/disapprove the plans within 45 calendar days of receipt.</u></p> <p>OR_f</p> <p>†The Reliability Coordinator failed to notify the Transmission Operator of its approval or disapproval with stated reasons for disapproval within thirty <u>30</u> calendar days of receipt <u>but did notify the Transmission Operator of its approval or disapproval with reasons within 45 calendar days of receipt.</u></p> | <p>The Reliability Coordinator did not review and approve/disapprove the submitted restoration plans from its Transmission Operators and neighboring Reliability Coordinators within forty-five <u>45</u> <u>30</u>calendar days of receipt <u>but did review and approve/disapprove the plans within 60 calendar days of receipt.</u></p> <p>OR_f</p> <p>†The Reliability Coordinator failed to notify the Transmission Operator of its approval or disapproval with stated reasons for disapproval within forty-five <u>30</u> <u>calendar</u> days of receipt <u>but did notify the Transmission Operator of its approval or disapproval with reasons within 60 calendar days of receipt.</u></p> | <p>The Reliability Coordinator did not review and approve/disapprove the submitted restoration plans from its Transmission Operators and neighboring Reliability Coordinators within sixty <u>30</u> calendar days of receipt <u>but did review and approve/disapprove the plans within 90 calendar days of receipt.</u></p> <p>OR_f</p> <p>†The Reliability Coordinator failed to notify the Transmission Operator of its approval or disapproval with stated reasons for disapproval within sixty <u>30</u> <u>calendar</u> days of receipt <u>but did notify the Transmission Operator of its approval or disapproval with reasons within 60 calendar days of receipt.</u> Or the Reliability Coordinator failed to revise its restoration plan after identifying changes required by new or revised restoration plans received from its Transmission Operators and neighboring Reliability Coordinators within ninety calendar days</p> | <p>The Reliability Coordinator did not review and approve/disapprove the submitted restoration plans from its Transmission Operators and neighboring Reliability Coordinators within ninety <u>for more than 90</u> calendar days of receipt.</p> <p>OR_f</p> <p>†The Reliability Coordinator failed to notify the Transmission Operator of its approval or disapproval with stated reasons for disapproval within ninety <u>for more than 90</u> <u>calendar</u> days of receipt. Or the Reliability Coordinator failed to revise its restoration plan after identifying changes required by new or revised restoration plans received from its Transmission Operators and neighboring Reliability Coordinators within 150 calendar days of receipt.</p> |
|-----------|---|---|---|---|

| | | | | |
|--|--|--|-------------|--|
| | | | of receipt. | |
|--|--|--|-------------|--|

| Organization | Yes or No | Comment |
|---|-----------|---|
| NPCC | No | NPCC participating members believe conducting two system restoration drills/exercises annually is excessive. At least one annual comprehensive exercise is sufficient, unless there are significant changes to the Reliability Coordinator system restoration plan. |
| <p>Response: The SDT did not deem it necessary to define drills, exercises and simulations leaving the determination of their scope and extent of participation to the Reliability Coordinator's. The SDT does not agree that conducting two drills/exercises annually is excessive given:</p> <ul style="list-style-type: none"> • The need for realistic and credible drills and simulations noted by the US – Canadian Joint Task Force in their report on the August 14, 2003 blackout, and • The leeway to the Reliability Coordinator to determine the scope of drills, exercises and simulations afforded by EOP 006-2. | | |
| FirstEnergy Corp. | Yes | <p>While we agree with many of the changes the drafting team made to these requirements, there are still some additional issues that should be addressed. EOP-006 R6 indicates that the RC shall have a copy of its restoration plan AND copies of the restoration plan for each TOP. We believe this means that the RC could have a plan which is different than the TOP's requiring that the Generator Operators see the RC plan prior to conducting the restoration drills required in EOP-006</p> <p>R10.In EOP-006 R7 the RC shall work with the GOP and TOP to restore BES frequency within acceptable limits. If the RC's restoration plan cannot be followed, the RC shall use its restoration plan strategies to facilitate restoration. Again the GOP needs to review the RC's restoration plan in order to understand the plan's strategies.</p> <p>With the requirements of R6 and R7 in mind, we recommend R2 be revised to state, "The Reliability Coordinator shall distribute its most recent Reliability Coordinator Area restoration plan to each of its Transmission Operators, Generator Operators, and neighboring Reliability Coordinators within thirty calendar days of creation or revision."</p> <p>In R9 it is not clear why the drafting team chose the word "address" over "include". The meaning of "address" is less precise than the meaning of the word "include." We suggest revising this to the previous terminology that stated, "?include..."</p> |
| <p>Response: R2 & R6: The SDT expects in most cases the Reliability Coordinator's restoration plan will be different than the TOP's; the Reliability Coordinator's is high level and focused on establishing Interconnections and accomplishing restoration of the Reliability Coordinator Area as a</p> | | |

| Organization | Yes or No | Comment |
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| | | <p>whole depending on coordinated TOP restoration plans which invariably are more detailed in scope. In coordinating and providing input to TOP restoration plans the Reliability Coordinator assures common goals for restoration can be achieved. The GOP actions are included in the TOP's plan and not expected to be detailed in the RC's plan.</p> <p>R10: Requirement R10.1 has been changed to address the concern.</p> <p>R10.1 Each Reliability Coordinator shall request each Transmission Operator and Generator Operator identified in its restoration plan <u>and each Generator Operator identified in the Transmission Operators' restoration plans</u> to participate in a drill, exercise, or simulation at least every two calendar years.</p> <p>R9.1 and R9.2: The SDT will retain 'address' to allow the RC in its training program the flexibility to decide what to include for Requirements R9.1 & R9.2.</p> |
| Santee Cooper | No | <p>The RC should have input to the TOP's restoration plan not approval of the plan. Recommend rewording R5.1 to reflect the RC has reviewed and provided input into the TOP's restoration plan.</p> <p>R1.1 There is no reliability benefit for including this statement in the Standard. We suggest it be eliminated.</p> <p>R1.5 Recommend rewording this requirement to read "Criteria and conditions for reestablishing interconnections with Transmission Operators in a neighboring Reliability Coordinator Area."</p> <p>R1.6 This is more appropriately included in the Transmission Operator restoration plan and should be removed from the Reliability Coordinator plan.</p> <p>R1.9 Recommend changing the requirement to mean the RC is the primary contact for disseminating information to neighboring RCs. The RC should not be held responsible for disseminating information to other TOPs and BAs within their footprint. During a restoration event, TOPs will be sharing information with adjacent TOPs while at the same time providing the same information to the RC.</p> <p>R1.10 should be removed.</p> <p>R5.1 Replace the last sentence with; "The Reliability Coordinator shall coordinate with the Transmission operators within its footprint to resolve any issues or questions resulting from their review of the TOP plans within thirty calendar days following the receipt of the restoration plan from the Transmission Operator.</p> <p>R5. Add a secondary requirement to R5 that requires the RC to update its plan if necessary based on the review of the plans of the TOPs within its RC Area and neighboring RCs.</p> |

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| Organization | Yes or No | Comment |
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| | | <p>R6. Change "latest" to "current" and change "approved" to "coordinated".</p> <p>R7. and R8. Recommend deleting the last sentence and replace with the following: "If the restoration plan or resynchronization cannot be completed as planned, the RC will utilize its restoration plan strategies to facilitate System restoration."</p> <p>R9. This is already covered in the proposed PER-005-1 Personnel Training Standard and should not be duplicated as could result in double jeopardy.</p> <p>R10. A minimum of one restoration drill per year should be sufficient for most RCs - RCs that need to conduct more than one drill in order to have participation of all the entities in their footprint have the option to schedule more than one.</p> |
| <p>Response: In Order 693, the Commission proposal is that the Reliability Coordinators should be involved in the development and approval of the restoration plans. The SDT feels that the approval of the plans is consistent with the role of the Reliability Coordinator as defined in the Functional Model and does not add additional liability to the Reliability Coordinator.</p> <p>R1.1 –The SDT believes there is a reliability impact. The strategies need to be documented so the standard coordinates with EOP-005-2, Requirement R1.1 and EOP-005-2, Requirement R7 where the TOP must follow its “strategies” in a Real-time restoration event when the System restoration plan can’t be executed as planned.</p> <p>R1.5: A change was made to address this concern.</p> <p>R1.5 Criteria and conditions for reestablishing interconnections <u>with other Transmission Operators within its Reliability Coordinator Area, between-with neighboring Transmission Operators and in other Reliability Coordinator Areas, and with other Reliability Coordinators.</u></p> <p>R1.6: The SDT disagrees with your recommendation to delete R1.6 but does appreciate the need and coordination required to assure there are not different voltage and frequency limits between the Reliability Coordinator’s and TOP restoration plans. No change made.</p> <p>R1.9: The SDT disagrees with your suggested change to Requirement R1.9 which assures to the extent possible that the information is consistent across the Reliability Coordinator Area. Beyond the scope of Requirement R1.9 there is nothing to prevent a TOP from disseminating additional information to other entities provided it does not offer a conflicting message to the RC’s.</p> <p>R1.10: The SDT disagrees with your recommendation to delete Requirement R1.10. The similar requirement in EOP-005-2 was changed to provide clarity.</p> <p>R5 & R5.1: The SDT discussed your concerns and doesn’t believe that there is a problem in this area. The TOP is not going to change its plan without talking to the RC and the RC always has approval rights on the TOPs plan. No change made.</p> | | |

| Organization | Yes or No | Comment |
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| | | <p>R6: The suggested wording is seen as equivalent. No change made.</p> <p>R7 and R8: The SDT agrees and has modified the requirements.</p> <p>R7 Each Reliability Coordinator shall work with its affected Generator Operators, and Transmission Operators as well as neighboring Reliability Coordinators to monitor restoration progress, coordinate restoration, and take actions to restore the BES frequency within acceptable operating limits. If the restoration plan cannot be completed as expected because actual conditions do not match the studied conditions, the Reliability Coordinator shall utilize its restoration plan strategies to facilitate System restoration.</p> <p>R8 The Reliability Coordinator shall coordinate or authorize resynchronizing islanded areas that bridge boundaries between Transmission Operators or Reliability Coordinators. If the resynchronization cannot be completed as expected because actual conditions do not match the studied conditions, the Reliability Coordinator shall utilize its restoration plan strategies to facilitate resynchronization.</p> <p>R9. In Order 693, the Commission stated its belief that inclusion of periodic system restoration drills and training and review of restoration plans in a system restoration Reliability Standard is the most effective way of achieving the desired goal of ensuring that all participants are trained in system restoration. Further, the Commission directed the ERO to develop a modification to EOP-005-1 through the Reliability Standards development process that identifies time frames for training.</p> <p>R10: The SDT did not deem it necessary to define drills, exercises and simulations leaving the determination of their scope and extent of participation to the Reliability Coordinator's. The SDT does not agree that conducting two drills/exercises annually is excessive given:</p> <ul style="list-style-type: none"> • The need for realistic and credible drills and simulations noted by the US – Canadian Joint Task Force in their report on the causes of the August 14, 2003 blackout, and • The leeway to the Reliability Coordinator to determine the scope of drills , exercises and simulations afforded by EOP-006-2. |
| MRO NERC Standards Review Subcommittee | No | <p>In R1.2 the MRO do not agree with replacing the word Procedures with Processess. The word Procedures is an electric utility industry widely recognized term used to refer to operating and switching procedures. Please change Processess back to Procedures.</p> <p>MRO believes that a "minimum blackstart capability requirements" should not be set by the RC. If by "minimum blackstart capability" the SDT intention is for the RC to set the number, location, strategy of restoration, or other minimum standard, this should either be set by the RRO, TOP or by a NERC standard with basis.</p> |
| <p>Response: R1.2: The SDT believes that Operating Processes (a defined term) is the correct term here.</p> <p>R1.2 <u>Operating</u> Processes for restoring the Interconnection.</p> | | |

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| Organization | Yes or No | Comment |
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| | | <p>R1.1 – The SDT changed this requirement to provide clarity. The strategies need to be documented so the standard coordinates with EOP-005-2, Requirement R1.1 and EOP-005-2, Requirement R7 where the TOP must follow its “strategies” in a Real-time restoration event when the System restoration plan can’t be executed as planned.</p> <p>R1.1 A description of the high level strategy to be employed during restoration events for restoring the Interconnection including minimum blackstart capability requirements <u>criteria for meeting the objectives of the Reliability Coordinator’s restoration plan.</u></p> |
| SERC OC Standards Review Group | No | <p>1.2 This is covered in R1.1 and should be deleted.</p> <p>R1.5 Add "within its RC area" after Transmission Operators and add "neighboring" before Reliability Coordinator Areas.</p> <p>R1.6 This is more appropriately included in the Transmission Operator restoration plan and should be removed from the Reliability Coordinator plan.</p> <p>R1.9. Does this pose problems if it is viewed that the RC is the only communications contact?</p> <p>R1.10 should be removed.</p> <p>R5. Add the phrase "the plans of" before "neighboring Reliability Coordinators, when received". In addition, R5 should require the RC to update its plan, if necessary, based on the review of the plans within its area (Reference the VSLs and M5).</p> <p>R5.1 Replace the last sentence with; "The Reliability Coordinator shall coordinate with the Transmission operators within its footprint to resolve any issues or questions resulting from their review of the TOP plans within thirty calendar days following the receipt of the restoration plan from the Transmission Operator.</p> <p>R6. Change "latest" to "current" and change "approved" to "coordinated".</p> <p>R9. This would be more appropriately handled in the Personnel Training Standard. This requirement is in PER-005-1, R3, which could result in double jeopardy.</p> <p>R10. A minimum of one restoration drill per year should be sufficient for most RCs - RCs that need to conduct more than one drill in order to have participation of all the entities in their footprint have the option to schedule more than one.</p> |
| Duke Energy Corporation | No | <p>1.2 This is covered in R1.1 and should be deleted.</p> <p>R1.5 Add "within its RC area" after Transmission Operators and add "neighboring" before Reliability</p> |

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| Organization | Yes or No | Comment |
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| | | <p>Coordinator Areas.</p> <p>R1.6 This is more appropriately included in the Transmission Operator restoration plan and should be removed from the Reliability Coordinator plan.</p> <p>R1.9. Does this pose problems if it is viewed that the RC is the only communications contact? Concern is that people will not be willing to talk to one another if there is an issue without going through the RC for issues or compliance violations. This seems to be a potential for impeding communications.</p> <p>R1.10 should be removed. See statements from EOP-005-R1.9</p> <p>R5. Add the phrase "the plans of" before "neighboring Reliability Coordinators, when received". In addition, R5 should require the RC to update its plan, if necessary, based on the review of the plans within its area (Reference the VSLs and M5).</p> <p>R5.1 Replace the last sentence with; "The Reliability Coordinator shall coordinate with the Transmission operators within its footprint to resolve any issues or questions resulting from their review of the TOP plans within thirty calendar days following the receipt of the restoration plan from the Transmission Operator. R6. Change "latest" to "current" and change "approved" to "coordinated".</p> <p>R9. This would be more appropriately handled in the Personnel Training Standard. This requirement is in PER-005-1, R3, which could result in double jeopardy.</p> <p>R10. A minimum of one restoration drill per year should be sufficient for most RCs - RCs that need to conduct more than one drill in order to have participation of all the entities in their footprint have the option to schedule more than one.</p> |
| Entergy Services | No | <p>* R1.2 is covered in R1.1 and should be deleted.*</p> <p>R1.5 - Add "within its RC area" after Transmission Operators and add "neighboring" before Reliability Coordinator Areas.*</p> <p>R1.6 - This is more appropriately included in the Transmission Operator restoration plan and should be removed from the Reliability Coordinator plan.*</p> <p>R1.9 - Does this pose problems if it is interpreted that the RC is the only communications contact? Will this overload the RCs to the detriment of reliability?</p> |

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| Organization | Yes or No | Comment |
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| | | <p>R1.10 - R1.10 should be removed.*</p> <p>R5 - R5 should require the RC to update its plan, if necessary, based on the review of the plans within its area (Reference the VSLs and M5). *</p> <p>R6 - Change "latest" to "current" *</p> <p>R9 - This is at least partially covered in the latest draft of the Personnel Training Standard, PER-005-1 R3. While we realize that past responses from the SDT quoted FERC Order 693 verbiage to support inclusion of the training in the EOP standards, having the requirement in both standards could result in double jeopardy. We suggest that the SDT include a reference to the PER requirement and a statement that clarifies that the training required in PER-005-1 R3 also satisfies EOP-006-2 R9.*</p> <p>R10 - A minimum of one restoration drill per year should be sufficient for most RCs - RCs with larger footprints that need to conduct more than one drill in order to have participation of all the entities in their footprint have the option to schedule more than one.</p> |
| <p>Response: R1.1 –The SDT believes there is a reliability impact. The strategies need to be documented so the standard coordinates with EOP-005-2, Requirement R1.1 and EOP-005-2, Requirement R7 where the TOP must follow its “strategies” in a Real-time restoration event when the System restoration plan can’t be executed as planned.</p> <p>R1.5: A change was made to address this concern.</p> <p>R1.5 Criteria and conditions for reestablishing interconnections <u>with other Transmission Operators within its Reliability Coordinator Area between-with</u> neighboring Transmission Operators and<u>in other</u> Reliability Coordinator Areas <u>and with other Reliability Coordinators.</u></p> <p>R1.6: The SDT agrees with your recommendation and has deleted Requirement R1.6.</p> <p>R1.9: The SDT disagrees with your suggested change to Requirement R1.9 which assures to the extent possible that the information is consistent across the Reliability Coordinator Area. Beyond the scope of Requirement R1.9 there is nothing to prevent a TOP from disseminating additional information to other entities provided it does not offer a conflicting message to the RC’s.</p> <p>R1.10: The SDT disagrees with your recommendation to delete Requirement R1.10. The similar requirement in EOP-005-2 was changed to provide clarity.</p> <p>R5 & R5.1: The SDT discussed your concerns and doesn’t believe that there is a problem in this area. The TOP is not going to change its plan without talking to the RC and the RC always has approval rights on the TOPs plan. No change made to the requirement. However, Measure M5 and R5 VSL were changed to better align with the requirement.</p> | | |

| Organization | Yes or No | Comment | | |
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| <p>M5. Each Reliability Coordinator shall provide evidence, such as a review signature sheet or emails, that it has reviewed, approved or disapproved, and notified its Transmission Operator's, <u>within 30 calendar days following the receipt of the restoration plan from the Transmission Operator and reviewed its neighboring Reliability Coordinator's, submitted restoration plan(s) and updated its restoration plan, if necessary,</u> in accordance with Requirement R5.</p> <p>R5 VSL</p> | | | | |
| R5 | <p>The Reliability Coordinator did not review and approve/disapprove the submitted restoration plans from its Transmission Operators and neighboring Reliability Coordinators within thirty <u>30 calendar days</u> of receipt <u>but did review and approve/disapprove the plans within 45 calendar days of receipt.</u></p> <p>OR</p> <p>The Reliability Coordinator failed to notify the Transmission Operator of its approval or disapproval with stated reasons for disapproval within thirty <u>30 calendar days</u> of receipt <u>but did notify the Transmission Operator of its approval or disapproval with reasons within 45 calendar days of receipt.</u></p> | <p>The Reliability Coordinator did not review and approve/disapprove the submitted restoration plans from its Transmission Operators and neighboring Reliability Coordinators within forty-five <u>30 calendar days</u> of receipt <u>but did review and approve/disapprove the plans within 60 calendar days of receipt.</u></p> <p>OR</p> <p>The Reliability Coordinator failed to notify the Transmission Operator of its approval or disapproval with stated reasons for disapproval within forty-five <u>30 calendar days</u> of receipt <u>but did notify the Transmission Operator of its approval or disapproval with reasons within 60 calendar days of receipt.</u></p> | <p>The Reliability Coordinator did not review and approve/disapprove the submitted restoration plans from its Transmission Operators and neighboring Reliability Coordinators within sixty <u>30 calendar days</u> of receipt <u>but did review and approve/disapprove the plans within 90 calendar days of receipt.</u></p> <p>OR</p> <p>The Reliability Coordinator failed to notify the Transmission Operator of its approval or disapproval with stated reasons for disapproval within sixty <u>30 calendar days</u> of receipt <u>but did notify the Transmission Operator of its approval or disapproval with reasons within 90 calendar days of receipt.</u> Or the Reliability Coordinator failed to</p> | <p>The Reliability Coordinator did not review and approve/disapprove the submitted restoration plans from its Transmission Operators and neighboring Reliability Coordinators within ninety <u>for more than 90</u> calendar days of receipt.</p> <p>OR</p> <p>The Reliability Coordinator failed to notify the Transmission Operator of its approval or disapproval with stated reasons for disapproval within ninety <u>for more than 90 calendar days</u> of receipt. Or the Reliability Coordinator failed to revise its restoration plan after identifying changes required by new or revised restoration plans received from its Transmission Operators and neighboring Reliability</p> |

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| Organization | Yes or No | Comment |
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| | | <p>revise its restoration plan after identifying changes required by new or revised restoration plans received from its Transmission Operators and neighboring Reliability Coordinators within ninety calendar days of receipt.</p> <p>Coordinators within 150 calendar days of receipt.</p> |
| <p>R6: The suggested wording is seen as equivalent. No change made.</p> <p>R7 and R8: The SDT agrees and has modified the requirements.</p> <p>R7 Each Reliability Coordinator shall work with its affected Generator Operators, and Transmission Operators as well as neighboring Reliability Coordinators to monitor restoration progress, coordinate restoration, and take actions to restore the BES frequency within acceptable operating limits. If the restoration plan cannot be completed as expected because actual conditions do not match the studied conditions, the Reliability Coordinator shall utilize its restoration plan strategies to facilitate System restoration.</p> <p>R8 The Reliability Coordinator shall coordinate or authorize resynchronizing islanded areas that bridge boundaries between Transmission Operators or Reliability Coordinators. If the resynchronization cannot be completed as expected because actual conditions do not match the studied conditions, the Reliability Coordinator shall utilize its restoration plan strategies to facilitate resynchronization.</p> <p>R9. In Order 693, the Commission stated its belief that inclusion of periodic system restoration drills and training and review of restoration plans in a system restoration Reliability Standard is the most effective way of achieving the desired goal of ensuring that all participants are trained in system restoration. Further, the Commission directed the ERO to develop a modification to EOP-005-1 through the Reliability Standards development process that identifies time frames for training.</p> <p>R10: The SDT did not deem it necessary to define drills, exercises and simulations leaving the determination of their scope and extent of participation to the Reliability Coordinator's. The SDT does not agree that conducting two drills/exercises annually is excessive given:</p> <ul style="list-style-type: none"> • The need for realistic and credible drills and simulations noted by the US – Canadian Joint Task Force in their report on the August 14, 2003 blackout, and • The leeway to the Reliability Coordinator to determine the scope of drills , exercises and simulations afforded by EOP-006-2 | | |
| Southern Company | No | R1.2 This is covered in R1.1 and should be deleted.? |

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| Organization | Yes or No | Comment |
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| | | <p>R1.5 Add "within its RC area" after Transmission Operator and add "neighboring" before Reliability Coordinator.?</p> <p>R1.6 This is more appropriately included in the Transmission Operator restoration plan and should be removed from the Reliability Coordinator plan.?</p> <p>R5. Add the phrase "the plans of" before "neighboring Reliability Coordinators, when received". The Violation Severity Level for R5 does not seem to be consistent with the requirement. ?</p> <p>R5.1 Replace the last sentence with; "The Reliability Coordinator shall coordinate with the Transmission operators within its footprint to resolve any issues or questions resulting from their review of the TOP plans.?"</p> <p>R6. Remove "approved" and replace with "coordinated" within the sentence and replace "latest" to "current".?</p> <p>R9. This would be more appropriately handled in the Personnel Training Standard. However, if it is to stay in this standard, training needs to incorporate not only the planned events but the unplanned events not in the plan. In other words, since not all possible restoration scenarios can be determined (there could be thousands of possible scenarios), the operating personnel performing the TOP function should be trained on what to do in the event than an unplanned restoration event should occur. *</p> <p>R10 -This is already covered in the Personnel training Standard and should not be duplicated. However, if it does stay in the standard, it should state:" The RC, TOP and GOP shall have as a minimum 1 joint drill per calendar year".</p> |
| <p>Response: R1.1 –The SDT believes there is a reliability impact. The strategies need to be documented so the standard coordinates with EOP-005-2, Requirement R1.1 and EOP-005-2, Requirement R7 where the TOP must follow its “strategies” in a Real-time restoration event when the System restoration plan can’t be executed as planned.</p> <p>R1.5: A change was made to address this concern.</p> <p>R1.5 Criteria and conditions for reestablishing interconnections <u>with other Transmission Operators within its Reliability Coordinator Area</u> between-with neighboring Transmission Operators and <u>in other</u> Reliability Coordinator Areas <u>and with other Reliability Coordinators</u>.</p> <p>R1.6: The SDT disagrees with your recommendation to delete R1.6 but does appreciate the need and coordination required to assure there are not different voltage and frequency limits between the Reliability Coordinator's and TOP restoration plans. No change made.</p> | | |

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| Organization | Yes or No | Comment |
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| | | <p>R5 & R5.1: The SDT discussed your concerns and doesn't believe that there is a problem in this area. The TOP is not going to change its plan without talking to the RC and the RC always has approval rights on the TOPs plan. No change made.</p> <p>R6: The suggested wording is seen as equivalent. No change made.</p> <p>R9. In Order 693, the Commission stated its belief that inclusion of periodic system restoration drills and training and review of restoration plans in a system restoration Reliability Standard is the most effective way of achieving the desired goal of ensuring that all participants are trained in system restoration. Further, the Commission directed the ERO to develop a modification to EOP-005-1 through the Reliability Standards development process that identifies time frames for training.</p> <p>R10: The SDT did not deem it necessary to define drills, exercises and simulations leaving the determination of their scope and extent of participation to the Reliability Coordinator's. The SDT does not agree that conducting two drills/exercises annually is excessive given:</p> <ul style="list-style-type: none"> • The need for realistic and credible drills and simulations noted by the US – Canadian Joint Task Force in their report on the August 14, 2003 blackout, and • The leeway to the Reliability Coordinator to determine the scope of drills , exercises and simulations afforded by EOP-006-2 |
| IRC Standards Review Committee | No | <p>For R7 and R8, we suggest to delete the words "because actual conditions do not match the studied conditions" leaving the sentence as "If the restoration plan cannot be completed as expected the Reliability Coordinator shall utilize its restoration plan strategies to facilitate System restoration". This change covers situations that can arise beyond 'studied conditions' such as a loss of operator voice channel loss, monitoring &/or control degradations, etc.</p> <p>R5 requires that Reliability Coordinators review the restoration plans of the neighbouring Reliability Coordinators. This requirement has already been stated in R.4. and therefore not needed here. We recommend that "and neighbouring Reliability Coordinators" be removed from the wording of R5. For more changes see comments below on M5.</p> <p>R9.1. states that the training program for the Reliability Coordinator's system operators should address "the coordination role of the Reliability Coordinator." We believe that this training should focus on system operators' role in the system restoration plan and furthermore, address the coordination with other operational entities identified in the plan. Hence, we recommend that R9.1. use the following wording: "The System Operators' role in the system restoration plan, including coordination with other operational entities identified in the plan."</p> <p>R1.1. We believe that the standard needs to define "minimum blackstart capability requirement" since otherwise, there can not be any applicable measures. Therefore, we suggest that R1.1 be reworded to: "A description of the high level strategy to be employed during restoration events for restoring the</p> |

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| Organization | Yes or No | Comment |
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| | | interconnection, including minimum blackstart requirements. ". Furthermore, we believe that minimum blackstart requirements should not be set by the RC. If by ?minimum blackstart capability? the SDT's intention is for the RC to set the number, location, strategy of restoration, or other minimum standard, this should either be set by the RRO, TOP or by a NERC standard with basis. |
| Independent Electricity System Operator (IESO) — Ontario | No | <p>For R7 and R8, we suggest to delete the words "because actual conditions do not match the studied conditions" leaving the sentence as "If the restoration plan cannot be completed as expected the Reliability Coordinator shall utilize its restoration plan strategies to facilitate System restoration". This change covers situations that can arise beyond 'studied conditions' such as a loss of operator voice channel loss, monitoring and/or control degradations, etc.</p> <p>R5 requires that Reliability Coordinators review the restoration plans of the neighbouring Reliability Coordinators. This requirement has already been stated in R.4. and therefore not needed here. We recommend that "and neighbouring Reliability Coordinators" be removed from the wording of R5. For more changes see comments below on M5.</p> <p>R9.1. states that the training program for the Reliability Coordinator's system operators should address "the coordination role of the Reliability Coordinator." We believe that this training should focus on system operators' role in the system restoration plan and furthermore, address the coordination with other operational entities identified in the plan. Hence, we recommend that R9.1. use the following wording: "The System Operators' role in the system restoration plan, including coordination with other operational entities identified in the plan."</p> <p>We believe that the standard needs to define "minimum blackstart capability requirement" since otherwise, there can not be any applicable measures. Therefore, we suggest that R1.1 be reworded to: "A description of the high level strategy to be employed during restoration events for restoring the interconnection, including minimum blackstart requirements. "</p> |

Response: R7 & R8 – Wording changed as suggested.

R7 Each Reliability Coordinator shall work with its affected Generator Operators, and Transmission Operators as well as neighboring Reliability Coordinators to monitor restoration progress, coordinate restoration, and take actions to restore the BES frequency within acceptable operating limits. If the restoration plan cannot be completed as expected ~~because actual conditions do not match the studied conditions,~~ the Reliability Coordinator shall utilize its restoration plan strategies to facilitate System restoration.

R8 The Reliability Coordinator shall coordinate or authorize resynchronizing islanded areas that bridge boundaries between Transmission Operators or Reliability Coordinators. If the resynchronization cannot be completed as expected ~~because actual conditions do not match the studied conditions,~~ the Reliability Coordinator shall utilize its restoration plan strategies to facilitate resynchronization.

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| Organization | Yes or No | Comment |
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| <p>R5 – The SDT changed the wording of this requirement to provide clarity.</p> <p>R5 Each Reliability Coordinator shall review the restoration plans required by EOP-005 of the Transmission Operators within its Reliability Coordinator Area and neighboring Reliability Coordinators, when received.</p> <p>R9.1: The SDT has decided to retain the existing wording in Requirement R9.1 believing that coordination with other entities identified in the plan is inherent to the plan. No change made.</p> <p>R1.1: Wording changed for clarity.</p> <p>R1.1 A description of the high level strategy to be employed during restoration events for restoring the Interconnection including minimum blackstart capability requirements <u>criteria for meeting the objectives of the Reliability Coordinator's restoration plan.</u></p> | | |
| Midwest ISO Stakeholder Standards Collaborators | No | Regarding EOP-006 R1.1, we believe that a "minimum blackstart capability requirement" should not be set by the RC. If by "minimum blackstart capability" the SDT's intention is for the RC to set the number, location, strategy of restoration, or other minimum standard, this should either be set by the RRO, TOP or by a NERC standard with basis. We question if this requirement conflicts with the EPAct which says the ERO will not develop standards that require building of generation or transmission. Setting a minimum blackstart capability may certainly require building either. |
| Ameren | No | Regarding EOP-006 R1.1, we believe that a "minimum blackstart capability requirement" should not be set by the RC. If by "minimum blackstart capability" the SDT's intention is for the RC to set the number, location, strategy of restoration, or other minimum standard, this should either be set by the RRO, TOP or by a NERC standard with basis. |
| ITC Transmission and METC | No | In R1.1., it is not clear what specifically is meant by "minimum blackstart capability requirement". This should be defined or removed from the requirement. |
| <p>Response: R1.1 – Wording changed for clarity.</p> <p>R1.1 A description of the high level strategy to be employed during restoration events for restoring the Interconnection including minimum blackstart capability requirements <u>criteria for meeting the objectives of the Reliability Coordinator's restoration plan.</u></p> | | |
| AEP | No | See response to question #7 |
| <p>Response: Please see response to question #7.</p> | | |

Consideration of Comments on 4th Draft of EOP-005-2 and EOP-006-2 — Project 2006-03

| Organization | Yes or No | Comment |
|---|-----------|---|
| JEA | No | <p>R2. These types of requirements have been problematic, and produced a great deal of paperwork without enhancing reliability or ensuring the intent of the standard is met. I heard an auditor suggest that to satisfy a similar requirement we had to prove that the neighbors read the document (although he quickly backed down when challenged). Might consider the wording 'shall make available' rather than 'shall distribute' so that something like a website posting and a printout of accounts with access is acceptable evidence. Internet posting is an established method by FERC to make information available to others for Standards of Conduct rules so should be acceptable and is considerably easier to administer and track for all involved.</p> <p>R9 Is it not the intent that all the RC's system operators receive this training annually? The requirement as stated only requires that this training be included. An entity could argue that only conducting the class would satisfy the requirement, regardless of the level of attendance.</p> <p>Collecting all training requirements in the PER standards will facilitate compliance and tracking by the entities as well as facilitating verification by auditors. It is confusing to have training requirements scattered through out the different categories.</p> |
| <p>Response: R2: The SDT feels that 'distribute' is the correct term. M2 has been changed to add an additional example to the list.</p> <p>M2 Each Reliability Coordinator shall provide evidence such as e-mails with receipts, posting to a secure web site with notification to affected entities, or registered mail receipts, that its most recent restoration plan has been distributed in accordance with Requirement R2.</p> <p>R9: The SDT intentionally utilized the phrase 'operations training program' to tie back to PER standards and to indicate that this training is just one part of that overall training program. The PER standards include the details that are questioned here and it was not felt necessary to duplicate them here.</p> <p>In Order 693, the Commission stated its belief that inclusion of periodic system restoration drills and training and review of restoration plans in a system restoration Reliability Standard is the most effective way of achieving the desired goal of ensuring that all participants are trained in system restoration. Further, the Commission directed the ERO to develop a modification to EOP-005-1 through the Reliability Standards development process that identifies time frames for training.</p> | | |
| Manitoba Hydro | No | <p>Remove "including minimum blackstart capability requirements" from Requirement R1.1. This is a TOP responsibility not an RC responsibility.</p> <p>Requirement R1.6 "Identification of acceptable voltage and frequency limits during restoration" add "of the Interconnection". The TOP is responsible for maintain frequency and voltage during restoration of their systems, the RC is responsible at the next level (restoration of the Interconnection).</p> |
| <p>Response: R1.1: Wording changed for clarity.</p> | | |

