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Disturbance Monitoring SAR Drafting Team

American Electric Power Offices
700 Morrison Road
Gahanna, Ohio 43230
(614) 552-1660

May 2, 2007 8 a.m.–5 p.m. Eastern Time
WebEx and Conference Call
☎ Consortium conference server at phone number 1(732) 694-2061
Conference code is 1160050207
WebEx Meeting number: 719 661 907
WebEx Meeting password: standards

May 3, 2007 8 a.m.–3 p.m. Eastern Time
WebEx and Conference Call
☎ Consortium conference server at phone number 1(732) 694-2061
Conference code is 1160050307
WebEx Meeting number: 714 084 139
WebEx Meeting password: standards

Agenda

1) Introductions/Attendance

David Taylor will welcome the Standard Authorization Request (SAR) Drafting Team members and guests for Project 2007-11 Disturbance Monitoring (see roster - **Attachment 1**).

Navin B. Bhatt — American Electric Power (Chair)
Steven Myers — Electric Reliability Council of Texas, Inc.
Alan D. Baker — Florida Power & Light Company
Larry Brusseau — Midwest Reliability Organization
Jim Ingleson — New York Independent System Operator
Jeffrey M. Pond — National Grid
Daniel J. Hansen — Reliant Energy, Inc.
Robert D. Johnson — Allegheny Power
Robert (Bob) Millard — Reliability*First* Corporation
Sudhir Thakur — Exelon Nuclear
Felix Amarh — Georgia Transmission Corporation
Larry E. Smith — Alabama Power Company
Richard Dernbach — Los Angeles Department of Water & Power
Kenneth Martin — Bonneville Power Administration
David Taylor — North American Electric Reliability Corporation

2) Antitrust Compliance Guidelines

David Taylor will review the NERC Antitrust Compliance Guidelines provided in **Attachment 2**. It is NERC's policy and practice to obey the antitrust laws and to avoid all conduct that unreasonably restrains competition. This policy requires the avoidance of any conduct that violates, or that might appear to violate, the antitrust laws. Among other things, the antitrust laws forbid any agreement between or among competitors regarding prices, availability of service, product design, terms of sale, division of markets, allocation of customers or any other activity that unreasonably restrains competition. It is the responsibility of every NERC participant and employee who may in any way affect NERC's compliance with the antitrust laws to carry out this commitment.

3) Review Drafting Team Objectives:

a) Ensure all team members know what the Standards Committee expects of them (**Attachment 3a**) – David Taylor

b) Review SAR (**Attachment 3b**) – David Taylor

c) Review project schedule (**Attachment 3c**) – David Taylor

4) Draft Responses

Draft responses to each comment submitted on the first posting of the SAR (to be supplied) – Navin Bhatt

5) Modify SAR

Modify the SAR based on discussion of comments submitted on the first posting of the SAR – Navin Bhatt

6) SAR Comment Form

Draft a SAR Comment Form for the next posting (if needed) – Navin Bhatt

7) Summarize action items – David Taylor

8) Next Steps

May 31, 2007 1–5 p.m. Eastern Time –Webcast and conference call to review final edits before submitting the consideration of comments, second draft of SAR, and SAR Comment Form to Standards Committee.

Disturbance Monitoring SAR Drafting Team

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NERC Antitrust Compliance Guidelines

I. General

It is NERC's policy and practice to obey the antitrust laws and to avoid all conduct that unreasonably restrains competition. This policy requires the avoidance of any conduct that violates, or that might appear to violate, the antitrust laws. Among other things, the antitrust laws forbid any agreement between or among competitors regarding prices, availability of service, product design, terms of sale, division of markets, allocation of customers or any other activity that unreasonably restrains competition.

It is the responsibility of every NERC participant and employee who may in any way affect NERC's compliance with the antitrust laws to carry out this commitment.

Antitrust laws are complex and subject to court interpretation that can vary over time and from one court to another. The purpose of these guidelines is to alert NERC participants and employees to potential antitrust problems and to set forth policies to be followed with respect to activities that may involve antitrust considerations. In some instances, the NERC policy contained in these guidelines is stricter than the applicable antitrust laws. Any NERC participant or employee who is uncertain about the legal ramifications of a particular course of conduct or who has doubts or concerns about whether NERC's antitrust compliance policy is implicated in any situation should consult NERC's General Counsel immediately.

II. Prohibited Activities

Participants in NERC activities (including those of its committees and subgroups) should refrain from the following when acting in their capacity as participants in NERC activities (e.g., at NERC meetings, conference calls and in informal discussions):

- Discussions involving pricing information, especially margin (profit) and internal cost information and participants' expectations as to their future prices or internal costs.
- Discussions of a participant's marketing strategies.
- Discussions regarding how customers and geographical areas are to be divided among competitors.
- Discussions concerning the exclusion of competitors from markets.
- Discussions concerning boycotting or group refusals to deal with competitors, vendors or suppliers.

III. Activities That Are Permitted

From time to time decisions or actions of NERC (including those of its committees and subgroups) may have a negative impact on particular entities and thus in that sense adversely impact competition. Decisions and actions by NERC (including its committees and subgroups) should only be undertaken for the purpose of promoting and maintaining the reliability and

adequacy of the bulk power system. If you do not have a legitimate purpose consistent with this objective for discussing a matter, please refrain from discussing the matter during NERC meetings and in other NERC-related communications.

You should also ensure that NERC procedures, including those set forth in NERC's Certificate of Incorporation and Bylaws are followed in conducting NERC business. Other NERC procedures that may be applicable to a particular NERC activity include the following:

- Reliability Standards Process Manual
- Organization and Procedures Manual for the NERC Standing Committees
- System Operator Certification Program

In addition, all discussions in NERC meetings and other NERC-related communications should be within the scope of the mandate for or assignment to the particular NERC committee or subgroup, as well as within the scope of the published agenda for the meeting.

No decisions should be made nor any actions taken in NERC activities for the purpose of giving an industry participant or group of participants a competitive advantage over other participants. In particular, decisions with respect to setting, revising, or assessing compliance with NERC reliability standards should not be influenced by anti-competitive motivations.

