

NERC
NORTH AMERICAN ELECTRIC
RELIABILITY CORPORATION

Project 2007-06.2

Phase 2 of System Protection Coordination
(Requirement revisions to PRC-001-1.1)

Industry Webinar
March 24, 2015

RELIABILITY | ACCOUNTABILITY

NERC
NORTH AMERICAN ELECTRIC
RELIABILITY CORPORATION

Standard Drafting Team

Member	Entity
Mark Peterson, Chair	Great River Energy
Michael Cruz-Montes, Vice Chair	CenterPoint Energy Houston Electric, LLC
Po Bun Ear	Hydro-Québec TransÉnergie
Scott Hayes	Pacific Gas & Electric
Mark Kuras	PJM Interconnection, LLC
Sam Mannan	Los Angeles Dept. of Water and Power (LADWP)
Yubaraj Sharma	Luminant Generation Company, LLC
Rui Da Shu	Northeast Power Coordinating Council
Scott Watts	Duke Energy Carolinas

2

RELIABILITY | ACCOUNTABILITY

NERC
NORTH AMERICAN ELECTRIC
RELIABILITY CORPORATION

Presenters

- Standard Drafting Team (SDT)
 - Mark Peterson, Chair
 - Michael Cruz-Montes, Vice Chair
- NERC staff
 - Scott Barfield-McGinnis, Standards Developer

3

RELIABILITY | ACCOUNTABILITY

NERC
NORTH AMERICAN ELECTRIC
RELIABILITY CORPORATION

Agenda

- Administrative Items
 - Antitrust and Disclaimers
 - Objectives
- PRC-001 Revisions
 - Requirements
 - Where to move requirements
- Closing Remarks
 - Going Forward
 - Questions & Answers Session (via chat)
 - Conclusion

4

RELIABILITY | ACCOUNTABILITY

NERC
NORTH AMERICAN ELECTRIC
RELIABILITY CORPORATION



Administrative Items

5

RELIABILITY | ACCOUNTABILITY

NERC
NORTH AMERICAN ELECTRIC
RELIABILITY CORPORATION

Antitrust Guidelines

- 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

6

RELIABILITY | ACCOUNTABILITY

NERC
NORTH AMERICAN ELECTRIC
RELIABILITY CORPORATION

Disclaimers

- **Public**
 - Participants are reminded that this meeting is public. Notice of the meeting was widely distributed. Participants should keep in mind that the audience may include members of the press and representatives of various governmental authorities, in addition to the expected participation by industry stakeholders.
- **Presentation Material**
 - Wording in this presentation is used for presentation purposes and may not reflect the official posted drafts of requirements or other language

7

RELIABILITY | ACCOUNTABILITY

NERC
NORTH AMERICAN ELECTRIC
RELIABILITY CORPORATION

Objectives

- **Webinar is intended to**
 - Communicate the drafting team revisions to requirements
 - Determine level of consensus to revisions
 - Obtain stakeholder feedback
- **Informal Question and Answer (Q&A)**
 - Multiple Q&A and polls will be held during webinar
 - Submit questions and comments via the chat feature
 - To help facilitate a productive webinar
 - Preface comments with "Comment:"
 - Preface questions with "Question:"
 - Some questions may require future team consideration