Consideration of Comments on 4th Draft of EOP-005-2 and EOP-006-2 — Project 2006-03

| Organization | Yes or No | Comment |
|---|-----------|--|
| <p>R1.1 A description of the high level strategy to be employed during restoration events for restoring the Interconnection including minimum blackstart capability requirements criteria for meeting the objectives of the Reliability Coordinator's restoration plan.</p> | | |
| <p>R1.6 – The SDT has deleted this sub-requirement as it is already covered in Requirement R1.5.</p> | | |
| <p>ISO New England Inc</p> | <p>No</p> | <p>Conducting two system restoration drills/exercises annually is excessive. At least one annual comprehensive exercise is sufficient, unless there are significant changes to the Reliability Coordinator system restoration plan.</p> <p>For R7 and R8, we suggest to delete the words "because actual conditions do not match the studied conditions" leaving the sentence as "If the restoration plan cannot be completed as expected the Reliability Coordinator shall utilize its restoration plan strategies to facilitate System restoration". This change covers situations that can arise beyond 'studied conditions' such as a loss of operator voice channel loss, monitoring &/or control degradations, etc.</p> <p>R5 requires that Reliability Coordinators review the restoration plans of the neighbouring Reliability Coordinators. This requirement has already been stated in R.4. and therefore not needed here. We recommend that "and neighbouring Reliability Coordinators" be removed from the wording of R5. For more changes see comments below on M5.</p> <p>R9.1. states that the training program for the Reliability Coordinator's system operators should address "the coordination role of the Reliability Coordinator." We believe that this training should focus on system operators' role in the system restoration plan and furthermore, address the coordination with other operational entities identified in the plan. Hence, we recommend that R9.1. use the following wording: "The System Operators' role in the system restoration plan, including coordination with other operational entities identified in the plan."</p> <p>R1.1. We believe that the standard needs to define "minimum blackstart capability requirement" since otherwise, there can not be any applicable measures. Therefore, we suggest that R1.1 be reworded to: "A description of the high level strategy to be employed during restoration events for restoring the interconnection, including minimum blackstart requirements."</p> |
| <p>Response: The SDT did not deem it necessary to define drills, exercises and simulations leaving the determination of their scope and extent of participation to the RC's. The SDT does not agree that conducting two drills/exercises annually is excessive given:</p> <ul style="list-style-type: none"> • The need for realistic and credible drills and simulations noted by the US – Canadian Joint Task Force in their report on the August 14, 2003 blackout, and • The leeway to the RC to determine the scope of drills, exercises and simulations afforded by EOP 006. | | |

| Organization | Yes or No | Comment |
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| <p>R7 & R8 – These requirements were changed.</p> <p>R7 Each Reliability Coordinator shall work with its affected Generator Operators, and Transmission Operators as well as neighboring Reliability Coordinators to monitor restoration progress, coordinate restoration, and take actions to restore the BES frequency within acceptable operating limits. If the restoration plan cannot be completed as expected because actual conditions do not match the studied conditions, the Reliability Coordinator shall utilize its restoration plan strategies to facilitate System restoration.</p> <p>R8 The Reliability Coordinator shall coordinate or authorize resynchronizing islanded areas that bridge boundaries between Transmission Operators or Reliability Coordinators. If the resynchronization cannot be completed as expected because actual conditions do not match the studied conditions, the Reliability Coordinator shall utilize its restoration plan strategies to facilitate resynchronization.</p> <p>R5 – Wording changed for clarity.</p> <p>R5 Each Reliability Coordinator shall review the restoration plans required by EOP-005 of the Transmission Operators within its Reliability Coordinator Area and neighboring Reliability Coordinators, when received.</p> <p>R9.1: The SDT feels that the language used is more generic and flexible and meets the intent of the comment as well. No change made.</p> <p>R1.1 – Wording changed for clarity.</p> <p>R1.1 A description of the high level strategy to be employed during restoration events for restoring the Interconnection including minimum blackstart capability requirements <u>criteria for meeting the objectives of the Reliability Coordinator's restoration plan.</u></p> | | |
| Hydro One Networks Inc. | No | <p>R1 - We do not agree that the scope of the RC's plan is over when all interconnections are established. An interconnection may be lost for many reasons. As written, this plan could extend to weeks/months if one of the above were true.</p> <p>R1.2 - We suggest the words...'Description of the' be placed in front of processes. This then makes everything consistent within the section and nullifies the requirement to have the plan contain every process. As written, it would seem impossible to maintain and keep up-to-date.</p> <p>R10 - We believe conducting two system restoration drills/exercises annually might be excessive. At least one annual comprehensive exercise is sufficient, unless there are significant changes to the Reliability Coordinator system restoration plan. We support conducting 2 restoration drills/exercises but both not all encompassing. There is benefit in doing one large overall exercise, but there is far more benefit in having a one or more smaller ones to actually test performance and understanding in specific areas.</p> |
| <p>Response: R1: The SDT disagrees and will retain Requirement R1 in its present wording. System restoration is not intended to endure until</p> | | |

| Organization | Yes or No | Comment |
|---|-----------|--|
| | | <p>every last Megawatt of load that was interrupted in the disturbance is restored. Should the interconnection be lost or a restored island re-collapse, system restoration is started anew in accordance with system restoration plans.</p> <p>R1.2: The SDT has changed the requirement to provide clarity. Operating Process is a defined term and the SDT believes that it is the correct terminology.</p> <p>R1.2 <u>Operating</u> Processes for restoring the Interconnection.</p> <p>R10: The SDT did not deem it necessary to define drills, exercises and simulations leaving the determination of their scope and extent of participation to the RC's. The SDT does not agree that conducting two drills/exercises annually is excessive given:</p> <ul style="list-style-type: none"> • The need for realistic and credible drills and simulations noted by the US – Canadian Joint Task Force in their report on the August 14, 2003 blackout, and • The leeway to the RC to determine the scope of drills, exercises and simulations afforded by EOP-006-2. |
| US Bureau of Reclamation | No | <p>R2 requires the Reliability Coordinator its restoration plan to each of the Transmission Operators in its area. Recommend that the Reliability Coordinator also distribute the plan to Generator Operators included n the plan. R7 (of EOP-005-2)requires the Transmission Operator to "utilize its restoration plan strategies to facilitate restoration" in the event the restoration plan cannot be executed as planned. It is unclear where this strategy is developed and who is responsible for developing it.</p> <p>Requirement R1.1 requires the Transmission Operator's plan to describe how it follows the "high level strategies" outlined in the RC's restoration plan but there is no clear requirement that the Transmission Operator have developed a separate restoration strategy. Standard EOP-006, R1.1 applicable to the Reliability Coordinator requires a? description of the high level strategy to be employed during restoration events for restoring the interconnection??. It is unclear if there are to be one or more strategies. If R7 (of EOP-005) is referring to the Reliability Coordinator's strategy it should clearly state that.</p> |
| <p>Response: R2: The SDT expects in most cases the RC's restoration plan will be different than the TOP's; the RC's is high level and focused on establishing Interconnections and accomplishing restoration of the Reliability Coordinator Area as a whole depending on coordinated TOP restoration plans which invariably are more detailed in scope. In coordinating and providing input to TOP restoration plans the RC assures common goals for restoration can be achieved. The SDT expects that in preparation for the RC's restoration drill in which the Generator Operator will participate both the RC's high level strategies for restoration and the TOP's restoration plan requirements that involve the Generator Operators are reviewed. Thus the SDT has not made any revisions to the requirements.</p> <p>R9.1 and R9.2: The SDT will retain 'address' to allow the RC in its training program the flexibility to decide what to include for R9.1 & R9.2.</p> | | |

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| Organization | Yes or No | Comment |
|--|-----------|--|
| <p>R1: R1.1 makes it clear that the high level strategy will be described. The strategies need to be documented so the standard coordinates with EOP-005-2, Requirement R1.1 and EOP-005-2, Requirement R7 where the TOP must follow its "strategies" in a Real-time restoration event when the System restoration plan can't be executed as planned.</p> | | |
| San Diego Gas and Electric Co. | No | <p>SDG&E Edit to R6:Each Reliability Coordinator shall have a copy of its latest restoration plan and copies of the latest approved restoration plan of each Transmission Operator in its Reliability Coordinator Area within each of its primary and backup control centers rooms and available to all of its control room personnel System Operators prior to the implementation date</p> |
| <p>Response: R6: Changes made to provide clarity.</p> <p>R6 Each Reliability Coordinator shall have a copy of its latest restoration plan and copies of the latest approved restoration plan of each Transmission Operator in its Reliability Coordinator Area within its primary and backup control rooms and <u>so that it is</u> available to all of its System Operators prior to the implementation date.</p> | | |
| Northeast Utilities | Yes | <p>R1.2 - Suggest adding "Description of the" in front of processes. This removes the potential unreasonable quantity of, or possible ambiguity about, the documentation required to demonstrate compliance.</p> |
| <p>Response: R1.2: Wording changed for clarity and consistency.</p> <p>R1.2 Operating Processes for restoring the Interconnection</p> | | |
| American Transmission Company | No | <p>EOP-006 R1.1? ? Requirement 1.1 states that the RC has to provide "minimum blackstart capability requirements", but the standard does not provide any guidance to the RC on what has to be included in their "minimum blackstart capability requirements". ATC believes that the standard should contain a list of items that must be included in the "minimum blackstart capability requirements".? ? If the SDT disagrees with our position then we request a technical justification as to why each RCs "blackstart capability requirements" would be so diverse that a minimum list should not be included.? ?</p> <p>EOP-006 R1.9? ? Requirement should be rewritten in order to clarify the role of RC when communicating system restoration efforts.? ATC believes that the language should only specify that the RC is responsible for disseminating and communicating information regarding restoration to neighboring RCs. Requirement 1.7 already covers communication within the RC's area.</p> |
| <p>Response: R1.1 – Wording changed for clarity.</p> <p>R1.1 A description of the high level strategy to be employed during restoration events for restoring the Interconnection including minimum blackstart capability requirements <u>criteria for meeting the objectives of the Reliability Coordinator's restoration plan.</u></p> <p>R1.9: The SDT disagrees with your suggested change to Requirement R1.9 which assures to the extent possible that the information is consistent</p> | | |

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| Organization | Yes or No | Comment |
|--|-----------|--|
| <p>across the Reliability Coordinator Area. No change made.</p> | | |
| <p>PJM</p> | <p>No</p> | <p>In R6, change the words -within its primary and backup control rooms and available to- to -readily accessible. This allows more flexibility in distributing the plan.</p> <p>R7 - Change -shall utilize its restoration plan strategies- to -shall utilize strategies similar to its restoration plan. I think this is the intent but the old wording seems to imply that the strategies exist in the plan. R7 should be moved up to R1 to signify its importance to this standard.</p> |
| <p>Response: R6 – Wording changed to provide clarity.</p> <p>R6 Each Reliability Coordinator shall have a copy of its latest restoration plan and copies of the latest approved restoration plan of each Transmission Operator in its Reliability Coordinator Area within its primary and backup control rooms and <u>so that it is</u> available to all of its System Operators prior to the implementation date.</p> <p>R7: Strategy is covered in Requirement R1.1. The strategies need to be documented so the standard coordinates with EOP-005-2, Requirement R1.1 and EOP-005-2, Requirement R7 where the TOP must follow its “strategies” in a Real-time restoration event when the System restoration plan can’t be executed as planned. No change made.</p> | | |
| <p>Hydro-Quebec Transenergie</p> | <p>No</p> | <p>HQT believes conducting two system restoration drills/exercises annually is excessive. At least one annual comprehensive exercise is sufficient, unless there are significant changes to the Reliability Coordinator system restoration plan.</p> <p>R5 requires that Reliability Coordinators review the restoration plans of the neighbouring Reliability Coordinators. This requirement has already been stated in R.4. and therefore not needed here. We recommend that "and neighboring Reliability Coordinators" be removed from the wording of R5.</p> <p>R9.1. states that the training program for the Reliability Coordinator's system operators should address "the coordination role of the Reliability Coordinator." We believe that this training should focus on system operators' role in the system restoration plan and furthermore, address the coordination with other operational entities identified in the plan. Hence, we recommend that R9.1. use the following wording: "The System Operators' role in the system restoration plan, including coordination with other operational entities identified in the plan."</p> |
| <p>Response: R10: The SDT did not deem it necessary to define drills, exercises and simulations leaving the determination of their scope and extent of participation to the Reliability Coordinator’s. The SDT does not agree that conducting two drills/exercises annually is excessive given:</p> <ul style="list-style-type: none"> • The need for realistic and credible drills and simulations noted by the US – Canadian Joint Task Force in their report on the August 14, 2003 blackout, and • The leeway to the Reliability Coordinator to determine the scope of drills, exercises and simulations afforded by EOP-006-2. | | |

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| Organization | Yes or No | Comment |
|--|-----------|------------|
| <p>R5: Wording changed for clarity.</p> <p>R5 Each Reliability Coordinator shall review the restoration plans required by EOP-005 of the Transmission Operators within its Reliability Coordinator Area and neighboring Reliability Coordinators, when received.</p> | | |
| <p>R9.1: The SDT will retain 'address' to allow the RC in its training program the flexibility to decide what to include for R9.1.</p> | | |
| Luminant Power | Yes | |
| Oncor Electric Delivery | Yes | |
| We Energies | Yes | |
| AECI | | no comment |
| Xcel Energy | Yes | |
| Entergy | Yes | |
| Allegheny Power | Yes | |
| US Army Corps of Engineers | Yes | |
| Bonneville Power Administration | Yes | |
| <p>Response: Thank you</p> | | |

5. The SDT has made a number of clarifying changes to the measures in EOP-006-2 based on industry comments from the third posting. Do you agree with the changes that were made? If not, please provide specific suggestions for change.

Summary Consideration:

There were relatively few negative comments and the SDT made only minor changes to provide clarity in addressing industry concerns in the following areas:

R5 Each Reliability Coordinator shall review the restoration plans required by EOP-005 of the Transmission Operators within its Reliability Coordinator Area ~~and neighboring Reliability Coordinators, when received~~

M5 Each Reliability Coordinator shall provide evidence, such as a review signature sheet or emails, that it has reviewed, approved or disapproved, and notified its Transmission Operator's; within 30 calendar days following the receipt of the restoration plan from the Transmission Operator ~~and reviewed its neighboring Reliability Coordinator's, submitted restoration plan(s) and updated its restoration plan, if necessary,~~ in accordance with Requirement R5.

M8 If there has been a resynchronizing of an islanded area, each Reliability Coordinator involved shall have evidence such as voice recordings, e-mail, or operator logs, that it coordinated ~~and or~~ authorized resynchronizing in accordance with Requirement R8.

R5 VSL

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| <p>R5</p> | <p>The Reliability Coordinator did not review and approve/disapprove the submitted restoration plans from its Transmission Operators and neighboring Reliability Coordinators within thirty <u>30 calendar</u> days of receipt <u>but did review and approve/disapprove the plans within 45 calendar days of receipt.</u></p> <p>OR_f</p> <p>TThe Reliability Coordinator failed to notify the Transmission Operator of its approval or disapproval with stated</p> | <p>The Reliability Coordinator did not review and approve/disapprove the submitted restoration plans from its Transmission Operators and neighboring Reliability Coordinators within forty-five <u>30</u> calendar days of receipt <u>but did review and approve/disapprove the plans within 60 calendar days of receipt.</u></p> <p>OR_f</p> <p>TThe Reliability Coordinator failed to notify the Transmission Operator of its approval or disapproval with stated reasons for</p> | <p>The Reliability Coordinator did not review and approve/disapprove the submitted restoration plans from its Transmission Operators and neighboring Reliability Coordinators within sixty <u>30</u> calendar days of receipt <u>but did review and approve/disapprove the plans within 90 calendar days of receipt.</u></p> <p>OR_f</p> <p>TThe Reliability Coordinator failed to notify the Transmission Operator of its approval or disapproval with stated</p> | <p>The Reliability Coordinator did not review and approve/disapprove the submitted restoration plans from its Transmission Operators and neighboring Reliability Coordinators within ninety <u>for more than 90</u> calendar days of receipt.</p> <p>OR_f</p> <p>TThe Reliability Coordinator failed to notify the Transmission Operator of its approval or disapproval with stated reasons for disapproval within ninety <u>for more than 90 calendar</u> days of</p> |
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| | reasons for disapproval within thirty <u>30 calendar</u> days of receipt <u>but did notify the Transmission Operator of its approval or disapproval with reasons within 45 calendar days of receipt.</u> | disapproval within forty-five <u>30 calendar</u> days of receipt <u>but did notify the Transmission Operator of its approval or disapproval with reasons within 60 calendar days of receipt.</u> | reasons for disapproval within sixty <u>30 calendar</u> days of receipt <u>but did notify the Transmission Operator of its approval or disapproval with reasons within 90 calendar days of receipt.</u> Or the Reliability Coordinator failed to revise its restoration plan after identifying changes required by new or revised restoration plans received from its Transmission Operators and neighboring Reliability Coordinators within ninety calendar days of receipt. | receipt. Or the Reliability Coordinator failed to revise its restoration plan after identifying changes required by new or revised restoration plans received from its Transmission Operators and neighboring Reliability Coordinators within 150 calendar days of receipt. |
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| Organization | Yes or No | Comment |
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| NPCC | Yes | Suggest using a consistent format (i.e., text or number) when specifying calendar days and/or years. Reference VSL for R2, R3, R4 R5, R6, & R10. |
| Hydro One Networks Inc. | Yes | e suggest using a consistent format (i.e., text or number) when specifying calendar days and/or years. Reference VSL for R2, R3, R4 R5, R6, & R10. |
| Hydro-Quebec Transenergie | Yes | Suggest using a consistent format (i.e., text or number) when specifying calendar days and/or years. Reference VSL for R2, R3, R4 R5, R6, & R10. |
| Response: The SDT has changed the numbering throughout the documents to reflect the NERC Style Guide which calls for text for numbers up to nine and numerals thereafter. | | |
| Santee Cooper | No | The RC should not be tasked with approving TOP's restoration plan. M8. Change "coordinated and authorized" to "coordinated". |
| Response: In Order 693, the Commission proposal is that the Reliability Coordinators should be involved in the development and approval of the | | |

Consideration of Comments on 4th Draft of EOP-005-2 and EOP-006-2 — Project 2006-03

| Organization | Yes or No | Comment |
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| restoration plans. The SDT feels that the approval of the plans is consistent with the role of the Reliability Coordinator as defined in the Functional Model and does not add additional liability to the Reliability Coordinator | | |
| SERC OC Standards Review Group | No | <p>All measures for EOP-006 should be checked for consistency with proposed changes to requirements.</p> <p>M5. The measure for this requirement states that the RC must revise its restoration plan based on review of TOPs and neighboring RCs, however, the requirement does not state that an update of the RC's own plan is required. The Violation Severity Level for M5 does not seem to be consistent with the requirement.</p> <p>M8. Needs to comply with R8 ? change ?coordinated and authorized? to ?coordinated or authorized?</p> |
| Duke Energy Corporation | No | <p>All measures for EOP-006 should be checked for consistency with proposed changes to requirements.</p> <p>M5. The measure for this requirement states that the RC must revise its restoration plan based on review of TOPs and neighboring RCs, however, the requirement does not state that an update of the RC's own plan is required. The Violation Severity Level for M5 does not seem to be consistent with the requirement.</p> <p>M8. Needs to comply with R8 ? change ?coordinated and authorized? to ?coordinated or authorized?</p> |
| <p>Response: The SDT has checked that Measures agree with the requirements.</p> <p>M5 – Requirement R5 was changed.</p> <p>R5 Each Reliability Coordinator shall review the restoration plans required by EOP-005 of the Transmission Operators within its Reliability Coordinator Area and neighboring Reliability Coordinators, when received</p> <p>M5 Each Reliability Coordinator shall provide evidence, such as a review signature sheet or emails, that it has reviewed, approved or disapproved, and notified its Transmission Operator's, <u>within 30 calendar days following the receipt of the restoration plan from the Transmission Operator</u> and reviewed its neighboring Reliability Coordinator's, submitted restoration plan(s) and updated its restoration plan, if necessary, in accordance with Requirement R5.</p> <p>M8 – Agreed.</p> <p>M8. If there has been a resynchronizing of an islanded area, each Reliability Coordinator involved shall have evidence such as voice recordings, e-mail, or operator logs, that it coordinated and or authorized resynchronizing in accordance with Requirement R8.</p> | | |

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| Organization | Yes or No | Comment |
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| IRC Standards Review Committee | No | <p>If the comments above are accepted, M5 should not include the wording "and reviewed its neighboring Reliability Coordinator's".</p> <p>Furthermore, the wording in M5 "and updated its restoration plan, if necessary" is not reflected in R5, where the Reliability Coordinator is required to review but not necessarily update its restoration plan. We suggest that similar wording is added to R5.</p> |
| <p>Response: M5 was changed to address your concern.</p> <p>M5 Each Reliability Coordinator shall provide evidence, such as a review signature sheet or emails, that it has reviewed, approved or disapproved, and notified its Transmission Operator's; <u>within 30 calendar days following the receipt of the restoration plan from the Transmission Operator</u> and reviewed its neighboring Reliability Coordinator's, submitted restoration plan(s) and updated its restoration plan, if necessary, in accordance with Requirement R5.</p> | | |
| Southern Company | No | M8. Needs to comply with R8 ? change ?coordinated and authorized? to ?coordinated or authorized? |
| <p>Response: M8 was changed to address your concern.</p> <p>M8 If there has been a resynchronizing of an islanded area, each Reliability Coordinator involved shall have evidence such as voice recordings, e-mail, or operator logs, that it coordinated and or authorized resynchronizing in accordance with Requirement R8.</p> | | |
| JEA | No | M9. Might consider wording in the measure that the RC provide a copy of training content, descriptions or program materials. |
| <p>Response: The SDT has checked that Measures agree with the requirements.</p> | | |
| Entergy Services | No | *M5 - The measure for this requirement states that the RC must revise its restoration plan based on review of TOPs and neighboring RCs, however, the requirement does not state that an update of the RC's own plan is required. The Violation Severity Level for M5 does not seem to be consistent with the requirement. |
| <p>Response: M5 was changed to address your concern.</p> <p>M5 Each Reliability Coordinator shall provide evidence, such as a review signature sheet or emails, that it has reviewed, approved or disapproved, and notified its Transmission Operator's; <u>within 30 calendar days following the receipt of the restoration plan from the Transmission Operator</u> and reviewed its neighboring Reliability Coordinator's, submitted restoration plan(s) and updated its restoration plan, if necessary, in accordance with Requirement R5.</p> | | |

| Organization | Yes or No | Comment | | |
|---|--|--|--|---|
| R5 VSL was changed to match the changes in the requirement. | | | | |
| R5 VSL. | | | | |
| R5 | <p>The Reliability Coordinator did not review and approve/disapprove the submitted restoration plans from its Transmission Operators and neighboring Reliability Coordinators within thirty <u>30 calendar</u> days of receipt <u>but did review and approve/disapprove the plans within 45 calendar days of receipt.</u></p> <p>OR_f,</p> <p>†The Reliability Coordinator failed to notify the Transmission Operator of its approval or disapproval with stated reasons for disapproval within thirty <u>30 calendar</u> days of receipt <u>but did notify the Transmission Operator of its approval or disapproval with reasons within 45 calendar days of receipt.</u></p> | <p>The Reliability Coordinator did not review and approve/disapprove the submitted restoration plans from its Transmission Operators and neighboring Reliability Coordinators within forty-five <u>30</u> calendar days of receipt <u>but did review and approve/disapprove the plans within 60 calendar days of receipt.</u></p> <p>OR_f,</p> <p>†The Reliability Coordinator failed to notify the Transmission Operator of its approval or disapproval with stated reasons for disapproval within forty-five <u>30</u> calendar days of receipt <u>but did notify the Transmission Operator of its approval or disapproval with reasons within 60 calendar days of receipt.</u></p> | <p>The Reliability Coordinator did not review and approve/disapprove the submitted restoration plans from its Transmission Operators and neighboring Reliability Coordinators within sixty <u>30</u> calendar days of receipt <u>but did review and approve/disapprove the plans within 90 calendar days of receipt.</u></p> <p>OR_f,</p> <p>†The Reliability Coordinator failed to notify the Transmission Operator of its approval or disapproval with stated reasons for disapproval within sixty <u>30</u> calendar days of receipt <u>but did notify the Transmission Operator of its approval or disapproval with reasons within 90 calendar days of receipt.</u> Or the Reliability Coordinator failed to revise its restoration plan after identifying changes required by new or revised restoration plans received</p> | <p>The Reliability Coordinator did not review and approve/disapprove the submitted restoration plans from its Transmission Operators and neighboring Reliability Coordinators within ninety <u>for more than 90</u> calendar days of receipt.</p> <p>OR_f,</p> <p>†The Reliability Coordinator failed to notify the Transmission Operator of its approval or disapproval with stated reasons for disapproval within ninety <u>for more than 90 calendar</u> days of receipt. Or the Reliability Coordinator failed to revise its restoration plan after identifying changes required by new or revised restoration plans received from its Transmission Operators and neighboring Reliability Coordinators within 150 calendar days of receipt.</p> |

Consideration of Comments on 4th Draft of EOP-005-2 and EOP-006-2 — Project 2006-03

| Organization | Yes or No | Comment |
|--|-----------|---|
| | | <p>from its Transmission Operators and neighboring Reliability Coordinators within ninety calendar days of receipt</p> |
| Independent Electricity System Operator (IESO) — Ontario | No | <p>If the comments above are accepted, M5 should not include the wording "and reviewed its neighboring Reliability Coordinator's". Furthermore, the wording in M5 "and updated its restoration plan, if necessary" is not reflected in R5, where the Reliability Coordinator is required to review but not necessarily update its restoration plan. We suggest that similar wording is added to R5.</p> |
| <p>Response: M5 was changed to address your concern.</p> <p>M5 Each Reliability Coordinator shall provide evidence, such as a review signature sheet or emails, that it has reviewed, approved or disapproved, and notified its Transmission Operator's; <u>within 30 calendar days following the receipt of the restoration plan from the Transmission Operator</u> and reviewed its neighboring Reliability Coordinator's, submitted restoration plan(s) and updated its restoration plan, if necessary, in accordance with Requirement R5.</p> | | |
| American Transmission Company | No | see our comments to question 4 |
| <p>Response: Please see the response to question 4.</p> | | |
| PJM | Yes | |
| Luminant Power | Yes | |
| FirstEnergy Corp. | Yes | |
| MRO NERC Standards Review Subcommittee | Yes | |
| Bonneville Power Administration | Yes | |
| Midwest ISO Stakeholder | Yes | |

Consideration of Comments on 4th Draft of EOP-005-2 and EOP-006-2 — Project 2006-03

| Organization | Yes or No | Comment |
|---|-----------|------------|
| Standards Collaborators | | |
| US Army Corps of Engineers | Yes | |
| AEP | Yes | |
| Allegheny Power | Yes | |
| Manitoba Hydro | Yes | |
| Ameren | Yes | |
| ISO New England Inc | Yes | |
| We Energies | Yes | |
| AECI | | no comment |
| Xcel Energy | Yes | |
| US Bureau of Reclamation | Yes | |
| San Diego Gas and Electric Co. | Yes | |
| Oncor Electric Delivery | Yes | |
| ITC Transmission and METC | Yes | |
| Northeast Utilities | Yes | |
| Response: Thank you for your response. | | |

Consideration of Comments on 4th Draft of EOP-005-2 and EOP-006-2 — Project 2006-03

6. The SDT has made a number of clarifying changes to the compliance elements in EOP-006-2 based on industry comments from the third posting. Do you agree with the changes that were made? If not, please provide specific suggestions for change.

Summary Consideration:

There were no specific negative comments and the SDT made no specific changes due to industry comments.

| Organization | Yes or No | Comment |
|---|-----------|--|
| Santee Cooper | No | We have suggested several changes to the requirements and request the SDT to make corresponding changes to the compliance elements. |
| Duke Energy Corporation | Yes | We have suggested several changes to the requirements and request the SDT to make corresponding changes to the compliance elements. |
| Entergy Services | No | We have suggested several changes to the requirements and request the SDT to make any corresponding changes to the compliance elements. |
| SERC OC Standards Review Group | No | We have suggested several changes to the requirements and request the SDT to make corresponding changes to the compliance elements. We also suggest using a consistent format (i.e., text or number) when specifying calendar days and/or years. Reference VSL for R2, R3, R4 R5, R6, & R10. |
| <p>Response: The SDT has responded to your comments and has made changes to the compliance elements where needed based on the requirement changes. The SDT has changed the numbering throughout the documents to reflect the NERC Style Guide which calls for text for numbers up to nine and numerals thereafter.</p> | | |
| American Transmission Company | No | see our comments to question 9 |
| <p>Response: Please see our response to question 9.</p> | | |
| NPCC | Yes | |
| Luminant Power | Yes | |
| FirstEnergy Corp. | Yes | |

Consideration of Comments on 4th Draft of EOP-005-2 and EOP-006-2 — Project 2006-03

| Organization | Yes or No | Comment |
|---|-----------|-------------|
| MRO NERC Standards Review Subcommittee | Yes | |
| Bonneville Power Administration | Yes | |
| IRC Standards Review Committee | Yes | |
| Midwest ISO Stakeholder Standards Collaborators | Yes | |
| Southern Company | Yes | |
| US Army Corps of Engineers | Yes | |
| Allegheny Power | Yes | |
| Manitoba Hydro | Yes | |
| Ameren | Yes | |
| ISO New England Inc | Yes | |
| We Energies | Yes | |
| AECI | | no comments |
| Xcel Energy | Yes | |
| Hydro One Networks Inc. | Yes | |
| US Bureau of Reclamation | Yes | |

Consideration of Comments on 4th Draft of EOP-005-2 and EOP-006-2 — Project 2006-03

| Organization | Yes or No | Comment |
|---|-----------|---------|
| San Diego Gas and Electric Co. | Yes | |
| Oncor Electric Delivery | Yes | |
| Independent Electricity System Operator (IESO) — Ontario | Yes | |
| ITC Transmission and METC | Yes | |
| Northeast Utilities | Yes | |
| PJM | Yes | |
| Hydro-Quebec Transenergie | Yes | |
| <p>Response: Thank you for your response.</p> | | |

Consideration of Comments on 4th Draft of EOP-005-2 and EOP-006-2 — Project 2006-03

7. The SDT added a new subrequirement for the Reliability Coordinator's restoration plan to include a high level description of the Reliability Coordinator's strategies for restoring the interconnection - and an associated requirement for the Transmission Operator's restoration plan to document how it supports the Reliability Coordinator's restoration strategies. Do you agree with these additions? If no, please identify why not.

Summary Consideration:

There were relatively few negative comments and the SDT made only minor changes to provide clarity in addressing industry concerns in the following areas:

EOP-005-2, R1.1 Strategies for system restoration that are coordinated with the Reliability Coordinator's high level strategy for restoring the Interconnection.

EOP-006-1, R1.1 A description of the high level strategy to be employed during restoration events for restoring the Interconnection including minimum ~~blackstart capability requirements~~ [criteria for meeting the objectives of the Reliability Coordinator's restoration plan.](#)

| Organization | Yes or No | Comment |
|--|-----------|---|
| FirstEnergy Corp. | Yes | R1.1 - This requirement may be problematic in that the RC may not develop its restoration plan until after each of the Transmission Operators has developed their plans. Then most likely the RC will determine its high level strategies (per EOP-006 R1.1) based on the TOP plans. This may require the TOP to readjust its plan to reflect the high level strategies, and then those TOP adjustments may drive more RC adjustments to its high level strategies, etc. Per the implementation plan of EOP-006, the RC has 24-months to comply with R1.1, and subsequently may not give any time to the TOP to get into compliance with EOP-005 R1.1. We suggest that the implementation for EOP-006 R1.1 and EOP-005 be staggered to allow 1) allow sufficient time for the iterations described above to take place, 2) to allow the RC sufficient time to complete its process, and 3) to allow sufficient time for the TOP to then adjust its plan accordingly. This may require the RC be in compliance with R1.1 before the TOP, and then both entities still be in compliance within 24-months. |
| Response: The SDT expects that 24 months allows for both the RC and TOP, in development of their restoration plans, to apprise each other of planned changes that may affect the others plan as consistent with normal business relationship practices. | | |
| Santee Cooper | No | See comments above. |
| Response: Please see our responses above. | | |
| SERC OC Standards Review Group | No | Please see comments in Questions 1 and 4 above. |
| Response: See response to questions 1 and 4. | | |

Consideration of Comments on 4th Draft of EOP-005-2 and EOP-006-2 — Project 2006-03

| Organization | Yes or No | Comment |
|--|-----------|--|
| AEP | No | R1.1 The term minimum blackstart capability requirements needs to be defined. As written the requirement would be a fill-in-the-gap requirement. The version 02 standards are supposed to eliminate this type of ambiguity. |
| <p>Response: Given the differences in Reliability Coordinator Area composition and scale and TOP spans of control, the SDT opted not to develop stringent criteria for minimum blackstart capability requirements and impose them on all RC's. Therefore the SDT will not define minimum blackstart capability requirements.</p> | | |
| JEA | No | I agree with the RC having the high level description and believe it adds value, but the requirement on the TOP is vague and likely to result only in the inclusion of empty words in the plan to satisfy the requirement, exposing the entity to compliance risk without contributing to reliability. It should be incumbent on the RC to verify that the TOP's plan supports their strategy prior to approval. |
| <p>Response: The SDT has changed the wording of EOP-005-2, Requirement R1.1 to address this concern.</p> <p>EOP-005-2, R1.1 Strategies for system restoration that are coordinated with the Reliability Coordinator's high level strategy for restoring the Interconnection.</p> | | |
| Manitoba Hydro | No | Because the new subrequirement also requires the RC to include minimum blackstart capability requirements when that is a TOP responsibility. |
| <p>Response: The SDT has re-worded EOP-006-2, Requirement R1.1 to provide clarity and consistency across the Reliability Coordinator Area. By changing the wording to 'criteria to meet the objectives' allows for greater flexibility while assuring that all issues including blackstart capabilities will be met.</p> <p>EOP-006-1, R1.1 A description of the high level strategy to be employed during restoration events for restoring the Interconnection including minimum blackstart capability requirements criteria for meeting the objectives of the Reliability Coordinator's restoration plan.</p> | | |
| US Bureau of Reclamation | Yes | Yes in general the concept of a high level Reliability Coordinator strategy and the Transmission Operator implementation of that strategy is a good one. However, as commented earlier, EOP-005-2, R7 implies the TOP has also developed a "restoration strategy" to be followed when the restoration plan cannot be implemented. It should be clarified that only the Reliability Coordinator is required to develop the high level strategy. |
| <p>Response: The SDT does not believe it necessary to clarify that only the Reliability Coordinator is required to develop the high level strategy. The SDT notes that both TOP and RC restoration plans have elements of strategy to achieve common and differing goals for restoration. EOP-005-2, Requirement R7 and EOP-006-2, Requirement R7.1 are not restricted to achieving the RC's high level strategy; rather they are included to assure both the TOP and the RC consider and adopt alternative methodologies to overcome unforeseen circumstances and achieve restoration.</p> | | |

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| Organization | Yes or No | Comment |
|---|-----------|---|
| MRO NERC Standards Review Subcommittee | Yes | |
| Bonneville Power Administration | Yes | |
| IRC Standards Review Committee | Yes | |
| Midwest ISO Stakeholder Standards Collaborators | Yes | |
| Southern Company | Yes | This will create more work, but could be justified. |
| US Army Corps of Engineers | Yes | |
| Allegheny Power | Yes | |
| Ameren | Yes | |
| ISO New England Inc | Yes | |
| We Energies | Yes | |
| AECI | | no comment |
| Xcel Energy | Yes | |
| Entergy | Yes | |
| Hydro One Networks Inc. | Yes | |
| San Diego Gas and Electric Co. | Yes | |

Consideration of Comments on 4th Draft of EOP-005-2 and EOP-006-2 — Project 2006-03

| Organization | Yes or No | Comment |
|---|-----------|---------|
| Oncor Electric Delivery | Yes | |
| NPCC | Yes | |
| Luminant Power | Yes | |
| Response: Thank you for your response. | | |

Consideration of Comments on 4th Draft of EOP-005-2 and EOP-006-2 — Project 2006-03

8. The SDT has completely re-worked the Implementation Plan based on industry comments from the third posting. Do you agree with the changes that were made? If not, please provide specific suggestions for change.