Subject to the foregoing restrictions, participants in NERC activities may discuss:

- Reliability matters relating to the bulk power system, including operation and planning matters such as establishing or revising reliability standards, special operating procedures, operating transfer capabilities, and plans for new facilities.
- Matters relating to the impact of reliability standards for the bulk power system on electricity markets, and the impact of electricity market operations on the reliability of the bulk power system.
- Proposed filings or other communications with state or federal regulatory authorities or other governmental entities.
- Matters relating to the internal governance, management and operation of NERC, such as nominations for vacant committee positions, budgeting and assessments, and employment matters; and procedural matters such as planning and scheduling meetings.

Any other matters that do not clearly fall within these guidelines should be reviewed with NERC's General Counsel before being discussed.

Project 2007-11
Disturbance Monitoring

SAR Drafting Team Kick-off Meeting
American Electric Power Offices
Gahanna, OH
May 2, 2007

David W. Taylor
Manager of Regional Standards

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Topics

- Review of standards processes and roles
- Drafting team responsibilities and decision-making
- Work plan and improvements to standards
- Drafting team products and tools
  - Standard authorization request (SAR)
  - Reliability standard
  - Comment form
  - Response to comments
  - Implementation plan
  - Field test
  - On-line resources

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Standards Process Overview

Drafting Team
SC Approval
After DT Done

Authorize Posting SAR

Post for Comment

Appoint SAR DT

Revise

Authorize Standard

Appoint SDT

Draft Standard

Post for Comment

Revise

Field Test

Ballot

Board Adopts

Regulatory Agencies Approve

Implement

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Key Roles in Standards Process

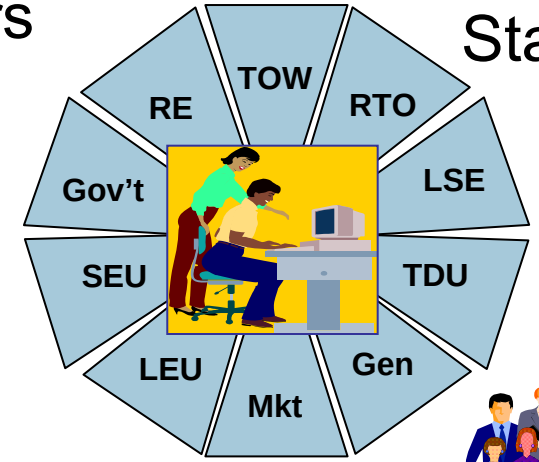
Board of Trustees

Regulators

Stakeholders

Standards Committee

Standards Staff



Ballot Body

Drafting Teams

Ballot Pools

Drafting Teams

- SAR drafting teams
  - SC appoints as needed to assist requester with SAR development and response to comments
  - Requester ‘owns’ request until authorized for development
- Standard drafting teams
  - SC appoints expert team to draft standard
  - Works on behalf of stakeholders
  - Reports to Standards Committee
- Considerations
  - Necessary expertise and competencies provided
  - Balanced and inclusive perspectives
  - Efficient use of industry resources

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Responsibilities of Chair

- Leads the Team in a neutral capacity
- Ensures the Team makes progress
- Conducts meetings of the Team
- Represents the Team to other bodies
- Reports progress to the SAC

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Responsibilities of all Members

- Provide knowledge and expertise
- Participate actively
- Provide contributions, drafts, comments
- Attend meetings
- Participate in Industry Forums
- Provide feedback on Standards Development activities

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Responsibilities of Coordinator

- Advises the Team in a neutral capacity
- Monitors, facilitates, reports on, ensures active progress
- Prepares and circulates Team documents
- Maintains membership records
- Prepares for and assists at meetings

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Standard Authorization Request (SAR)

- Establishes **purpose (reliability-related), scope and applicability** of proposed standard action
  - Keep revising until you have consensus on **purpose (reliability-related), scope, applicability**
- Can be used to add, modify or retire standards
- Requestor ‘owns’ SAR and has final say until SAR is finalized

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Comment Forms

- Ask very pointed questions
- If you've made changes, ask for feedback
- Ask for agreement on:
  - **Purpose** (reliability-related need for SAR)
  - **Scope**
  - **Applicability**
- Ask for known Regional Variances

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Responding to Comments

- Scan for ‘sense’ of stakeholders’ reactions
- Consider & respond to **every** comment
  - Responses must be respectful
  - Responses should provide a justification for making/not making the requested change
- Develop ‘summary consideration’ for each question
- Add overview of changes made – including issues resolved and those unresolved
- Make conforming changes to SAR

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Report to SC when Finished:

- SAR complete – consensus on **purpose (reliability-related need), scope & applicability**
- SAR withdrawn – no consensus

- Provide SC with:
  - Summary of unresolved strong minority issues
  - Link to all work
  - Notice that DT has responded to all comments
  - Notice that all commenters apprised of appeals process

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Preserve ‘Open’ Process

- ‘Standards under Development’ - stakeholder review and comment
  - Drafts of SARs
  - Reference Documents
  - Comment Forms
  - Responses to Comments
  - Conference call/Web Ex Schedule
- ‘Related Files’ drafting team use
  - Agendas and meeting notes (at least 5 days before/no more than 5 days after meeting)

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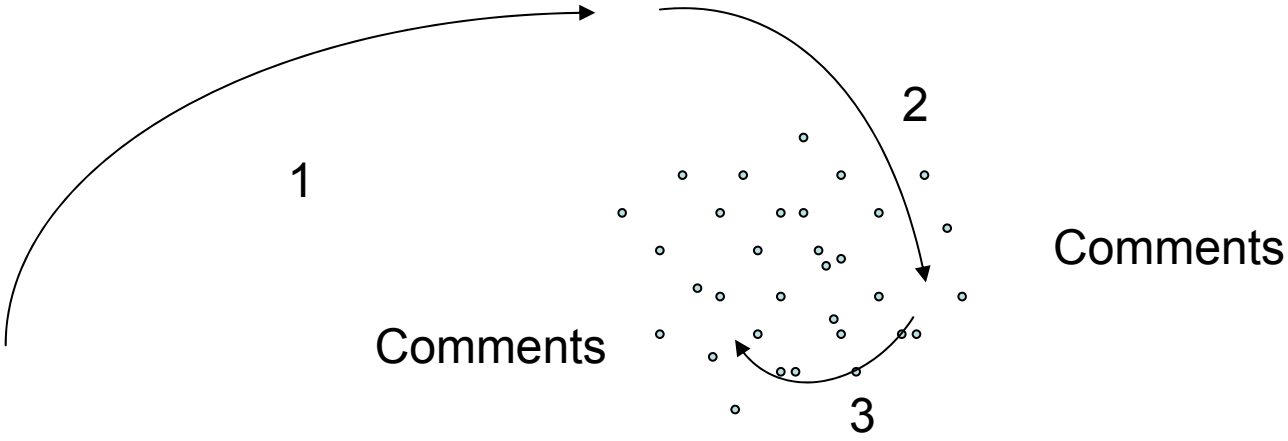
What Is “Consent of the Industry?”