8

RELIABILITY | ACCOUNTABILITY

NERC
NORTH AMERICAN ELECTRIC
RELIABILITY CORPORATION

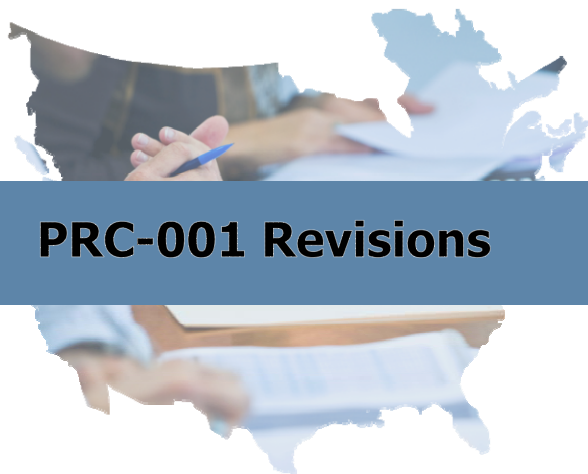
SDT Approach

- Address Federal Energy Regulatory Commission directives
- Consider applicable entities are appropriate
 - E.g., NERC Functional Model
- Requirements
 - Focus on the reliability aspects
 - Eliminate ambiguity
 - Identify other similar standards and requirements
 - Consider if activity is appropriate for a PRC family of standards
 - Requirements must be measurable

9

RELIABILITY | ACCOUNTABILITY

NERC
NORTH AMERICAN ELECTRIC
RELIABILITY CORPORATION



PRC-001 Revisions

10

RELIABILITY | ACCOUNTABILITY

NERC
NORTH AMERICAN ELECTRIC
RELIABILITY CORPORATION

PRC-001-1.1, R1 (Current)

- **R1.** Each Transmission Operator (TOP), Balancing Authority (BA), and Generator Operator (GOP) shall be familiar with the purpose and limitations of Protection System schemes applied in its area.
- Standard drafting team (SDT) conclusions
 - BA should not be applicable
 - Requirement is focused on the knowledge (familiar)
 - Purpose and limitation (the impacts)
 - Schemes is unnecessary modifier
 - Applied in its area (within the purview of the entity)

11

RELIABILITY | ACCOUNTABILITY

NERC
NORTH AMERICAN ELECTRIC
RELIABILITY CORPORATION

PRC-001-1.1, R1 (Proposed)

- **R1.** Each Generator Operator and Transmission Operator shall have knowledge of the impact of Protection Systems on the Bulk Electric System (BES) within its purview.
- SDT approach
 - Knowledge can be:
 - Training
 - Access to technical data, operating procedures, or similar
 - Access to knowledgeable system protection personnel
 - Impact can be negative or positive
 - What is important about the operation of the Protection System?
 - “within its purview” allows the elimination of “applied its area”
 - “[o]n the BES” clarifies which Protection Systems

12

RELIABILITY | ACCOUNTABILITY

NERC
NORTH AMERICAN ELECTRIC
RELIABILITY CORPORATION



Q&A on R1

13

RELIABILITY | ACCOUNTABILITY

NERC
NORTH AMERICAN ELECTRIC
RELIABILITY CORPORATION

PRC-001-1.1, R2 (Existing)

- **R2.** Each Generator Operator and Transmission Operator shall notify reliability entities of relay or equipment failures as follows:
 - **R2.1.** If a protective relay or equipment failure reduces system reliability, the Generator Operator shall notify its Transmission Operator and Host Balancing Authority. The Generator Operator shall take corrective action as soon as possible.
 - **R2.2.** If a protective relay or equipment failure reduces system reliability, the Transmission Operator shall notify its Reliability Coordinator and affected Transmission Operators and Balancing Authorities. The Transmission Operator shall take corrective action as soon as possible.

14

RELIABILITY | ACCOUNTABILITY

- Notification of impacts to others is important for reliability
- “...protective relay or equipment failure reduces system reliability...”
 - Addresses the “intended” performance of the Protection System
- A Protection System that has a problem and will perform as intended does not rise to the level of notification
- The amount of time to notify is important; however,
 - Should not negatively impact the entity (e.g., a violation)
 - Should require an explanation, if not timely
- Mitigating actions must be taken, if necessary

- **R2(GOP)**. Upon verification that a Composite Protection System can no longer perform as intended, the Generator Operator shall;
 - **R2(GOP).1.** notify its Transmission Operator and Host Balancing Authority and, if necessary, perform mitigating action.
 - **R2(GOP).2.** make notification within 30 minutes or document the reason why the notification was not made within 30 minutes.
- **R2(TOP)**. Upon verification that a Composite Protection System can no longer perform as intended, the Transmission Operator shall;
 - **R2(TOP).1.** notify its Reliability Coordinator and impacted interconnected Transmission Operators and Balancing Authorities.
 - **R2(TOP).2.** make notification within 30 minutes or document the reason why the notification was not made within 30 minutes.