Summary Consideration:

There were no specific negative comments and the SDT made no specific changes due to industry comments.

| Organization | Yes or No | Comment |
|--|-----------|--|
| FirstEnergy Corp. | Yes | Except for the need for staggered implementation of R1.1 per our previous comments. |
| Santee Cooper | No | The RC requirements that directly affect a TOPs requirements need to be due in advance of the other requirements or a TOP could get caught with no time to complete their requirements. |
| SERC OC Standards Review Group | No | The new timeline is better, but not ideal. Since some requirements are dependent on others being completed beforehand, if certain ones are not completed until the last minute other requirements will not be able to be implemented on time. It seems a simple, but better solution would be to have the RC applicable requirements due in advance of the other requirements. |
| Southern Company | No | The new timeline is better, but not ideal. Since some requirements are dependent on others being completed beforehand, if certain ones are not completed until the last minute, other requirements will not be able to be implemented on time. It seems that a simple, but better solution would be to have the RC applicable requirements due in advance of the other requirements. |
| Entergy Services | No | The new timeline is better, but not ideal. Since some requirements are dependent on others being completed beforehand, if certain ones are not completed until the last minute other requirements will not be able to be implemented on time. It seems a simple, but a better solution would be to have the RC applicable requirements due in advance of the other requirements. |
| <p>Response: The SDT recognizes this is a start-up problem and that there are many interacting requirements between EOP-005-2 and EOP-006-2. The SDT did not want to add confusion and potential non-compliance with a complex implementation plan, and has left it to the Reliability Coordinators, Transmission Operators, and Generator Operators to coordinate in a way to permit all to be compliant by the end of the implementation period. Please note that RCs and TOPs are already required to have a restoration plan.</p> | | |
| IRC Standards Review Committee | No | In EOP-006-2, R10 and M10 require that 2 system restoration drills, exercises or simulations be conducted annually. We believe that conducting two system restoration drills/exercises annually is excessive. One annual comprehensive exercise is sufficient, unless specific triggers occur that require an additional system restoration drill, exercise or simulation per year. We believe that the Standards Drafting Team should give consideration to defining these triggers, which should be easy to measure in an audit. |

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| Organization | Yes or No | Comment |
|---|-----------|--|
| ISO New England Inc | No | We believe that conducting two system restoration drills/exercises annually is excessive. One annual comprehensive exercise is sufficient, unless specific triggers occur that require an additional system restoration drill, exercise or simulation per year. We believe that the Standards Drafting Team should give consideration to defining these triggers, which should be easy to measure in an audit. |
| Hydro-Quebec Transenergie | No | We believe that conducting two system restoration drills/exercises annually is excessive. One annual comprehensive exercise is sufficient, unless specific triggers occur that require an additional system restoration drill, exercise or simulation per year. We believe that the Standards Drafting Team should give consideration to defining these triggers, which should be easy to measure in an audit. |
| <p>Response: The SDT did not deem it necessary to define drills, exercises and simulations leaving the determination of their scope and extent of participation to the Reliability Coordinator's. The SDT does not agree that conducting two drills/exercises annually is excessive given:</p> <ul style="list-style-type: none"> • The need for realistic and credible drills and simulations noted by the US – Canadian Joint Task Force in their report on the August 14, 2003 blackout, and • The leeway to the Reliability Coordinator to determine the scope of drills, exercises and simulations afforded by EOP 006-2. | | |
| AECI | No | The plan should be owned by the entity. The plan implies the RC will take ownership of the plan when it approves the plan. |
| <p>Response: Approval does not transfer ownership.</p> | | |
| Hydro One Networks Inc. | No | As proposed, the standards would become effective at different times depending on whether regulatory approval is or is not required in a given jurisdiction. This is not conducive to ensuring reliability. The standards should become effective on the same date in all North America, and only after all regulatory approvals have been obtained. |
| American Transmission Company | No | EOP-005 and EOP-006The proposed effective date should be re-written in order to have the standards effective in all jurisdictions at the same time. The problem with the current language is that it does not account for TOs, GOs, TOPs and DP that are in a different jurisdiction then their RC. (Cross boarder areas) Example: EOP-005-2 R1.1Requirement 1.1 requires the TOP's restoration plan to follow the high-level strategies contained in their RC's plan.EOP-006-2 R1.1Requirement 1.1 requires the RC to develop a high-level strategy for system restoration. Timeline issue:EOP-006-2 starts effectively 12 months after regulatory approvalEOP-005-2 starts effectively 24 months after regulatory approval For this example the RC is regulated by FERC and the TOP is regulated by a Canadian entity. The Canadian regulator approved the standard on June 1, 2009, and FERC approves the standard November 30, 2009.The TOP will then be required to have a plan by July 1, 2011 but their RC will not have to have their plan until |

Consideration of Comments on 4th Draft of EOP-005-2 and EOP-006-2 — Project 2006-03

| Organization | Yes or No | Comment |
|---|-----------|---|
| | | January 1, 2011. In this example the Canadian entity only gets six months to get their plan into compliance. ATC recommends that the language be updated to state that the clock starts when all jurisdictions approve the standard. For those areas that currently do not have a regulatory approval process then the clock starts when the last regulatory area approves the standard |
| Response: It is standard NERC practice to make the standards effective in different jurisdictions based on the appropriate regulatory approval. | | |
| ITC Transmission and METC | Yes | ITC agrees with the SDT assessment that the previous implementation plan was too complex. The SDT should consider a staged approach of 12 months and 24 months after regulatory approval in order to expediate the effective dates of the majority of the requirements, given their level of improvement over the existing standards. |
| Response: The SDT recognizes this is a start-up problem and that there are many interacting requirements between EOP-005-2 and EOP-006-2. The SDT did not want to add confusion and potential non-compliance with a complex implementation plan, and has left it to the Reliability Coordinators and Transmission Operators to coordinate in a way to permit all to be compliant by the end of the implementation period. Please note that RCs and TOPs are already required to have a restoration plan. | | |
| NPCC | Yes | |
| Luminant Power | Yes | |
| MRO NERC Standards Review Subcommittee | Yes | |
| Midwest ISO Stakeholder Standards Collaborators | Yes | |
| US Army Corps of Engineers | Yes | |
| AEP | Yes | |
| Allegheny Power | Yes | |
| Manitoba Hydro | Yes | |

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| Organization | Yes or No | Comment |
|---|-----------|---|
| Ameren | Yes | |
| We Energies | Yes | |
| Xcel Energy | Yes | |
| Entergy | Yes | |
| US Bureau of Reclamation | Yes | Yes - the 24 month period seems appropriate |
| San Diego Gas and Electric Co. | Yes | |
| Oncor Electric Delivery | Yes | |
| Duke Energy Corporation | Yes | |
| Independent Electricity System Operator (IESO) — Ontario | Yes | |
| Northeast Utilities | Yes | |
| PJM | Yes | |
| American Municipal Power — Ohio, Inc. (AMP-Ohio) | Yes | |
| Response: Thank you for your response. | | |

9. Do you believe that these standards provide for an adequate level of reliability and are ready for balloting?

Summary Consideration:

There were no specific negative comments and the SDT made no specific changes due to industry comments.

| Organization | Yes or No | Comment |
|---|-----------|--|
| NPCC | Yes | Yes, subject to clarifying comments provided above. |
| Hydro-Quebec Transenergie | No | Subject to addressing comments provided above. |
| FirstEnergy Corp. | Yes | We agree the standards are ready for balloting but would like to see some clarifying changes made to the standards per our previous comments. |
| IRC Standards Review Committee | No | Please address comments above before balloting. |
| Southern Company | No | The numerous recommended changes suggested in this comment form should be addressed prior to being balloted. |
| MRO NERC Standards Review Subcommittee | No | Based on the comments provided above, the MRO would like to see our comments addressed before it is placed in ballot. |
| Manitoba Hydro | Yes | Providing previously mentioned requirements are changed. |
| ISO New England Inc | No | Please address comments above before balloting. |
| Northeast Utilities | No | Pending resolution of the issues above. |
| AEP | No | Our comments above indicate there is some work that needs to be done. |
| Hydro One Networks Inc. | No | See our comments above. |
| Xcel Energy | No | We would like to see our comments to question #1 addressed before it is placed in ballot. |
| San Diego Gas and | No | We appreciate the level of dedication and effort that the drafting team has put into the Standards so far. They are definitely an improvement. Please see SDG&E's comments and edits suggested in previous |

Consideration of Comments on 4th Draft of EOP-005-2 and EOP-006-2 — Project 2006-03

| Organization | Yes or No | Comment |
|--|-----------|---|
| Electric Co. | | questions. |
| PJM | No | Please address comments above before balloting. |
| Duke Energy Corporation | No | The two standards, while greatly simplified since the last round of comments, continued additions of requirements in the procedures require additional review by the industry before ballot. |
| US Bureau of Reclamation | No | Because of the number of industry comments it is appropriate for another draft to be posted for another round of comments. |
| Response: Please see comments above. | | |
| Bonneville Power Administration | No | <p>EOP-005 doesn't address the necessary coordination needed between the GO, who is the provider of the Blackstart Resource, and the Transmission Operator. Recommend that Requirement 13 be modified to add a reference to "including Blackstart Resource Generator Owner coordination".</p> <p>Suggest rewording R 1.4 to "Identification of each Blackstart Resource and its characteristics as agreed to including the following:?" R1.4 as written is a 'fill in the gap' requirement. Remove "but not limited to".</p> |
| <p>Response: This is an issue between the GO and the GOP and is one level below where this standard is. This should be covered in Agreements between GO and GOP. It is also included in the Functional Model relationship between the GO and the GOP. The SDT believes there are sufficient incentives for all parties to coordinate.</p> | | |
| <p>R1.4 – The TOP can always identify additional characteristics if so desired. Therefore, no change was made.</p> | | |
| Consumers Energy Company | No | (R1.5) The Transmission Operator needs to coordinate with the Generator Operators when identifying acceptable operating voltage and frequency limits during restoration. Generator underfrequency relaying and terminal bus voltage limits will affect the acceptable limits. (R16) What occurs if the Transmission Operator and Generator Operator cannot come to agreement on the terms and conditions of a Blackstart Agreement? Is the Generator Operator subject to unreasonable testing requirements and unreasonable financial compensation mandated by the Transmission Operator? |
| <p>Response: This can be covered in the Agreement. If there is no Agreement, the resource cannot be a Blackstart Resource and cannot be included in the Transmission Operator's restoration plan. The SDT believes there are sufficient incentives for all parties to coordinate. No change made.</p> | | |

Consideration of Comments on 4th Draft of EOP-005-2 and EOP-006-2 — Project 2006-03

| Organization | Yes or No | Comment |
|--|-----------|--|
| US Army Corps of Engineers | No | Based on the large number of comments that I have made, I think that this Reliability Standard needs another round of incorporating comments and going out for comments. |
| Response: The number of comments is not the deciding factor but the number of changes made due to the comments is the key. | | |
| We Energies | No | The SDT needs to recognize the Balancing Authority role during system restoration events. |
| Response: Balancing Authorities, while they directly communicate with Generator Operators, are routinely involved in controlling transactions and net interchange, activities that do not occur in the stages of restoration covered by this standard. The SDT believes that declaration of an emergency is the point where the initial transfer takes place. The return is not always as clear cut and thus EOP-005-2, Requirement R1.9 and EOP-006-2, Requirement R1.10 were written to cover this situation. The SDT believes that restoration will be more efficient with the Transmission Operator directly dealing with the Generator Operators. Nothing prohibits the Transmission Operator from adding the Balancing Authority to its plan if so desired. No change made. | | |
| AECI | No | Clarifications need to be made with the RC approval process. Time lines need to be made known within the standard and if we were an RC we would want to know the consequences if an entity's plan fails. |
| Response: Timelines are reasonably established in the standards. The SDT recognizes there is a start-up problem, meant to be covered by the Implementation Plan. Once the Reliability Coordinator has approved the restoration plan of a Transmission Operator, that plan will be effective until replaced by a plan approved by the Reliability Coordinator. Thus, the Transmission Operator will always have an approved plan once the initial approval is made. The approval by the Reliability Coordinator is not a compliance issue, but one of coordination and review to assure the Transmission Operators restoration plans fit within the Reliability Coordinators restoration plan. Please note that RCs and TOPs are already required to have a restoration plan. | | |
| Entergy Services | No | <p>In general, the SDT changes have moved the standard's development in the right direction; however, we have two proposed changes that impact both standards and span multiple requirements. These two changes are:</p> <ol style="list-style-type: none"> 1. The Restoration Plan should be a high level restoration philosophy or principles of how a system would be restored based on the conditions and availability of facilities following a disturbance. Low level details of switching and other requirements are more appropriately included in company operating procedures. 2. There needs to be additional requirements included in EOP-005-2 and EOP-006-2 to fully implement the blackstart plan approval process. There are no provisions in the standards for the scenario where the RC fails to approve a TOP plan. The standards speak to mandatory requests for approval and mandatory responses on approval/disapproval/etc. but no details on how to reconcile any issues so that ultimately approval is the end result. Without this, the TOP has incredible exposure. In this scenario, there is an issue of who has the liability for non-compliance. There need to be clear requirements/measures to ensure |

Consideration of Comments on 4th Draft of EOP-005-2 and EOP-006-2 — Project 2006-03

| Organization | Yes or No | Comment |
|---|-----------|---|
| | | that the TOP and RC work together in order to work through issues and approval is reached in a timely manner. |
| <p>Response: In general, the plan needs to be in sufficient detail to permit verification through analysis and simulation as required by EOP-005-2, Requirement R6. The SDT agrees that there must also be a guiding philosophy or principles as required in Requirements R1.1 and R7 (EOP-005-2). Switching requirements are only pertinent to Cranking Paths and Requirement R7 (EOP-005-2) always allows for flexibility in the switching process. No change made.</p> <p>The SDT recognizes there is a start-up problem, meant to be covered by the Implementation Plan. Once the Reliability Coordinator has approved the restoration plan of a Transmission Operator, that plan will be effective until replaced by a plan approved by the Reliability Coordinator. Thus, the Transmission Operator will always have an approved plan once the initial approval is made. The approval by the Reliability Coordinator is not a compliance issue, but one of coordination and review to assure the Transmission Operators restoration plans fit within the Reliability Coordinators restoration plan. Please note that RCs and TOPs are already required to have a restoration plan.</p> | | |
| American Transmission Company | No | VSL: ATC believes that all the VSL should be reviewed in light of FERC clarification on when they are looking at when approving VSL's. Many of the VSL's seem to violate FERC rule that the VSL be based on a single violation. |
| <p>Response: The SDT has reviewed the VSLs and made changes where appropriate.</p> | | |
| Luminant Power | Yes | |
| Midwest ISO Stakeholder Standards Collaborators | Yes | |
| Allegheny Power | Yes | |
| Ameren | Yes | |
| Entergy | Yes | |
| Oncor Electric Delivery | Yes | |
| Independent Electricity System Operator (IESO) | Yes | |

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| Organization | Yes or No | Comment |
|---|-----------|---------|
| — Ontario | | |
| ITC Transmission and METC | Yes | |
| Response: Thank you for your response. | | |

Standards Announcement

Ballot Pool and Pre-ballot Window

March 16–April 14, 2009

Now available at: <https://standards.nerc.net/BallotPool.aspx>

Revisions to System Restoration from Blackstart Resources Standards (Project 2006-03)

The System Restoration and Blackstart Standard Drafting Team has posted proposed standards EOP-005-2 — System Restoration from Blackstart Resources and EOP-006-2 — System Restoration — Coordination for a 30-day pre-ballot review. Registered Ballot Body members may join the ballot pool to be eligible to vote on these standards **until 8 a.m. EDT on April 14, 2009**. An implementation plan – which summarizes proposed changes to the NERC Glossary of Terms as a result of EOP-005-2, proposed effective dates, and impact to existing standards – has been posted with the standards.

During the pre-ballot window, members of the ballot pool may communicate with one another by using their “ballot pool list server.” (Once balloting begins, ballot pool members are prohibited from using ballot pool list servers.) The list server for this ballot pool is: bp-2006-03_STND_EOP_in.

Project Background

The proposed revisions update and move requirements from four standards into two standards, and result in two changes to the NERC Glossary of Terms, as shown below:

| Existing Approved Standards & Definitions | Proposed Revised Standards & Definitions |
|---|--|
| EOP-001-1 — Emergency Operations Plan | EOP-001-2 — Emergency Operations Plan (Retire Requirement R2.4 of EOP-001-1) |
| EOP-005-1 — System Restoration Plans | EOP-005-2 — System Restoration from Blackstart Resources |
| EOP-006-1 — Reliability Coordination — System Restoration | EOP-006-2 — System Restoration — 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) |
| Blackstart Capability Plan | Retire definition |
| | Blackstart Resource (new definition) |

This project involves upgrading the overall quality of the standards, eliminating some gaps in the requirements, eliminating some ambiguity, and eliminating some “fill-in-the-blank” components. Stakeholder comments and FERC Order 693 were considered as the drafting team completed its drafts. The proposed 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.”

Project page: http://www.nerc.com/filez/standards/System_Restoration_Blackstart.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.*



A. Introduction

1. **Title:** **Emergency Operations Planning**
2. **Number:** EOP-001-2
3. **Purpose:** Each Transmission Operator and Balancing Authority needs to develop, maintain, and implement a set of plans to mitigate operating emergencies. These plans need to be coordinated with other Transmission Operators and Balancing Authorities, and the Reliability Coordinator.
4. **Applicability**
 - 4.1. Balancing Authorities.
 - 4.2. Transmission Operators.
5. **Proposed Effective Date:** Twenty-four months after the first day of the first calendar quarter following applicable regulatory approval. In those jurisdictions where no regulatory approval is required, all requirements go into effect twenty-four months after Board of Trustees adoption.

B. Requirements

- R1. Balancing Authorities shall have operating agreements with adjacent Balancing Authorities that shall, at a minimum, contain provisions for emergency assistance, including provisions to obtain emergency assistance from remote Balancing Authorities.
- R2. Each Transmission Operator and Balancing Authority shall:
 - R2.1. Develop, maintain, and implement a set of plans to mitigate operating emergencies for insufficient generating capacity.
 - R2.2. Develop, maintain, and implement a set of plans to mitigate operating emergencies on the transmission system.
 - R2.3. Develop, maintain, and implement a set of plans for load shedding.
- R3. Each Transmission Operator and Balancing Authority shall have emergency plans that will enable it to mitigate operating emergencies. At a minimum, Transmission Operator and Balancing Authority emergency plans shall include:
 - R3.1. Communications protocols to be used during emergencies.
 - R3.2. A list of controlling actions to resolve the emergency. Load reduction, in sufficient quantity to resolve the emergency within NERC-established timelines, shall be one of the controlling actions.
 - R3.3. The tasks to be coordinated with and among adjacent Transmission Operators and Balancing Authorities.
 - R3.4. Staffing levels for the emergency.
- R4. Each Transmission Operator and Balancing Authority shall include the applicable elements in Attachment 1-EOP-001-0 when developing an emergency plan.
- R5. The Transmission Operator and Balancing Authority shall annually review and update each emergency plan. The Transmission Operator and Balancing Authority shall provide a copy of its updated emergency plans to its Reliability Coordinator and to neighboring Transmission Operators and Balancing Authorities.

- R6.** The Transmission Operator and Balancing Authority shall coordinate its emergency plans with other Transmission Operators and Balancing Authorities as appropriate. This coordination includes the following steps, as applicable:
 - R6.1.** The Transmission Operator and Balancing Authority shall establish and maintain reliable communications between interconnected systems.
 - R6.2.** The Transmission Operator and Balancing Authority shall arrange new interchange agreements to provide for emergency capacity or energy transfers if existing agreements cannot be used.
 - R6.3.** The Transmission Operator and Balancing Authority shall coordinate transmission and generator maintenance schedules to maximize capacity or conserve the fuel in short supply. (This includes water for hydro generators.)
 - R6.4.** The Transmission Operator and Balancing Authority shall arrange deliveries of electrical energy or fuel from remote systems through normal operating channels.

C. Measures

- M1.** The Transmission Operator and Balancing Authority shall have its emergency plans available for review by the Regional Reliability Organization at all times.
- M2.** The Transmission Operator and Balancing Authority shall have its two most recent annual self-assessments available for review by the Regional Reliability Organization at all times.

D. Compliance

1. Compliance Monitoring Process

1.1. Compliance Monitoring Responsibility

Regional Reliability Organization.

1.2. Compliance Monitoring Period and Reset Time Frame

The Regional Reliability Organization shall review and evaluate emergency plans every three years to ensure that the plans consider the applicable elements of Attachment 1-EOP-001-0.

The Regional Reliability Organization may elect to request self-certification of the Transmission Operator and Balancing Authority in years that the full review is not done.

Reset: one calendar year.

1.3. Data Retention

Current plan available at all times.

1.4. Additional Compliance Information

Not specified.

Standard EOP-001-2 — Emergency Operations Planning

2. Violation Severity Levels:

| Requirement | Lower | Moderate | High | Severe |
|-------------|--|---|--|--|
| R1 | The Balancing Authority failed to demonstrate the existence of the necessary operating agreements for less than 25% of the adjacent BAs. Or less than 25% of those agreements do not contain provisions for emergency assistance. | The Balancing Authority failed to demonstrate the existence of the necessary operating agreements for 25% to 50% of the adjacent BAs. Or 25 to 50% of those agreements do not contain provisions for emergency assistance. | The Balancing Authority failed to demonstrate the existence of the necessary operating agreements for 50% to 75% of the adjacent BAs. Or 50% to 75% of those agreements do not contain provisions for emergency assistance. | The Balancing Authority failed to demonstrate the existence of the necessary operating agreements for 75% or more of the adjacent BAs. Or more than 75% of those agreements do not contain provisions for emergency assistance. |
| R2 | The Transmission Operator or Balancing Authority failed to comply with one (1) of the sub-components. | The Transmission Operator or Balancing Authority failed to comply with two (2) of the sub-components. | N/A | The Transmission Operator or Balancing Authority has failed to comply with three (3) of the sub-components. |
| R2.1 | The Transmission Operator or Balancing Authority's emergency plans to mitigate insufficient generating capacity are missing minor details or minor program/procedural elements. | The Transmission Operator or Balancing Authority's has demonstrated the existence of emergency plans to mitigate insufficient generating capacity emergency plans but the plans are not maintained. | The Transmission Operator or Balancing Authority's emergency plans to mitigate insufficient generating capacity emergency plans are neither maintained nor implemented. | The Transmission Operator or Balancing Authority has failed to develop emergency mitigation plans for insufficient generating capacity. |
| R2.2 | The Transmission Operator or Balancing Authority's plans to mitigate transmission system emergencies are missing minor details or minor program/procedural elements. | The Transmission Operator or Balancing Authority's has demonstrated the existence of transmission system emergency plans but are not maintained. | The Transmission Operator or Balancing Authority's transmission system emergency plans are neither maintained nor implemented. | The Transmission Operator or Balancing Authority has failed to develop, maintain, and implement operating emergency mitigation plans for emergencies on the transmission system. |

Standard EOP-001-2 — Emergency Operations Planning

| Requirement | Lower | Moderate | High | Severe |
|--------------------|--|--|---|--|
| R2.3 | The Transmission Operator or Balancing Authority's load shedding plans are missing minor details or minor program/procedural elements. | The Transmission Operator or Balancing Authority's has demonstrated the existence of load shedding plans but are not maintained. | The Transmission Operator or Balancing Authority's load shedding plans are partially compliant with the requirement but are neither maintained nor implemented. | The Transmission Operator or Balancing Authority has failed to develop, maintain, and implement load shedding plans. |
| R3 | The Transmission Operator or Balancing Authority failed to comply with one (1) of the sub-components. | The Transmission Operator or Balancing Authority failed to comply with two (2) of the sub-components. | The Transmission Operator or Balancing Authority has failed to comply with three (3) of the sub-components. | The Transmission Operator or Balancing Authority has failed to comply with all four (4) of the sub-components. |
| R3.1 | The Transmission Operator or Balancing Authority's communication protocols included in the emergency plan are missing minor program/procedural elements. | N/A | N/A | The Transmission Operator or Balancing Authority has failed to include communication protocols in its emergency plans to mitigate operating emergencies. |
| R3.2 | The Transmission Operator or Balancing Authority's list of controlling actions has resulted in meeting the intent of the requirement but is missing minor program/procedural elements. | N/A | The Transmission Operator or Balancing Authority provided a list of controlling actions, however the actions fail to resolve the emergency within NERC-established timelines. | The Transmission Operator or Balancing Authority has failed to provide a list of controlling actions to resolve the emergency. |

Standard EOP-001-2 — Emergency Operations Planning

| Requirement | Lower | Moderate | High | Severe |
|--------------------|--|--|---|---|
| R3.3 | The Transmission Operator or Balancing Authority has demonstrated coordination with Transmission Operators and Balancing Authorities but is missing minor program/procedural elements. | N/A | N/A | The Transmission Operator or Balancing Authority has failed to demonstrate the tasks to be coordinated with adjacent Transmission Operator and Balancing Authorities as directed by the requirement. |
| R3.4 | The Transmission Operator or Balancing Authority's emergency plan does not include staffing levels for the emergency | N/A | N/A | N/A |
| R4 | The Transmission Operator and Balancing Authority's emergency plan has complied with 90% or more of the number of sub-components. | The Transmission Operator and Balancing Authority's emergency plan has complied with 70% to 90% of the number of sub-components. | The Transmission Operator and Balancing Authority's emergency plan has complied with between 50% to 70% of the number of sub-components. | The Transmission Operator and Balancing Authority's emergency plan has complied with 50% or less of the number of sub-components |
| R5 | The Transmission Operator and Balancing Authority is missing minor program/procedural elements. | The Transmission Operator and Balancing Authority has failed to annually review one of it's emergency plans | The Transmission Operator and Balancing Authority has failed to annually review two of its emergency plans or communicate with one of it's neighboring Balancing Authorities. | The Transmission Operator and Balancing Authority has failed to annually review and/or communicate any emergency plans with its Reliability Coordinator, neighboring Transmission Operators or Balancing Authorities. |
| R6 | The Transmission Operator and/or the Balancing Authority failed to comply with one (1) of the sub-components. | The Transmission Operator and/or the Balancing Authority failed to comply with two (2) of the sub-components. | The Transmission Operator and/or the Balancing Authority has failed to comply with three (3) of the sub-components. | The Transmission Operator and/or the Balancing Authority has failed to comply with four (4) or more of the sub-components. |

Standard EOP-001-2 — Emergency Operations Planning

| Requirement | Lower | Moderate | High | Severe |
|-------------|--|----------|------|--------|
| R6.1 | The Transmission Operator or Balancing Authority has failed to establish and maintain reliable communication between interconnected systems. | N/A | N/A | N/A |
| R6.2 | The Transmission Operator or Balancing Authority has failed to arrange new interchange agreements to provide for emergency capacity or energy transfers with required entities when existing agreements could not be used. | N/A | N/A | N/A |
| R6.3 | The Transmission Operator or Balancing Authority has failed to coordinate transmission and generator maintenance schedules to maximize capacity or conserve fuel in short supply. | N/A | N/A | N/A |
| R6.4 | The Transmission Operator or Balancing Authority has failed to arrange for deliveries of electrical energy or fuel from remote systems through normal operating channels. | N/A | N/A | N/A |

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 | October 17, 2008 | Deleted R2 Replaced Levels of Non-compliance with the February 28, 2008 BOT approved Violation Severity Levels Corrected typographical errors in BOT approved version of VSLs | Revised |
| 2 | To be determined | Removed R2.4 as redundant with EOP-005-2 Requirement R1 for the Transmission Operator; the Balancing Authority does not need a restoration plan. | |

Attachment 1-EOP-001-0

Elements for Consideration in Development of Emergency Plans

1. Fuel supply and inventory — An adequate fuel supply and inventory plan that recognizes reasonable delays or problems in the delivery or production of fuel.
2. Fuel switching — Fuel switching plans for units for which fuel supply shortages may occur, e.g., gas and light oil.
3. Environmental constraints — Plans to seek removal of environmental constraints for generating units and plants.
4. System energy use — The reduction of the system's own energy use to a minimum.
5. Public appeals — Appeals to the public through all media for voluntary load reductions and energy conservation including educational messages on how to accomplish such load reduction and conservation.
6. Load management — Implementation of load management and voltage reductions, if appropriate.
7. Optimize fuel supply — The operation of all generating sources to optimize the availability.
8. Appeals to customers to use alternate fuels — In a fuel emergency, appeals to large industrial and commercial customers to reduce non-essential energy use and maximize the use of customer-owned generation that rely on fuels other than the one in short supply.
9. Interruptible and curtailable loads — Use of interruptible and curtailable customer load to reduce capacity requirements or to conserve the fuel in short supply.
10. Maximizing generator output and availability — The operation of all generating sources to maximize output and availability. This should include plans to winterize units and plants during extreme cold weather.
11. Notifying IPPs — Notification of cogeneration and independent power producers to maximize output and availability.
12. Requests of government — Requests to appropriate government agencies to implement programs to achieve necessary energy reductions.
13. Load curtailment — A mandatory load curtailment plan to use as a last resort. This plan should address the needs of critical loads essential to the health, safety, and welfare of the community. Address firm load curtailment.
14. Notification of government agencies — Notification of appropriate government agencies as the various steps of the emergency plan are implemented.
15. Notifications to operating entities — Notifications to other operating entities as steps in emergency plan are implemented.

A. Introduction

1. **Title:** Emergency Operations Planning
2. **Number:** EOP-001-~~1~~2
3. **Purpose:** Each Transmission Operator and Balancing Authority needs to develop, maintain, and implement a set of plans to mitigate operating emergencies. These plans need to be coordinated with other Transmission Operators and Balancing Authorities, and the Reliability Coordinator.
4. **Applicability**
 - 4.1. Balancing Authorities.
 - 4.2. Transmission Operators.

~~Proposed Effective Dates: Twenty-four months after the first day of the first calendar quarter following applicable regulatory approval. In those jurisdictions where no regulatory approval is required, all requirements go into effect twenty-four months after Board of Trustees adoption. In those jurisdictions where no regulatory approval is required, the standard shall become effective on the latter of either April 1, 2009 or the first day of the first calendar quarter, three months after Board of Trustee adoption.~~

~~5. In those jurisdictions where regulatory approval is required, the standard shall become effective on the latter of either April 1, 2009 or the first day of the first calendar quarter, three months after applicable regulatory approval.~~

B. Requirements

- R1. Balancing Authorities shall have operating agreements with adjacent Balancing Authorities that shall, at a minimum, contain provisions for emergency assistance, including provisions to obtain emergency assistance from remote Balancing Authorities.
- R2. Each Transmission Operator and Balancing Authority shall:
 - R2.1. Develop, maintain, and implement a set of plans to mitigate operating emergencies for insufficient generating capacity.
 - R2.2. Develop, maintain, and implement a set of plans to mitigate operating emergencies on the transmission system.
 - R2.3. Develop, maintain, and implement a set of plans for load shedding.
 - ~~R2.3:R2.4. Develop, maintain, and implement a set of plans for system restoration.~~
- R3. Each Transmission Operator and Balancing Authority shall have emergency plans that will enable it to mitigate operating emergencies. At a minimum, Transmission Operator and Balancing Authority emergency plans shall include:
 - R3.1. Communications protocols to be used during emergencies.
 - R3.2. A list of controlling actions to resolve the emergency. Load reduction, in sufficient quantity to resolve the emergency within NERC-established timelines, shall be one of the controlling actions.
 - R3.3. The tasks to be coordinated with and among adjacent Transmission Operators and Balancing Authorities.
 - R3.4. Staffing levels for the emergency.

- R4. Each Transmission Operator and Balancing Authority shall include the applicable elements in Attachment 1-EOP-001-0 when developing an emergency plan.
- R5. The Transmission Operator and Balancing Authority shall annually review and update each emergency plan. The Transmission Operator and Balancing Authority shall provide a copy of its updated emergency plans to its Reliability Coordinator and to neighboring Transmission Operators and Balancing Authorities.
- R6. The Transmission Operator and Balancing Authority shall coordinate its emergency plans with other Transmission Operators and Balancing Authorities as appropriate. This coordination includes the following steps, as applicable:
 - R6.1. The Transmission Operator and Balancing Authority shall establish and maintain reliable communications between interconnected systems.
 - R6.2. The Transmission Operator and Balancing Authority shall arrange new interchange agreements to provide for emergency capacity or energy transfers if existing agreements cannot be used.
 - R6.3. The Transmission Operator and Balancing Authority shall coordinate transmission and generator maintenance schedules to maximize capacity or conserve the fuel in short supply. (This includes water for hydro generators.)
 - R6.4. The Transmission Operator and Balancing Authority shall arrange deliveries of electrical energy or fuel from remote systems through normal operating channels.

C. Measures

- M1. The Transmission Operator and Balancing Authority shall have its emergency plans available for review by the Regional Reliability Organization at all times.
- M2. The Transmission Operator and Balancing Authority shall have its two most recent annual self-assessments available for review by the Regional Reliability Organization at all times.

D. Compliance

1. Compliance Monitoring Process

1.1. Compliance Monitoring Responsibility

Regional Reliability Organization.

1.2. Compliance Monitoring Period and Reset Time Frame

The Regional Reliability Organization shall review and evaluate emergency plans every three years to ensure that the plans consider the applicable elements of Attachment 1-EOP-001-0.

The Regional Reliability Organization may elect to request self-certification of the Transmission Operator and Balancing Authority in years that the full review is not done.

Reset: one calendar year.

1.3. Data Retention

Current plan available at all times.

1.4. Additional Compliance Information

Not specified.

Standard EOP-001-~~1~~2— Emergency Operations Planning

2. Violation Severity Levels:

| Requirement | Lower | Moderate | High | Severe |
|-------------|--|---|--|--|
| R1 | The Balancing Authority failed to demonstrate the existence of the necessary operating agreements for less than 25% of the adjacent BAs. Or less than 25% of those agreements do not contain provisions for emergency assistance. | The Balancing Authority failed to demonstrate the existence of the necessary operating agreements for 25% to 50% of the adjacent BAs. Or 25 to 50% of those agreements do not contain provisions for emergency assistance. | The Balancing Authority failed to demonstrate the existence of the necessary operating agreements for 50% to 75% of the adjacent BAs. Or 50% to 75% of those agreements do not contain provisions for emergency assistance. | The Balancing Authority failed to demonstrate the existence of the necessary operating agreements for 75% or more of the adjacent BAs. Or more than 75% of those agreements do not contain provisions for emergency assistance. |
| R2 | The Transmission Operator or Balancing Authority failed to comply with one (1) of the sub-components. | The Transmission Operator or Balancing Authority failed to comply with two (2) of the sub-components. | The Transmission Operator or Balancing Authority has failed to comply with three (3) of the sub-components. N/A | The Transmission Operator or Balancing Authority has failed to comply with four (4) <u>three (3)</u> of the sub-components. |
| R2.1 | The Transmission Operator or Balancing Authority's emergency plans to mitigate insufficient generating capacity are missing minor details or minor program/procedural elements. | The Transmission Operator or Balancing Authority's has demonstrated the existence of emergency plans to mitigate insufficient generating capacity emergency plans but the plans are not maintained. | The Transmission Operator or Balancing Authority's emergency plans to mitigate insufficient generating capacity emergency plans are neither maintained nor implemented. | The Transmission Operator or Balancing Authority has failed to develop emergency mitigation plans for insufficient generating capacity. |
| R2.2 | The Transmission Operator or Balancing Authority's plans to mitigate transmission system emergencies are missing minor details or minor program/procedural elements. | The Transmission Operator or Balancing Authority's has demonstrated the existence of transmission system emergency plans but are not maintained. | The Transmission Operator or Balancing Authority's transmission system emergency plans are neither maintained nor implemented. | The Transmission Operator or Balancing Authority has failed to develop, maintain, and implement operating emergency mitigation plans for emergencies on the transmission system. |

Standard EOP-001-~~1~~2— Emergency Operations Planning

| Requirement | Lower | Moderate | High | Severe |
|-----------------|--|---|---|---|
| R2.3 | The Transmission Operator or Balancing Authority's load shedding plans are missing minor details or minor program/procedural elements. | The Transmission Operator or Balancing Authority's has demonstrated the existence of load shedding plans but are not maintained. | The Transmission Operator or Balancing Authority's load shedding plans are partially compliant with the requirement but are neither maintained nor implemented. | The Transmission Operator or Balancing Authority has failed to develop, maintain, and implement load shedding plans. |
| R2.4 | The Transmission Operator or Balancing Authority's system restoration plans are missing minor details or minor program/procedural elements. | The Transmission Operator or Balancing Authority's system restoration plans are partially compliant with the requirement but are not maintained. | The Transmission Operator or Balancing Authority's restoration plans are neither maintained nor implemented. | The Transmission Operator or Balancing Authority has failed to develop, maintain, and implement operating emergency mitigation plans for system restoration. |
| R3 | The Transmission Operator or Balancing Authority failed to comply with one (1) of the sub-components. | The Transmission Operator or Balancing Authority failed to comply with two (2) of the sub-components. | The Transmission Operator or Balancing Authority has failed to comply with three (3) of the sub-components. | The Transmission Operator or Balancing Authority has failed to comply with all four (4) of the sub-components. |
| R3.1 | The Transmission Operator or Balancing Authority's communication protocols included in the emergency plan are missing minor program/procedural elements. | N/A | N/A | The Transmission Operator or Balancing Authority has failed to include communication protocols in its emergency plans to mitigate operating emergencies. |
| R3.2 | The Transmission Operator or Balancing Authority's list of controlling actions has resulted in meeting the intent of the requirement but is missing minor program/procedural elements. | N/A | The Transmission Operator or Balancing Authority provided a list of controlling actions, however the actions fail to resolve the emergency within NERC-established timelines. | The Transmission Operator or Balancing Authority has failed to provide a list of controlling actions to resolve the emergency. |

Standard EOP-001-1.2— Emergency Operations Planning

| Requirement | Lower | Moderate | High | Severe |
|--------------------|--|--|---|---|
| R3.3 | The Transmission Operator or Balancing Authority has demonstrated coordination with Transmission Operators and Balancing Authorities but is missing minor program/procedural elements. | N/A | N/A | The Transmission Operator or Balancing Authority has failed to demonstrate the tasks to be coordinated with adjacent Transmission Operator and Balancing Authorities as directed by the requirement. |
| R3.4 | The Transmission Operator or Balancing Authority's emergency plan does not include staffing levels for the emergency | N/A | N/A | N/A |
| R4 | The Transmission Operator and Balancing Authority's emergency plan has complied with 90% or more of the number of sub-components. | The Transmission Operator and Balancing Authority's emergency plan has complied with 70% to 90% of the number of sub-components. | The Transmission Operator and Balancing Authority's emergency plan has complied with between 50% to 70% of the number of sub-components. | The Transmission Operator and Balancing Authority's emergency plan has complied with 50% or less of the number of sub-components |
| R5 | The Transmission Operator and Balancing Authority is missing minor program/procedural elements. | The Transmission Operator and Balancing Authority has failed to annually review one of it's emergency plans | The Transmission Operator and Balancing Authority has failed to annually review two of its emergency plans or communicate with one of it's neighboring Balancing Authorities. | The Transmission Operator and Balancing Authority has failed to annually review and/or communicate any emergency plans with its Reliability Coordinator, neighboring Transmission Operators or Balancing Authorities. |
| R6 | The Transmission Operator and/or the Balancing Authority failed to comply with one (1) of the sub-components. | The Transmission Operator and/or the Balancing Authority failed to comply with two (2) of the sub-components. | The Transmission Operator and/or the Balancing Authority has failed to comply with three (3) of the sub-components. | The Transmission Operator and/or the Balancing Authority has failed to comply with four (4) or more of the sub-components. |

Standard EOP-001-1.2— Emergency Operations Planning

| Requirement | Lower | Moderate | High | Severe |
|--------------------|--|-----------------|-------------|---------------|
| R6.1 | The Transmission Operator or Balancing Authority has failed to establish and maintain reliable communication between interconnected systems. | N/A | N/A | N/A |
| R6.2 | The Transmission Operator or Balancing Authority has failed to arrange new interchange agreements to provide for emergency capacity or energy transfers with required entities when existing agreements could not be used. | N/A | N/A | N/A |
| R6.3 | The Transmission Operator or Balancing Authority has failed to coordinate transmission and generator maintenance schedules to maximize capacity or conserve fuel in short supply. | N/A | N/A | N/A |
| R6.4 | The Transmission Operator or Balancing Authority has failed to arrange for deliveries of electrical energy or fuel from remote systems through normal operating channels. | N/A | N/A | N/A |

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 | October 17, 2008 | Deleted R2 Replaced Levels of Non-compliance with the February 28, 2008 BOT approved Violation Severity Levels Corrected typographical errors in BOT approved version of VSLs | Revised |
| <u>2</u> | To be determined | Removed R2.4 as redundant with EOP-005-2 Requirement R1 for the Transmission Operator; the Balancing Authority does not need a restoration plan. | |

Attachment 1-EOP-001-0

Elements for Consideration in Development of Emergency Plans

1. Fuel supply and inventory — An adequate fuel supply and inventory plan that recognizes reasonable delays or problems in the delivery or production of fuel.
2. Fuel switching — Fuel switching plans for units for which fuel supply shortages may occur, e.g., gas and light oil.
3. Environmental constraints — Plans to seek removal of environmental constraints for generating units and plants.
4. System energy use — The reduction of the system's own energy use to a minimum.
5. Public appeals — Appeals to the public through all media for voluntary load reductions and energy conservation including educational messages on how to accomplish such load reduction and conservation.
6. Load management — Implementation of load management and voltage reductions, if appropriate.
7. Optimize fuel supply — The operation of all generating sources to optimize the availability.
8. Appeals to customers to use alternate fuels — In a fuel emergency, appeals to large industrial and commercial customers to reduce non-essential energy use and maximize the use of customer-owned generation that rely on fuels other than the one in short supply.
9. Interruptible and curtailable loads — Use of interruptible and curtailable customer load to reduce capacity requirements or to conserve the fuel in short supply.
10. Maximizing generator output and availability — The operation of all generating sources to maximize output and availability. This should include plans to winterize units and plants during extreme cold weather.
11. Notifying IPPs — Notification of cogeneration and independent power producers to maximize output and availability.
12. Requests of government — Requests to appropriate government agencies to implement programs to achieve necessary energy reductions.
13. Load curtailment — A mandatory load curtailment plan to use as a last resort. This plan should address the needs of critical loads essential to the health, safety, and welfare of the community. Address firm load curtailment.
14. Notification of government agencies — Notification of appropriate government agencies as the various steps of the emergency plan are implemented.
15. Notifications to operating entities — Notifications to other operating entities as steps in emergency plan are implemented.