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The Climb To Really Excellent Reliability Standards

Camp ‘Version 0’

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Benchmarks of Excellent Standards

1. Applicability
2. Purpose
3. Performance requirements
4. Measurability
5. Technical basis
6. Completeness
7. Known consequences
8. Clear language
9. Practicality
10. Consistent terminology

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Standards Work Plan: Overview

- Filed 12/1/06 in U.S. and 12/7/06 in Canada
- *Dynamic* management tool
  - Communicate vision
  - Coordinate work
  - Measure progress
- 31 projects grouped by subject matter
- Aggressive but achievable schedule
- Detailed project descriptions listing ‘to dos’
- More efficient use of drafting teams
- Integrates ‘fill-in-the-blank’ plan

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Projects Starting in 2006

- 2006-01 System Personnel Training
- 2006-02 Transmission Assessments & Plans
- 2006-03 System Restoration and Blackstart
- 2006-04 Backup Facilities
- 2006-05 Phase III & IV Field Tests
- 2006-06 Reliability Coordination
- 2006-07 ATC, TTC, CBM, and TRM
- 2006-08 Transmission Loading Relief
- 2006-09 Facility Ratings

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Projects Starting in 2007

- 2007-01 Underfrequency Load Shedding
- 2007-02 Personnel Communications
- 2007-03 TOP and BA Operations
- 2007-04 Certifying System Operators
- 2007-05 Balancing Authority Controls
- 2007-06 System Protection
- 2007-07 Vegetation Management
- 2007-08 Emergency Operations
- 2007-09 Generator Verification
- 2007-10 Modeling Data
- 2007-11 Disturbance Monitoring

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Projects Starting in 2008

- 2008-01 Voltage and Reactive Control
- 2008-02 Undervoltage Load Shedding
- 2008-03 Demand Data
- 2008-04 Protection Systems
- 2008-05 Cyber Security
- 2008-06 Phasor Measurement Units
- 2008-07 Resource Adequacy Assessments

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Projects Starting in 2009/10

- 2009-01 Disturbance/Sabotage Reporting
- 2009-02 Facility Connections
- 2009-03 Interchange Information
- 2010-01 Support Personnel Training

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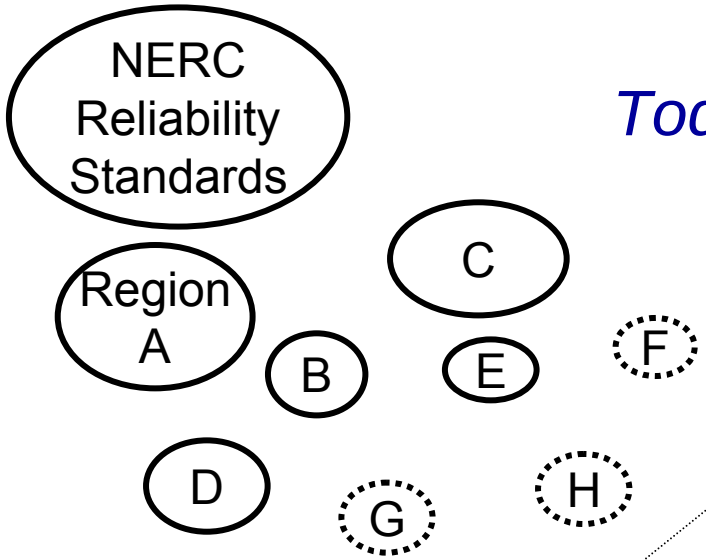
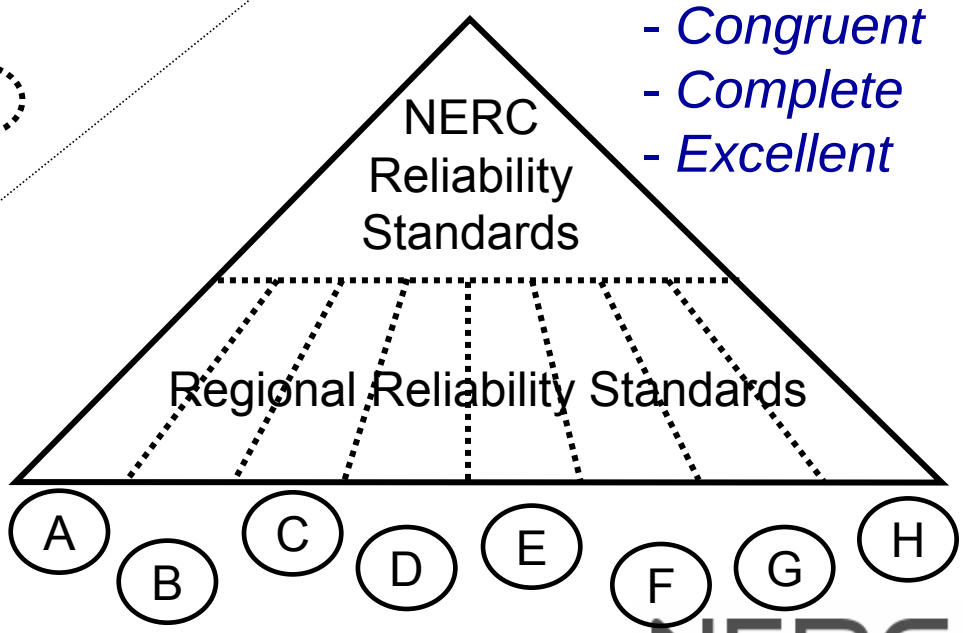
Vision for Regional Standards



Today

ERO Vision:
NERC & regional standards are
- Consistent
- Congruent
- Complete
- Excellent



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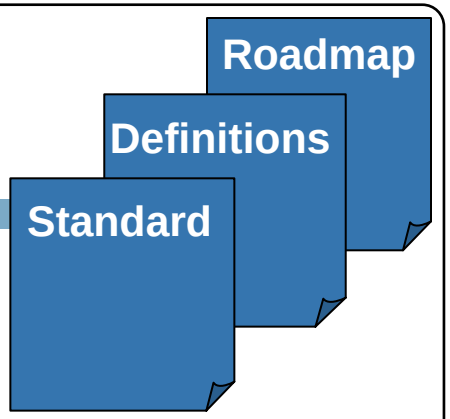
Standard