NERC
NORTH AMERICAN ELECTRIC
RELIABILITY CORPORATION


PRC-001-1.1, R2 (Approach)

- Composite Protection System
 - Defined as “[t]he total complement of Protection System(s) that function collectively to protect an Element. Backup protection provided by a different Element’s Protection System(s) is excluded.”
 - NERC Board of Trustees (BOT) adopted
- “[p]erform as intended” aligns with adopted definition of “Misoperation”
- Notifications is made to the appropriate reliability entities
- Expected time to make notification is not unduly burdensome, provides ability for entity to focus on what is important
- Consistent with the “knowledge” required by Requirement R1

17

RELIABILITY | ACCOUNTABILITY

NERC
NORTH AMERICAN ELECTRIC
RELIABILITY CORPORATION



Q&A on R2

18

RELIABILITY | ACCOUNTABILITY

NERC
NORTH AMERICAN ELECTRIC
RELIABILITY CORPORATION

PRC-001-1.1, R5 (Existing)

- **R5.** A Generator Operator or Transmission Operator shall coordinate changes in generation, transmission, load or operating conditions that could require changes in the Protection Systems of others:
 - **R5.1.** Each Generator Operator shall notify its Transmission Operator in advance of changes in generation or operating conditions that could require changes in the Transmission Operator’s Protection Systems.
 - **R5.2.** Each Transmission Operator shall notify neighboring Transmission Operators in advance of changes in generation, transmission, load, or operating conditions that could require changes in the other Transmission Operators’ Protection Systems.

19 RELIABILITY | ACCOUNTABILITY

NERC
NORTH AMERICAN ELECTRIC
RELIABILITY CORPORATION

PRC-001-1.1, R5 (Conclusions)

- “Coordinate” in this context means “communicate”
- Requirement has a main part and two sub-requirements
 - Unclear
 - Makes sense to separate the GOP and TOP performance
- The phrase “that could require changes in the other Transmission Operators’ Protection Systems”
 - Unclear what is intended by “that could require”
 - Unclear what is intended by “other”
 - If reliability communication is needed beyond neighboring Transmission Operators, the Reliability Coordinator should address it

20 RELIABILITY | ACCOUNTABILITY

NERC
NORTH AMERICAN ELECTRIC
RELIABILITY CORPORATION

PRC-001-1.1, R5 (Proposed)

- **R5(GOP).** Each Generator Operator shall notify its Transmission Operator in advance of changes in generation or operating conditions that require changes in Protection System(s).
- **R5(TOP).** Each Transmission Operator shall notify neighboring Transmission Operators in advance of changes in generation, transmission, load, or operating conditions that require changes in Protection System(s).
- SDT approach
 - “[i]n advance” means something that is being planned
 - The phrase “that require” is clear and definitive
 - Consistent with the “knowledge” required by Requirement R1
 - Functionality of the Composite Protection System vs. changes to a Protection System

21

RELIABILITY | ACCOUNTABILITY

NERC
NORTH AMERICAN ELECTRIC
RELIABILITY CORPORATION



Q&A on R5

22

RELIABILITY | ACCOUNTABILITY


NERC
NORTH AMERICAN ELECTRIC
RELIABILITY CORPORATION

PRC-001-1.1, R6 (Existing)

- **R6.** Each Transmission Operator and Balancing Authority shall monitor the status of each Special Protection System in their area, and shall notify affected Transmission Operators and Balancing Authorities of each change in status.
- **SDT Conclusion**
 - Intent is the situational awareness of Remedial Action Schemes (RAS) and Special Protection Systems (SPS)
 - Duplicative of NERC BOT adopted standards filed on March 18, 2015
 - TOP-001-3 (*Transmission Operations*)
 - R10 applicable to the TOP
 - R11 applicable to the BA
 - TOP-003-3 (*Operational Reliability Data*)
 - R1 applicable to the TOP
 - R2 applicable to the BA
 - Requirement R6 should be retired