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. SAR version 1 posted on November 6, 2006.
2. SAR version 1 comment period closed on December 5, 2006.
3. SAR version 2 and comment responses for SAR version 1 posted on February 8, 2007.
4. SAR version 2 comment period closed on March 9, 2007.
5. SAR version 3 and comment responses for SAR version 2 accepted by SC and SDT appointed on April 9, 2007.
6. First posting of revised standards on August 15, 2007 with comment period closed on September 28, 2007.
7. Second posting of revised standards on January 7, 2008 with comment period closed on February 5, 2008.
8. Third posting of revised standards on April 15, 2008 with comment period closed on May 29, 2008.
9. Fourth posting of revised standards on October 21, 2008 with comment period closed on November 18, 2008.

Proposed Action Plan and Description of Current Draft:

The SDT began meeting in mid-April 2007 immediately following the approval of the SAR by the SC with the goal of completing work in approximately one year's time. The current draft is the fourth posting of the proposed standards. Requirements in EOP-007 and EOP-009 have been incorporated into the revised EOP-005 and EOP-006. Therefore, EOP-007 and EOP-009 will be retired when this project is approved and EOP-005-2 and EOP-006-2 go into effect.

Future Development Plan:

| Anticipated Actions | Anticipated Date |
|--|-------------------------|
| 1. Standards posted for first ballot. | March 2009 |
| 2. Standards posted for second ballot. | April 2009 |
| 3. Standards sent to BOT for approval. | May 2009 |
| 4. Standards submitted to regulatory authorities for approval. | To be determined. |

Definitions of Terms Used in Standard

This section includes all newly defined or revised terms used in the proposed standard. Terms already defined in the Reliability Standards Glossary of Terms are not repeated here. New or revised definitions listed below become approved when the proposed standard is approved. When the standard becomes effective, these defined terms will be removed from the individual standard and added to the Glossary.

Blackstart Capability Plan: Existing definition is retired.

Blackstart Resource: A generating unit(s) and its associated set of equipment which has the ability to be started without support from the System or is designed to remain energized without connection to the remainder of the System, with the ability to energize a bus, meeting the Transmission Operator's restoration plan needs for real and reactive power capability, frequency and voltage control, and that has been included in the Transmission Operator's restoration plan.

A. Introduction

1. **Title:** System Restoration from Blackstart Resources
2. **Number:** EOP-005-2
3. **Purpose:** Ensure plans, Facilities, and personnel are prepared to enable System restoration from Blackstart Resources to assure reliability is maintained during restoration and priority is placed on restoring the Interconnection.
4. **Applicability:**
 - 4.1. Transmission Operators.
 - 4.2. Generator Operators.
 - 4.3. Transmission Owners identified in the Transmission Operators restoration plan.
 - 4.4. Distribution Providers identified in the Transmission Operators restoration plan.
5. **Proposed Effective Date:** Twenty-four months after the first day of the first calendar quarter following applicable regulatory approval. In those jurisdictions where no regulatory approval is required, all requirements go into effect twenty-four months after Board of Trustees adoption.

B. Requirements

- R1. Each Transmission Operator shall have a restoration plan approved by its Reliability Coordinator. The restoration plan shall allow for restoring the Transmission Operator's System following a Disturbance in which one or more areas of the Bulk Electric System (BES) shuts down and the use of Blackstart Resources is required to restore the shut down area to service, to a state whereby the choice of the next Load to be restored is not driven by the need to control frequency or voltage regardless of whether the Blackstart Resource is located within the Transmission Operator's System. The restoration plan shall include: *[Violation Risk Factor = High] [Time Horizon = Operations Planning]*
 - R1.1. Strategies for system restoration that are coordinated with the Reliability Coordinator's high level strategy for restoring the Interconnection.
 - R1.2. A description of how all Agreements or mutually agreed upon procedures or protocols for off-site power requirements of nuclear power plants, including priority of restoration, will be fulfilled during System restoration.
 - R1.3. Procedures for restoring interconnections with other Transmission Operators under the direction of the Reliability Coordinator.
 - R1.4. Identification of each Blackstart Resource and its characteristics including but not limited to the following: the name of the Blackstart Resource, location, megawatt and megavar capacity, and type of unit.
 - R1.5. Identification of Cranking Paths and initial switching requirements between each Blackstart Resource and the unit(s) to be started.
 - R1.6. Identification of acceptable operating voltage and frequency limits during restoration.

- R1.7.** Operating Processes to reestablish connections within the Transmission Operator's System for areas that have been restored and are prepared for reconnection.
- R1.8.** Operating Processes to restore Loads required to restore the System, such as station service for substations, units to be restarted or stabilized, the Load needed to stabilize generation and frequency, and provide voltage control.
- R1.9.** Operating Processes for transferring authority back to the Balancing Authority in accordance with the Reliability Coordinator's criteria.
- R2.** Each Transmission Operator shall provide the entities identified in its approved restoration plan with a description of any changes to their roles and specific tasks prior to the implementation date of the plan. [*Violation Risk Factor = Lower*] [*Time Horizon = Operations Planning*]
- R3.** Each Transmission Operator shall review its restoration plan and submit it to its Reliability Coordinator annually on a mutually agreed predetermined schedule. [*Violation Risk Factor = Medium*] [*Time Horizon = Operations Planning*]
 - R3.1.** If there are no changes to the previously submitted restoration plan, the Transmission Operator shall confirm annually on a predetermined schedule to its Reliability Coordinator that it has reviewed its restoration plan and no changes were necessary.
- R4.** Each Transmission Operator shall update its restoration plan within 90 calendar days after identifying any unplanned permanent System modifications, or prior to implementing a planned BES modification, that would change the implementation of its restoration plan. [*Violation Risk Factor = Medium*] [*Time Horizon = Operations Planning*]
 - R4.1.** Each Transmission Operator shall submit its revised restoration plan to its Reliability Coordinator for approval within the same 90 calendar day period.
- R5.** Each Transmission Operator shall have a copy of its latest Reliability Coordinator approved restoration plan within its primary and backup control rooms so that it is available to all of its System Operators prior to its implementation date. [*Violation Risk Factor = Lower*] [*Time Horizon = Operations Planning*]
- R6.** Each Transmission Operator shall verify through analysis of actual events, steady state and dynamic simulations, or testing that its restoration plan accomplishes its intended function. This shall be completed every five years at a minimum. Such analysis, simulations or testing shall verify: [*Violation Risk Factor = Medium*] [*Time Horizon = Long-term Planning*]
 - R6.1.** The capability of Blackstart Resources to meet the Real and Reactive Power requirements of the Cranking Paths and the dynamic capability to supply initial Loads.
 - R6.2.** The location and magnitude of Loads required to control voltages and frequency within acceptable operating limits.

- R6.3.** The capability of generating resources required to control voltages and frequency within acceptable operating limits.
- R7.** Following a Disturbance in which one or more areas of the BES shuts down and the use of Blackstart Resources is required to restore the shut down area to service, each affected Transmission Operator shall implement its restoration plan. If the restoration plan cannot be executed as expected the Transmission Operator shall utilize its restoration strategies to facilitate restoration. [*Violation Risk Factor = High*] [*Time Horizon = Real-time Operations*]
- R8.** Following a Disturbance in which one or more areas of the BES shuts down and the use of Blackstart Resources is required to restore the shut down area to service, the Transmission Operator shall resynchronize area(s) with neighboring Transmission Operator area(s) only with the authorization of the Reliability Coordinator or in accordance with the established procedures of the Reliability Coordinator. [*Violation Risk Factor = High*] [*Time Horizon = Real-time Operations*]
- R9.** Each Transmission Operator shall have Blackstart Resource testing requirements to verify that each Blackstart Resource is capable of meeting the requirements of its restoration plan. These Blackstart Resource testing requirements shall include: [*Violation Risk Factor = Medium*] [*Time Horizon = Operations Planning*]
- R9.1.** The frequency of testing such that each Blackstart Resource is tested at least once every three calendar years.
- R9.2.** A list of required tests including:
- R9.2.1.** The ability to start the unit when isolated with no support from the BES or when designed to remain energized without connection to the remainder of the System.
- R9.2.2.** The ability to energize a bus. If it is not possible to energize a bus during the test, the testing entity must affirm that the unit has the capability to energize a bus such as verifying that the breaker close coil relay can be energized with the voltage and frequency monitor controls disconnected from the synchronizing circuits.
- R9.3.** The minimum duration of each of the required tests.
- R10.** Each Transmission Operator shall include within its operations training program, annual System restoration training for its System Operators to assure the proper execution of its restoration plan. This training program shall include training on the following: [*Violation Risk Factor = Medium*] [*Time Horizon = Operations Planning*]
- R10.1.** System restoration plan including coordination with the Reliability Coordinator and Generator Operators included in the restoration plan.
- R10.2.** Restoration priorities.
- R10.3.** Building of cranking paths.
- R10.4.** Synchronizing (re-energized sections of the System).

- R11.** Each Transmission Operator, each applicable Transmission Owner, and each applicable Distribution Provider shall provide a minimum of two hours of System restoration training every two calendar years to their field switching personnel identified as performing unique tasks associated with the Transmission Operator’s restoration plan that are outside of their normal tasks. *[Violation Risk Factor = Medium] [Time Horizon = Operations Planning]*
- R12.** Each Transmission Operator shall participate in its Reliability Coordinator’s restoration drills, exercises, or simulations as requested by its Reliability Coordinator. *[Violation Risk Factor = Medium] [Time Horizon = Operations Planning]*
- R13.** Each Transmission Operator and each Generator Operator with a Blackstart Resource shall have written Blackstart Resource Agreements or mutually agreed upon procedures or protocols, specifying the terms and conditions of their arrangement. Such Agreements shall include references to the Blackstart Resource testing requirements. *[Violation Risk Factor = Medium] [Time Horizon = Operations Planning]*
- R14.** Each Generator Operator with a Blackstart Resource shall have documented procedures for starting each Blackstart Resource and energizing a bus. *[Violation Risk Factor = Medium] [Time Horizon = Operations Planning]*
- R15.** Each Generator Operator with a Blackstart Resource shall notify its Transmission Operator of any known changes to the capabilities of that Blackstart Resource affecting the ability to meet the Transmission Operator’s restoration plan within 24 hours following such change. *[Violation Risk Factor = Medium] [Time Horizon = Operations Planning]*
- R16.** Each Generator Operator with a Blackstart Resource shall perform Blackstart Resource tests, and maintain records of such testing, in accordance with the testing requirements set by the Transmission Operator to verify that the Blackstart Resource can perform as specified in the restoration plan. *[Violation Risk Factor = Medium] [Time Horizon = Operations Planning]*
- R16.1.** Testing records shall include at a minimum: name of the Blackstart Resource, unit tested, date of the test, duration of the test, time required to start the unit, an indication of any testing requirements not met under Requirement R9.
- R16.2.** Each Generator Operator shall provide the blackstart test results within 30 calendar days following a request from its Reliability Coordinator or Transmission Operator.
- R17.** Each Generator Operator with a Blackstart Resource shall provide a minimum of two hours of training every two calendar years to each of its operating personnel responsible for the startup of its Blackstart Resource generation units and energizing a bus. The training program shall include training on the following: *[Violation Risk Factor = Medium] [Time Horizon = Operations Planning]*
- R17.1.** System restoration plan including coordination with the Transmission Operator.
- R17.2.** The procedures documented in Requirement R14.

- R18.** Each Generator Operator shall participate in the Reliability Coordinator's restoration drills, exercises, or simulations as requested by the Reliability Coordinator. [*Violation Risk Factor = Medium*] [*Time Horizon = Operations Planning*]

C. Measures

- M1.** Each Transmission Operator shall have a dated, documented System restoration plan developed in accordance with Requirement R1 that has been approved by its Reliability Coordinator as shown with the documented approval from its Reliability Coordinator.
- M2.** Each Transmission Operator shall have evidence such as e-mails with receipts or registered mail receipts that it provided the entities identified in its approved restoration plan with a description of any changes to their roles and specific tasks prior to the implementation date of the plan in accordance with Requirement R2.
- M3.** Each Transmission Operator shall have documentation such as a dated review signature sheet, revision histories, e-mails with receipts, or registered mail receipts, that it has annually reviewed and submitted the Transmission Operator's restoration plan to its Reliability Coordinator in accordance with Requirement R3.
- M4.** Each Transmission Operator shall have documentation such as dated review signature sheets, revision histories, e-mails with receipts, or registered mail receipts, that it has updated its restoration plan and submitted it to its Reliability Coordinator in accordance with Requirement R4.
- M5.** Each Transmission Operator shall have documentation that it has made the latest Reliability Coordinator approved copy of its restoration plan available in its primary and backup control rooms and its System Operators prior to its implementation date in accordance with Requirement R5.
- M6.** Each Transmission Operator shall have documentation such as power flow outputs, that it has verified that its latest restoration plan will accomplish its intended function in accordance with Requirement R6.
- M7.** If there has been a Disturbance in which Blackstart Resources have been utilized in restoring the shut down area of the BES to service, each Transmission Operator involved shall have evidence such as voice recordings, e-mail, dated computer printouts, or operator logs, that it implemented its restoration plan or restoration plan strategies in accordance with Requirement R7.
- M8.** If there has been a Disturbance in which Blackstart Resources have been utilized in restoring the shut down area of the BES to service, each Transmission Operator involved in such an event shall have evidence, such as voice recordings, e-mail, dated computer printouts, or operator logs, that it resynchronized shut down areas in accordance with Requirement R8.
- M9.** Each Transmission Operator shall have documented Blackstart Resource testing requirements in accordance with Requirement R9.
- M10.** Each Transmission Operator shall have an electronic or hard copy of the training program material provided for its System Operators for System restoration training in accordance with Requirement R10.

- M11.** Each Transmission Operator, each applicable Transmission Owner, and each applicable Distribution Provider shall have an electronic or hard copy of the training program material provided to their field switching personnel for System restoration training and the corresponding training records including training dates and duration in accordance with Requirement R11.
- M12.** Each Transmission Operator shall have evidence, such as training records, that it participated in the Reliability Coordinator's restoration drills, exercises, or simulations as requested in accordance with Requirement R12.
- M13.** Each Transmission Operator and Generator Operator with a Blackstart Resource shall have the dated Blackstart Resource Agreements or mutually agreed upon procedures or protocols in accordance with Requirement R13.
- M14.** Each Generator Operator with a Blackstart Resource shall have dated documented procedures on file for starting each unit and energizing a bus in accordance with Requirement R14.
- M15.** Each Generator Operator with a Blackstart Resource shall provide evidence, such as e-mails with receipts or registered mail receipts, showing that it notified its Transmission Operator of any known changes to its Blackstart Resource capabilities within twenty-four hours of such changes in accordance with Requirement R15.
- M16.** Each Generator Operator with a Blackstart Resource shall maintain dated documentation of its Blackstart Resource test results and shall have evidence such as e-mails with receipts or registered mail receipts, that it provided these records to its Reliability Coordinator and Transmission Operator when requested in accordance with Requirement R16.
- M17.** Each Generator Operator with a Blackstart Resource shall have an electronic or hard copy of the training program material provided to its operating personnel responsible for the startup and synchronization of its Blackstart Resource generation units and a copy of its dated training records including training dates and durations showing that it has provided training in accordance with Requirement R17.
- M18.** Each Generator Operator shall have evidence, such as dated training records, that it participated in the Reliability Coordinator's restoration drills, exercises, or simulations if requested to do so in accordance with Requirement R18.

D. Compliance

1. Compliance Monitoring Process

1.1. Compliance Enforcement Authority

Regional Entity.

1.2. Compliance Monitoring Period and Reset Time Frame

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

The 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:

- Approved restoration plan and any restoration plans in force since the last compliance audit for Requirement R1, Measure M1.
- Provided the entities identified in its approved restoration plan with a description of any changes to their roles and specific tasks prior to the implementation date of the plan for the current calendar year and three prior calendar years for Requirement R2, Measure M2.
- Submission of the Transmission Operator's annually reviewed restoration plan to its Reliability Coordinator for the current calendar year and three prior calendar years for Requirement R3, Measure M3.
- Submission of an updated restoration plan to its Reliability Coordinator for all versions for the current calendar year and the prior three years for Requirement R4, Measure M4.
- The current, restoration plan approved by the Reliability Coordinator and any restoration plans for the last three calendar years that was made available in its control rooms for Requirement R5, Measure M5.
- The verification results for the current, approved restoration plan and the previous approved restoration plan for Requirement R6, Measure M6.
- Implementation of its restoration plan or restoration plan strategies on any occasion for three calendar years if there has been a Disturbance in which Blackstart Resources have been utilized in restoring the shut down area of the BES to service for Requirement R7, Measure M7.
- Resynchronization of shut down areas on any occasion over three calendar years if there has been a Disturbance in which Blackstart Resources have been utilized in restoring the shut down area of the BES to service for Requirement R8, Measure M8.
- The verification process and results for the current Blackstart Resource testing requirements and the last previous Blackstart Resource testing requirements for Requirement R9, Measure M9.
- Actual training program materials or descriptions for three calendar years for Requirement R10, Measure M10.
- Records of participation in all requested Reliability Coordinator restoration drills, exercises, or simulations since its last compliance audit

as well as one previous compliance audit period for Requirement R12, Measure M12.

If a Transmission Operator is found non-compliant for any requirement, it shall keep information related to the non-compliance until found compliant.

The Transmission Operator, applicable Transmission Owner, and applicable Distribution provider 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:

- Actual training program materials or descriptions and actual training records for three calendar years for Requirement R11, Measure M11.

If a Transmission Operator, applicable Transmission owner, or applicable Distribution Provider is found non-compliant for any requirement, it shall keep information related to the non-compliance until found compliant.

The Transmission Operator and Generator Operator with a Blackstart Resource 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:

- Current Blackstart Resource Agreements and any Blackstart Resource Agreements or mutually agreed upon procedures or protocols in force since its last compliance audit for Requirement R13, Measure M13.

The Generator Operator with a Blackstart Resource 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:

- Current documentation and any documentation in force since its last compliance audit on procedures to start each Blackstart Resources and for energizing a bus for Requirement R14, Measure M14.
- Notification to its Transmission Operator of any known changes to its Blackstart Resource capabilities over the last three calendar years for Requirement R15, Measure M15.
- The verification test results for the current set of requirements and one previous set for its Blackstart Resources for Requirement R16, Measure M16.
- Actual training program materials and actual training records for three calendar years for Requirement R17, Measure M17.

If a Generation Operator with a Blackstart Resource is found non-compliant for any requirement, it shall keep information related to the non-compliance until found compliant.

The Generator 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:

- Records of participation in all requested Reliability Coordinator restoration drills, exercises, or simulations since its last compliance audit for Requirement R18, Measure M18.

If a Generation Operator is found non-compliant for any requirement, 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. | The Transmission Operator has an approved plan but failed to comply with one of the sub-requirements within the requirement. | The Transmission Operator has an approved plan but failed to comply with two of the sub-requirements within the requirement. | The Transmission Operator has an approved plan but failed to comply with three of the sub-requirements within the requirement. | The Transmission Operator does not have an approved restoration plan. |
| R2. | The Transmission Operator failed to provide one of the entities identified in its approved restoration plan with a description of any changes to their roles and specific tasks prior to the implementation date of the plan. OR The Transmission Operator provided the information to all entities but was up to 30 calendar days late in doing so. | The Transmission Operator failed to provide two of the entities identified in its approved restoration plan with a description of any changes to their roles and specific tasks prior to the implementation date of the plan. OR The Transmission Operator provided the information to all entities but was more than 30 and less than or equal to 60 calendar days late in doing so. | The Transmission Operator failed to provide three of the entities identified in its approved restoration plan with a description of any changes to their roles and specific tasks prior to the implementation date of the plan. OR The Transmission Operator provided the information to all entities but was more than 60 and less than or equal to 90 calendar days late in doing so. | The Transmission Operator failed to provide four or more of the entities identified in its approved restoration plan with a description of any changes to their roles and specific tasks prior to the implementation date of the plan. OR The Transmission Operator provided the information to all entities but was more than 90 calendar days late in doing so. |
| R3. | The Transmission Operator submitted the reviewed restoration plan or confirmation of no change within 30 calendar days after the pre-determined schedule. | The Transmission Operator submitted the reviewed restoration plan or confirmation of no change more than 30 and less than or equal to 60 calendar days after the pre-determined schedule. | The Transmission Operator submitted the reviewed restoration plan or confirmation of no change more than 60 and less than or equal to 90 calendar days after the pre-determined schedule. | The Transmission Operator submitted the reviewed restoration plan or confirmation of no change more than 90 calendar days after the pre-determined schedule. |
| R4. | The Transmission Operator failed to update and submit its restoration plan to the Reliability Coordinator within 90 calendar days of an | The Transmission Operator failed to update and submit its restoration plan to the Reliability Coordinator within more than 90 calendar days but | The Transmission Operator has failed to update and submit its restoration plan to the Reliability Coordinator within more than 120 calendar days but | The Transmission Operator has failed to update and submit its restoration plan to the Reliability Coordinator within more than 150 calendar days of |

Standard EOP-005-2 — System Restoration from Blackstart Resources

| R# | Lower VSL | Moderate VSL | High VSL | Severe VSL |
|------------|---|---|--|---|
| | unplanned change. | less than 120 calendar days of an unplanned change. | less than 150 calendar days of unplanned change. | an unplanned change. OR The Transmission Operator failed to update and submit its restoration plan to the Reliability Coordinator prior to a planned BES modification. |
| R5. | N/A | N/A | N/A | The Transmission Operator did not make the latest Reliability Coordinator approved restoration plan available in its primary and backup control rooms prior to its implementation date. |
| R6. | The Transmission Operator performed the verification within the required timeframe but did not comply with one of the sub-requirements. | The Transmission Operator performed the verification within the required timeframe but did not comply with two of the sub-requirements. | The Transmission Operator performed the verification but did not complete it within the five calendar year period. | The Transmission Operator did not perform the verification or it took more than six calendar years to complete the verification. OR The Transmission Operator performed the verification within the required timeframe but did not comply with any of the sub-requirements. |
| R7. | N/A | N/A | N/A | The Transmission Operator did not implement its restoration plan following a Disturbance in which Blackstart Resources have been utilized in restoring the shut down area of the BES. Or, if the restoration plan cannot |

Standard EOP-005-2 — System Restoration from Blackstart Resources

| R# | Lower VSL | Moderate VSL | High VSL | Severe VSL |
|-------------|---|---|---|--|
| | | | | be executed as expected, the Transmission Operator did not utilize its restoration plan strategies to facilitate restoration. |
| R8. | N/A | N/A | N/A | The Transmission Operator resynchronized without approval of the Reliability Coordinator or not in accordance with the established procedures of the Reliability Coordinator following a Disturbance in which Blackstart Resources have been utilized in restoring the shut down area of the BES to service. |
| R9. | N/A | N/A | N/A | The Transmission Operator's Blackstart Resource testing requirements do not address one or more of the sub-requirements of Requirement R9. |
| R10. | The Transmission Operator's training does not address one of the sub-requirements of Requirement R10. | The Transmission Operator's training does not address two of the sub-requirements of Requirement R10. | The Transmission Operator's training does not address three or more of the sub-requirements of Requirement R10. | The Transmission Operator has not included System restoration training in its operations training program. |
| R11. | The Transmission Operator, applicable Transmission Owner, or applicable Distribution Provider did not train less than or equal to 10% of the personnel required by Requirement R11 within a two calendar year | The Transmission Operator, applicable Transmission Owner, or applicable Distribution Provider did not train more than 10% and less than or equal to 25% of the personnel required by Requirement R11 within a | The Transmission Operator, applicable Transmission Owner, or applicable Distribution Provider did not train more than 25% and less than or equal to 50% of the personnel required by Requirement R11 within a | The Transmission Operator, applicable Transmission Owner, or applicable Distribution Provider did not train more than 50 % of the personnel required by Requirement R11 within a |

Standard EOP-005-2 — System Restoration from Blackstart Resources

| R# | Lower VSL | Moderate VSL | High VSL | Severe VSL |
|-------------|--|--|--|---|
| | period. | two calendar year period. | two calendar year period. | two calendar year period. |
| R12. | N/A. | N/A | N/A | The Transmission Operator has failed to comply with a request for their participation from the Reliability Coordinator. |
| R13. | N/A | The Transmission Operator and Generator Operator with a Blackstart Resource do not reference Blackstart Resource Testing requirements in their written Blackstart Resource Agreements or mutually agreed upon procedures or protocols. | N/A | The Transmission Operator and Generator Operator with a Blackstart resource do not have a written Blackstart Resource Agreement or mutually agreed upon procedure or protocol. |
| R14. | N/A | N/A | N/A | The Generator Operator does not have documented starting and bus energizing procedures for each Blackstart Resource. |
| R15. | The Generator Operator with a Blackstart Resource did not notify the Transmission Operator of a change in Blackstart Resource capability affecting the ability to meet the Transmission Operator’s restoration plan within 24 hours but did make the notification within 48 hours. | The Generator Operator with a Blackstart Resource did not notify the Transmission Operator of a change in Blackstart Resource capability affecting the ability to meet the Transmission Operator’s restoration plan within 24 hours but did make the notification within 72 hours. | The Generator Operator with a Blackstart Resource did not notify the Transmission Operator of a change in Blackstart Resource capability affecting the ability to meet the Transmission Operator’s restoration plan within 24 hours but did make the notification within 96 hours. | The Generator Operator with a Blackstart Resource did not notify the Transmission Operator of a change in Blackstart Resource capability affecting the ability to meet the Transmission Operator’s restoration plan for more than 96 hours. |
| R16. | The Generator Operator with a Blackstart Resource did not maintain testing records for one of the requirements for a | The Generator Operator with a Blackstart Resource did not maintain testing records for two of the requirements for a | The Generator Operator with a Blackstart Resource did not maintain testing records for three of the requirements for a | The Generator Operator with a Blackstart Resource did not maintain testing records for a Blackstart Resource. Or did not |

Standard EOP-005-2 — System Restoration from Blackstart Resources

| R# | Lower VSL | Moderate VSL | High VSL | Severe VSL |
|-------------|---|---|---|---|
| | Blackstart Resource. Or did not supply the Blackstart Resource testing records as requested within 59 calendar days of the request. | Blackstart Resource. Or did not supply the Blackstart Resource testing records as requested for 60 days to 89 calendar days after the request. | Blackstart Resource. Or did not supply the Blackstart Resource testing records as requested for 90 to 119 calendar days after the request. | supply the Blackstart Resource testing records as requested for 120 days or more after the request. |
| R17. | The Generator Operator with a Blackstart Resource did not train less than or equal to 10% of the personnel required by Requirement R17 within a two calendar year period. | The Generator Operator with a Blackstart Resource did not train more than 10% and less than or equal to 25% of the personnel required by Requirement R17 within a two calendar year period. | The Generator Operator with a Blackstart Resource did not train more than 25% and less than or equal to 50% of the personnel required by Requirement R17 within a two calendar year period. | The Generator Operator with a Blackstart Resource did not train more than 50% of the personnel required by Requirement R17 within a two calendar year period. |
| R18. | N/A. | N/A | N/A | The Generator Operator has failed to comply with a request for their participation from the Reliability Coordinator. |

E. Regional Variances

None.

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 | May 2, 2007 | Approved by Board of Trustees | Revised |
| 2 | TBD | Revisions pursuant to Project 2006-03 | Updated testing requirements Incorporated Attachment 1 into the requirements Updated Measures and Compliance to match new Requirements |

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. SAR version 1 posted on November 6, 2006.
2. SAR version 1 comment period closed on December 5, 2006.
3. SAR version 2 and comment responses for SAR version 1 posted on February 8, 2007.
4. SAR version 2 comment period closed on March 9, 2007.
5. SAR version 3 and comment responses for SAR version 2 accepted by SC and SDT appointed on April 9, 2007.
6. First posting of revised standards on August 15, 2007 with comment period closed on September 28, 2007.
7. Second posting of revised standards on January 7, 2008 with comment period closed on February 5, 2008.
8. Third posting of revised standards on April 15, 2008 with comment period closed on May 29, 2008.
9. Fourth posting of revised standards on October 21, 2008 with comment period closed on November 18, 2008.

Proposed Action Plan and Description of Current Draft:

The SDT began meeting in mid-April 2007 immediately following the approval of the SAR by the SC with the goal of completing work in approximately one year's time. The current draft is the fourth posting of the proposed standards. Requirements in EOP-007 and EOP-009 have been incorporated into the revised EOP-005 and EOP-006. Therefore, EOP-007 and EOP-009 will be retired when this project is approved and EOP-005-2 and EOP-006-2 go into effect.

Future Development Plan:

| Anticipated Actions | Anticipated Date |
|--|-------------------------|
| 1. Standards posted for first ballot. | March 2009 |
| 2. Standards posted for second ballot. | April 2009 |
| 3. Standards sent to BOT for approval. | May 2009 |
| 4. Standards submitted to regulatory authorities for approval. | To be determined. |

Definitions of Terms Used in Standard

This section includes all newly defined or revised terms used in the proposed standard. Terms already defined in the Reliability Standards Glossary of Terms are not repeated here. New or revised definitions listed below become approved when the proposed standard is approved. When the standard becomes effective, these defined terms will be removed from the individual standard and added to the Glossary.

Blackstart Capability Plan: Existing definition is retired.

Blackstart Resource: A generating unit(s) and its associated set of equipment which has the ability to be started without support from the System or is designed to remain energized without connection to the remainder of the System, with the ability to energize a bus, meeting the Transmission Operator's restoration plan needs for real and reactive power capability, frequency and voltage control, and that has been included in the Transmission Operator's restoration plan.

A. Introduction

1. **Title:** System Restoration from Blackstart Resources
2. **Number:** EOP-005-2
3. **Purpose:** Ensure plans, Facilities, and personnel are prepared to enable System restoration from Blackstart Resources to assure reliability is maintained during restoration and priority is placed on restoring the Interconnection.
4. **Applicability:**
 - 4.1. Transmission Operators.
 - 4.2. Generator Operators.
 - 4.3. Transmission Owners identified in the Transmission Operators restoration plan.
 - 4.4. Distribution Providers identified in the Transmission Operators restoration plan.
5. **Proposed Effective Date:** ~~As per the Implementation Plan~~ Twenty-four months after the first day of the first calendar quarter following applicable regulatory approval. In those jurisdictions where no regulatory approval is required, all requirements go into effect twenty-four months after Board of Trustees adoption.

B. Requirements

- R1. Each Transmission Operator shall have a restoration plan approved by its Reliability Coordinator. The restoration plan shall allow for restoring the Transmission Operator's System following a Disturbance in which one or more areas of the Bulk Electric System (BES) shuts down and the use of Blackstart Resources is required to restore the shut down area to service, to a state whereby the choice of the next Load to be restored is not driven by the need to control frequency or voltage regardless of whether the Blackstart Resource is located within the Transmission Operator's System. The restoration plan shall include: *[Violation Risk Factor = High] [Time Horizon = Operations Planning]*
 - R1.1. Strategies for system restoration that are coordinated with the Reliability Coordinator's high level strategy ~~A description of how the plan follows the high level strategies~~ for restoring the Interconnection ~~as outlined in the Transmission Operator's Reliability Coordinator restoration plan.~~
 - R1.2. A description of ~~the manner in which~~ how all Agreements or mutually agreed upon procedures or protocols for off-site power requirements of nuclear power plants, including priority of restoration, will be fulfilled during System restoration.
 - R1.3. Procedures for restoring interconnections with other Transmission Operators under the direction of the Reliability Coordinator.
 - R1.4. Identification of each Blackstart Resource and its characteristics including but not limited to the following: the name of the Blackstart Resource, location, megawatt and megavar capacity, and type of unit.
 - R1.5. Identification of Cranking Paths and initial switching requirements between each Blackstart Resource and the unit(s) to be started.

- R1.6.** Identification of acceptable operating voltage and frequency limits during restoration.
- R1.7.** Operating Processes to reestablish connections within the Transmission Operator's System for areas that have been restored and are prepared for reconnection.
- R1.8.** Operating Processes to restore Loads required to restore the System, such as station service for substations, units to be restarted or stabilized, the Load needed to stabilize generation and frequency, and provide voltage control.
- R1.9.** ~~Criteria~~Operating Processes for transferring ~~operations and~~ authority back to the Balancing Authority in accordance with the Reliability Coordinator's criteria.
- R2.** Each Transmission Operator shall provide the ~~operational~~ entities identified in its approved restoration plan with a description of any changes to their roles and specific tasks prior to the implementation date of the plan. *[Violation Risk Factor = Lower] [Time Horizon = Operations Planning]*
- R3.** Each Transmission Operator shall review ~~the Transmission Operator's~~ its restoration plan and submit it to its Reliability Coordinator annually on a mutually agreed predetermined schedule. *[Violation Risk Factor = Medium] [Time Horizon = Operations Planning]*
- R3.1.** If there are no changes to the previously submitted restoration plan, the Transmission Operator shall confirm annually on a predetermined schedule to its Reliability Coordinator that it has reviewed its restoration plan and no changes were necessary.
- R4.** Each Transmission Operator shall update its restoration plan within ~~ninety~~90 calendar days after identifying any unplanned permanent System modifications, or prior to implementing a planned ~~System-BES~~ modification, that would change the implementation of its restoration plan. *[Violation Risk Factor = Medium] [Time Horizon = Operations Planning]*
- R4.1.** Each Transmission Operator shall submit its revised restoration plan to its Reliability Coordinator for approval within the same ~~ninety~~90 calendar day period.
- R5.** Each Transmission Operator shall have a copy of its latest Reliability Coordinator approved restoration plan within its primary and backup control rooms ~~and~~so that it is available to all of its System Operators prior to its implementation date. *[Violation Risk Factor = Lower] [Time Horizon = Operations Planning]*
- R6.** Each Transmission Operator shall verify through analysis of actual events, steady state and dynamic simulations, or testing that its restoration plan accomplishes its intended function. This shall be completed every five years at a minimum. Such analysis, simulations or testing shall verify: *[Violation Risk Factor = Medium] [Time Horizon = Long-term Planning]*

- R6.1.** The capability of Blackstart Resources to meet the Real and Reactive Power requirements of the Cranking Paths and [the dynamic capability](#) to supply initial Loads.
- R6.2.** The location and magnitude of Loads required to control voltages and frequency within acceptable operating limits.
- R6.3.** The capability of generating resources required to control voltages and frequency within acceptable operating limits.
- R7.** Following a Disturbance in which one or more areas of the BES shuts down and the use of Blackstart Resources is required to restore the shut down area to service, each affected Transmission Operator shall implement its restoration plan. If the restoration plan cannot be executed as expected ~~because actual conditions do not match the studied conditions,~~ the Transmission Operator shall utilize its restoration ~~plan~~ strategies to facilitate restoration. *[Violation Risk Factor = High] [Time Horizon = Real-time Operations]*
- R8.** Following a Disturbance in which one or more areas of the BES shuts down and the use of Blackstart Resources is required to restore the shut down area to service, the Transmission Operator shall resynchronize area(s) with neighboring Transmission Operator area(s) only with the authorization of the Reliability Coordinator or in accordance with the established procedures of the Reliability Coordinator. *[Violation Risk Factor = High] [Time Horizon = Real-time Operations]*
- R9.** Each Transmission Operator shall have Blackstart Resource testing requirements to verify that each Blackstart Resource is capable of meeting the requirements of its restoration plan. These Blackstart Resource testing requirements shall include: *[Violation Risk Factor = Medium] [Time Horizon = Operations Planning]*
- R9.1.** The frequency of testing such that each Blackstart Resource is tested at least once every three [calendar](#) years.
- R9.2.** A list of required tests including:
- R9.2.1.** The ability to start the unit when isolated with no support from the BES or when designed to remain energized without connection to the remainder of the System.
- R9.2.2.** The ability to energize a bus. If it is not possible to energize a bus during the test, the testing entity must affirm that the unit has the capability to energize a bus such as verifying that the breaker close coil relay can be energized with the voltage and frequency monitor controls disconnected [from the synchronizing circuits](#).
- R9.3.** The minimum duration of each of the required tests.
- R10.** Each Transmission Operator shall include within its operations training program, annual System restoration training ~~to~~[for](#) its System Operators to assure the proper execution of its restoration plan. This training program shall include training on the following: *[Violation Risk Factor = Medium] [Time Horizon = Operations Planning]*

- R10.1.** System restoration plan including coordination with the Reliability Coordinator and Generator Operators included in the restoration plan.
- R10.2.** Restoration priorities.
- R10.3.** Building of cranking paths.
- R10.4.** Synchronizing (re-energized sections of the System).
- R11.** Each Transmission Operator, each applicable Transmission Owner, and each applicable Distribution Provider shall provide a minimum of two hours of System restoration training every two calendar years to their field switching personnel identified as performing unique tasks associated with the Transmission Operator's restoration plan that are outside of their normal tasks. [*Violation Risk Factor = ~~Lower~~Medium*] [*Time Horizon = Operations Planning*]
- R12.** Each Transmission Operator shall participate in its Reliability Coordinator's restoration drills, exercises, or simulations as requested by its Reliability Coordinator. [*Violation Risk Factor = Medium*] [*Time Horizon = Operations Planning*]
- R13.** Each Transmission Operator and each Generator Operator with a Blackstart Resource shall have written Blackstart Resource Agreements or mutually agreed upon procedures or protocols, specifying the terms and conditions of their arrangement. Such Agreements shall include references to the Blackstart Resource testing requirements. [*Violation Risk Factor = Medium*] [*Time Horizon = Operations Planning*]
- R14.** Each Generator Operator with a Blackstart Resource shall have documented procedures for starting each Blackstart Resource and energizing a bus. [*Violation Risk Factor = Medium*] [*Time Horizon = Operations Planning*]
- R15.** Each Generator Operator with a Blackstart Resource shall notify its Transmission Operator of any known changes to the capabilities of that Blackstart Resource affecting the ability to meet the Transmission Operator's restoration plan within ~~twenty-four~~ 24 hours following such change. [*Violation Risk Factor = Medium*] [*Time Horizon = Operations Planning*]
- R16.** Each Generator Operator with a Blackstart Resource shall perform Blackstart Resource tests, and maintain records of such testing, in accordance with the testing requirements set by the Transmission Operator to verify that the Blackstart Resource can perform as specified in the restoration plan. [*Violation Risk Factor = Medium*] [*Time Horizon = Operations Planning*]
- R16.1.** Testing records shall include at a minimum: name of the Blackstart Resource, unit tested, date of the test, duration of the test, time required to start the unit, an indication of any testing requirements not met under Requirement R9.
- R16.2.** Each Generator Operator shall provide the blackstart test results within ~~thirty~~30 calendar days following a request from its Reliability Coordinator or Transmission Operator.
- R17.** Each Generator Operator with a Blackstart Resource shall provide a minimum of two hours of training every two calendar years to each of its operating personnel

responsible for the startup of its Blackstart Resource generation units and energizing a bus. The training program shall include training on the following: [*Violation Risk Factor = Medium*] [*Time Horizon = Operations Planning*]

R17.1. System restoration plan including coordination with the Transmission Operator.