- Standard roadmap
- Definitions
- Standard
  - Requirements – risk factors and measures
- Compliance personnel add (SDT is backup)
  - Monitoring responsibility
  - Monitoring period and reset timeframe
  - Data retention
  - Other compliance information
  - Severity levels for requirements

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Standard Roadmap

Roadmap

- Shows where DT is in standard development progress
  - Lists steps completed
  - Lists steps to be completed with anticipated dates
  - Must be up to date when drafts posted
- Schedule provided to SC in progress reports
- Removed when standard is approved by BOT

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Standard Definitions

Definitions

- Limit terms to those with unique definitions
- Capitalize already defined terms
- Don’t include explanatory information

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Introduction Section

Standard

- Title – Keep it short; main topic and modifiers; minimize verbs
- Purpose – from SAR (condense into a sentence or two); clear indication of reliability value/benefit; no ‘shall’ or ‘must’ requirements
- Applicability:
  - Functions - lists the “functional entities” that must comply with the standard’s requirements along with any specific qualifications (i.e., that own UVLS programs)
  - Facilities – lists any qualifications to limit the scope of facilities addressed (i.e., 100 kV and above)

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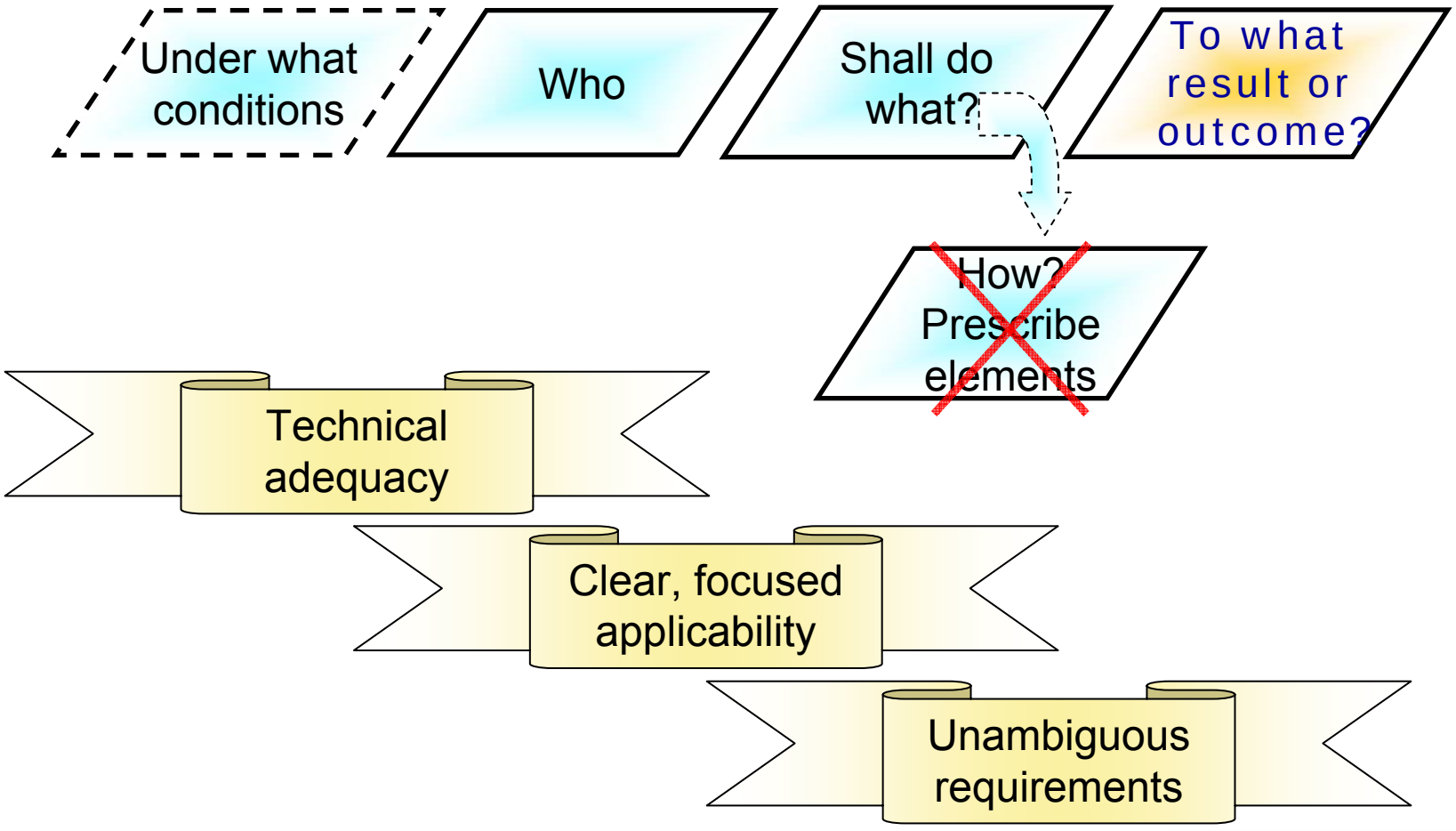
Excellent Reliability Standards



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Requirements Section

Standard

- Requirements specifically state the technical, performance, and preparedness details that each entity must meet using the NERC reliability benchmark.
- The benchmark for a performance requirement is measured by the question: "Who shall do what, under what conditions and to what level, for what reliability result?" The benchmark breaks down into 5 construction elements that follow the sequence below:

  Who (1) + "***shall***" do what (2) + under what conditions (3) and to what level (4) + for what expected reliability result (5)?

- The word ***shall*** is used before the verb to modify the meaning of the main verb, in the case of the NERC reliability standards, to expresses ***necessity***. Using the 5 construction elements of the benchmark – with one and two in sequence – ensures that the performance requirement is written in active voice and clearly states the expected reliability objective.