23 RELIABILITY | ACCOUNTABILITY

NERC
NORTH AMERICAN ELECTRIC
RELIABILITY CORPORATION



Q&A on R6

24 RELIABILITY | ACCOUNTABILITY

NERC
NORTH AMERICAN ELECTRIC
RELIABILITY CORPORATION



Conclusions

25

RELIABILITY | ACCOUNTABILITY

NERC
NORTH AMERICAN ELECTRIC
RELIABILITY CORPORATION

Where to Place Revised Requirements

- SDT recommends moving revised requirements from PRC-001
- Approach provided in the March 11, 2015 webinar:
 - Requirement R1 (knowledge)
 - Originally under consideration for PER-005-2
 - Now slated for TOP-001 as new Requirement R21
 - Requirement R2 (notify & mitigate)
 - R2 (GOP) slated for TOP-001 as new Requirement R22
 - R2 (TOP) slated for TOP-001 as new Requirement R23
 - Requirement R5 (communicate in advance)
 - R5 (GOP) slated for TOP-002 as new Requirement R7
 - Add GOP to TOP-002 Applicability
 - R5 (TOP) slated for TOP-002 as new Requirement R8
 - Requirement R6 (status of RAS/SPS) – Slated for retirement
 - The same level of reliability must be assured (by other standards)

26

RELIABILITY | ACCOUNTABILITY

NERC
NORTH AMERICAN ELECTRIC
RELIABILITY CORPORATION



Closing Remarks

27

RELIABILITY | ACCOUNTABILITY


NERC
NORTH AMERICAN ELECTRIC
RELIABILITY CORPORATION

Going Forward

- Revise standards based on feedback
 - SDT conference call on March 26, 2015
 - Other calls may occur prior to posting and will be announced via SDT listserv
 - See NERC calendar for registration link
- Anticipate initial formal posting
 - Early April, hold a follow up webinar
 - After April 15 conduct a 45-day comment period
 - Hold an initial ballot in the last 10 days of the comment period
- Respond to comments
 - Anticipated for second week in June 2015
 - Announcement will follow initial posting after April 15
 - See the NERC calendar at www.nerc.com for registration
 - See Program Areas, Standards, Calendar, View Standards Events

28

RELIABILITY | ACCOUNTABILITY



NERC
NORTH AMERICAN ELECTRIC
RELIABILITY CORPORATION

Question and Answer Session

- Please submit your questions via the chat window
 - To help facilitate a productive webinar
 - Preface comments with “Comment:”
 - Preface questions with “Question:”
 - This session is intended to help general understanding
 - Please reference slide number, standard section, etc.
 - Presenters will respond to as many questions as possible
 - Some questions might have to be deferred to the full team
- For the official record
 - Webinar and chat comments are not a part of the official project record
 - Comments must be submitted via the project page during posting
 - The drafting team will consider any informal feedback

29

RELIABILITY | ACCOUNTABILITY



NERC
NORTH AMERICAN ELECTRIC
RELIABILITY CORPORATION

Conclusion

- Encourage working through forums or trades
 - To become aware of industry direction on topics
 - Develop consolidated comments informally or during postings
- NERC Standards Developer, Scott Barfield-McGinnis
 - Email at scott.barfield@nerc.net
 - Telephone: 404-446-9689
 - To receive **Project 2007-06.2** announcements and updates
 - Request to be added to **SPCP2SDT_Plus**
- Webinar slides and recording will be posted to www.nerc.com
 - Within three business days following webinar under “Standards” / “Webinars”
 - Link will be provided in the next “Standards Bulletin”
- Thank you for participating

30

RELIABILITY | ACCOUNTABILITY

NERC
NORTH AMERICAN ELECTRIC
RELIABILITY CORPORATION

Project 2007-06.2 Webinar has ended Thank you for participating

*Email at scott.barfield@nerc.net
Telephone: 404-446-9689
Request to be added to **SPCP2SDT_Plus***

RELIABILITY | ACCOUNTABILITY