R17.2. The procedures documented in Requirement R14.

R18. Each Generator Operator shall participate in the Reliability Coordinator's restoration drills, exercises, or simulations as requested by the Reliability Coordinator. [*Violation Risk Factor = Medium*] [*Time Horizon = Operations Planning*]

C. Measures

M1. Each Transmission Operator shall have a dated, documented System restoration plan developed in accordance with Requirement R1 that has been approved by its Reliability Coordinator as shown with the ~~written~~-documented approval ~~letter~~ from its Reliability Coordinator.

M2. Each Transmission Operator shall have evidence such as e-mails with receipts or registered mail receipts that it provided the ~~operational~~ entities identified in its approved restoration plan with a description of any changes to their roles and specific tasks prior to the implementation date of the plan in accordance with Requirement R2.

M3. Each Transmission Operator shall have documentation such as a dated review signature sheet, revision histories, e-mails with receipts, or registered mail receipts, that it has annually reviewed and submitted the Transmission Operator's restoration plan to its Reliability Coordinator in accordance with Requirement R3.

M4. Each Transmission Operator shall have documentation such as dated review signature sheets, revision histories, e-mails with receipts, or registered mail receipts, that it has updated its restoration plan and submitted it to its Reliability Coordinator in accordance with Requirement R4.

M5. Each Transmission Operator shall have documentation that it has made the latest Reliability Coordinator approved copy of its restoration plan available in its primary and backup control rooms and ~~to each of~~ its System Operators prior to its implementation date in accordance with Requirement R5.

M6. Each Transmission Operator shall have documentation such as power flow outputs, that it has verified that its latest restoration plan will accomplish its intended function in accordance with Requirement R6.

M7. If there has been a Disturbance in which Blackstart Resources have been utilized in restoring the shut down area of the ~~System~~-BES to service, each Transmission Operator involved shall have evidence such as voice recordings, e-mail, dated computer printouts, or operator logs, that it implemented its restoration plan or restoration plan strategies in accordance with Requirement R7.

M8. If there has been a Disturbance in which Blackstart Resources have been utilized in restoring the shut down area of the ~~System~~-BES to service, each Transmission Operator involved in such an event shall have evidence, such as voice recordings, e-mail, dated

computer printouts, or operator logs, that it resynchronized shut down areas in accordance with Requirement R8.

- M9.** Each Transmission Operator shall have documented Blackstart Resource testing requirements in accordance with Requirement R9.
- M10.** Each Transmission Operator shall have an electronic or hard copy of the training program material provided ~~to~~for its System Operators for System restoration training in accordance with Requirement R10.
- M11.** Each Transmission Operator, each applicable Transmission Owner, and each applicable Distribution Provider shall have an electronic or hard copy of the training program material provided to their field switching personnel for System restoration training and the corresponding training records including training dates and duration in accordance with Requirement R11.
- M12.** Each Transmission Operator shall have evidence, such as training records, that it participated in the Reliability Coordinator's restoration drills, exercises, or simulations as requested in accordance with Requirement R12.
- M13.** Each Transmission Operator and Generator Operator with a Blackstart Resource shall have the dated Blackstart Resource Agreements or mutually agreed upon procedures or protocols in accordance with Requirement R13.
- M14.** Each Generator Operator with a Blackstart Resource shall have dated documented procedures on file for starting each unit and energizing a bus in accordance with Requirement R14.
- M15.** Each Generator Operator with a Blackstart Resource shall provide evidence, such as e-mails with receipts or registered mail receipts, showing that it notified its Transmission Operator of any known changes to its Blackstart Resource capabilities within twenty-four hours of such changes in accordance with Requirement R15.
- M16.** Each Generator Operator with a Blackstart Resource shall maintain dated documentation of its Blackstart Resource test results and shall have evidence such as e-mails with receipts or registered mail receipts, that it provided these records to its Reliability Coordinator and Transmission Operator when requested in accordance with Requirement R16.
- M17.** Each Generator Operator with a Blackstart Resource shall have an electronic or hard copy of the training program material provided to its operating personnel responsible for the startup and synchronization of its Blackstart Resource generation units and a copy of its dated training records including training dates and durations showing that it has provided training in accordance with Requirement R17.
- M18.** Each Generator Operator shall have evidence, such as dated training records, that it participated in the Reliability Coordinator's restoration drills, exercises, or simulations if requested to do so in accordance with Requirement R18.

D. Compliance

- 1. Compliance Monitoring Process**
 - 1.1. Compliance Enforcement Authority**

Regional Entity.

1.2. Compliance Monitoring Period and Reset Time Frame

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

The 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:

- Approved restoration plan and any restoration plans in force since the last compliance audit for Requirement R1, Measure M1.
- Provided the ~~operational~~-entities identified in its approved restoration plan with a description of any changes to their roles and specific tasks prior to the implementation date of the plan for the current calendar year and three prior calendar years for Requirement R2, Measure M2.
- Submission of the Transmission Operator's annually reviewed restoration plan to its Reliability Coordinator for the current calendar year and three prior calendar years for Requirement R3, Measure M3.
- Submission of an updated restoration plan to its Reliability Coordinator for all versions for the current calendar year and the prior three years for Requirement R4, Measure M4.
- The current, restoration plan approved by the Reliability Coordinator ~~restoration plan~~ and any restoration plans ~~in force~~ for the last three calendar years that was made available in its control rooms for Requirement R5, Measure M5.
- The verification results for the current, approved restoration plan and the previous approved restoration plan for Requirement R6, Measure M6.
- Implementation of its restoration plan or restoration plan strategies on any occasion for three calendar years if there has been a Disturbance in which Blackstart Resources have been utilized in restoring the shut down area of the ~~System~~-BES to service for Requirement R7, Measure M7.
- Resynchronization of shut down areas on any occasion over three calendar years if there has been a Disturbance in which Blackstart Resources have

been utilized in restoring the shut down area of the ~~System~~ [BES](#) to service for Requirement R8, Measure M8.

- The verification process and results for the current Blackstart Resource testing requirements and the last previous Blackstart Resource testing requirements for Requirement R9, Measure M9.
- Actual training program materials or descriptions for three calendar years for Requirement R10, Measure M10.
- Records of participation in all requested Reliability Coordinator restoration drills, exercises, or simulations since its last compliance audit as well as one previous compliance audit period for Requirement R12, Measure M12.

If a Transmission Operator is found non-compliant for any requirement, it shall keep information related to the non-compliance until found compliant.

The Transmission Operator, applicable Transmission Owner, and applicable Distribution provider 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:

- Actual training program materials or descriptions and actual training records for three calendar years for Requirement R11, Measure M11.

If a Transmission Operator, applicable Transmission owner, or applicable Distribution Provider is found non-compliant for any requirement, it shall keep information related to the non-compliance until found compliant.

The Transmission Operator and Generator Operator with a Blackstart Resource 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:

- Current Blackstart Resource Agreements and any Blackstart Resource Agreements or mutually agreed upon procedures or protocols in force since its last compliance audit for Requirement R13, Measure M13.

The Generator Operator with a Blackstart Resource 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:

- Current documentation and any documentation in force since its last compliance audit on procedures to start each Blackstart Resources and for energizing a bus for Requirement R14, Measure M14.
- Notification to its Transmission Operator of any known changes to its Blackstart Resource capabilities over the last three [calendar](#) years for Requirement R15, Measure M15.

- The verification test results for the current set of requirements and one previous set for its Blackstart Resources for Requirement R16, Measure M16.
- Actual training program materials and actual training records for three calendar years for Requirement R17, Measure M17.

If a Generation Operator with a Blackstart Resource is found non-compliant for any requirement, it shall keep information related to the non-compliance until found compliant.

The Generator 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:

- Records of participation in all requested Reliability Coordinator restoration drills, exercises, or simulations since its last compliance audit for Requirement R18, Measure M18.

If a Generation Operator is found non-compliant for any requirement, 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. | The Transmission Operator <u>has an approved plan but</u> failed to comply with one of the sub-requirements within the requirement. | The Transmission Operator <u>has an approved plan but</u> failed to comply with two of the sub-requirements within the requirement. | The Transmission Operator <u>has an approved plan but</u> failed to comply with three of the sub-requirements within the requirement. | The Transmission Operator has failed to comply with four or more of the sub-requirements within the requirement. <u>The Transmission Operator does not have an approved restoration plan.</u> |
| R2. | The Transmission Operator failed to provide one of the operational entities identified in its approved restoration plan with a description of any changes to their roles and specific tasks prior to the implementation date of the plan. OR ; † The Transmission Operator provided the information to all entities but was <u>up to thirty 30 calendar</u> days late in doing so- | The Transmission Operator failed to provide two of the operational entities identified in its approved restoration plan with a description of any changes to their roles and specific tasks prior to the implementation date of the plan. OR ; † The Transmission Operator provided the information to all entities but was <u>more than 30 and less than or equal to sixty 60 calendar</u> days or more late in doing so- | The Transmission Operator failed to provide three of the operational entities identified in its approved restoration plan with a description of any changes to their roles and specific tasks prior to the implementation date of the plan. OR ; † The Transmission Operator provided the information to all entities but was <u>more than 60 and less than or equal to ninety 90 calendar</u> days or more late in doing so. | The Transmission Operator failed to provide four or more of the operational entities identified in its approved restoration plan with a description of any changes to their roles and specific tasks prior to the implementation date of the plan. OR ; † The Transmission Operator provided the information to all entities but was <u>more than 90 calendar +20</u> days or more late in doing so. |
| R3. | The Transmission Operator did not submit <u>submitted</u> the reviewed restoration plan or confirmation of no change within twenty nine 30 calendar days of after the pre-determined schedule. | The Transmission Operator did not submit <u>submitted</u> the reviewed restoration plan or confirmation of no change within more than thirty 30 to fifty nine <u>and less than or equal to 60</u> calendar days of after the pre-determined schedule. | The Transmission Operator did not submit <u>submitted</u> the reviewed restoration plan or confirmation of no change within more than sixty 60 to eighty nine <u>and less than or equal to 90</u> calendar days of after the pre-determined schedule. | The Transmission Operator did not submit <u>submitted</u> the reviewed restoration plan or confirmation of no change within more than ninety 90 calendar days or longer after of the pre-determined schedule. |

Standard EOP-005-2 — System Restoration from Blackstart Resources

| R# | Lower VSL | Moderate VSL | High VSL | Severe VSL |
|-----|---|---|--|---|
| R4. | The Transmission Operator failed to update and submit its restoration plan to the Reliability Coordinator within ninety <u>90</u> calendar days of the <u>an</u> <u>unplanned</u> change. | The Transmission Operator failed to update and submit its restoration plan to the Reliability Coordinator within <u>more than 90 calendar days but less than 120</u> calendar days of the <u>an</u> <u>unplanned</u> change. | The Transmission Operator has failed to update and submit its restoration plan to the Reliability Coordinator within <u>more than 120 calendar days but less than 150</u> calendar days of the <u>unplanned</u> change. | The Transmission Operator has failed to update and submit its restoration plan to the Reliability Coordinator within 180 <u>more than 150</u> calendar days of the <u>an</u> <u>unplanned</u> change. <u>OR</u> <u>The Transmission Operator failed to update and submit its restoration plan to the Reliability Coordinator prior to a planned BES modification.</u> |
| R5. | N/A | N/A | N/A | The Transmission Operator did not make the latest Reliability Coordinator approved restoration plan available in its primary and backup control rooms and available to all of its System Operators prior to its implementation date. |
| R6. | The Transmission Operator performed the verification but did not complete it within the five year period. <u>The Transmission Operator performed the verification within the required timeframe but did not comply with one of the sub-requirements.</u> | N/A <u>The Transmission Operator performed the verification within the required timeframe but did not comply with two of the sub-requirements.</u> | N/A <u>The Transmission Operator performed the verification but did not complete it within the five calendar year period.</u> | The Transmission Operator did not perform the verification or it took more than six <u>calendar</u> years to complete the verification. <u>OR:</u> <u>The Transmission Operator performed the verification within the required timeframe but did not comply with any of the sub-requirements.</u> |
| R7. | N/A | N/A | N/A | The Transmission Operator did |

| R# | Lower VSL | Moderate VSL | High VSL | Severe VSL |
|-------------|--|--|---|---|
| | | | | <p>not implement its restoration plan following a Disturbance in which Blackstart Resources have been utilized in restoring the shut down area of the SystemBES. Or, if the restoration plan cannot be executed as expected because actual conditions do not match the studied conditions, the Transmission Operator did not utilize its restoration plan strategies to facilitate restoration.</p> |
| R8. | N/A | N/A | N/A | <p>The Transmission Operator resynchronized without approval of the Reliability Coordinator or not in accordance with the established procedures of the Reliability Coordinator following a Disturbance in which Blackstart Resources have been utilized in restoring the shut down area of the SystemBES to service.</p> |
| R9. | N/A | N/A | N/A | <p>The Transmission Operator's Blackstart Resource testing requirements do not address one or more of the sub-requirements of Requirement R9.</p> |
| R10. | The Transmission Operator's training does not address one of | The Transmission Operator's training does not address two of | The Transmission Operator's training does not address three | The Transmission Operator has not included System restoration |

Standard EOP-005-2 — System Restoration from Blackstart Resources

| R# | Lower VSL | Moderate VSL | High VSL | Severe VSL |
|------|---|---|---|---|
| | the sub-requirements of Requirement R10. | the sub-requirements of Requirement R10. | or more of the sub-requirements of Requirement R10. | training in its operations training program. |
| R11. | <u>The Transmission Operator, applicable Transmission Owner, or applicable Distribution Provider did not train less than or equal to 10% of the personnel required by Requirement R11 within a two calendar year period.</u> N/A | <u>The Transmission Operator, applicable Transmission Owner, or applicable Distribution Provider did not train more than 10% and less than or equal to 25% of the personnel required by Requirement R11 within a two calendar year period.</u> N/A | <u>The Transmission Operator, applicable Transmission Owner, or applicable Distribution Provider did not train more than 25% and less than or equal to 50% of the personnel required by Requirement R11 within a two calendar year period.</u> N/A | The Transmission Operator, applicable Transmission Owner, or applicable Distribution Provider did not supply any training more than 50 % or more of to the personnel required by Requirement R11 within a two <u>calendar</u> year period. |
| R12. | N/A. | N/A | N/A | The Transmission Operator has failed to comply with a request for their participation from the Reliability Coordinator. |
| R13. | N/A | The Transmission Operator and Generator Operator with a Blackstart Resource do not reference Blackstart Resource Testing requirements in their written Blackstart Resource Agreements or mutually agreed upon procedures or protocols. | N/A | The Transmission Operator and Generator Operator with a Blackstart resource do not have a written Blackstart Resource Agreement or mutually agreed upon procedure or protocol. |
| R14. | N/A | N/A | N/A | The Generator Operator does not have documented starting and bus energizing procedures for each Blackstart Resources. |
| R15. | The Generator Operator with a Blackstart Resource did not notify the Transmission Operator of a change in | The Generator Operator with a Blackstart Resource did not notify the Transmission Operator of a change in | The Generator Operator with a Blackstart Resource did not notify the Transmission Operator of a change in | The Generator Operator with a Blackstart Resource did not notify the Transmission Operator of a change in |

Standard EOP-005-2 — System Restoration from Blackstart Resources

| R# | Lower VSL | Moderate VSL | High VSL | Severe VSL |
|------|--|---|---|--|
| | Blackstart Resource capability <u>affecting the ability to meet the Transmission Operator’s restoration plan</u> within twenty-four 24 hours <u>but did make the notification within 48 hours.</u> | Blackstart Resource capability <u>affecting the ability to meet the Transmission Operator’s restoration plan</u> within seventy-two 72 hours <u>but did make the notification within 72 hours.</u> | Blackstart Resource capability <u>affecting the ability to meet the Transmission Operator’s restoration plan</u> within ninety-six 96 hours <u>but did make the notification within 96 hours.</u> | Blackstart Resource capability <u>affecting the ability to meet the Transmission Operator’s restoration plan</u> for more than ninety-six 96 hours. |
| R16. | The Generator Operator with a Blackstart Resource did not maintain testing records for one of the requirements for a Blackstart Resource. Or did not supply the Blackstart Resource testing records as requested within fifty-nine 59 calendar days of the request. | The Generator Operator with a Blackstart Resource did not maintain testing records for two of the requirements for a Blackstart Resource. Or did not supply the Blackstart Resource testing records as requested for sixty 60 days to eighty-nine 89 calendar days after the request. | The Generator Operator with a Blackstart Resource did not maintain testing records for three of the requirements for a Blackstart Resource. Or did not supply the Blackstart Resource testing records as requested for ninety 90 to 119 calendar days after the request. | The Generator Operator with a Blackstart Resource did not maintain testing records for a Blackstart Resource. Or did not supply the Blackstart Resource testing records as requested for 120 days or more after the request. |
| R17. | <u>The Generator Operator with a Blackstart Resource did not train less than or equal to 10% of the personnel required by Requirement R17 within a two calendar year period.</u> N/A | <u>The Generator Operator with a Blackstart Resource did not train more than 10% and less than or equal to 25% of the personnel required by Requirement R17 within a two calendar year period.</u> N/A | <u>The Generator Operator with a Blackstart Resource did not train more than 25% and less than or equal to 50% of the personnel required by Requirement R17 within a two calendar year period.</u> N/A | The Generator Operator with a Blackstart Resource did not supply any of the training <u>more than 50% or more of the personnel</u> required by Requirement R18 <u>R17</u> within a two <u>calendar</u> year period to each operator responsible for startup of its Blackstart Resource generation units and energizing a bus. |
| R18. | N/A. | N/A | N/A | The Generator Operator has failed to comply with a request for their participation from the Reliability Coordinator. |

E. Regional Variances

None.

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 | May 2, 2007 | Approved by Board of Trustees | Revised |
| 2 | TBD | Revisions pursuant to Project 2006-03 | Updated testing requirements Incorporated Attachment 1 into the requirements Updated Measures and Compliance to match new Requirements |

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. SAR version 1 posted on November 6, 2006.
2. SAR version 1 comment period closed on December 5, 2006.
3. SAR version 2 and comment responses for SAR version 1 posted on February 8, 2007.
4. SAR version 2 comment period closed on March 9, 2007.
5. SAR version 3 and comment responses for SAR version 2 accepted by SC and SDT appointed on April 9, 2007.
6. First posting of revised standards on August 15, 2007 with comment period closed on September 28, 2007.
7. Second posting of revised standards on January 7, 2008 with comment period closed on February 5, 2008.
8. Third posting of revised standards on April 15, 2008 with comment period closed on May 29, 2008.
9. Fourth posting of revised standards on October 21, 2008 with comment period closed on November 18, 2008.

Proposed Action Plan and Description of Current Draft:

The SDT began meeting in mid-April 2007 immediately following the approval of the SAR by the SC with the goal of completing work in approximately one year's time. The current draft is the third posting of the proposed standards. Requirements in EOP-007 and EOP-009 have been incorporated into the revised EOP-005 and EOP-006. Therefore, EOP-007 and EOP-009 will be retired when this project is approved and EOP-005-2 and EOP-006-2 go into effect.

Future Development Plan:

| Anticipated Actions | Anticipated Date |
|--|-------------------------|
| 1. Standards posted for first ballot | March 2009 |
| 2. Standards posted for second ballot. | April 2009 |
| 3. Standards sent to BOT for approval. | May 2009 |
| 4. Standards submitted to regulatory authorities for approval. | To be determined. |

Definitions of Terms Used in Standard

This section includes all newly defined or revised terms used in the proposed standard. Terms already defined in the Reliability Standards Glossary of Terms are not repeated here. New or revised definitions listed below become approved when the proposed standard is approved. When the standard becomes effective, these defined terms will be removed from the individual standard and added to the Glossary.

None.

A. Introduction

1. **Title:** System Restoration Coordination
2. **Number:** EOP-006-2
3. **Purpose:** Ensure plans are established and personnel are prepared to enable effective coordination of the System restoration process to ensure reliability is maintained during restoration and priority is placed on restoring the Interconnection.
4. **Applicability:**
 - 4.1. Reliability Coordinators.
5. **Proposed Effective Date:** Twenty-four months after the first day of the first calendar quarter following applicable regulatory approval. In those jurisdictions where no regulatory approval is required, all requirements go into effect twenty-four months after Board of Trustees adoption.

B. Requirements

- R1. Each Reliability Coordinator shall have a Reliability Coordinator Area restoration plan. The scope of the Reliability Coordinator's restoration plan starts when Blackstart Resources are utilized to re-energize a shut down area of the Bulk Electric System (BES), or separation has occurred between neighboring Reliability Coordinators, or an energized island has been formed on the BES within the Reliability Coordinator Area. The scope of the Reliability Coordinator's restoration plan ends when all of its Transmission Operators are interconnected and ~~it~~ its Reliability Coordinator Area is connected to all of its neighboring Reliability Coordinator Areas. The restoration plan shall include: *[Violation Risk Factor = High] [Time Horizon = Operations Planning]*
 - R1.1. A description of the high level strategy to be employed during restoration events for restoring the Interconnection including minimum criteria for meeting the objectives of the Reliability Coordinator's restoration plan.
 - R1.2. Operating Processes for restoring the Interconnection.
 - R1.3. Descriptions of the elements of coordination between individual Transmission Operator restoration plans.
 - R1.4. Descriptions of the elements of coordination of restoration plans with neighboring Reliability Coordinators.
 - R1.5. Criteria and conditions for reestablishing interconnections with other Transmission Operators within its Reliability Coordinator Area, with Transmission Operators in other Reliability Coordinator Areas, and with other Reliability Coordinators.
 - R1.6. Reporting requirements for the entities within the Reliability Coordinator Area during a restoration event.
 - R1.7. Criteria for sharing information regarding restoration with neighboring Reliability Coordinators and with Transmission Operators and Balancing Authorities within its Reliability Coordinator Area.

- R1.8.** Identification of the Reliability Coordinator as the primary contact for disseminating information regarding restoration to neighboring Reliability Coordinators, and to Transmission Operators, and Balancing Authorities within its Reliability Coordinator Area.
- R1.9.** Criteria for transferring operations and authority back to the Balancing Authority.
- R2.** The Reliability Coordinator shall distribute its most recent Reliability Coordinator Area restoration plan to each of its Transmission Operators and neighboring Reliability Coordinators within 30 calendar days of creation or revision. *[Violation Risk Factor = Lower] [Time Horizon = Operations Planning]*
- R3.** Each Reliability Coordinator shall review its restoration plan within 13 calendar months of the last review. *[Violation Risk Factor = Medium] [Time Horizon = Operations Planning]*
- R4.** Each Reliability Coordinator shall review their neighboring Reliability Coordinator's restoration plans. *[Violation Risk Factor = Medium] [Time Horizon = Operations Planning]*

 - R4.1.** If the Reliability Coordinator finds conflicts between its restoration plans and any of its neighbors, the conflicts shall be resolved in 30 calendar days.
- R5.** Each Reliability Coordinator shall review the restoration plans required by EOP-005 of the Transmission Operators within its Reliability Coordinator Area. *[Violation Risk Factor = Medium] [Time Horizon = Operations Planning]*

 - R5.1.** The Reliability Coordinator shall determine whether the Transmission Operator's restoration plan is coordinated and compatible with the Reliability Coordinator's restoration plan and other Transmission Operators' restoration plans within its Reliability Coordinator Area. The Reliability Coordinator shall approve or disapprove, with stated reasons, the Transmission Operator's submitted restoration plan within 30 calendar days following the receipt of the restoration plan from the Transmission Operator.
- R6.** Each Reliability Coordinator shall have a copy of its latest restoration plan and copies of the latest approved restoration plan of each Transmission Operator in its Reliability Coordinator Area within its primary and backup control rooms so that it is available to all of its System Operators prior to the implementation date. *[Violation Risk Factor = Lower] [Time Horizon = Operations Planning]*
- R7.** Each Reliability Coordinator shall work with its affected Generator Operators, and Transmission Operators as well as neighboring Reliability Coordinators to monitor restoration progress, coordinate restoration, and take actions to restore the BES frequency within acceptable operating limits. If the restoration plan cannot be completed as expected the Reliability Coordinator shall utilize its restoration plan strategies to facilitate System restoration. *[Violation Risk Factor = High] [Time Horizon = Real-time Operations]*
- R8.** The Reliability Coordinator shall coordinate or authorize resynchronizing islanded areas that bridge boundaries between Transmission Operators or Reliability

Coordinators. If the resynchronization cannot be completed as expected the Reliability Coordinator shall utilize its restoration plan strategies to facilitate resynchronization. [Violation Risk Factor = High] [Time Horizon = Real-time Operations]

R9. Each Reliability Coordinator shall include within its operations training program, annual System restoration training for its System Operators to assure the proper execution of its restoration plan. This training program shall address the following: [Violation Risk Factor = Medium] [Time Horizon = Operations Planning]

R9.1. The coordination role of the Reliability Coordinator.

R9.2. Reestablishing the Interconnection.

R10. Each Reliability Coordinator shall conduct two System restoration drills, exercises, or simulations per calendar year, which shall include the Transmission Operators and Generator Operators as dictated by the particular scope of the drill, exercise, or simulation that is being conducted. [Violation Risk Factor = Medium] [Time Horizon = Operations Planning]

R10.1. Each Reliability Coordinator shall request each Transmission Operator identified in its restoration plan and each Generator Operator identified in the Transmission Operators' restoration plans to participate in a drill, exercise, or simulation at least every two calendar years.

C. Measures

M1. Each Reliability Coordinator shall have available a dated copy of its restoration plan in accordance with Requirement R1.

M2. Each Reliability Coordinator shall provide evidence such as e-mails with receipts, posting to a secure web site with notification to affected entities, or registered mail receipts, that its most recent restoration plan has been distributed in accordance with Requirement R2.

M3. Each Reliability Coordinator shall provide evidence such as a review signature sheet, or revision histories, that it has reviewed its restoration plan within 13 calendar months of the last review in accordance with Requirement R3.

M4. Each Reliability Coordinator shall provide evidence such as dated review signature sheets that it has reviewed its neighboring Reliability Coordinator's restoration plans and resolved any conflicts within 30 calendar days in accordance with Requirement R4.

M5. Each Reliability Coordinator shall provide evidence, such as a review signature sheet or emails, that it has reviewed, approved or disapproved, and notified its Transmission Operator's within 30 calendar days following the receipt of the restoration plan from the Transmission Operator in accordance with Requirement R5.

M6. Each Reliability Coordinator shall have documentation such as e-mail receipts that it has made the latest copy of its restoration plan and copies of the latest approved restoration plan of each Transmission Operator in its Reliability Coordinator Area available in its primary and backup control rooms and to each of its System Operators prior to the implementation date in accordance with Requirement R6.

- M7.** Each Reliability Coordinator involved shall have evidence such as voice recordings, e-mail, dated computer printouts, or operator logs, that it monitored and coordinated restoration progress in accordance with Requirement R7.
- M8.** If there has been a resynchronizing of an islanded area, each Reliability Coordinator involved shall have evidence such as voice recordings, e-mail, or operator logs, that it coordinated or authorized resynchronizing in accordance with Requirement R8.
- M9.** Each Reliability Coordinator shall have an electronic or hard copy of its training records available showing that it has provided training in accordance with Requirement R9.
- M10.** Each Reliability Coordinator shall have evidence that it conducted two System restoration drills, exercises, or simulations per calendar year and that Transmission Operators and Generator Operators included in the Reliability Coordinator's restoration plan were invited in accordance with Requirement R10.

D. Compliance

1. Compliance Monitoring Process

1.1. Compliance Enforcement Authority

Regional Entity.

1.2. Compliance Monitoring Period and Reset Time Frame

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

The Reliability Coordinator 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:

- The current restoration plan and any restoration plans in force since the last compliance audit for Requirement R1, Measure M1.
- Distribution of its most recent restoration plan and any restoration plans in force for the current calendar year and three prior calendar years for Requirement R2, Measure M2.
- It's reviewed restoration plan for the current review period and the last three prior review periods for Requirement R3, Measure M3.

- Reviewed copies of neighboring Reliability Coordinator restoration plans for the current calendar year and the three prior calendar years for Requirement R4, Measure M4.
- The reviewed restoration plans for the current calendar year and the last three prior calendar years for Requirement R5, Measure M5.
- The current, approved restoration plan and any restoration plans in force for the last three calendar years was made available in its control rooms for Requirement R6, Measure M6.
- If there has been a restoration event, implementation of its restoration plan on any occasion over a rolling 12 month period for Requirement R7, Measure M7.
- If there has been a resynchronization of an islanded area, implementation of its restoration plan on any occasion over a rolling 12 month period for Requirement R8, Measure M8.
- Actual training program materials or descriptions for three calendar years for Requirements R9, Measure M9.
- Records of all Reliability Coordinator restoration drills, exercises, or simulations since its last compliance audit as well as one previous compliance audit period for Requirement R10, Measure M10.

If a Reliability Coordinator 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. | The Reliability Coordinator failed to include one sub-requirement of Requirement R1 within its restoration plan. | The Reliability Coordinator failed to include two sub-requirements of Requirement R1 within its restoration plan. | The Reliability Coordinator failed to include three of the sub-requirements of Requirement R1 within its restoration plan. | The Reliability Coordinator failed to include four or more of the sub-requirements within its restoration plan. |
| R2. | The Reliability Coordinator distributed the most recent Reliability Coordinator Area restoration plan to the entities identified in Requirement R2 but was more than 30 calendar days late but less than 60 calendar days late. | The Reliability Coordinator distributed the most recent Reliability Coordinator Area restoration plan to the entities identified in Requirement R2 but was 60 calendar days or more late, but less than 90 calendar days late. | The Reliability Coordinator distributed the most recent Reliability Coordinator Area restoration plan to the entities identified in Requirement R2 but was 90 or more calendar days late but less than 120 calendar days late. | The Reliability Coordinator distributed the most recent Reliability Coordinator Area restoration plan to entities identified in Requirement R2 but was 120 calendar days or more late. |
| R3. | N/A | N/A | N/A | The Reliability Coordinator did not review its restoration plan within 13 calendar months of the last review. |
| R4. | The Reliability Coordinator did not review and resolve conflicts with the submitted restoration plans from its neighboring Reliability Coordinators within 30 calendar days but did resolve conflicts within 60 calendar days. | The Reliability Coordinator did not review and resolve conflicts with the submitted restoration plans from its neighboring Reliability Coordinators within 30 calendar days but did resolve conflicts within 90 calendar days. | –The Reliability Coordinator did not review and resolve conflicts with the submitted restoration plans from its neighboring Reliability Coordinators within 30 calendar days but did resolve conflicts within 120 calendar days. | The Reliability Coordinator did not review and resolve conflicts with the submitted restoration plans from its neighboring Reliability Coordinators within 120 calendar days. |

Standard EOP-006-2 — System Restoration Coordination

| | | | | |
|-------------------|---|---|---|--|
| <p>R5.</p> | <p>The Reliability Coordinator did not review and approve/disapprove the submitted restoration plans from its Transmission Operators and neighboring Reliability Coordinators within 30 calendar days of receipt but did review and approve/disapprove the plans within 45 calendar days of receipt.</p> <p>OR</p> <p>The Reliability Coordinator failed to notify the Transmission Operator of its approval or disapproval with stated reasons for disapproval within 30 calendar days of receipt but did notify the Transmission Operator of its approval or disapproval with reasons within 45 calendar days of receipt.</p> | <p>The Reliability Coordinator did not review and approve/disapprove the submitted restoration plans from its Transmission Operators and neighboring Reliability Coordinators within 30 calendar days of receipt but did review and approve/disapprove the plans within 60 calendar days of receipt.</p> <p>OR</p> <p>The Reliability Coordinator failed to notify the Transmission Operator of its approval or disapproval with stated reasons for disapproval within 30 calendar days of receipt, but did notify the Transmission Operator of its approval or disapproval with reasons within 60 calendar days of receipt</p> | <p>The Reliability Coordinator did not review and approve/disapprove the submitted restoration plans from its Transmission Operators and neighboring Reliability Coordinators within 30 calendar days of receipt but did review and approve/disapprove the plans within 90 calendar days of receipt.</p> <p>OR</p> <p>The Reliability Coordinator failed to notify the Transmission Operator of its approval or disapproval with stated reasons for disapproval within 30 calendar days of receipt but did notify the Transmission Operator of its approval or disapproval with reasons within 90 calendar days of receipt.</p> | <p>The Reliability Coordinator did not review and approve/disapprove the submitted restoration plans from its Transmission Operators and neighboring Reliability Coordinators for more than 90 calendar days of receipt.</p> <p>OR</p> <p>The Reliability Coordinator failed to notify the Transmission Operator of its approval or disapproval with stated reasons for disapproval for more than 90 calendar days of receipt. .</p> |
| <p>R6.</p> | <p>The Reliability Coordinator did not make its latest restoration plan and the latest approved restoration plan of each Transmission Operator in its Reliability Coordinator Area available to all of its System</p> | <p>The Reliability Coordinator did not make its latest restoration plan and the latest approved restoration plan of each Transmission Operator in its Reliability Coordinator Area available to all of its System</p> | <p>The Reliability Coordinator did not make its latest restoration plan and the latest approved restoration plan of each Transmission Operator in its Reliability Coordinator Area available to all of its System</p> | <p>The Reliability Coordinator did not make its latest restoration plan and the latest approved restoration plan of each Transmission Operator in its Reliability Coordinator Area available to all of its System</p> |

Standard EOP-006-2 — System Restoration Coordination

| | Operators in its primary and backup control rooms prior to the implementation date within 15 calendar days of the implementation date. | Operators in its primary and backup control rooms within 20 calendar days of the implementation date. | Operators in its primary and backup control rooms within 25 calendar days of the implementation date. | Operators in its primary and backup control rooms for more than 25 calendar days after its implementation date. |
|-------------|--|---|---|--|
| R7. | N/A | N/A | N/A | The Reliability Coordinator did not work with its affected Generator Operators and Transmission Operators as well as neighboring Reliability Coordinators to monitor restoration progress, coordinate restoration, and take actions to restore the BES frequency within acceptable operating limits. |
| R8. | N/A | N/A | N/A | The Reliability Coordinator did not coordinate or authorize resynchronizing islanded areas that bridge boundaries between Transmission Operators or Reliability Coordinators. |
| R9. | N/A | . N/A | N/A | The Reliability Coordinator supplied annual System restoration training but did not address both of the sub-requirements. OR The Reliability Coordinator supplied the required System restoration training but it was over two calendar years from the last training offered. |
| R10. | The Reliability Coordinator | The Reliability Coordinator did | N/A | The Reliability Coordinator did |

Standard EOP-006-2 — System Restoration Coordination

| | | | | |
|--|--|---|--|---|
| | only held one restoration drill, exercise, or simulation during the calendar year. | not invite a Transmission Operator or Generator Operator identified in its restoration plan to participate in a drill, exercise, or simulation within two calendar years. | | not hold a restoration drill, exercise, or simulation during the calendar year. |
|--|--|---|--|---|

E. Regional Variances

None.