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Requirements

Standard

- Write in “active voice” (“shall be” is passive)
- Identify any qualifying conditions (if any) under which the performance is required
- Identify the responsible entity or entities
- Include the word “shall”
- Identify the required performance or outcome
- Identify what the performance will achieve
- Write as simply as possible
  - Avoid use of “negatives”
- Avoid use of ambiguous or subjective terms
- Don’t tell “how”

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Avoid Use of Ambiguous Words

Standard

- Adequate
- Data
- Immediately
- Timely
- Detailed
- Sufficient
- Comprehensive
- As appropriate
- Coordinate

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Violation Risk Factors

Standard

- High – violation could lead to cascading failures
- Medium – violation could have an adverse impact on system conditions capability, or situational awareness
- Lower – violation would not be expected to affect the electrical state or capability of the bulk power system, or the ability to effectively monitor and control the bulk power system

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Measures

Measures

C. Measure

M1. Each standard shall include one or more measures that will be used to assess performance and outcomes for the purpose of determining compliance with requirements.

- The DT should write measurements that identify how a third party or auditor would measure required performance or outcomes, e.g., compliance, including I identification of each entity to which the measure applies.
- Each measure shall be tangible, objective, and as practical as possible

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Compliance Elements

- Compliance Monitoring – who will be monitor?
- Identify how to demonstrate compliance:
  - Self-certification
  - Periodic reporting
  - Exception reporting
  - Triggered investigation
  - Spot reviews
  - Periodic audits
- Performance Monitoring & Reset Period
  - Time period for measuring performance & then re-starting measurement period
- Data Retention
  - What data must be kept & for how long & by whom

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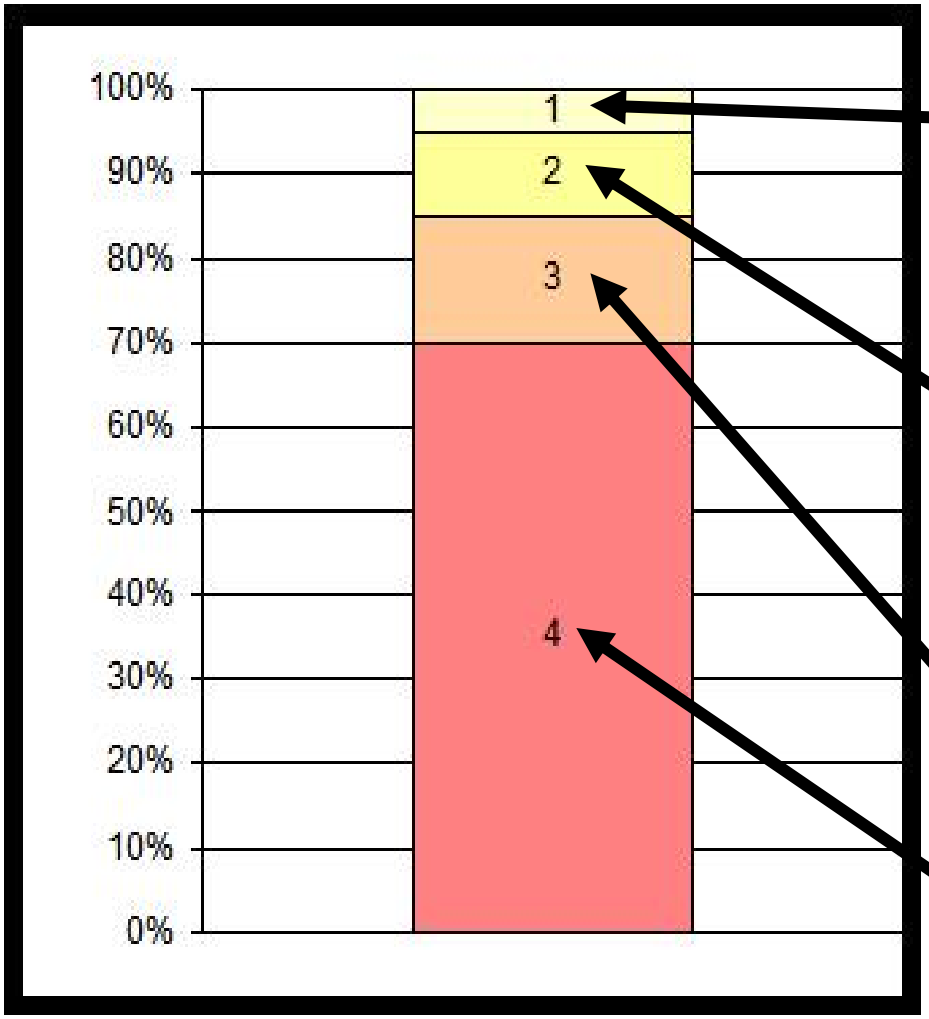
Violation Severity Levels



- Level 1: mostly compliant with minor exceptions
- Level 2: mostly compliant with significant exceptions
- Level 3: marginal performance or results
- Level 4: poor performance or results

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Other Improvements

- Review technical adequacy and performance metrics
- Address ‘fill-in-the-blank’ standards
- Reorganize, streamline standards
- Merge in organization certification standards
- References
- Variances

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Comment Forms

- Ask very pointed questions
- If you've made changes, ask for feedback
- Ask for feedback on implementation plan
- Ask if field testing is needed
- Ask if there are any Variances
- Ask if there are any known conflicts with existing regulations

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Responding to Comments

- Read through comments to get a ‘sense’ of stakeholders’ reactions
- Consider and respond to **every** comment
  - Responses must be respectful
  - Responses should provide a justification
- Develop a ‘summary response’ to each form question
- Add an overview of the changes made – including the issues resolved and those that weren’t resolved
- Make conforming changes to the standard
- Can’t expand scope of SAR but can develop a standard that is smaller than the scope of the SAR – if needed, revise the SAR to expand the scope

Field Tests

- As needed to validate concepts, methods, measures in a standard
- Drafting team develops field test plan
- Standards Committee approves and oversees field test
- Complete tests before ballot

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Implementation Plan

- Part of final standard going to ballot
- Must be posted for comment at least once
- Includes
  - Proposed effective date(s) and implementation into compliance program
  - Withdrawal or modification of existing standards
  - Any tools, training, or other implementation considerations

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Questions?

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Standard Authorization Request Form

Title of Proposed Standard:	Disturbance Monitoring (Project 2007-11)
Request Date:	March 1, 2007

SAR Requester Information

		SAR Type (Check one box.)	
Name:	Robert W. Millard on behalf of the Regional Reliability Standards Working Group		
Company:	Reliability*First* Corporation	☐	New Standard
Telephone:	(708) 588-9886	☒	Revision to Existing Standard
Fax:	(330) 456-3648	☐	Withdrawal of Existing Standard
E-mail:	bob.millard@rfirst.org	☐	Urgent Action

Purpose *(Describe the purpose of the proposed standard – what the standard will achieve in support of reliability.)*

To establish requirements for installation of Disturbance Monitoring Equipment (DME) and reporting of disturbance data to facilitate analyses of events and verify system models.