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 | TBD | Revisions pursuant to Project 2006-03 | Updated Measures and Compliance to match new Requirements |

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. SAR version 1 posted on November 6, 2006.
2. SAR version 1 comment period closed on December 5, 2006.
3. SAR version 2 and comment responses for SAR version 1 posted on February 8, 2007.
4. SAR version 2 comment period closed on March 9, 2007.
5. SAR version 3 and comment responses for SAR version 2 accepted by SC and SDT appointed on April 9, 2007.
6. First posting of revised standards on August 15, 2007 with comment period closed on September 28, 2007.
7. Second posting of revised standards on January 7, 2008 with comment period closed on February 5, 2008.
8. Third posting of revised standards on April 15, 2008 with comment period closed on May 29, 2008.
9. Fourth posting of revised standards on October 21, 2008 with comment period closed on November 18, 2008.

Proposed Action Plan and Description of Current Draft:

The SDT began meeting in mid-April 2007 immediately following the approval of the SAR by the SC with the goal of completing work in approximately one year's time. The current draft is the third posting of the proposed standards. Requirements in EOP-007 and EOP-009 have been incorporated into the revised EOP-005 and EOP-006. Therefore, EOP-007 and EOP-009 will be retired when this project is approved and EOP-005-2 and EOP-006-2 go into effect.

Future Development Plan:

| Anticipated Actions | Anticipated Date |
|--|-------------------------|
| 1. Standards posted for first ballot | March 2009 |
| 2. Standards posted for second ballot. | April 2009 |
| 3. Standards sent to BOT for approval. | May 2009 |
| 4. Standards submitted to regulatory authorities for approval. | To be determined. |

Definitions of Terms Used in Standard

This section includes all newly defined or revised terms used in the proposed standard. Terms already defined in the Reliability Standards Glossary of Terms are not repeated here. New or revised definitions listed below become approved when the proposed standard is approved. When the standard becomes effective, these defined terms will be removed from the individual standard and added to the Glossary.

None.

A. Introduction

1. **Title:** System Restoration Coordination
2. **Number:** EOP-006-2
3. **Purpose:** Ensure plans are established and personnel are prepared to enable effective coordination of the System restoration process to ensure reliability is maintained during restoration and priority is placed on restoring the Interconnection.
4. **Applicability:**
 - 4.1. Reliability Coordinators.
5. **Proposed Effective Date:** ~~TBD~~ Twenty-four months after the first day of the first calendar quarter following applicable regulatory approval. In those jurisdictions where no regulatory approval is required, all requirements go into effect twenty-four months after Board of Trustees adoption.

B. Requirements

- R1. Each Reliability Coordinator shall have a Reliability Coordinator Area restoration plan. The scope of the Reliability Coordinator's restoration plan starts when Blackstart Resources are utilized to re-energize a shut down area of the Bulk Electric System (BES), or separation has occurred between neighboring Reliability Coordinators, or an energized island has been formed on the BES within the Reliability Coordinator Area. The scope of the Reliability Coordinator's restoration plan ends when all of its Transmission Operators are interconnected and ~~it~~ its Reliability Coordinator Area is connected to all of its neighboring Reliability Coordinator Areas. The restoration plan shall include: *[Violation Risk Factor = High] [Time Horizon = Operations Planning]*
 - R1.1. A description of the high level strategy to be employed during restoration events for restoring the Interconnection including minimum ~~blackstart capability requirements~~ criteria for meeting the objectives of the Reliability Coordinator's restoration plan.
 - R1.2. Operating Processes for restoring the Interconnection.
 - R1.3. Descriptions of the elements of coordination between individual Transmission Operator restoration plans.
 - R1.4. Descriptions of the elements of coordination of restoration plans with neighboring Reliability Coordinators.
 - R1.5. Criteria and conditions for reestablishing interconnections with other Transmission Operators within its Reliability Coordinator Area, ~~between with neighboring~~ Transmission Operators ~~and in other~~ Reliability Coordinator Areas, and with other Reliability Coordinators.
 - ~~R1.6. Identification of acceptable voltage and frequency limits during restoration.~~
 - ~~R1.7.~~ R1.6. Reporting requirements for the entities within the Reliability Coordinator Area during a restoration event.

~~R1.8.~~R1.7. Criteria for sharing information regarding restoration with neighboring Reliability Coordinators and with Transmission Operators and Balancing Authorities within its Reliability Coordinator Area.

~~R1.9.~~R1.8. Identification of the Reliability Coordinator as the primary contact for disseminating information regarding restoration to neighboring Reliability Coordinators, and to Transmission Operators, and Balancing Authorities within its Reliability Coordinator Area.

~~R1.10.~~R1.9. Criteria for transferring operations and authority back to the Balancing Authority.

R2. The Reliability Coordinator shall distribute its most recent Reliability Coordinator Area restoration plan to each of its Transmission Operators and neighboring Reliability Coordinators within ~~thirty~~30 calendar days of creation or revision. *[Violation Risk Factor = Lower] [Time Horizon = Operations Planning]*

R3. Each Reliability Coordinator shall review its restoration plan within ~~thirteen~~13 calendar months of the last review. *[Violation Risk Factor = Medium] [Time Horizon = Operations Planning]*

R4. Each Reliability Coordinator shall review their neighboring Reliability Coordinator's restoration plans. *[Violation Risk Factor = Medium] [Time Horizon = Operations Planning]*

R4.1. If the Reliability Coordinator finds conflicts between its restoration plans and any of its neighbors, the conflicts shall be resolved in ~~thirty~~30 calendar days.

R5. Each Reliability Coordinator shall review the restoration plans required by EOP-005 of the Transmission Operators within its Reliability Coordinator Area ~~and neighboring Reliability Coordinators, when received.~~ *[Violation Risk Factor = Medium] [Time Horizon = Operations Planning]*

R5.1. The Reliability Coordinator shall determine whether the Transmission Operator's restoration plan is coordinated and compatible with the Reliability Coordinator's restoration plan and other Transmission Operators' restoration plans within its Reliability Coordinator Area. The Reliability Coordinator shall approve or disapprove, with stated reasons, the Transmission Operator's submitted restoration plan within ~~thirty~~30 calendar days following the receipt of the restoration plan from the Transmission Operator.

R6. Each Reliability Coordinator shall have a copy of its latest restoration plan and copies of the latest approved restoration plan of each Transmission Operator in its Reliability Coordinator Area within its primary and backup control rooms ~~and~~so that it is available to all of its System Operators prior to the implementation date. *[Violation Risk Factor = Lower] [Time Horizon = Operations Planning]*

R7. Each Reliability Coordinator shall work with its affected Generator Operators, and Transmission Operators as well as neighboring Reliability Coordinators to monitor restoration progress, coordinate restoration, and take actions to restore the BES frequency within acceptable operating limits. If the restoration plan cannot be completed as expected ~~because actual conditions do not match the studied conditions,~~

the Reliability Coordinator shall utilize its restoration plan strategies to facilitate System restoration. [*Violation Risk Factor = High*] [*Time Horizon = Real-time Operations*]

- R8.** The Reliability Coordinator shall coordinate or authorize resynchronizing islanded areas that bridge boundaries between Transmission Operators or Reliability Coordinators. If the resynchronization cannot be completed as expected ~~because actual conditions do not match the studied conditions~~, the Reliability Coordinator shall utilize its restoration plan strategies to facilitate resynchronization. [*Violation Risk Factor = High*] [*Time Horizon = Real-time Operations*]
- R9.** Each Reliability Coordinator shall include within its operations training program, annual System restoration training for its System Operators to assure the proper execution of its restoration plan. This training program shall address the following: [*Violation Risk Factor = Medium*] [*Time Horizon = Operations Planning*]
- R9.1.** The coordination role of the Reliability Coordinator.
- R9.2.** Reestablishing the Interconnection.
- R10.** Each Reliability Coordinator shall conduct two System restoration drills, exercises, or simulations per calendar year, which shall include the Transmission Operators and Generator Operators as dictated by the particular scope of the drill, exercise, or simulation that is being conducted. [*Violation Risk Factor = Medium*] [*Time Horizon = Operations Planning*]
- R10.1.** Each Reliability Coordinator shall request each Transmission Operator ~~and Generator Operator~~ identified in its restoration plan and each Generator Operator identified in the Transmission Operators' restoration plans to participate in a drill, exercise, or simulation at least every two calendar years.

C. Measures

- M1.** Each Reliability Coordinator shall have available a dated copy of its restoration plan in accordance with Requirement R1.
- M2.** Each Reliability Coordinator shall provide evidence such as e-mails with receipts, posting to a secure web site with notification to affected entities, or registered mail receipts, that its most recent restoration plan has been distributed in accordance with Requirement R2.
- M3.** Each Reliability Coordinator shall provide evidence such as a review signature sheet, or revision histories, that it has reviewed its restoration plan within ~~thirteen~~13 calendar months of the last review in accordance with Requirement R3.
- M4.** Each Reliability Coordinator shall provide evidence such as dated review signature sheets that it has reviewed its neighboring Reliability Coordinator's restoration plans and resolved any conflicts within ~~thirty~~30 calendar days in accordance with Requirement R4.
- M5.** Each Reliability Coordinator shall provide evidence, such as a review signature sheet or emails, that it has reviewed, approved or disapproved, and notified its Transmission Operator's; within 30 calendar days following the receipt of the restoration plan from

~~the Transmission Operator and reviewed its neighboring Reliability Coordinator's, submitted restoration plan(s) and updated its restoration plan, if necessary,~~ in accordance with Requirement R5.

- M6.** Each Reliability Coordinator shall have documentation such as e-mail receipts that it has made the latest copy of its restoration plan and copies of the latest approved restoration plan of each Transmission Operator in its Reliability Coordinator Area available in its primary and backup control rooms and to each of its System Operators prior to the implementation date in accordance with Requirement R6.
- M7.** Each Reliability Coordinator involved shall have evidence such as voice recordings, e-mail, dated computer printouts, or operator logs, that it monitored and coordinated restoration progress in accordance with Requirement R7.
- M8.** If there has been a resynchronizing of an islanded area, each Reliability Coordinator involved shall have evidence such as voice recordings, e-mail, or operator logs, that it coordinated ~~and~~ or authorized resynchronizing in accordance with Requirement R8.
- M9.** Each Reliability Coordinator shall have an electronic or hard copy of its training records available showing that it has provided training in accordance with Requirement R9.
- M10.** Each Reliability Coordinator shall have evidence that it conducted two System restoration drills, exercises, or simulations per calendar year and that Transmission Operators and Generator Operators included in the Reliability Coordinator's restoration plan were invited in accordance with Requirement R10.

D. Compliance

1. Compliance Monitoring Process

1.1. Compliance Enforcement Authority

Regional Entity.

1.2. Compliance Monitoring Period and Reset Time Frame

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

The Reliability Coordinator 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:

- The current restoration plan and any restoration plans in force since the last compliance audit for Requirement R1, Measure M1.
- Distribution of its most recent restoration plan and any restoration plans in force for the current [calendar](#) year and three prior calendar years for Requirement R2, Measure M2.
- It's reviewed restoration plan for the current review period and the last three prior review periods for Requirement R3, Measure M3.
- Reviewed copies of neighboring Reliability Coordinator restoration plans for the current [calendar](#) year and the three prior calendar years for Requirement R4, Measure M4.
- The reviewed restoration plans for the current [calendar](#) year and the last three prior calendar years for Requirement R5, Measure M5.
- The current, approved restoration plan and any restoration plans in force for the last three calendar years was made available in its control rooms for Requirement R6, Measure M6.
- If there has been a restoration event, implementation of its restoration plan on any occasion over a rolling ~~twelve~~[12](#) month period for Requirement R7, Measure M7.
- If there has been a resynchronization of an islanded area, implementation of its restoration plan on any occasion over a rolling ~~twelve~~[12](#) month period for Requirement R8, Measure M8.
- Actual training program materials or descriptions for three calendar years for Requirements R9, Measure M9.
- Records of all Reliability Coordinator restoration drills, exercises, or simulations since its last compliance audit as well as one previous compliance audit period for Requirement R10, Measure M10.

If a Reliability Coordinator 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. | The Reliability Coordinator failed to include one sub-requirement of Requirement R1 within its restoration plan. | The Reliability Coordinator failed to include two sub-requirements of Requirement R1 within its restoration plan. | The Reliability Coordinator failed to include three of the sub-requirements of Requirement R1 within its restoration plan. | The Reliability Coordinator failed to include four or more of the sub-requirements within its restoration plan. |
| R2. | The Reliability Coordinator distributed the most recent Reliability Coordinator Area restoration plan to the entities identified in Requirement R2 but was more than thirty <u>30</u> <u>calendar</u> days late <u>but less than 60 calendar days late</u> . | The Reliability Coordinator distributed the most recent Reliability Coordinator Area restoration plan to the entities identified in Requirement R2 but was more than sixty <u>60</u> <u>calendar</u> days <u>or more late, but less than 90 calendar days late</u> . | The Reliability Coordinator distributed the most recent Reliability Coordinator Area restoration plan to the entities identified in Requirement R2 but was <u>90 or more calendar days late but less than ninety</u> 9 <u>120 calendar</u> days late. | The Reliability Coordinator distributed the most recent Reliability Coordinator Area restoration plan to entities identified in Requirement R2 but was more than <u>120 calendar</u> days <u>or more</u> late. |
| R3. | N/A | N/A | N/A | The Reliability Coordinator did not review its restoration plan within thirteen <u>13</u> <u>calendar</u> months of the last review. |
| R4. | The Reliability Coordinator did not review and resolve conflicts with the submitted restoration plans from its neighboring Reliability Coordinators within thirty <u>30</u> <u>calendar</u> days <u>but did resolve conflicts within 60 calendar days</u> . | The Reliability Coordinator did not review and resolve conflicts with the submitted restoration plans from its neighboring Reliability Coordinators within sixty <u>30</u> <u>calendar</u> days <u>but did resolve conflicts within 90 calendar days</u> . | –The Reliability Coordinator did not review and resolve conflicts with the submitted restoration plans from its neighboring Reliability Coordinators within ninety <u>30</u> <u>calendar</u> days <u>but did resolve conflicts within 120 calendar days</u> . | The Reliability Coordinator did not review and resolve conflicts with the submitted restoration plans from its neighboring Reliability Coordinators within 120 <u>calendar</u> days. |

| | | | | |
|-------------------|---|---|--|--|
| <p>R5.</p> | <p>The Reliability Coordinator did not review and approve/disapprove the submitted restoration plans from its Transmission Operators and neighboring Reliability Coordinators within thirty <u>30</u> calendar days of receipt <u>but did review and approve/disapprove the plans within 45 calendar days of receipt.</u></p> <p><u>OR</u></p> <p>‡ ‡The Reliability Coordinator failed to notify the Transmission Operator of its approval or disapproval with stated reasons for disapproval within thirty <u>30</u> calendar days of receipt <u>but did notify the Transmission Operator of its approval or disapproval with reasons within 45 calendar days of receipt.</u></p> | <p>The Reliability Coordinator did not review and approve/disapprove the submitted restoration plans from its Transmission Operators and neighboring Reliability Coordinators within forty five <u>30</u> calendar days of receipt <u>but did review and approve/disapprove the plans within 60 calendar days of receipt.</u></p> <p><u>OR</u></p> <p>‡ ‡The Reliability Coordinator failed to notify the Transmission Operator of its approval or disapproval with stated reasons for disapproval within forty five <u>30</u> calendar days of receipt. <u>but did notify the Transmission Operator of its approval or disapproval with reasons within 60 calendar days of receipt</u></p> | <p>The Reliability Coordinator did not review and approve/disapprove the submitted restoration plans from its Transmission Operators and neighboring Reliability Coordinators within sixty <u>30</u> calendar days of receipt <u>but did review and approve/disapprove the plans within 90 calendar days of receipt.</u></p> <p><u>OR</u></p> <p>‡ ‡The Reliability Coordinator failed to notify the Transmission Operator of its approval or disapproval with stated reasons for disapproval within sixty <u>30</u> calendar days of receipt <u>but did notify the Transmission Operator of its approval or disapproval with reasons within 90 calendar days of receipt.</u> Or the Reliability Coordinator failed to revise its restoration plan after identifying changes required by new or revised restoration plans received from its Transmission Operators and neighboring Reliability Coordinators within ninety calendar days of receipt.</p> | <p>The Reliability Coordinator did not review and approve/disapprove the submitted restoration plans from its Transmission Operators and neighboring Reliability Coordinators within <u>for more than ninety</u> 90 calendar days of receipt.</p> <p><u>OR</u></p> <p>‡ ‡The Reliability Coordinator failed to notify the Transmission Operator of its approval or disapproval with stated reasons for disapproval within <u>for more than ninety</u> 90 calendar days of receipt. Or the Reliability Coordinator failed to revise its restoration plan after identifying changes required by new or revised restoration plans received from its Transmission Operators and neighboring Reliability Coordinators within 150 calendar days of receipt.</p> |
|-------------------|---|---|--|--|

Standard EOP-006-2 — System Restoration Coordination

| | | | | |
|------------|--|---|--|--|
| R6. | The Reliability Coordinator did not make its latest restoration plan and the latest approved restoration plan of each Transmission Operator in its Reliability Coordinator Area available to all of its System Operators in its primary and backup control rooms prior to the implementation date <u>within 15 calendar days of the implementation date.</u> | The Reliability Coordinator did not make its latest restoration plan and the latest approved restoration plan of each Transmission Operator in its Reliability Coordinator Area available to all of its System Operators in its primary and backup control rooms within fifteen calendar days of its implementation date <u>20 calendar days of the implementation date.</u> | The Reliability Coordinator did not make its latest restoration plan and the latest approved restoration plan of each Transmission Operator in its Reliability Coordinator Area available to all of its System Operators in its primary and backup control rooms within twenty calendar days of its implementation date <u>25 calendar days of the implementation date.</u> | The Reliability Coordinator did not make its latest restoration plan and the latest approved restoration plan of each Transmission Operator in its Reliability Coordinator Area available to all of its System Operators in its primary and backup control rooms within for more than twenty-five <u>25</u> calendar days of <u>after</u> its implementation date. |
| R7. | N/A | N/A | N/A | The Reliability Coordinator did not work with its affected Generator Operators and Transmission Operators as well as neighboring Reliability Coordinators to monitor restoration progress, coordinate restoration, and take actions to restore the BES frequency within acceptable operating limits. |
| R8. | N/A | N/A | N/A | The Reliability Coordinator did not coordinate or authorize resynchronizing islanded areas that bridge boundaries between Transmission Operators or Reliability Coordinators. |
| R9. | N/A | . N/A | N/A | The Reliability Coordinator supplied annual System restoration training but did not address both of the sub- |

Standard EOP-006-2 — System Restoration Coordination

| | | | | |
|-------------|--|---|-----|---|
| | | | | requirements. OR † † The Reliability Coordinator supplied the required System restoration training but it was over two calendar years from the last training offered. |
| R10. | The Reliability Coordinator only held one restoration drill, exercise, or simulation during the calendar year. | The Reliability Coordinator did not invite a Transmission Operator or Generator Operator identified in its restoration plan to participate in a drill, exercise, or simulation within two calendar years. | N/A | The Reliability Coordinator did not hold a restoration drill, exercise, or simulation during the calendar year. |

E. Regional Variances

None.

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 | TBD | Revisions pursuant to Project 2006-03 | Updated Measures and Compliance to match new Requirements |

Implementation Plan for EOP-005-2 and EOP-006-2

Prerequisite Approvals

There are no other Reliability Standards or Standard Authorization Requests (SARs), in progress or approved, that must be implemented before this set of standards can be implemented.

EOP-005-2 – System Restoration from Blackstart Resources

EOP-006-2 – System Restoration Coordination

Revision to Sections of Approved Standards and Definitions

There is one new definition in the proposed set of standards:

Blackstart Resource: A generating unit(s) and its associated set of equipment which has the ability to be started without support from the System or is designed to remain energized without connection to the remainder of the System, with the ability to energize a bus, meeting the Transmission Operator’s restoration plan needs for real and reactive power capability, frequency and voltage control, and that has been included in the Transmission Operator’s restoration plan

Retire the following definition coincident with the implementation of EOP-005-2 and EOP-006-2:

Blackstart Capability Plan: A documented procedure for a generating unit or station to go from a shutdown condition to an operating condition delivering electric power without assistance from the electric system. This procedure is only a portion of an overall system restoration plan.

Retire the following requirement coincident with the implementation of EOP-005-2 and EOP-006-2:

EOP-001-1, Requirement R2.4 will be retired on the same date that EOP-005-2 becomes effective.

Compliance with Standards

| Standard | Functions That Must Comply With the Associated Requirements | | | | |
|--|---|-----------------------|--------------------|--------------------|-----------------------|
| | Reliability Coordinator | Transmission Operator | Generator Operator | Transmission Owner | Distribution Provider |
| EOP-005 – System Restoration from Blackstart Resources | | X | X | X | X |
| EOP-006 – System Restoration Coordination | X | | | | |

Effective Dates

The effective date is the date entities are expected to meet the performance identified in this standard.

Due to the complexity of integrating training, dates for new plan approval, and the definition of new roles and responsibilities, the SDT is recommending that all requirements in EOP-005-2 and EOP-006-2 go into effect twenty-four months after the first day of the first calendar quarter following applicable regulatory approval. In those jurisdictions where no regulatory approval is required, all requirements go into effect twenty-four months after Board of Trustees adoption. All requirements in the existing EOP-005-1, EOP-006-1, EOP-007-0, and EOP-009-0, will be retired on the same date that EOP-005-2 and EOP-006-2 become effective.

Implementation Plan for EOP-005-2 and EOP-006-2

Prerequisite Approvals

There are no other Reliability Standards or Standard Authorization Requests (SARs), in progress or approved, that must be implemented before this set of standards can be implemented.

EOP-005-2 – System Restoration from Blackstart Resources

EOP-006-2 – System Restoration Coordination

Revision to Sections of Approved Standards and Definitions

There is one new definition in the proposed set of standards:

Blackstart Resource: A generating unit(s) and its associated set of equipment which has the ability to be started without support from the System or is designed to remain energized without connection to the remainder of the System, with the ability to energize a bus, meeting the Transmission Operator’s restoration plan needs for real and reactive power capability, frequency and voltage control, and that has been included in the Transmission Operator’s restoration plan

Retire the following definition coincident with the implementation of EOP-005-2 and EOP-006-2:

Blackstart Capability Plan: [A documented procedure for a generating unit or station to go from a shutdown condition to an operating condition delivering electric power without assistance from the electric system. This procedure is only a portion of an overall system restoration plan.](#)

[Retire the following requirement coincident with the implementation of EOP-005-2 and EOP-006-2:](#)

[EOP-001-1, Requirement R2.4 will be retired on the same date that EOP-005-2 becomes effective.](#)

Compliance with Standards

| Standard | Functions That Must Comply With the Associated Requirements | | | | |
|--|---|-----------------------|--------------------|--------------------|-----------------------|
| | Reliability Coordinator | Transmission Operator | Generator Operator | Transmission Owner | Distribution Provider |
| EOP-005 – System Restoration from Blackstart Resources | | X | X | X | X |
| EOP-006 – System Restoration Coordination | X | | | | |

Effective Dates

The effective date is the date entities are expected to meet the performance identified in this standard.

Due to the complexity of integrating training, dates for new plan approval, and the definition of new roles and responsibilities, the SDT is recommending that all requirements in EOP-005-2 and EOP-006-2 go into effect twenty-four months after the first day of the first calendar quarter following applicable regulatory approval. In those jurisdictions where no regulatory approval is required, all requirements go into effect twenty-four months after Board of Trustees adoption. All requirements in the existing EOP-005-1, EOP-006-1, EOP-007-0, and EOP-009-0, ~~EOP-001-0, Requirement R3.4~~ will be retired on the same date that ~~the new requirements~~ [EOP-005-2](#) and [EOP-006-2](#) become effective.

Standards Announcement

Initial Ballot Window Open

April 14–23, 2009

Now available at: <https://standards.nerc.net/CurrentBallots.aspx>

Revisions to System Restoration from Blackstart Resources Standards (Project 2006-03)

An initial ballot window for the following proposed standards is now open **until 8 p.m. EDT on April 23, 2009**:

- EOP-001-2 — Emergency Operations Plan
- EOP-005-2 — System Restoration Plans
- EOP-006-2 — Reliability Coordination — System Restoration

An implementation plan – which summarizes proposed changes to the NERC Glossary of Terms as a result of EOP-005-2, proposed effective dates, and impact to existing standards – has been posted with the standards.

Project Background

The proposed revisions update and move requirements from four standards into two standards, result in a change to EOP-001-1, and result in two changes to the NERC Glossary of Terms:

| Existing Approved Standards & Definitions | Proposed Revised Standards & Definitions |
|---|--|
| EOP-001-1 — Emergency Operations Plan | EOP-001-2 — Emergency Operations Plan (Retire Requirement R2.4 of EOP-001-1) |
| EOP-005-1 — System Restoration Plans | EOP-005-2 — System Restoration from Blackstart Resources |
| EOP-006-1 — Reliability Coordination — System Restoration | EOP-006-2 — System Restoration — 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) |
| Blackstart Capability Plan | Retire definition |
| | Blackstart Resource (new definition) |

This project involves upgrading the overall quality of the standards, eliminating some gaps in the requirements, eliminating some ambiguity, and eliminating some “fill-in-the-blank”

components. Stakeholder comments and FERC Order 693 were considered as the drafting team completed its drafts. The proposed 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.”

Project page: http://www.nerc.com/filez/standards/System_Restoration_Blackstart.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.*



Standards Announcement

Initial Ballot Results

Now available at: <https://standards.nerc.net/Ballots.aspx>

Revisions to System Restoration from Blackstart Resources Standards (Project 2006-03)

Since at least one negative ballot was submitted with a comment, a recirculation ballot will be held. The recirculation ballot will be held after the drafting team responds to voter comments submitted during this ballot.

The initial ballot for the following proposed standards ended April 23, 2009:

- EOP-001-2 — Emergency Operations Plan
- EOP-005-2 — System Restoration Plans
- EOP-006-2 — Reliability Coordination — System Restoration

The ballot results are shown below. The [Ballot Results](#) Web page provides a link to the detailed results.

Quorum: 89.81%
Approval: 76.63%

Ballot Criteria

Approval requires both:

- A quorum, which is established by at least 75 percent 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.

Project Background

The proposed revisions update and move requirements from four standards into two standards, result in a change to EOP-001-1, and result in two changes to the NERC Glossary of Terms:

| Existing Approved Standards & Definitions | Proposed Revised Standards & Definitions |
|---|---|
| EOP-001-1 — Emergency Operations Plan | EOP-001-2 — Emergency Operations Plan (Retire Requirement R2.4 of EOP-001-1) |
| EOP-005-1 — System Restoration Plans | EOP-005-2 — System Restoration from |

| | |
|---|---|
| | Blackstart Resources |
| EOP-006-1 — Reliability Coordination — System Restoration | EOP-006-2 — System Restoration — 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) |
| Blackstart Capability Plan | Retire definition |
| | Blackstart Resource (new definition) |

An implementation plan — which summarizes proposed changes to the NERC Glossary of Terms as a result of EOP-005-2, proposed effective dates, and impact to existing standards — has been posted with the standards.

This project involves upgrading the overall quality of the standards, eliminating some gaps in the requirements, eliminating some ambiguity, and eliminating some “fill-in-the-blank” components. Stakeholder comments and FERC Order 693 were considered as the drafting team completed its drafts. The proposed 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.”

Project page: http://www.nerc.com/filez/standards/System_Restoration_Blackstart.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.*



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- Ballot Pools
- Current Ballots
- Ballot Results
- Registered Ballot Body
- Proxy Voters

Home Page

Ballot Results

| | |
|-------------------------------|--|
| Ballot Name: | Project 2006-03 EOP-001_EOP-005_EOP-006 System Restoration and Blackstart_in |
| Ballot Period: | 4/14/2009 - 4/23/2009 |
| Ballot Type: | Initial |
| Total # Votes: | 238 |
| Total Ballot Pool: | 265 |
| Quorum: | 89.81 % The Quorum has been reached |
| Weighted Segment Vote: | 76.63 % |
| Ballot Results: | The standard will proceed to recirculation ballot. |

Summary of Ballot Results

| Segment | Ballot Pool | Segment Weight | Affirmative | | Negative | | Abstain # Votes | No Vote | |
|------------------|-------------|----------------|-------------|------------|--------------|-----------|-----------------|----------|-----------|
| | | | # Votes | Fraction | # Votes | Fraction | | | |
| 1 - Segment 1. | | 74 | 1 | 48 | 0.716 | 19 | 0.284 | 1 | 6 |
| 2 - Segment 2. | | 10 | 0.9 | 7 | 0.7 | 2 | 0.2 | 0 | 1 |
| 3 - Segment 3. | | 57 | 1 | 34 | 0.694 | 15 | 0.306 | 1 | 7 |
| 4 - Segment 4. | | 17 | 1 | 10 | 0.769 | 3 | 0.231 | 3 | 1 |
| 5 - Segment 5. | | 58 | 1 | 35 | 0.745 | 12 | 0.255 | 1 | 10 |
| 6 - Segment 6. | | 29 | 1 | 17 | 0.63 | 10 | 0.37 | 0 | 2 |
| 7 - Segment 7. | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8 - Segment 8. | | 5 | 0.5 | 4 | 0.4 | 1 | 0.1 | 0 | 0 |
| 9 - Segment 9. | | 7 | 0.7 | 6 | 0.6 | 1 | 0.1 | 0 | 0 |
| 10 - Segment 10. | | 8 | 0.8 | 8 | 0.8 | 0 | 0 | 0 | 0 |
| Totals | | 265 | 7.9 | 169 | 6.054 | 63 | 1.846 | 6 | 27 |

Individual Ballot Pool Results

| Segment | Organization | Member | Ballot | Comments |
|---------|---------------------------------------|-----------------|-------------|----------------------|
| 1 | Allegheny Power | Rodney Phillips | Affirmative | |
| 1 | Ameren Services | Kirit S. Shah | Negative | View |
| 1 | American Electric Power | Paul B. Johnson | Affirmative | |
| 1 | American Transmission Company, LLC | Jason Shaver | Affirmative | |
| 1 | Associated Electric Cooperative, Inc. | John Bussman | Negative | View |
| 1 | Avista Corp. | Scott Kinney | Affirmative | |
| 1 | BC Transmission Corporation | Gordon Rawlings | Affirmative | |

| | | | | |
|---|--|------------------------------|-------------|----------------------|
| 1 | Black Hills Corp | Eric Egge | | |
| 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 of Tacoma, Department of Public Utilities, Light Division, dba Tacoma Power | Alan L Cooke | Abstain | |
| 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 | Negative | |
| 1 | E.ON U.S. LLC | Larry Monday | Affirmative | |
| 1 | East Kentucky Power Coop. | George S. Carruba | | |
| 1 | Entergy Corporation | George R. Bartlett | Negative | View |
| 1 | Exelon Energy | John J. Blazekovich | Affirmative | |
| 1 | Farmington Electric Utility System | Alan Glazner | Affirmative | |
| 1 | FirstEnergy Energy Delivery | Robert Martinko | Negative | View |
| 1 | Florida Keys Electric Cooperative Assoc. | Dennis Minton | Affirmative | |
| 1 | Florida Power & Light Co. | C. Martin Mennes | Affirmative | |
| 1 | Great River Energy | Gordon Pietsch | | |
| 1 | Hoosier Energy Rural Electric Cooperative, Inc. | Damon Holladay | Affirmative | |
| 1 | Hydro One Networks, Inc. | Ajay Garg | Affirmative | |
| 1 | ITC Transmission | Elizabeth Howell | Affirmative | |
| 1 | JEA | Ted E. Hobson | Negative | View |
| 1 | Kansas City Power & Light Co. | Michael Gammon | Affirmative | |
| 1 | Kissimmee Utility Authority | Joe B Watson | Affirmative | |
| 1 | Lee County Electric Cooperative | Rodney Hawkins | Affirmative | |
| 1 | Lincoln Electric System | Doug Bantam | Affirmative | |
| 1 | Manitoba Hydro | Michelle Rheault | Affirmative | |
| 1 | MEAG Power | Danny Dees | Negative | View |
| 1 | MidAmerican Energy Co. | Terry Harbour | Affirmative | |
| 1 | Minnesota Power, Inc. | Carol Gerou | | |
| 1 | National Grid | Manuel Couto | Affirmative | |
| 1 | Nebraska Public Power District | Richard L. Koch | | |
| 1 | New York Power Authority | Ralph Rufrano | Affirmative | |
| 1 | Northeast Utilities | David H. Boguslawski | Affirmative | |
| 1 | Northern Indiana Public Service Co. | Kevin M Largura | Affirmative | |
| 1 | Ohio Valley Electric Corp. | Robert Matthey | Negative | |
| 1 | Oklahoma Gas and Electric Co. | Marvin E VanBebber | Affirmative | |
| 1 | Omaha Public Power District | Ilorees Tadros | | |
| 1 | Oncor Electric Delivery | Charles W. Jenkins | Affirmative | |
| 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 | Mark Sampson | Affirmative | |
| 1 | Potomac Electric Power Co. | Richard J. Kafka | Affirmative | |
| 1 | PowerSouth Energy Cooperative | Larry D Avery | Negative | |
| 1 | PP&L, Inc. | Ray Mammarella | Negative | View |
| 1 | Progress Energy Carolinas | Sammy Roberts | Negative | View |
| 1 | Public Service Electric and Gas Co. | Kenneth D. Brown | Negative | View |
| 1 | Puget Sound Energy, Inc. | Catherine Koch | Affirmative | |
| 1 | Salt River Project | Robert Kondziolka | Affirmative | |
| 1 | Santee Cooper | Terry L. Blackwell | Negative | View |
| 1 | SaskPower | Wayne Guttormson | Affirmative | |
| 1 | Seattle City Light | Pawel Krupa | Affirmative | |
| 1 | Sierra Pacific Power Co. | Richard Salgo | Affirmative | View |
| 1 | South Texas Electric Cooperative | Richard McLeon | Affirmative | |
| 1 | Southern California Edison Co. | Dana Cabbell | Affirmative | |
| 1 | Southern Company Services, Inc. | Horace Stephen Williamson | Negative | View |
| 1 | Southwest Transmission Cooperative, Inc. | James L. Jones | Affirmative | |
| 1 | Southwestern Power Administration | Gary W Cox | Affirmative | |
| 1 | Tennessee Valley Authority | Larry Akens | Negative | |
| 1 | Tucson Electric Power Co. | John Tolo | Affirmative | |
| 1 | Westar Energy | Allen Klassen | Negative | |

| | | | | |
|---|---|-------------------------|-------------|----------------------|
| 1 | Western Area Power Administration | Brandy A Dunn | Affirmative | |
| 1 | Xcel Energy, Inc. | Gregory L. Pieper | Negative | View |
| 2 | Alberta Electric System Operator | Anita Lee | | |
| 2 | British Columbia Transmission Corporation | Phil Park | Affirmative | |
| 2 | California ISO | Greg Tillitson | Affirmative | |
| 2 | Independent Electricity System Operator | Kim Warren | Affirmative | |
| 2 | ISO New England, Inc. | Kathleen Goodman | Affirmative | |
| 2 | Midwest ISO, Inc. | Terry Bilke | Affirmative | |
| 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 |
| 2 | Southwest Power Pool | Charles H Yeung | Negative | View |
| 3 | Alabama Power Company | Robin Hurst | Negative | View |
| 3 | Allegheny Power | Bob Reeping | Affirmative | |
| 3 | Ameren Services | Mark Peters | Negative | View |
| 3 | American Electric Power | Raj Rana | Affirmative | |
| 3 | Arizona Public Service Co. | Thomas R. Glock | | |
| 3 | Atlantic City Electric Company | James V. Petrella | Affirmative | |
| 3 | BC Hydro and Power Authority | Pat G. Harrington | Abstain | |
| 3 | Black Hills Power | Andy Butcher | Affirmative | |
| 3 | Bonneville Power Administration | Rebecca Berdahl | Affirmative | View |
| 3 | City of Tallahassee | Rusty S. Foster | | |
| 3 | City Public Service of San Antonio | Edwin Les Barrow | Affirmative | |
| 3 | Cleco Utility Group | Bryan Y Harper | Affirmative | |
| 3 | Commonwealth Edison Co. | Stephen Lesniak | Affirmative | |
| 3 | Consolidated Edison Co. of New York | Peter T Yost | Affirmative | |
| 3 | Consumers Energy | David A. Lapinski | Negative | |
| 3 | Cowlitz County PUD | Russell A Noble | Affirmative | |
| 3 | Delmarva Power & Light Co. | Michael R. Mayer | Affirmative | |
| 3 | Detroit Edison Company | Kent Kujala | | |
| 3 | Dominion Resources, Inc. | Jalal (John) Babik | Affirmative | |
| 3 | Douglas County PUD #1 | Jeff Johnson | | |
| 3 | Duke Energy Carolina | Henry Ernst-Jr | Negative | View |
| 3 | Entergy Services, Inc. | Matt Wolf | Negative | View |
| 3 | FirstEnergy Solutions | Joanne Kathleen Borrell | Negative | View |
| 3 | Florida Power Corporation | Lee Schuster | Negative | |
| 3 | Georgia Power Company | Leslie Sibert | Negative | View |
| 3 | Grays Harbor PUD | Wesley W Gray | Affirmative | |
| 3 | Great River Energy | Sam Kokkinen | | |
| 3 | Gulf Power Company | Gwen S Frazier | Negative | View |
| 3 | Hydro One Networks, Inc. | Michael D. Penstone | Affirmative | |
| 3 | JEA | Garry Baker | Negative | View |
| 3 | Kansas City Power & Light Co. | Charles Locke | Affirmative | |
| 3 | Kissimmee Utility Authority | Gregory David Woessner | | |
| 3 | Lincoln Electric System | Bruce Merrill | Affirmative | |
| 3 | Louisville Gas and Electric Co. | Charles A. Freibert | Affirmative | |
| 3 | Manitoba Hydro | Jamie Hall | Affirmative | |
| 3 | MidAmerican Energy Co. | Thomas C. Mielnik | Affirmative | |
| 3 | Mississippi Power | Don Horsley | Negative | View |
| 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 | Affirmative | |
| 3 | Orlando Utilities Commission | Ballard Keith Mutters | Affirmative | |
| 3 | PacifiCorp | John Apperson | Affirmative | |
| 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 | Negative | |
| 3 | Public Service Electric and Gas Co. | Jeffrey Mueller | Negative | View |
| 3 | Public Utility District No. 2 of Grant County | Greg Lange | Affirmative | |
| 3 | Salt River Project | John T. Underhill | Affirmative | |
| 3 | San Diego Gas & Electric | Scott Peterson | | |
| 3 | Santee Cooper | Zack Dusenbury | Negative | View |
| 3 | Seattle City Light | Dana Wheelock | Affirmative | |
| 3 | Southern California Edison Co. | David Schiada | Affirmative | |
| 3 | Tampa Electric Co. | Ronald L. Donahay | Affirmative | |
| 3 | Turlock Irrigation District | Casey Hashimoto | Affirmative | |

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|---|---|-----------------------|-------------|----------------------|
| 3 | Wisconsin Electric Power Marketing | James R. Keller | Affirmative | |
| 3 | Xcel Energy, Inc. | Michael Ibold | Negative | View |
| 4 | Alliant Energy Corp. Services, Inc. | Kenneth Goldsmith | Affirmative | |
| 4 | American Municipal Power - Ohio | Kevin L Holt | Affirmative | |
| 4 | Consumers Energy | David Frank Ronk | Negative | |
| 4 | Detroit Edison Company | Daniel Herring | Affirmative | |
| 4 | Eugene Water & Electric Board | Dean Ahlsten | Abstain | |
| 4 | Georgia System Operations Corporation | Guy Andrews | | |
| 4 | Illinois Municipal Electric Agency | Bob C. Thomas | Abstain | |
| 4 | Integrus Energy Group, Inc. | Christopher Plante | 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 | Negative | View |
| 4 | Old Dominion Electric Coop. | Mark Ringhausen | Negative | View |
| 4 | Public Utility District No. 1 of Douglas County | Henry E. LuBean | Affirmative | |
| 4 | Sacramento Municipal Utility District | Dilip Mahendra | Affirmative | |
| 4 | Seattle City Light | Hao Li | Affirmative | |
| 4 | Seminole Electric Cooperative, Inc. | Steven R. Wallace | Affirmative | |
| 4 | Wisconsin Energy Corp. | Anthony Jankowski | Affirmative | |
| 5 | AEP Service Corp. | Brock Ondayko | Affirmative | |
| 5 | Amerenue | Sam Dwyer | Affirmative | |
| 5 | Avista Corp. | Edward F. Groce | Affirmative | |
| 5 | BC Hydro and Power Authority | Clement Ma | Affirmative | |
| 5 | Black Hills Corp | George Tatar | Affirmative | |
| 5 | Bonneville Power Administration | Francis J. Halpin | Affirmative | View |
| 5 | Calpine Corporation | John Brent Hebert | | |
| 5 | City of Tallahassee | Alan Gale | Affirmative | |
| 5 | Cleco Power LLC | Grant Bryant | Affirmative | |
| 5 | Colmac Clarion/Piney Creek LP | Harvie D. Beavers | Affirmative | View |
| 5 | Constellation Generation Group | Michael F. Gildea | Affirmative | |
| 5 | Consumers Energy | James B Lewis | Negative | View |
| 5 | Dairyland Power Coop. | Warren Schaefer | Affirmative | View |
| 5 | Detroit Edison Company | Ronald W. Bauer | Affirmative | |
| 5 | Dominion Resources, Inc. | Mike Garton | Affirmative | |
| 5 | Duke Energy | Robert Smith | Negative | |
| 5 | Dynegy | Greg Mason | Affirmative | |
| 5 | East Kentucky Power Coop. | Stephen Ricker | | |
| 5 | Entergy Corporation | Stanley M Jaskot | Negative | View |
| 5 | Exelon Nuclear | Michael Korchynsky | Affirmative | |
| 5 | FirstEnergy Solutions | Kenneth Dresner | | |
| 5 | FPL Energy | Benjamin Church | | |
| 5 | Great River Energy | Cynthia E Sulzer | | |
| 5 | JEA | Donald Gilbert | Negative | View |
| 5 | Kansas City Power & Light Co. | Scott Heidtbrink | Affirmative | |
| 5 | Liberty Electric Power LLC | Daniel Duff | | |
| 5 | Lincoln Electric System | Dennis Florom | Affirmative | |
| 5 | Louisville Gas and Electric Co. | Charlie Martin | Affirmative | |
| 5 | Luminant Generation Company LLC | Mike Laney | Affirmative | |
| 5 | Manitoba Hydro | Mark Aikens | Affirmative | |
| 5 | MidAmerican Energy Co. | Christopher Schneider | Affirmative | |
| 5 | New York Power Authority | Gerald Mannarino | | |
| 5 | Northern Indiana Public Service Co. | Michael K Wilkerson | Affirmative | |
| 5 | Northern States Power Co. | Liam Noailles | Negative | View |
| 5 | Oglethorpe Power Corporation | Scott McGough | Negative | |
| 5 | Orlando Utilities Commission | Richard Kinan | Affirmative | |
| 5 | Pacific Gas and Electric Company | Richard J. Padilla | Affirmative | |
| 5 | PacifiCorp Energy | David Godfrey | Affirmative | |
| 5 | Portland General Electric Co. | Gary L. Tingley | Affirmative | |
| 5 | PowerSouth Energy Cooperative | Tim Hattaway | Negative | |
| 5 | PPL Generation LLC | Mark A. Heimbach | Negative | View |
| 5 | Progress Energy Carolinas | Wayne Lewis | Negative | |
| 5 | PSEG Power LLC | Thomas Piascik | Negative | View |
| 5 | Reedy Creek Energy Services | Bernie Budnik | | |
| 5 | Reliant Energy Services | Thomas J. Bradish | Negative | View |
| 5 | Salt River Project | Glen Reeves | Affirmative | |
| 5 | Seattle City Light | Michael J. Haynes | Affirmative | |
| 5 | Seminole Electric Cooperative, Inc. | Brenda K. Atkins | Affirmative | |

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|----|--|------------------------------|-------------|------|
| 5 | South California Edison Company | Ahmad Sanati | Affirmative | |
| 5 | South Carolina Electric & Gas Co. | Richard Jones | | |
| 5 | South Mississippi Electric Power Association | Jerry W Johnson | Affirmative | |
| 5 | Southeastern Power Administration | Douglas Spencer | Abstain | |
| 5 | Southern Company Generation | William D Shultz | Negative | View |
| 5 | Tampa Electric Co. | Frank L Busot | Affirmative | |
| 5 | U.S. Army Corps of Engineers Northwestern Division | Karl Bryan | Affirmative | |
| 5 | U.S. Bureau of Reclamation | Martin Bauer | Affirmative | |
| 5 | Wisconsin Electric Power Co. | Linda Horn | Affirmative | |
| 5 | Wisconsin Public Service Corp. | Leonard Rentmeester | | |
| 6 | AEP Marketing | Edward P. Cox | Affirmative | |
| 6 | Ameren Energy Marketing Co. | Jennifer Richardson | Negative | |
| 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 | Affirmative | |
| 6 | Duke Energy Carolina | Walter Yeager | Negative | |
| 6 | Entergy Services, Inc. | Terri F Benoit | Negative | View |
| 6 | Eugene Water & Electric Board | Daniel Mark Bedbury | Affirmative | |
| 6 | Exelon Power Team | Pulin Shah | Affirmative | |
| 6 | FirstEnergy Solutions | Mark S Travaglianti | Negative | View |
| 6 | Great River Energy | Donna Stephenson | | |
| 6 | Kansas City Power & Light Co. | Thomas Saitta | Affirmative | |
| 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 | Northern Indiana Public Service Co. | Joseph O'Brien | Affirmative | |
| 6 | PacifiCorp | Gregory D Maxfield | Affirmative | |
| 6 | PP&L, Inc. | Thomas Hyzinski | Negative | |
| 6 | Progress Energy | James Eckelkamp | Negative | |
| 6 | PSEG Energy Resources & Trade LLC | James D. Hebson | Negative | View |
| 6 | Public Utility District No. 1 of Chelan County | Hugh A. Owen | | |
| 6 | Reliant Energy Services | Trent Carlson | Negative | View |
| 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 | Tampa Electric Co. | Heidi Giustiniani | Affirmative | |
| 6 | Xcel Energy, Inc. | David F. Lemmons | Negative | View |
| 8 | JDRJC Associates | Jim D. Cyrulewski | Negative | |
| 8 | Other | Michehl R. Gent | Affirmative | |
| 8 | Utility Services LLC | Brian Evans-Mongeon | Affirmative | |
| 8 | Utility System Effeciencies, Inc. (USE) | Robert L Dintelman | Affirmative | |
| 8 | Volkman Consulting, Inc. | Terry Volkman | Affirmative | |
| 9 | California Energy Commission | William Mitchell Chamberlain | Affirmative | |
| 9 | Commonwealth of Massachusetts Department of Public Utilities | Donald E. Nelson | Affirmative | |
| 9 | National Association of Regulatory Utility Commissioners | Diane J. Barney | Affirmative | |
| 9 | New York State Department of Public Service | Thomas G Dvorsky | Affirmative | |
| 9 | North Carolina Utilities Commission | Kimberly J. Jones | Negative | |
| 9 | Oregon Public Utility Commission | Jerome Murray | Affirmative | |
| 9 | Public Service Commission of South Carolina | Philip Riley | Affirmative | |
| 10 | Electric Reliability Council of Texas, Inc. | Kent Saathoff | Affirmative | |
| 10 | Florida Reliability Coordinating Council | Linda Campbell | Affirmative | |
| 10 | Midwest Reliability Organization | Dan R Schoenecker | Affirmative | |
| 10 | New York State Reliability Council | Alan Adamson | Affirmative | |
| 10 | Northeast Power Coordinating Council, Inc. | Guy V. Zito | Affirmative | |
| 10 | ReliabilityFirst Corporation | Jacquie Smith | Affirmative | |
| 10 | SERC Reliability Corporation | Carter B. Edge | Affirmative | View |
| 10 | Western Electricity Coordinating Council | Louise McCarren | Affirmative | |
| | | | | |



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Consideration of Comments on Initial Ballot of System Restoration and Blackstart Standards (Project 2006-03)

Summary Consideration:

There were three main themes to the comments supplied with the initial balloting.

1. Reliability Coordinator approval of the restoration plan – Order 693 required that the Reliability Coordinator must be involved in the development and approval of the Transmission Operators’ restoration plans.
2. Timing requirements of Reliability Coordinator for the Transmission Operators plans - This is a potential start-up problem. The Reliability Coordinators and Transmission Operators will have to coordinate. Once you go through the implementation process, you will always have an approved plan.
3. Training – Order 693 required that restoration training be included in the restoration standards.

The SDT believes that it has addressed all of the comments and that no changes are required to the standards. Hopefully these responses have added clarity and will allow the entities involved to vote in the affirmative on the recirculation ballot.

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

| Voter | Entity | Segment | Vote | Comment |
|---------------|-----------------|---------|----------|--|
| Kirit S. Shah | Ameren Services | 1 | Negative | (1)The RC has too much authority and it is ambiguous authority at best regarding the approval of TO plans. |
| Mark Peters | | 3 | | (2)The TOP should submit plans to the RC. The RC should verify that the TOP |

¹ The appeals process is in the Reliability Standards Development Procedures: <http://www.nerc.com/standards/newstandardsprocess.html>.

Consideration of Comments on Initial Ballot of System Restoration and Blackstart Standards (Project 2006-03)

| Voter | Entity | Segment | Vote | Comment |
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| | | | | <p>plans do not conflict with other’s plans. Then the RC should “accept” the plan. Either change the word approve so that it says “approve the plan as it relates to being absent of conflict with other’s plans” or change the word to accept.</p> <p>(3)Also, the BAL-006 talks about an RC plan. But it is unclear if the RC plan has the same detail as a TOP plan or is really a plan on how to connect up islands. Clearly it should obvious we don’t want the RC and TOP to cover the same stuff.</p> <p>(4)EOP-001;VSLs; R1 does not require agreements with all adjacent BA’s as the VSLs suggest</p> <p>(5)EOP-001; R4 VSL is not clear what the term “complied with” means in the VSL. R4 states that “the applicable elements” should be included.</p> <p>(6)EOP-005; R5; is the reference to the TO’s or RC’s plan? Either could be read into the Requirement; please clarify.</p> <p>(7)EOP-005, R6.1: A further clarification is needed for what is meant by “dynamic capability”. For example, is a motor starting calculations/simulation ok or a time-domain simulation required?</p> |
| <p>Response: (1) In Order 693, the Commission proposal is that the Reliability Coordinators must be involved in the development and approval of the restoration plans. The SDT feels that the approval of the plans is consistent with the role of the Reliability Coordinator as defined in the Functional Model.</p> <p>(2) In Order 693, the Commission proposal is that the Reliability Coordinators must be involved in the development and approval of the restoration plans. The SDT feels that the approval of the plans is consistent with the role of the Reliability Coordinator as defined in the Functional Model.</p> <p>(3) BAL-006 is about inadvertent interchange. We assume you are referring to EOP-006 here. In EOP-006-2, the Reliability Coordinator oversees and coordinates restoration activities regardless of whether it is a blackstart condition or islanding. In EOP-005-2, the Transmission Operator restores the System from a blackstart condition utilizing Blackstart Resources under the aegis of the Reliability Coordinator. There should be no confusion as to responsibilities and no entity should be duplicating the efforts of another.</p> <p>(4) The scope of this project only permitted the deletion of Requirement R2.4 pertaining to restoration plans. Any further revision is beyond scope and will require a separate SAR or the advancement of Project 2009-03 which is to deal with the revision of EOP-001.</p> | | | | |

Consideration of Comments on Initial Ballot of System Restoration and Blackstart Standards (Project 2006-03)

| Voter | Entity | Segment | Vote | Comment |
|--|--------------------------|---------|-------------|--|
| <p>(5) The scope of this project only permitted the deletion of Requirement R2.4 pertaining to restoration plans. Any further revision is beyond scope and will require a separate SAR or the advancement of Project 2009-03 which is to deal with the revision of EOP-001.</p> <p>(6) The plan is the Transmission Operator’s plan that has been approved by the Reliability Coordinator. “Its” refers to the Transmission Operator.</p> <p>(7) The SDT assumes you mean dynamic simulations. The standard does not define the type of dynamic simulation, just that it be sufficient to meet the requirements of the Transmission Operator’s restoration plan.</p> | | | | |
| Richard Salgo | Sierra Pacific Power Co. | 1 | Affirmative | Affirmative, however, I wish to point out an apparent inconsistency between EOP-006 R3 and EOP-005 R3 having to do with the period of review for restoration plans. In the EOP-006, R3, the RC shall review its restoration plan within 13 calendar months of the last review; however in EOP-005, the TO reviews its restoration plan and submits to the RC annually and "on a mutually agreed predetermined schedule". This seems inconsistent, and would appear to lead to having such plans losing synchronism with one another. |
| <p>Response: The SDT recognizes this is a potential start-up problem and that there are many interacting requirements between EOP-005-2 and EOP-006-2. The Reliability Coordinators and Transmission Operators will have to coordinate during that time period. However, once you go through the implementation process, you will always have an approved plan. Please note that Reliability Coordinators and Transmission Operators are already required to have a restoration plan.</p> | | | | |
| Paul Rocha | CenterPoint Energy | 1 | Negative | CenterPoint Energy disagrees with including training requirements in an EOP standard category. NERC Project 2006-01 (PER-005-1 System Personnel Training) is presently addressing training, including system restoration, and CenterPoint Energy believes this where all training issues should be addressed. |
| <p>Response: In Order 693, the Commission requires the ERO to include personnel training for system restoration in the restoration standards.</p> | | | | |
| James B Lewis | Consumers Energy | 5 | Negative | <p>Consumers Energy's Power Generation group offers no comments on EOP-001-2 or EOP-006-2. We vote NO because of the following concerns about EOP-005-2:</p> <p>R1.6: The Transmission Operator must coordinate with the Generator Operator to identify acceptable operating voltage and frequency limits during restoration. Generator underfrequency relaying, including V/Hz, and terminal bus voltage limits impact the restoration.</p> <p>R9: This seems to be some sort of stealth requirement on Generator Owners. Transmission Operators do not necessarily own Black Start resources. Many Black</p> |

Consideration of Comments on Initial Ballot of System Restoration and Blackstart Standards (Project 2006-03)

| Voter | Entity | Segment | Vote | Comment |
|--|---------------------|---------|----------|--|
| | | | | <p>Start resources are owned by Generator Owners.</p> <p>R13: What occurs if the Transmission Operator and Generator Operator cannot come to agreement on the terms and conditions of a Black Start agreement? The Generator Operator may be subject to unreasonable requirements or technically imprudent requests which could result in equipment damage. This, of course, negatively impacts BES reliability.</p> <p>R16: The Transmission Operator should not be unilaterally setting requirements for Generator Operators. The requirements could be set by RROs through some sort of standards development process or should be the subject of negotiation with the groups involved. Having them uniform throughout the reliability region seems best.</p> <p>R17: We believe that reliability standards should not dictate specific training requirements, only that appropriate training is required. We would welcome further discussion on this subject. James B. Lewis, P.E. Executive Engineer Consumers Energy Power Generation E-mail: jblewis@cmsenergy.com</p> |
| <p>Response: R1.6: This concern is addressed by EOP-005-2, Requirement R13.</p> <p>R9: The SDT has assumed that Blackstart Resources are under the control of the Generator Operator and has not assumed any type of ownership. Multiple requirements and the definition for Blackstart Resource address this concern. If the Transmission Operator and the Generator Operator are under common ownership, there may be more easily accomplished coordination, but this is not assumed.</p> <p>R13: Without an agreement, there is no Blackstart Resource. If the Transmission Operator and Generator Operator can't come to agreement, then the unit is not considered a Blackstart Resource and the Transmission Operator can't include the unit in its plan. The Generator Operator can't be forced into entering into an agreement.</p> <p>R16: Regional Entities may develop standards for Blackstart Resources in their region, but a NERC standard cannot require such a standard. The SDT believes the process described in EOP-005-2 provides a common framework for testing. The Transmission Operator has incentives to make its testing requirements only as stringent as needed to meet the needs of its restoration plan.</p> <p>R17: In Order 693, the Commission noted "that inclusion of periodic system restoration drills and training and review of restoration plans in a system restoration Reliability Standard is the most effective way of achieving the desired goal of ensuring that all participants are trained in system restoration"</p> | | | | |
| George R. Bartlett | Entergy Corporation | 1 | Negative | DRAFT DRAFT Entergy Comments for Negative Ballot with Comment System Restoration from Blackstart Resources Standards Project 2006-03 Initial Ballot - |

Consideration of Comments on Initial Ballot of System Restoration and Blackstart Standards (Project 2006-03)

| Voter | Entity | Segment | Vote | Comment |
|------------------|------------------------|---------|------|---|
| Stanley M Jaskot | Entergy Corporation | 5 | | Due APRIL 23, 2009 |
| Terri F Benoit | Entergy Services, Inc. | 6 | | <p>IDENTIFICATION OF CRANKING PATH We agree with the draft standard that the Restoration Plan should be a high level restoration philosophy or principles of how a system would be restored based on the conditions and availability of facilities following a disturbance. The standard as written requires strategies, procedures, agreements, limits, etc. However, EOP-005-2 Requirement 1.5 requires the identification of Cranking Paths and initial switching requirements between the Blackstart Resource and the unit(s) to be started. This Requirement should be a procedure for surveying the facilities that are available to establish a Cranking Path at the time the Path is needed. Historical experience of the aftermath of hurricanes, tornados, and earthquakes prove that any pre-established Cranking Path and switching requirements will probably be useless. Low level details of switching and other requirements are more appropriately included in company operating procedures. Because even small changes to the system could make the plan out-dated when such details are required and because of the involved process to gain approvals, we feel the details are best handled in local operating procedures for TOPs, GOPs, etc. This provides for agility in responding to system changes to update plans in a timely and appropriate manner.</p> <p>RECONCILIATION OF RC NON-APPROVAL OF TOP PLAN We feel there needs to be additional requirements included in EOP-005-2 and EOP-006-2 to fully implement the blackstart plan approval process. There are no provisions in the standards for the scenario where the RC fails to approve a TOP plan. The standards speak to mandatory requests for approval and mandatory responses on approval/disapproval/etc. but no details on how to reconcile any issues/disputes so that, ultimately, approval is the end result. Without this, the TOP has incredible compliance exposure. In this scenario, there is an issue of who has the liability for non-compliance. There need to be clear requirements/measures to ensure that the TOP and RC work together in order to work through any issues and reach approval in a timely manner.</p> <p>PROPOSED EFFECTIVE DATES The Proposed Effective Dates call for both standards to be effective "Twenty-four months after the first day of the first calendar quarter following applicable regulatory approval. In those jurisdictions where no regulatory approval is required, all requirements go into effect twenty-</p> |

Consideration of Comments on Initial Ballot of System Restoration and Blackstart Standards (Project 2006-03)

| Voter | Entity | Segment | Vote | Comment |
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| | | | | <p>four months after Board of Trustees adoption." These effective dates leave the Transmission Operator open to potential compliance violations since completion of the TOP restoration plan is dependent on the restoration plan of the RC and then dependent on approval by the RC. The Proposed Effective Date for the RC restoration plan should be sometime, say six (6) months, before the Effective Date of the TOP restoration plan. The 6 months would be used by the TOP to include the RC plan requirements into the TOP plan and used by the RC to review, get revised and approve the RC plan.</p> <p>CLARIFICATIONS NOT INCLUDED Numerous clarifications were provided by the SDT during their response to comments. In many instances, the SDT response satisfied our concerns. Unfortunately, many of those explanations did not find their way into the standards. We feel that this could cause unnecessary future Requests for Interpretations. Even more troubling, if erroneously interpreted by auditors in the future, the true intent of the standards as written by the SDT experts could be lost.</p> <p>NUMBER OF DRILLS PER YEAR We believe that conducting one (1) System restoration drill per year is needed and should be adequate. Conducting two (2) drills per year, as required in EOP-006-2 R10 and R10.1 is excessive, cost prohibitive and should be changed to one (1) per year.</p> |
| Matt Wolf | Entergy Services, Inc. | 3 | Negative | See comments submitted by George Bartlett. |
| <p>Response: Identification of Cranking Path: The SDT agrees that flexibility must be built into the restoration plans; see EOP-005-2, Requirement R7. The SDT also believes that it is necessary to determine at least one feasible Cranking Path from a Blackstart Resource and the unit(s) to be restarted. It may be a good practice to determine more than one, but the SDT has not made this a requirement.</p> <p>Reconciliation of Reliability Coordinator non-approval of Transmission Operator plan: Both the Transmission Operator and the Reliability Coordinator have timing requirements for submittals and approvals or disapprovals. The two-year implementation plan provides sufficient time to obtain Reliability Coordinator approval of the Transmission Operator's restoration plan. Once there is an approved plan, there is always an approved plan, though it may not be the latest version of the Transmission Operator's plan. EOP-005-2, Requirement R7 provides for additional flexibility.</p> <p>Proposed effective dates: The SDT recognizes this is a start-up problem and that there are many interacting requirements between EOP-005-2 and EOP-006-2. The Reliability Coordinators and Transmission Operators will have to coordinate during that time period. However, once you go through the implementation process, you will always have an approved plan. Please note that Reliability Coordinators and Transmission</p> | | | | |

Consideration of Comments on Initial Ballot of System Restoration and Blackstart Standards (Project 2006-03)

| Voter | Entity | Segment | Vote | Comment |
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| <p>Operators are already required to have a restoration plan.</p> <p>Clarifications: The SDT feels that it has responded appropriately to all industry comments throughout four different postings by either changing the standards as suggested or responding with a legitimate reason as to why the suggested changes were not made. As an official response to an industry comment, this response is part of the permanent record regarding this standard.</p> <p>Number of drills per year: The SDT does not agree that conducting two drills/exercises annually is excessive given:</p> <ul style="list-style-type: none"> • The need for realistic and credible drills and simulations noted by the US – Canadian Joint Task Force in their report on the August 14, 2003 blackout, and • The leeway to the Reliability Coordinator to determine the scope of drills, exercises, and simulations afforded by EOP 006-2. | | | | |
| Robert Martinko | FirstEnergy Energy Delivery | 1 | Negative | FirstEnergy Corp. appreciates the hard work from the SRB SDT in revising the subject EOP standards, but as presently written, we are voting NEGATIVE based on the following comments. |
| Joanne Kathleen Borrell | FirstEnergy Solutions | 3 | | 1. Our primary concern is with EOP-005-2 requirement R11 regarding training of field switching personnel. As written the requirement is subjective and open to interpretation related to what would be a “unique task”. The standard should more clearly define training expectations related to system restoration so there is no misunderstanding during an audit of this requirement. |
| Douglas Hohlbaugh | Ohio Edison Company | 4 | | |
| Mark S Travaglianti | FirstEnergy Solutions | 6 | | An additional concern is the annual two hour training requirement. The new PER-005 standard directs a Systematic Approach to Training that utilizes methods to determine the proper amount of training needed for each employee. The training needs for a new employee versus a seasoned employee will be different and the two hour requirement appears to be arbitrarily set. The requirement seems to go beyond the FERC directives provided in Order 693. FE believes the intent of the FERC directive in paragraph 630 in regards to “identifies time frames for training” is associated with the periodicity of the training and not the length of the training required. |
| | | | | 2. A secondary concern of EOP-005-2 is requirement R4. In the last draft, draft 4, the team added the words “or prior to implementing a planned System modification” in regards to when a Transmission Operator’s restoration plan needs to be updated. While the change may have good intentions, upon further reflection it causes confusion and concern. The phrase “prior to” causes confusion in regards to the sub-requirement R4.1 that states the TOP submits its revised restoration |

Consideration of Comments on Initial Ballot of System Restoration and Blackstart Standards (Project 2006-03)

| Voter | Entity | Segment | Vote | Comment |
|--|-----------------------|---------|-------------|---|
| | | | | <p>plan to its RC for approval “within the same 90 day period”. However, the 90 day period seems only to be associated with a time period after identifying an unplanned change that triggers a need to revise the restoration plan. Requirement R4 should be more clearly written for what is required for a planned change. Is it expected that the RC will review and approve a TOP’s revised restoration plan based on a planned change prior to the new restoration plan being implemented and effective? We suggest that R4 be split into two requirements covering both planned and unplanned changes to increase clarity of the standard.</p> |
| <p>Response: EOP-005-2, R11: As provided in previous responses, the SDT anticipates that unique tasks are those not performed in routine operation, such as resynchronizing subsections of the Transmission Operators system or with a neighboring system. As an official response to an industry comment, this response is part of the permanent record regarding this standard.</p> <p>2 hours of training: The SDT recognized very early that it would be difficult to describe a complete training program in the system restoration Reliability Standards. The current personnel training standards apply to operating personnel typically located in a control room. EOP-005-2, Requirement R10 describes the subject materials to be included in the Transmission Operator’s operations training program and permits the Transmission Operator to use a Systematic Approach to Training for that portion of the training requirements in EOP-005-2.</p> <p>EOP-005-2, R4: Only one “90 day period” is mentioned in the main requirement, so the sub-requirement refers to unplanned changes. Once there is an approved plan, there is always an approved plan, though it may not be the latest version of the Transmission Operator’s plan. EOP-005-2, Requirement R7 provides for additional flexibility.</p> | | | | |
| Warren Schaefer | Dairyland Power Coop. | 5 | Affirmative | <p>If the current modifications to these standards are approved, I would expect that there will be requests for interpretation of several requirements of EOP-005-2 regarding the training requirements of R11 and R17. In R17, for example, each GO with a Blackstart resource must provide training "...to each of its operating personnel responsible for the startup of its Blackstart Resource...". Contrast that with the language of R11: Each TOP, TO, and DP "...shall provide a minimum of two hours of System restoration training every two years to their field switching personnel identified as performing unique tasks associated with the Transmission Operator’s restoration plan that are outside of their normal tasks." Note that in this latter case, the requirement does not specify "each" member of the pool of field switching personnel. Is this intentional, allowing less than 100% coverage in the 2-year cycle? For example, if training is provided and available but only 95% of the pool actually participates in the training, is that acceptable? Additionally, I would suggest that some definition or examples of "unique tasks" might be in order. There might be certain tasks that are more likely to be experienced during a blackout and subsequent restoration than under more typical operating</p> |

Consideration of Comments on Initial Ballot of System Restoration and Blackstart Standards (Project 2006-03)

| Voter | Entity | Segment | Vote | Comment |
|--|---|---------|-------------|--|
| | | | | circumstances, but does that make them "unique" in the context of the requirement, making 2 hours of training IN ADDITION TO routine training necessary? |
| <p>Response: The SDT does not see an inconsistency. The Generator Operator can determine which of its personnel are responsible for blackstart operations. Nothing prohibits the Generator Operator from including the blackstart training in its routine training program. Unique tasks are those not performed in routine operation, such as resynchronizing subsections of the Transmission Operator's system or with a neighboring system. As an official response to an industry comment, this response is part of the permanent record regarding this standard.</p> | | | | |
| Tony Kroskey | Brazos Electric Power Cooperative, Inc. | 1 | Negative | In EOP-005 R11, it is not clear as to the meaning of "unique tasks" and whether such a task will require a minimum of two hours training will depend on what the task is. This needs to be fully addressed before going to a final ballot. |
| <p>Response: As provided in previous responses, the SDT anticipates that unique tasks are those not performed in routine operation, such as resynchronizing subsections of the Transmission Operators system or with a neighboring system. As an official response to an industry comment, this response is part of the permanent record regarding this standard.</p> | | | | |
| Donald S. Watkins | Bonneville Power Administration | 1 | Affirmative | In general we think there are too many requirements making it cumbersome to focus. In EOP-005-2, suggest moving R9 testing requirements as a subelement under R13 (includes references to the testing requirements). |
| Rebecca Berdahl | | 3 | | R14 and R16 could also be combined (procedure with testing). |
| Francis J. Halpin | | 5 | | Regarding the VSLs for EOP-005: VSL R6: Remove the OR with its following sentence from the SEVERE level. |
| Brenda S. Anderson | | 6 | | VSL R11 & R17: The language regarding the % of personnel being trained for Lower, Moderate and High VSLs is confusing. VSL R15: Make correction for Moderate and High lower hour range (i.e. Moderate from 48 to 72 hours, High from 72 to 96 hours.) |
| <p>Response: EOP-005-2, R9: The SDT believes that consistency in testing requirements is required and therefore that the testing requirements should be common across the Transmission Operator's footprint and not specific to each agreement.</p> <p>EOP-005-2, R14 & R16: Having procedures is separate from testing those procedures, thus the separation.</p> <p>EOP-005-2, VSL R6: The SDT disagrees. All sub-requirements must be covered in the VSLs.</p> | | | | |

Consideration of Comments on Initial Ballot of System Restoration and Blackstart Standards (Project 2006-03)

| Voter | Entity | Segment | Vote | Comment |
|---|-------------------------------|---------|-------------|--|
| <p>EOP-005-2, VSLs R11 & R17: The SDT believes they are consistent.</p> <p>EOP-005-2, VSL R15: The SDT believes that you may not be reading this correctly. The Lower VSL covers 24 – 48 hours. The Moderate covers 48 to 72. The High is for 72 to 96 and Severe is for greater than 96.</p> | | | | |
| Mark Ringhausen | Old Dominion Electric Coop. | 4 | Negative | <p>My comments are on EOP-001-2 only: R1: We need to define what you mean by 'remote BAs'. How many and how far should one go to work with remote BAs? The SDT should be more specific in its expectations or change it to adjacent BAs.</p> <p>R5: Change 'neighboring' to 'adjacent' to provide clarity of expectations. R6: What does 'as appropriate' mean in this requirement? Can the SDT team define what they mean and provide more clarity to the entity and auditors? If not, then remove these words.</p> |
| <p>Response: The scope of this project only permitted the deletion of Requirement R2.4 pertaining to restoration plans. Any further revision is beyond scope and will require a separate SAR or the advancement of Project 2009-03 which is to deal with the revision of EOP-001.</p> | | | | |
| Harvie D. Beavers | Colmac Clarion/Piney Creek LP | 5 | Affirmative | <p>Non-blackstart generation should be included in some type of training to expose them to 'sequence' and expectations of desired 'restart' capability. Communication requirements between all generation sources and local area load control needs to be better defined, and if 'drills' or training is to be functional, it should be all inclusive.</p> |
| <p>Response: The SDT believes that Requirement R10.1 of EOP-006-2 addresses this concern. Generator Operators identified in the plan are included regardless of whether they have Blackstart Resources.</p> | | | | |
| Tom Bowe | PJM Interconnection, L.L.C. | 2 | Negative | <p>PJM is voting NO for the following reasons; We do not believe limiting the applicability is appropriate; this would allow those entities not identified to not meet the training requirement, even if they were a part of the restoration plan; this is not conducive to maintaining the reliability of the BES. By changing the applicability to include ALL entities included in the restoration plan, we ensure that ALL appropriate parties are included in the training.</p> <p>As for the training requirement itself, we agree that the training is necessary, as directed by FERC in Order 693, and the location of the requirement in the standards is minor. Our main issue is with the specification of a time requirement of two hours. The latest draft of the PER Standard, and FERC, have directed the need for a Systematic Approach to Training methodology, which is counter to the</p> |

Consideration of Comments on Initial Ballot of System Restoration and Blackstart Standards (Project 2006-03)

| Voter | Entity | Segment | Vote | Comment |
|---|-------------------------------------|---------|----------|---|
| | | | | <p>imposition of an arbitrary time requirement. The SAT methodology is based on a 'train to standard, not to time ' philosophy. The SDT should ensure that what they are proposing is in line with the mandated methodology.</p> <p>The requirement to simulate the entire restoration plan is overly burdensome. When the blackstart capability plan was dropped from this requirement and replaced with the restoration plan, the amount of simulation required substantially increases. Adding some words to the requirement to limit the simulations to blackstart unit start-up and next unit cranking would eliminate this concern.</p> |
| Ray Mammarella | PP&L, Inc. | 1 | Negative | PPL supports PJM's comments. |
| Mark A. Heimbach | PPL Generation LLC | 5 | | |
| Kenneth D. Brown | Public Service Electric and Gas Co. | 1 | Negative | The PSEG Companies participate in the blackstart plan of Transmission Operator PJM, and concur with PJM's comments. |
| Jeffrey Mueller | | 3 | | |
| Thomas Piascik | PSEG Power LLC | 5 | | |
| James D. Hebson | PSEG Energy Resources & Trade LLC | 6 | | |
| <p>Response: Applicability: The SDT believes that all necessary applicable entities have been identified. The balloters have not identified any additional entities. Responsible entities must be identified in the standards and they cannot be identified by the Transmission Operator.</p> <p>Training: The SDT recognized very early that it would be difficult to describe a complete training program in the system restoration Reliability Standards. The current personnel training standards apply to operating personnel typically located in a control room. EOP-005-2, Requirement R10 describes the subject materials to be included in the Transmission Operators operations training program and permits the Transmission Operator to use a Systematic Approach to Training for that portion of the training requirements in EOP-005-2.</p> | | | | |