PRC-002 — Define and Document Disturbance Monitoring Equipment Requirements
PRC-018 — Disturbance Monitoring Equipment Installation and Data

PRC-002 was a Version 0 standard that was modified solely to add Phase III & IV Planning Measures; PRC-018 is a new standard developed as a translation of Phase III & IV Planning Measures. 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 and Mexico, 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.

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

1. Provide an adequate level of reliability for the North American bulk power systems — ensure 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 — ensure
   (a) the applicability to bulk power system owners, operators, and users, and as appropriate particular classes of facilities, is clearly defined,
   (b) the purpose, requirements, and measures are results-focused and unambiguous and
   (c) the consequences of violating the requirements are clear.
3. Consider comments received during the initial development of this set of standards and other comments received from ERO regulatory authorities and stakeholders as described in the Detailed Description section below.
4. Bring the standards into conformance with the latest version of the Reliability Standards Development Procedure and the ERO Rules of Procedure as described in Attachment 1 below.
5. Satisfy the standards procedure requirement for five-year review of the standards.

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

PRC-002 and PRC-018 were approved in 2006.

PRC-002 is one of four reliability standards identified by the Regional Reliability Standards Working Group as a standard that has some requirements that need to be defined by each regional entity in a regional standard. The standard drafting team (SDT) will review PRC-002 and each of the current regional programs developed in accordance with that standard, including any other associated programs and/or requirements related to or contained with the disturbance monitoring program documentation. The SDT shall determine which requirements should be continent-wide requirements and which requirements should be included in regional standards.

The SDT shall consider comments and issues as described in the Detailed Description section and Attachment 1 below for drafting and including other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders through the standards development procedure, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards.

Reliability Functions

The Standard will Apply to the Following Functions (Check all applicable boxes.)		
☐	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.
☐	Balancing Authority	Integrates resource plans ahead of time, and maintains load-interchange-resource balance within a Balancing Authority Area and supports Interconnection frequency in real time.
☐	Interchange Coordinator	Ensures communication of interchange transactions for reliability evaluation purposes and coordinates implementation of valid and balanced interchange schedules between Balancing Authority Areas.
☐	Planning Coordinator	Assesses the longer-term reliability of its Planning Coordinator Area.
☐	Resource Planner	Develops a >one year plan for the resource adequacy of its specific loads within a Planning Coordinator area.
☐	Transmission Planner	Develops a >one year plan for the reliability of the interconnected Bulk Electric System within its portion of the Planning Coordinator area.
☐	Transmission Service Provider	Administers the transmission tariff and provides transmission services under applicable transmission service agreements (e.g., the pro forma tariff).
☒	Transmission Owner	Owns and maintains transmission facilities.
☒	Transmission Operator	Ensures the real-time operating reliability of the transmission assets within a Transmission Operator Area.
☐	Distribution Provider	Delivers electrical energy to the End-use customer.
☒	Generator Owner	Owns and maintains generation facilities.
☒	Generator Operator	Operates generation unit(s) to provide real and reactive power.
☐	Purchasing-Selling Entity	Purchases or sells energy, capacity, and necessary reliability-related services as required.
☐	Market Operator	Interface point for reliability functions with commercial functions.

Reliability and Market Interface Principles

Applicable Reliability Principles (Check all boxes that apply.)	
☒	1. Interconnected bulk power systems shall be planned and operated in a coordinated manner to perform reliably under normal and abnormal conditions as defined in the NERC Standards.
☒	2. The frequency and voltage of interconnected bulk power systems shall be controlled within defined limits through the balancing of real and reactive power supply and demand.
☒	3. Information necessary for the planning and operation of interconnected bulk power systems shall be made available to those entities responsible for planning and operating the systems reliably.
☐	4. Plans for emergency operation and system restoration of interconnected bulk power systems shall be developed, coordinated, maintained, and implemented.
☐	5. Facilities for communication, monitoring, and control shall be provided, used, and maintained for the reliability of interconnected bulk power systems.
☐	6. Personnel responsible for planning and operating interconnected bulk power systems shall be trained, qualified, and have the responsibility and authority to implement actions.
☐	7. The reliability of the interconnected bulk power systems shall be assessed, monitored, and maintained on a wide-area basis.
☐	8. Bulk power systems shall be protected from malicious physical or cyber attacks.
Does the proposed Standard comply with all of the following Market Interface Principles? *(Select 'yes' or 'no' from the drop-down box.)*	
Recognizing that reliability is an essential requirement of a robust North American economy:	
1. A reliability standard shall not give any market participant an unfair competitive advantage.	Yes
2. A reliability standard shall neither mandate nor prohibit any specific market structure.	Yes
3. A reliability standard shall not preclude market solutions to achieving compliance with that standard.	Yes
4. A reliability standard shall not require the public disclosure of commercially sensitive information. All market participants shall have equal opportunity to access commercially non-sensitive information that is required for compliance with reliability standards.	Yes

Detailed Description *(Provide enough detail so that an independent entity familiar with the industry could draft a standard based on this description.)*

1. The SDT shall consider the following comments (excerpted from NERC's Reliability Standards Development Plan: 2007-2009) which attempt to capture comments from the:
   - FERC NOPR (Docket # RM06-16-00 dated October 20, 2006),
   - FERC staff report dated May 11, 2006 concerning NERC standards submitted with ERO application, and
   - Regional Fill-in-the-Blank Team (RRSWG – a NERC working group involved with regional standards development).
   - Phase III & IV Standard Drafting Team
   - Violation Risk Factors Drafting Team

   PRC-002 Define and Document Disturbance Monitoring Equipment Requirements

   FERC NOPR
   - Commission will not propose to accept or remand this Reliability Standard until the ERO submits additional information related to the fill-in-the-blank aspects of this standard as further defined below under "Regional Fill-in-the-Blank Team Comments".

   FERC Staff Report
   - This standard designates RROs as the applicable entity. Staff is concerned about the appropriateness of RROs serving as the applicable entity in the new mandatory standards structure. These standards have been referred to as "fill-in-the-blank" standards (see comments under "Regional Fill-in-the-Blank Team Comments" below).

   Phase III/IV comments
   - There are no criteria that the RROs must use in specifying the process for identifying locations where DMEs are required (to be addressed when considering issues under "Regional Fill-in-the-Blank Team Comments" below).

   Violation Risk Factor Drafting Team Comments
   - R1 - This standard and all related sub requirements are after the fact data analysis.

   Regional Fill-in-the-Blank Team Comments
   - Determine what elements (if any) should be included in the North American standard and what elements should be included in the regional standards.
   - Development of regional standards needs to be coordinated with regional entities.
   - Regional entities should be notified to begin process for developing regional standards once the standard drafting team has determined what elements should be included in the continent-wide standard and what elements should be included in the regional standards.

   PRC-018 Disturbance Monitoring Equipment Installation and Data

   Violation Risk Factor Drafting Team Comments
   - R3.4, 3.5, 3.6, 3.7 – Requirements as written are ambiguous and need more clearly defined.

2. The SDT will bring the standards into conformance with the latest version of the Reliability Standards Development Procedure and the ERO Rules of Procedure as described in Attachment 1 below.

3. The SDT should also consider any other issues that were not completely captured but were stated or referenced in the above materials.

Related Standards

Standard No.	Explanation

Related SARs

SAR ID	Explanation

Regional Variances

Region	Explanation
ERCOT	
FRCC	
MRO	
NPCC	
RFC	
SERC	
SPP	
WECC	

Attachment 1

Excerpts from the *Reliability Standards Development Procedure Manual, Version 6* and the *ERO Rules of Procedure*:

(The drafting team will reference and follow, as appropriate, the following guidelines *(or later version as appropriate)* in determining what changes to make to the standards to bring them into conformance with these guidelines.)

Standard Review Guidelines

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

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' replace 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.

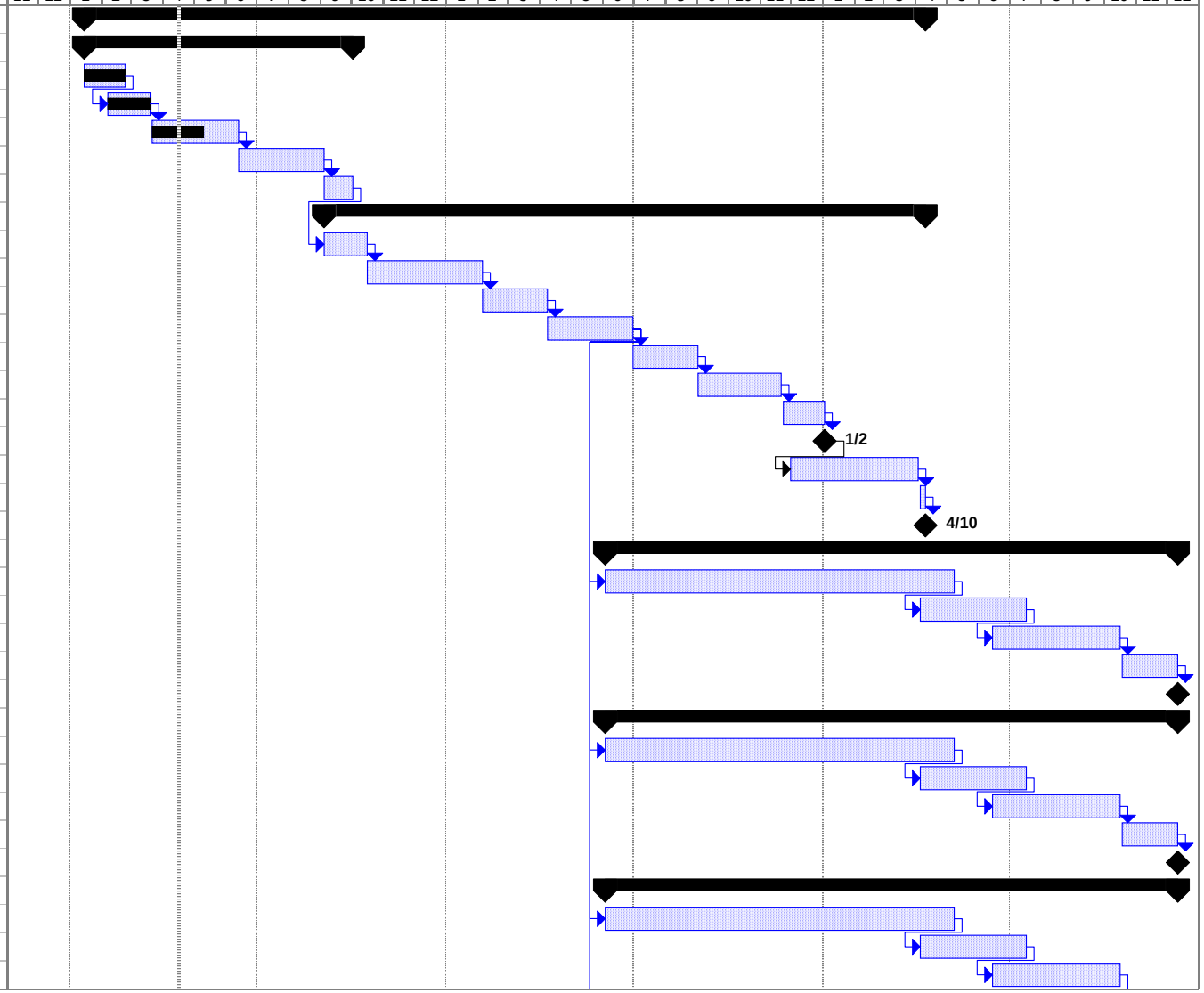
Associated Documents

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'.

Functional Model Version 3

Review the requirements against the latest descriptions of the responsibilities and tasks assigned to functional entities as provided in pages 13 through 53 of the draft Functional Model Version 3.