Consideration of Comments on Initial Ballot of System Restoration and Blackstart Standards (Project 2006-03)

| Voter | Entity | Segment | Vote | Comment |
|--|--------|---------|----------|---|
| <p>Simulation: The SDT believes the commenter has over-estimated the amount of simulation required. Once the simulation steps have become routine, i.e., line energization and Load restoration with nearly automatic generation redispatch to account for the very small frequency changes, there is no need to continue simulation. The standard does not require a simulation to complete System and Load restoration. EOP-005-2, Requirement R1 defines the scope of the standard.</p> | | | | |
| Ted E. Hobson | JEA | 1 | Negative | <p>R1: Each Transmission Operator shall have a restoration plan approved by its Reliability Coordinator ... This requirement causes entities to be dependent on the actions of another entity in order to be compliant (timely response by Reliability Coordinator in approving plans).</p> <p>R11: Each Transmission Operator, each applicable Transmission Owner, and each applicable Distribution Provider shall provide a minimum of two hours of System restoration training every ... This requirement is overly burdensome as many personnel perform field switching, and these personnel may change frequently. Identifying, "au priori" who might actually do field switching during a restoration event is difficult. The requirement should be for the certified operator to have this training included in their PER requirements, and they will appropriately direct the field personnel in emergency switching.</p> |
| Garry Baker | JEA | 3 | Negative | <p>R1: Each Transmission Operator shall have a restoration plan approved by its Reliability Coordinator... This requirement causes entities to be dependent on the actions of another entity in order to be compliant (timely response by Reliability Coordinator in approving plans).</p> <p>R11: Each Transmission Operator, each applicable Transmission Owner, and each applicable Distribution Provider shall provide a minimum of two hours of System restoration ... This requirement is overly burdensome as many personnel perform field switching, and these personnel may change frequently. Identifying, "au priori" who might actually do field switching during a restoration event is difficult. The requirement should be for the certified operator to have this training included in their PER requirements, and they will appropriately direct the field personnel in emergency switching</p> |
| Donald Gilbert | JEA | 5 | Negative | <p>The R1 requirement makes the affected entity very much dependent on the actions of another entity in order to be compliant (timely response by Reliability Coordinator in approving plans).</p> <p>The R11 requirement is overly burdensome in the mandate that every potential</p> |

Consideration of Comments on Initial Ballot of System Restoration and Blackstart Standards (Project 2006-03)

| Voter | Entity | Segment | Vote | Comment |
|---|----------------------|---------|----------|---|
| | | | | <p>employee that may be involved in field switching during a restoration event shall have appropriate training. It is not prudent to narrow the employee base for such switching support and thus every employee would need to be validated with the training. It is much more practical and prudent to assure that the certified operator instructing and directing the field personnel during emergency restoration efforts has the appropriate training included in their PER requirements.</p> |
| <p>Response: EOP-005-2, R1: The SDT recognizes this is a start-up problem and that there are many interacting requirements between EOP-005-2 and EOP-006-2. The Reliability Coordinators and Transmission Operators will have to coordinate during that time period. However, once you go through the implementation process, you will always have an approved plan. Please note that Reliability Coordinators and Transmission Operators are already required to have a restoration plan.</p> <p>EOP-005-2, R11: As provided in previous responses, the SDT anticipates that those trained can be limited to those performing unique tasks not performed in routine operation, such as resynchronizing subsections of the Transmission Operators system or with a neighboring system. The requirement only mandates those employees expected to be performing these unique tasks need be trained under this standard and therefore the SDT does not feel that this is an overly burdensome requirement. One can always do more than the standard.</p> | | | | |
| Charles H Yeung | Southwest Power Pool | 2 | Negative | <p>SPP disagrees with the EOP-005-2 R1 requirements. As an RC, it is unclear what the standard requires the RC to verify in the TO's restoration plans. The measures place the burden on the TO to have their plans approved by their respective RC, but the TO has better information about what they need to restore their local systems.</p> <p>The R1 subrequirement 1.6 is unclear who sets the voltage and frequency limits and subrequirements 1.7 thru 1.9 are not clear whether "Operating Processes" are the TO's, the RC's or both. If the RC has a role in approval of TO Restoration Plans, it must be clearly defined and focused on the interconnectivity aspects between TOs and not on the local system.</p> |
| <p>Response: EOP-005-2, R1: EOP-005-2 does not apply to Reliability Coordinators. EOP-006-2 applies to Reliability Coordinators and Requirement R5 describes what the Reliability Coordinator must consider to evaluate the Transmission Operator's restoration plan. The SDT has drafted EOP-005-2 to cover activities of the Transmission Operator to restore its portion of the System following a Disturbance in which one or more areas of the Bulk Electric System (BES) shuts down and the use of Blackstart Resources is required to restore the shut down area to service. This is to be done in coordination with the Reliability Coordinator and in such a way as to assist the Reliability Coordinator in restoring its Reliability Coordinator area and its connections to other Reliability Coordinator areas.</p> <p>EOP-005-2, R1.6: All of Requirement R1 and its sub-requirements apply to the Transmission Operator. Requirement R13 assures that the Transmission Operator coordinates with the Generator Operators when setting voltage and frequency limits.</p> | | | | |

Consideration of Comments on Initial Ballot of System Restoration and Blackstart Standards (Project 2006-03)

| Voter | Entity | Segment | Vote | Comment |
|--|---------------------------------------|---------|----------|--|
| Terry L. Blackwell | Santee Cooper | 1 | Negative | The RC should not be tasked with approving a TOP's Restoration Plan. A TOP's Restoration Plan should be coordinated with the RC and the RC should have input to a TOP's Restoration Plan. |
| Zack Dusenbury | | 3 | | |
| Suzanne Ritter | | 6 | | |
| <p>Response: In Order 693, the Commission proposal is that the Reliability Coordinators must be involved in the development and approval of the restoration plans. The SDT feels that the approval of the plans is consistent with the role of the Reliability Coordinator as defined in the Functional Model and does not add additional liability to the Reliability Coordinator.</p> | | | | |
| John Bussman | Associated Electric Cooperative, Inc. | 1 | Negative | The RC should not be the APPROVING Authority of the EOPs. |
| <p>Response: In Order 693, the Commission proposal is that the Reliability Coordinators must be involved in the development and approval of the restoration plans. The SDT feels that the approval of the plans is consistent with the role of the Reliability Coordinator as defined in the Functional Model and does not add additional liability to the Reliability Coordinator.</p> | | | | |
| Henry Ernst-Jr | Duke Energy Carolina | 3 | Negative | The role of the Reliability Coordinator (RC) has historically been to “coordinate” actions within its footprint and to aid in the “communication” outside of its footprint. The RC has NOT been involved in the intimate details of system restoration operations for which the local operating entities are the subject matter experts. This draft of EOP-006-2 continues in the effort to place additional responsibility and accountability on the RC. For example Requirement R1.9 in this draft calls for the RC to transfer operations and authority back to the Balancing Authority (BA). The implication is that authority and operations has previously been transferred to the RC from the BA. It is not clear that this transfer is supported (even allowed) by other standards. The responsibility for operations does not belong with the RC. Furthermore, the current drafts of EOP-006-2 Requirement R5.1 and EOP-005-2 Requirement R1 place responsibility on the RC to “approve” its transmission operators’ plans. Yet it provides no instruction or criteria (other than listing minimum content requirements) as to how to objectively assess the plans’ qualifications for approval. Additionally, this will likely create legal and compliance liability for the RC entity should the restoration not occur as expected. |

Consideration of Comments on Initial Ballot of System Restoration and Blackstart Standards (Project 2006-03)

| Voter | Entity | Segment | Vote | Comment |
|---|---------------------------------|---------|----------|---|
| <p>Response: In Order 693, the Commission proposal is that the Reliability Coordinators must be involved in the development and approval of the restoration plans. The SDT feels that the approval of the plans is consistent with the role of the Reliability Coordinator as defined in the Functional Model and does not add additional liability to the Reliability Coordinator.</p> | | | | |
| Thomas J. Bradish | Reliant Energy Services | 5 | Negative | The SDT is commended for a job well done on a very important reliability standard. Reliant voted "Negative" because we feel it could be improved upon in the following way. EOP-005 contains Requirement 9 that requires each TOP to have a black start resource testing procedure. R9 of the standard contains 3 sub-requirements that describe what must be included in the black start testing procedure. One of these is R 9.3 which mandates that each procedure must specify the minimum duration of the test. Isn't this a fill in the blank requirement that the SDT was instructed to eliminate? It is suggested that sub-teams be formed to develop the testing procedures for each type of black start unit so that we have continent wide testing procedures. |
| Trent Carlson | | 6 | | |
| <p>Response: The SDT believes the process described in EOP-005-2 provides a common framework for testing across the Transmission Operator's footprint. This gives the flexibility to the Transmission Operators to meet their restoration plan requirements. The Transmission Operator has incentives to make its testing requirements only as stringent as needed to meet the needs of its restoration plan or it risks having no Blackstart Resources.</p> | | | | |
| Horace Stephen Williamson | Southern Company Services, Inc. | 1 | Negative | The Standards Drafting Team has not modified the standards as recommended by industry comments, particularly with regard to: 1. the level of detail included in the standards 2. the use of coordination and review among all operating entities rather than approval authority by the RC. |
| Robin Hurst | Alabama Power Company | 3 | | |
| Leslie Sibert | Georgia Power Company | 3 | | |
| Gwen S Frazier | Gulf Power Company | 3 | | |
| Don Horsley | Mississippi Power | 3 | | |
| William D Shultz | Southern Company | 5 | | |

Consideration of Comments on Initial Ballot of System Restoration and Blackstart Standards (Project 2006-03)

| Voter | Entity | Segment | Vote | Comment |
|---|---------------------------|-----------------|----------|--|
| | Generation | | | |
| <p>Response: The SDT feels that it has responded appropriately to all industry comments throughout four different postings by either changing the standards as suggested or responding with a legitimate reason as to why the suggested changes were not made.</p> | | | | |
| Danny Dees | MEAG Power | 1 | Negative | These proposed changes will increase our costs, which we will flow-through to our customers, and we are unable to identify commensurate customer benefits. Catastrophic system failures are extremely rare to begin with and the prospect that approving these changes may produce a marginal reduction in our average customer's restoration time is not compelling. We cannot even assure our customers that these changes will not increase their average restoration time (e.g., adjacent transmission operators, which have adequately prepared to resynchronize islands, may now have to wait for at least one RC's consent before they can proceed and responsible entities may delay their restoration of customers while they document their compliance with these requirements). |
| <p>Response: The SDT recognizes that there may be some increased costs to meet the more carefully worded requirements and to meet the set of comments included in the SAR and FERC Order 693, but does not see those costs as prohibitive or unreasonable in promoting reliability. The standards do not require the real-time approval of the Reliability Coordinator for any step, but expects the Reliability Coordinators and the Transmission Operators in its area to develop reasonable coordination processes or procedures.</p> | | | | |
| Sammy Roberts | Progress Energy Carolinas | 1 | Negative | With respect to System Restoration Coordination, R1 of EOP-006 does not cover all scenarios for dependent restoration such as occurred with the Feb 2008 Florida Blackout where multiple TOPs were involved. This scenario could unfold in a large RC area such as MISO or PJM for which RC involvement in the coordination of restoration would be even more important. |
| <p>Response: The standards do not require the real-time approval of the Reliability Coordinator for any step, but expects the Reliability Coordinators and the Transmission Operators in its area to develop reasonable coordination processes or procedures.</p> | | | | |
| Gregory L. Pieper | Xcel Energy, Inc. | 1 | Negative | Xcel Energy is voting negative for two primary reasons: 1) It could be interpreted that the data retention requirements for new Requirements will be retro-active. For example, R15 of EOP-005-2 is a new requirement. However, per the data retention requirement, the Generator Operator is required to have evidence that it notified its Transmission Operator of any changes in Blackstart Resource capability within 24 hours for "the last three calendar years". Please clarify in the standard that data retention periods do not apply to events prior to the effective date. 2) We do not feel that the drafting team adequately addressed the ambiguous use of the phrase "unique tasks" in Requirement 11 of EOP-005-2. We are concerned |
| Michael Ibold | | 3 | | |
| David F. Lemmons | | 6 | | |
| Liam | | Northern States | | |

Consideration of Comments on Initial Ballot of System Restoration and Blackstart Standards (Project 2006-03)

| Voter | Entity | Segment | Vote | Comment |
|--|-----------|---------|------|--|
| Noailles | Power Co. | | | that the scope of what is considered a “unique task” could be interpreted to include items beyond what we believe unique tasks to be. This could lead to inconsistencies among registered entities, as well as the regional entities’ audit staff. |
| <p>Response: (1) Standards cannot require compliance before their effective dates. Applicable entities will begin their collection of data upon the effective date.</p> <p>(2) As provided in previous responses, the SDT anticipates that unique tasks are those not performed in routine operation, such as resynchronizing subsections of the Transmission Operators system or with a neighboring system. As an official response to an industry comment, this response is part of the permanent record regarding this standard.</p> | | | | |

Standards Announcement Recirculation Ballot Window Open May 6–18, 2009

Now available at: <https://standards.nerc.net/CurrentBallots.aspx>

Revisions to System Restoration from Blackstart Resources Standards (Project 2006-03)

A recirculation ballot window for the following proposed standards is now open **until 8 p.m. EDT on May 18, 2009**:

- EOP-001-2 — Emergency Operations Plan
- EOP-005-2 — System Restoration Plans
- EOP-006-2 — Reliability Coordination — System Restoration

An implementation plan — which summarizes proposed changes to the NERC Glossary of Terms as a result of EOP-005-2, proposed effective dates, and impact to existing standards — has been posted with the standards.

Project Background

The proposed revisions update and move requirements from four standards into two standards, result in a change to EOP-001-1, and result in two changes to the NERC Glossary of Terms:

| Existing Approved Standards & Definitions | Proposed Revised Standards & Definitions |
|---|--|
| EOP-001-1 — Emergency Operations Plan | EOP-001-2 — Emergency Operations Plan (Retire Requirement R2.4 of EOP-001-1) |
| EOP-005-1 — System Restoration Plans | EOP-005-2 — System Restoration from Blackstart Resources |
| EOP-006-1 — Reliability Coordination — System Restoration | EOP-006-2 — System Restoration — 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) |
| Blackstart Capability Plan | Retire definition |
| | Blackstart Resource (new definition) |

This project involves upgrading the overall quality of the standards, eliminating some gaps in the requirements, eliminating some ambiguity, and eliminating some “fill-in-the-blank” components.

Stakeholder comments and FERC Order 693 were considered as the drafting team completed its drafts. The proposed 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.”

Project page: http://www.nerc.com/filez/standards/System_Restoration_Blackstart.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.*



Standards Announcement Final Ballot Results

Now available at: <https://standards.nerc.net/Ballots.aspx>

Revisions to System Restoration from Blackstart Resources Standards (Project 2006-03)

The ballot pool approved the standards revisions. The revised standards will be submitted to the NERC Board of Trustees for adoption.

The recirculation ballot for revisions to the following proposed standards ended May 18, 2009:

- EOP-001-2 — Emergency Operations Plan
- EOP-005-2 — System Restoration Plans
- EOP-006-2 — Reliability Coordination — System Restoration

The final ballot results are shown below. The [Ballot Results](#) Web page provides a link to the detailed results.

Quorum: 92.08%
Approval: 75.39%

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.

Project Background

The proposed revisions update and move requirements from four standards into two standards, result in a change to EOP-001-1, and result in two changes to the NERC Glossary of Terms:

| Existing Approved Standards & Definitions | Proposed Revised Standards & Definitions |
|---|--|
| EOP-001-1 — Emergency Operations Plan | EOP-001-2 — Emergency Operations Plan (Retire Requirement R2.4 of EOP-001-1) |
| EOP-005-1 — System Restoration Plans | EOP-005-2 — System Restoration from Blackstart Resources |

| | |
|---|---|
| EOP-006-1 — Reliability Coordination — System Restoration | EOP-006-2 — System Restoration — 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) |
| Blackstart Capability Plan | Retire definition |
| | Blackstart Resource (new definition) |

This project involves upgrading the overall quality of the standards, eliminating some gaps in the requirements, eliminating some ambiguity, and eliminating some “fill-in-the-blank” components. Stakeholder comments and FERC Order 693 were considered as the drafting team completed its drafts. The proposed 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.”

An implementation plan — which summarizes proposed changes to the NERC Glossary of Terms as a result of EOP-005-2, proposed effective dates, and impact to existing standards — has been posted with the standards.

Project page: http://www.nerc.com/filez/standards/System_Restoration_Blackstart.html

Applicability of Standards in Project

- Reliability Coordinator
- Transmission Operator
- Generator Operator
- Transmission Owner
- Distribution Provider

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.*



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Ballot Results

| | |
|-------------------------------|--|
| Ballot Name: | Project 2006-03 EOP-001_EOP-005_EOP-006 System Restoration and Blackstart_rc |
| Ballot Period: | 5/6/2009 - 5/18/2009 |
| Ballot Type: | recirculation |
| Total # Votes: | 244 |
| Total Ballot Pool: | 265 |
| Quorum: | 92.08 % The Quorum has been reached |
| Weighted Segment Vote: | 75.39 % |
| Ballot Results: | The Standard has Passed |

Summary of Ballot Results

| Segment | Ballot Pool | Segment Weight | Affirmative | | Negative | | Abstain # Votes | No Vote | |
|------------------|-------------|----------------|-------------|------------|--------------|-----------|-----------------|----------|-----------|
| | | | # Votes | Fraction | # Votes | Fraction | | | |
| 1 - Segment 1. | | 74 | 1 | 48 | 0.706 | 20 | 0.294 | 1 | 5 |
| 2 - Segment 2. | | 10 | 1 | 7 | 0.7 | 3 | 0.3 | 0 | 0 |
| 3 - Segment 3. | | 57 | 1 | 34 | 0.68 | 16 | 0.32 | 1 | 6 |
| 4 - Segment 4. | | 17 | 1 | 10 | 0.769 | 3 | 0.231 | 3 | 1 |
| 5 - Segment 5. | | 58 | 1 | 34 | 0.694 | 15 | 0.306 | 1 | 8 |
| 6 - Segment 6. | | 29 | 1 | 17 | 0.607 | 11 | 0.393 | 0 | 1 |
| 7 - Segment 7. | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8 - Segment 8. | | 5 | 0.5 | 5 | 0.5 | 0 | 0 | 0 | 0 |
| 9 - Segment 9. | | 7 | 0.6 | 5 | 0.5 | 1 | 0.1 | 1 | 0 |
| 10 - Segment 10. | | 8 | 0.8 | 8 | 0.8 | 0 | 0 | 0 | 0 |
| Totals | | 265 | 7.9 | 168 | 5.956 | 69 | 1.944 | 7 | 21 |

Individual Ballot Pool Results

| Segment | Organization | Member | Ballot | Comments |
|---------|---------------------------------------|-----------------|-------------|----------------------|
| 1 | Allegheny Power | Rodney Phillips | Affirmative | |
| 1 | Ameren Services | Kirit S. Shah | Negative | View |
| 1 | American Electric Power | Paul B. Johnson | Affirmative | |
| 1 | American Transmission Company, LLC | Jason Shaver | Affirmative | |
| 1 | Associated Electric Cooperative, Inc. | John Bussman | Negative | View |
| 1 | Avista Corp. | Scott Kinney | Affirmative | |
| 1 | BC Transmission Corporation | Gordon Rawlings | Affirmative | |

| | | | | |
|---|--|------------------------------|-------------|----------------------|
| 1 | Black Hills Corp | Eric Egge | 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 of Tacoma, Department of Public Utilities, Light Division, dba Tacoma Power | Alan L Cooke | Abstain | |
| 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 | Negative | |
| 1 | E.ON U.S. LLC | Larry Monday | Affirmative | |
| 1 | East Kentucky Power Coop. | George S. Carruba | | |
| 1 | Entergy Corporation | George R. Bartlett | Negative | View |
| 1 | Exelon Energy | John J. Blazekovich | Affirmative | |
| 1 | Farmington Electric Utility System | Alan Glazner | Affirmative | |
| 1 | FirstEnergy Energy Delivery | Robert Martinko | Negative | View |
| 1 | Florida Keys Electric Cooperative Assoc. | Dennis Minton | Affirmative | |
| 1 | Florida Power & Light Co. | C. Martin Mennes | Affirmative | |
| 1 | Great River Energy | Gordon Pietsch | | |
| 1 | Hoosier Energy Rural Electric Cooperative, Inc. | Damon Holladay | Affirmative | |
| 1 | Hydro One Networks, Inc. | Ajay Garg | Affirmative | |
| 1 | ITC Transmission | Elizabeth Howell | Affirmative | |
| 1 | JEA | Ted E. Hobson | Negative | View |
| 1 | Kansas City Power & Light Co. | Michael Gammon | Negative | View |
| 1 | Kissimmee Utility Authority | Joe B Watson | Affirmative | |
| 1 | Lee County Electric Cooperative | Rodney Hawkins | Affirmative | |
| 1 | Lincoln Electric System | Doug Bantam | Affirmative | |
| 1 | Manitoba Hydro | Michelle Rheault | Affirmative | |
| 1 | MEAG Power | Danny Dees | Negative | View |
| 1 | MidAmerican Energy Co. | Terry Harbour | Affirmative | |
| 1 | Minnesota Power, Inc. | Carol Gerou | | |
| 1 | National Grid | Manuel Couto | Affirmative | |
| 1 | Nebraska Public Power District | Richard L. Koch | | |
| 1 | New York Power Authority | Ralph Rufrano | Affirmative | |
| 1 | Northeast Utilities | David H. Boguslawski | Affirmative | |
| 1 | Northern Indiana Public Service Co. | Kevin M Largura | Affirmative | |
| 1 | Ohio Valley Electric Corp. | Robert Matthey | Negative | |
| 1 | Oklahoma Gas and Electric Co. | Marvin E VanBebber | Affirmative | |
| 1 | Omaha Public Power District | Ilorees Tadros | | |
| 1 | Oncor Electric Delivery | Charles W. Jenkins | Affirmative | |
| 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 | Mark Sampson | Affirmative | |
| 1 | Potomac Electric Power Co. | Richard J. Kafka | Affirmative | |
| 1 | PowerSouth Energy Cooperative | Larry D Avery | Affirmative | |
| 1 | PP&L, Inc. | Ray Mammarella | Negative | View |
| 1 | Progress Energy Carolinas | Sammy Roberts | Negative | View |
| 1 | Public Service Electric and Gas Co. | Kenneth D. Brown | Negative | View |
| 1 | Puget Sound Energy, Inc. | Catherine Koch | Affirmative | |
| 1 | Salt River Project | Robert Kondziolka | Affirmative | |
| 1 | Santee Cooper | Terry L. Blackwell | Negative | View |
| 1 | SaskPower | Wayne Guttormson | Affirmative | |
| 1 | Seattle City Light | Pawel Krupa | Affirmative | |
| 1 | Sierra Pacific Power Co. | Richard Salgo | Affirmative | View |
| 1 | South Texas Electric Cooperative | Richard McLeon | Affirmative | |
| 1 | Southern California Edison Co. | Dana Cabbell | Affirmative | |
| 1 | Southern Company Services, Inc. | Horace Stephen Williamson | Negative | View |
| 1 | Southwest Transmission Cooperative, Inc. | James L. Jones | Affirmative | |
| 1 | Southwestern Power Administration | Gary W Cox | Affirmative | |
| 1 | Tennessee Valley Authority | Larry Akens | Negative | |
| 1 | Tucson Electric Power Co. | John Tolo | Affirmative | |
| 1 | Westar Energy | Allen Klassen | Negative | |

| | | | | |
|---|---|-------------------------|-------------|----------------------|
| 1 | Western Area Power Administration | Brandy A Dunn | Negative | View |
| 1 | Xcel Energy, Inc. | Gregory L. Pieper | Negative | View |
| 2 | Alberta Electric System Operator | Anita Lee | Negative | View |
| 2 | British Columbia Transmission Corporation | Phil Park | Affirmative | |
| 2 | California ISO | Greg Tillitson | Affirmative | |
| 2 | Independent Electricity System Operator | Kim Warren | Affirmative | |
| 2 | ISO New England, Inc. | Kathleen Goodman | Affirmative | |
| 2 | Midwest ISO, Inc. | Terry Bilke | Affirmative | |
| 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 |
| 2 | Southwest Power Pool | Charles H Yeung | Negative | View |
| 3 | Alabama Power Company | Robin Hurst | Negative | View |
| 3 | Allegheny Power | Bob Reeping | Affirmative | |
| 3 | Ameren Services | Mark Peters | Negative | View |
| 3 | American Electric Power | Raj Rana | Affirmative | |
| 3 | Arizona Public Service Co. | Thomas R. Glock | | |
| 3 | Atlantic City Electric Company | James V. Petrella | Affirmative | |
| 3 | BC Hydro and Power Authority | Pat G. Harrington | Abstain | |
| 3 | Black Hills Power | Andy Butcher | Affirmative | |
| 3 | Bonneville Power Administration | Rebecca Berdahl | Affirmative | View |
| 3 | City of Tallahassee | Rusty S. Foster | | |
| 3 | City Public Service of San Antonio | Edwin Les Barrow | Affirmative | |
| 3 | Cleco Utility Group | Bryan Y Harper | Affirmative | |
| 3 | Commonwealth Edison Co. | Stephen Lesniak | Affirmative | |
| 3 | Consolidated Edison Co. of New York | Peter T Yost | Affirmative | |
| 3 | Consumers Energy | David A. Lapinski | Negative | |
| 3 | Cowlitz County PUD | Russell A Noble | Affirmative | |
| 3 | Delmarva Power & Light Co. | Michael R. Mayer | Affirmative | |
| 3 | Detroit Edison Company | Kent Kujala | Affirmative | |
| 3 | Dominion Resources, Inc. | Jalal (John) Babik | Affirmative | |
| 3 | Douglas County PUD #1 | Jeff Johnson | | |
| 3 | Duke Energy Carolina | Henry Ernst-Jr | Negative | View |
| 3 | Entergy Services, Inc. | Matt Wolf | Negative | View |
| 3 | FirstEnergy Solutions | Joanne Kathleen Borrell | Negative | View |
| 3 | Florida Power Corporation | Lee Schuster | Negative | |
| 3 | Georgia Power Company | Leslie Sibert | Negative | View |
| 3 | Grays Harbor PUD | Wesley W Gray | Affirmative | |
| 3 | Great River Energy | Sam Kokkinen | | |
| 3 | Gulf Power Company | Gwen S Frazier | Negative | View |
| 3 | Hydro One Networks, Inc. | Michael D. Penstone | Affirmative | |
| 3 | JEA | Garry Baker | Negative | View |
| 3 | Kansas City Power & Light Co. | Charles Locke | Negative | View |
| 3 | Kissimmee Utility Authority | Gregory David Woessner | | |
| 3 | Lincoln Electric System | Bruce Merrill | Affirmative | |
| 3 | Louisville Gas and Electric Co. | Charles A. Freibert | Affirmative | |
| 3 | Manitoba Hydro | Jamie Hall | Affirmative | |
| 3 | MidAmerican Energy Co. | Thomas C. Mielnik | Affirmative | |
| 3 | Mississippi Power | Don Horsley | Negative | View |
| 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 | Affirmative | |
| 3 | Orlando Utilities Commission | Ballard Keith Mutters | Affirmative | |
| 3 | PacifiCorp | John Apperson | Affirmative | |
| 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 | Negative | |
| 3 | Public Service Electric and Gas Co. | Jeffrey Mueller | Negative | View |
| 3 | Public Utility District No. 2 of Grant County | Greg Lange | Affirmative | |
| 3 | Salt River Project | John T. Underhill | Affirmative | |
| 3 | San Diego Gas & Electric | Scott Peterson | | |
| 3 | Santee Cooper | Zack Dusenbury | Negative | View |
| 3 | Seattle City Light | Dana Wheelock | Affirmative | |
| 3 | Southern California Edison Co. | David Schiada | Affirmative | |
| 3 | Tampa Electric Co. | Ronald L. Donahay | Affirmative | |
| 3 | Turlock Irrigation District | Casey Hashimoto | Affirmative | |

| | | | | |
|---|---|-----------------------|-------------|----------------------|
| 3 | Wisconsin Electric Power Marketing | James R. Keller | Affirmative | |
| 3 | Xcel Energy, Inc. | Michael Ibold | Negative | View |
| 4 | Alliant Energy Corp. Services, Inc. | Kenneth Goldsmith | Affirmative | |
| 4 | American Municipal Power - Ohio | Kevin L Holt | Affirmative | |
| 4 | Consumers Energy | David Frank Ronk | Negative | |
| 4 | Detroit Edison Company | Daniel Herring | Affirmative | |
| 4 | Eugene Water & Electric Board | Dean Ahlsten | Abstain | |
| 4 | Georgia System Operations Corporation | Guy Andrews | | |
| 4 | Illinois Municipal Electric Agency | Bob C. Thomas | Abstain | |
| 4 | Integrus Energy Group, Inc. | Christopher Plante | 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 | Negative | View |
| 4 | Old Dominion Electric Coop. | Mark Ringhausen | Negative | View |
| 4 | Public Utility District No. 1 of Douglas County | Henry E. LuBean | Affirmative | |
| 4 | Sacramento Municipal Utility District | Dilip Mahendra | Affirmative | |
| 4 | Seattle City Light | Hao Li | Affirmative | |
| 4 | Seminole Electric Cooperative, Inc. | Steven R. Wallace | Affirmative | |
| 4 | Wisconsin Energy Corp. | Anthony Jankowski | Affirmative | |
| 5 | AEP Service Corp. | Brock Ondayko | Affirmative | |
| 5 | Amerenue | Sam Dwyer | Negative | |
| 5 | Avista Corp. | Edward F. Groce | Affirmative | |
| 5 | BC Hydro and Power Authority | Clement Ma | Affirmative | |
| 5 | Black Hills Corp | George Tatar | Affirmative | |
| 5 | Bonneville Power Administration | Francis J. Halpin | Affirmative | View |
| 5 | Calpine Corporation | John Brent Hebert | | |
| 5 | City of Tallahassee | Alan Gale | Affirmative | |
| 5 | Cleco Power LLC | Grant Bryant | Affirmative | |
| 5 | Colmac Clarion/Piney Creek LP | Harvie D. Beavers | Affirmative | View |
| 5 | Constellation Generation Group | Michael F. Gildea | Affirmative | |
| 5 | Consumers Energy | James B Lewis | Negative | View |
| 5 | Dairyland Power Coop. | Warren Schaefer | Affirmative | View |
| 5 | Detroit Edison Company | Ronald W. Bauer | Affirmative | |
| 5 | Dominion Resources, Inc. | Mike Garton | Affirmative | |
| 5 | Duke Energy | Robert Smith | Negative | |
| 5 | Dynegy | Greg Mason | Affirmative | |
| 5 | East Kentucky Power Coop. | Stephen Ricker | | |
| 5 | Entergy Corporation | Stanley M Jaskot | Negative | View |
| 5 | Exelon Nuclear | Michael Korchynsky | Affirmative | |
| 5 | FirstEnergy Solutions | Kenneth Dresner | | |
| 5 | FPL Energy | Benjamin Church | Negative | |
| 5 | Great River Energy | Cynthia E Sulzer | | |
| 5 | JEA | Donald Gilbert | Negative | View |
| 5 | Kansas City Power & Light Co. | Scott Heidtbrink | Negative | View |
| 5 | Liberty Electric Power LLC | Daniel Duff | | |
| 5 | Lincoln Electric System | Dennis Florom | Affirmative | |
| 5 | Louisville Gas and Electric Co. | Charlie Martin | Affirmative | |
| 5 | Luminant Generation Company LLC | Mike Laney | Affirmative | |
| 5 | Manitoba Hydro | Mark Aikens | Affirmative | |
| 5 | MidAmerican Energy Co. | Christopher Schneider | Affirmative | |
| 5 | New York Power Authority | Gerald Mannarino | Affirmative | |
| 5 | Northern Indiana Public Service Co. | Michael K Wilkerson | Affirmative | |
| 5 | Northern States Power Co. | Liam Noailles | Negative | View |
| 5 | Oglethorpe Power Corporation | Scott McGough | Negative | |
| 5 | Orlando Utilities Commission | Richard Kinan | Affirmative | |
| 5 | Pacific Gas and Electric Company | Richard J. Padilla | Affirmative | |
| 5 | PacifiCorp Energy | David Godfrey | Affirmative | |
| 5 | Portland General Electric Co. | Gary L Tingley | Affirmative | |
| 5 | PowerSouth Energy Cooperative | Tim Hattaway | Negative | |
| 5 | PPL Generation LLC | Mark A. Heimbach | Negative | View |
| 5 | Progress Energy Carolinas | Wayne Lewis | Negative | |
| 5 | PSEG Power LLC | Thomas Piascik | Negative | View |
| 5 | Reedy Creek Energy Services | Bernie Budnik | | |
| 5 | RRI Energy | Thomas J. Bradish | Negative | View |
| 5 | Salt River Project | Glen Reeves | Affirmative | |
| 5 | Seattle City Light | Michael J. Haynes | Affirmative | |
| 5 | Seminole Electric Cooperative, Inc. | Brenda K. Atkins | Affirmative | |

| | | | | |
|----|--|------------------------------|-------------|------|
| 5 | South California Edison Company | Ahmad Sanati | Affirmative | |
| 5 | South Carolina Electric & Gas Co. | Richard Jones | | |
| 5 | South Mississippi Electric Power Association | Jerry W Johnson | Affirmative | |
| 5 | Southeastern Power Administration | Douglas Spencer | Abstain | |
| 5 | Southern Company Generation | William D Shultz | Negative | View |
| 5 | Tampa Electric Co. | Frank L Busot | Affirmative | |
| 5 | U.S. Army Corps of Engineers Northwestern Division | Karl Bryan | Affirmative | |
| 5 | U.S. Bureau of Reclamation | Martin Bauer | Affirmative | |
| 5 | Wisconsin Electric Power Co. | Linda Horn | Affirmative | |
| 5 | Wisconsin Public Service Corp. | Leonard Rentmeester | | |
| 6 | AEP Marketing | Edward P. Cox | Affirmative | |
| 6 | Ameren Energy Marketing Co. | Jennifer Richardson | Negative | |
| 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 | Affirmative | View |
| 6 | Duke Energy Carolina | Walter Yeager | Negative | |
| 6 | Entergy Services, Inc. | Terri F Benoit | Negative | View |
| 6 | Eugene Water & Electric Board | Daniel Mark Bedbury | Affirmative | |
| 6 | Exelon Power Team | Pulin Shah | Affirmative | |
| 6 | FirstEnergy Solutions | Mark S Travaglianti | Negative | View |
| 6 | Great River Energy | Donna Stephenson | | |
| 6 | Kansas City Power & Light Co. | Thomas Saitta | Negative | View |
| 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 | Northern Indiana Public Service Co. | Joseph O'Brien | Affirmative | |
| 6 | PacifiCorp | Gregory D Maxfield | Affirmative | |
| 6 | PP&L, Inc. | Thomas Hyzinski | Negative | |
| 6 | Progress Energy | James Eckelkamp | Negative | |
| 6 | PSEG Energy Resources & Trade LLC | James D. Hebson | Negative | View |
| 6 | Public Utility District No. 1 of Chelan County | Hugh A. Owen | Affirmative | |
| 6 | RRI Energy | Trent Carlson | Negative | View |
| 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 | Tampa Electric Co. | Heidi Giustiniani | Affirmative | |
| 6 | Xcel Energy, Inc. | David F. Lemmons | Negative | View |
| 8 | JDRJC Associates | Jim D. Cyrulewski | Affirmative | |
| 8 | Other | Michehl R. Gent | Affirmative | |
| 8 | Utility Services LLC | Brian Evans-Mongeon | Affirmative | |
| 8 | Utility System Effeciencies, Inc. (USE) | Robert L Dintelman | Affirmative | |
| 8 | Volkman Consulting, Inc. | Terry Volkman | Affirmative | |
| 9 | California Energy Commission | William Mitchell Chamberlain | Affirmative | |
| 9 | Commonwealth of Massachusetts Department of Public Utilities | Donald E. Nelson | Affirmative | |
| 9 | National Association of Regulatory Utility Commissioners | Diane J. Barney | Affirmative | |
| 9 | New York State Department of Public Service | Thomas G Dvorsky | Affirmative | |
| 9 | North Carolina Utilities Commission | Kimberly J. Jones | Negative | |
| 9 | Oregon Public Utility Commission | Jerome Murray | Abstain | |
| 9 | Public Service Commission of South Carolina | Philip Riley | Affirmative | |
| 10 | Electric Reliability Council of Texas, Inc. | Kent Saathoff | Affirmative | |
| 10 | Florida Reliability Coordinating Council | Linda Campbell | Affirmative | |
| 10 | Midwest Reliability Organization | Dan R Schoenecker | Affirmative | |
| 10 | New York State Reliability Council | Alan Adamson | Affirmative | |
| 10 | Northeast Power Coordinating Council, Inc. | Guy V. Zito | Affirmative | |
| 10 | ReliabilityFirst Corporation | Jacquie Smith | Affirmative | |
| 10 | SERC Reliability Corporation | Carter B. Edge | Affirmative | View |
| 10 | Western Electricity Coordinating Council | Louise McCarren | Affirmative | |
| | | | | |



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