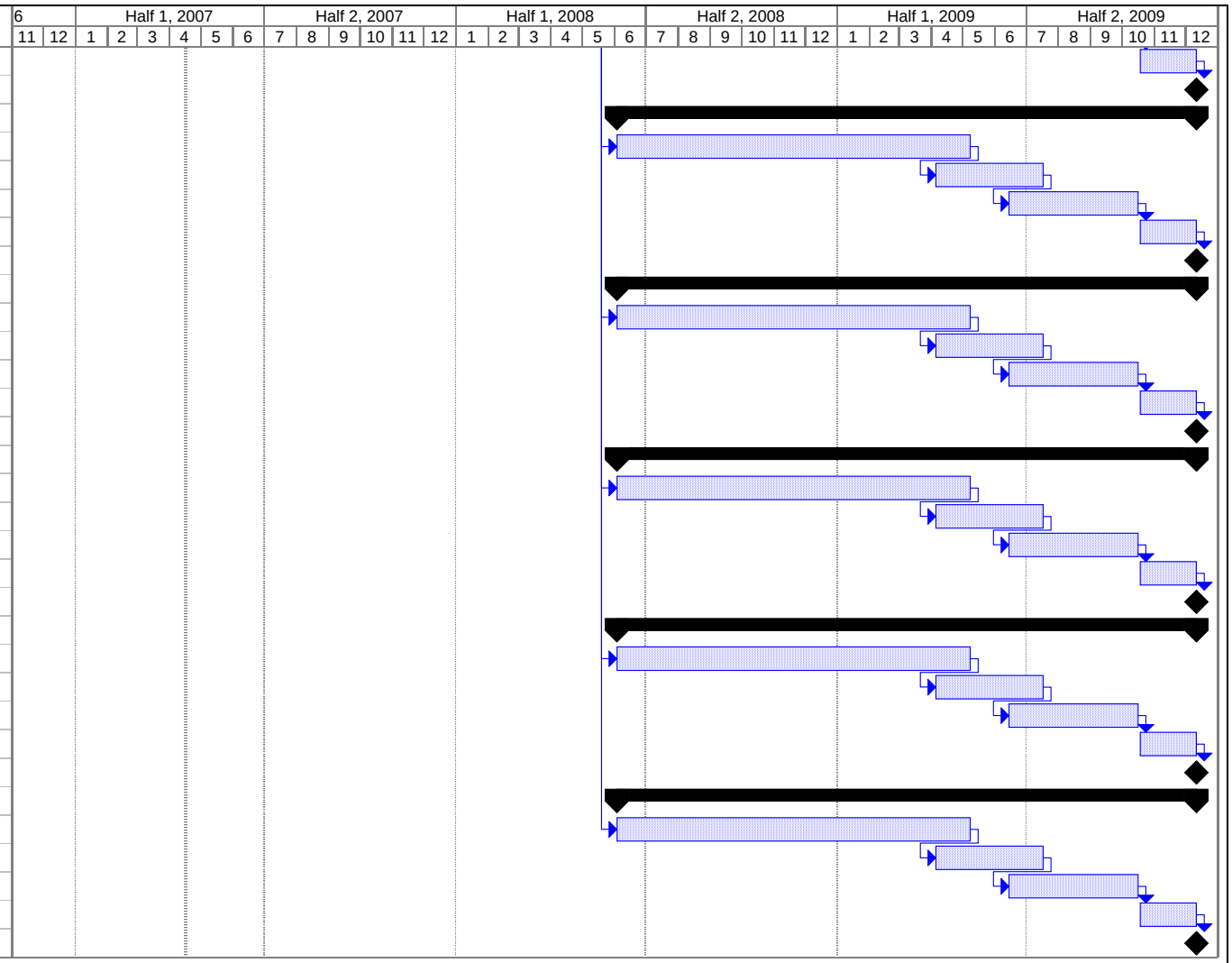
ID	Task Name
1	**NERC Standard Development for Project 2007-11**
2	**SAR Development and Finalization**
3	Step 1a - RRSWG Drafts SAR
4	Step 1b - Appoint SAR Drafting Team
5	Step 2a- SAR Posted for Comment
6	Step 2b - Address Comments
7	Step 3 - Authorization to Proceed by SAC
8	**Standard Development and Implementation**
9	Step 4 - Appoint Standard Drafting Team
10	Step 5a - Draft Standard
11	Step 6a - Solicit Public Comment
12	Step 5 b - Answer Comments and Redraft
13	Step 6b - Solicit Public Comment
14	Step 9 - Ballot/reballot
15	Step 10 - Submit to BOT Adoption
16	NERC BOT Adopt
17	Regulatory Approval
18	Step 11 - Implementation of Standard
19	NERC Standard Effective Data
20	**ERCOT Regional Standards Procedure**
21	RE Regional Standard Development
22	NERC Approval of Regional Standard
23	Regulatory Approval of Regional Standard
24	Implementation of Standard
25	RE Regional Standard Effective Date
26	**FRCC Regional Standards Procedure**
27	RE Regional Standard Development
28	NERC Approval of Regional Standard
29	Regulatory Approval of Regional Standard
30	Implementation of Standard
31	RE Regional Standard Effective Date
32	**MRO Regional Standards Procedure**
33	RE Regional Standard Development
34	NERC Approval of Regional Standard
35	Regulatory Approval of Regional Standard



Project: Project 2007-11 Disturbance Monitoring
Date: Mon 4/16/07

Task
Progress
Milestone
Summary
Rolled Up Task
Rolled Up Milestone
Rolled Up Progress
Split
External Tasks
Project Summary
Group By Summary

ID	Task Name
36	Implementation of Standard
37	RE Regional Standard Effective Date
38	**NPCC Regional Standards Procedure**
39	RE Regional Standard Development
40	NERC Approval of Regional Standard
41	Regulatory Approval of Regional Standard
42	Implementation of Standard
43	RE Regional Standard Effective Date
44	**RFC Regional Standards Procedure**
45	RE Regional Standard Development
46	NERC Approval of Regional Standard
47	Regulatory Approval of Regional Standard
48	Implementation of Standard
49	RE Regional Standard Effective Date
50	**SERC Regional Standards Procedure**
51	RE Regional Standard Development
52	NERC Approval of Regional Standard
53	Regulatory Approval of Regional Standard
54	Implementation of Standard
55	RE Regional Standard Effective Date
56	**SPP Regional Standards Procedure**
57	RE Regional Standard Development
58	NERC Approval of Regional Standard
59	Regulatory Approval of Regional Standard
60	Implementation of Standard
61	RE Regional Standard Effective Date
62	**WECC Regional Standards Procedure**
63	RE Regional Standard Development
64	NERC Approval of Regional Standard
65	Regulatory Approval of Regional Standard
66	Implementation of Standard
67	RE Regional Standard Effective Date



Project: Project 2007-11 Disturbance Monitoring
Date: Mon 4/16/07

Task
Progress
Milestone
Summary
Rolled Up Task
Rolled Up Milestone
Rolled Up Progress
Split
External Tasks
Project Summary
Group By Summary