

NERC

NORTH AMERICAN ELECTRIC
RELIABILITY CORPORATION

Project 2007-06.2

Phase 2 of System Protection Coordination

Background Presentation for Q & A Sessions

March 24 and April 5, 2016

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- Speakers
 - Standard drafting team (SDT)
 - Chair, Mark Peterson, Great River Energy
 - Scott Watts, Duke Energy Carolinas
 - NERC
 - Scott Barfield-McGinnis, Senior Standards Developer
- Project Background
- Discussion
- Questions and Answers Sessions to be held
 - March 24, 2016
 - April 5, 2016

- **Revise PRC-001-1.1(ii), Requirement R1, R2, R5, & R6**
 - Address Federal Energy Regulatory Commission directives
 - Determine the amount of time after a relay failure
 - Clarify the term “Corrective Action”
 - Correct references to Measures and Levels of Non-Compliance
 - Determine timeframe for corrective actions after equipment failures, for notifications, and consider the “maximum time” for corrective actions
- **Consider System Protection & Control Task Force recommendations**
 - Consider applicable entities are appropriate
 - E.g., NERC Functional Model
 - Eliminate ambiguous term and duplicative requirements
 - Improve measurability



Discussion

- R1 – familiar with the purpose and limitations of Protection System schemes
 - Generator Operator moves to new PER-006-1
 - Balancing Authority is explained in the Mapping Document
 - Transmission Operator addressed by definition revisions
- R2 – notification of relay and equipment failures and corrective actions as soon as possible
 - Explained in Mapping Document
- R5 – notification of system changes “in advance” that impact protection
 - Explained in Mapping Document
- R6 – monitoring and notification of Special Protection Systems
 - Explained in Mapping Document

- “Familiar with”
 - PER-003-1 (Operating Personnel Credentials)
 - PER-005-2 (System Personnel Training)
- “Purpose and limits”
 - Operations Planning Analysis (OPA): An evaluation of projected system conditions to assess anticipated (pre-Contingency) and potential (post-Contingency) conditions for next-day operations. The evaluation shall reflect applicable inputs including, but not limited to, load forecasts; generation output levels; Interchange; known Protection System and **Remedial Action Scheme** status or degradation, ***functions, and limits***; Transmission outages; generator outages; Facility Ratings; and identified phase angle and equipment limitations. (Operational Planning Analysis may be provided through internal systems or through third-party services.)

- “Familiar with”
 - PER-003-1 (Operating Personnel Credentials)
 - PER-005-2 (System Personnel Training)
- “Purpose and limits”
 - Real-time Assessment (RTA): An evaluation of system conditions using Real-time data to assess existing (pre-Contingency) and potential (post-Contingency) operating conditions. The assessment shall reflect applicable inputs including, but not limited to: load; generation output levels; known Protection System and **Remedial Action Scheme** status or degradation, **functions, and limits**; Transmission outages; generator outages; Interchange; Facility Ratings; and identified phase angle and equipment limitations. (Real-time Assessment may be provided through internal systems or through third-party services.)

- Propose PER-006-1 – Specific Training for Personnel
- Applicable to Generator Operator that have:
 - **4.1.1.1** Plant personnel who are responsible for the Real-time control of a generator and receive Operating Instruction(s) from the Generator Operator’s Reliability Coordinator, Balancing Authority, Transmission Operator, or centrally located dispatch center.
 - This does not include personnel at a centrally located dispatch center
- Avoids conflict with PER-005-2
 - Does include personnel at a centrally located dispatch center
 - Does not include plant personnel

- **R1.** Each Generator Operator shall provide training to personnel identified in Applicability section 4.1.1.1. on the operational functionality of Protection Systems and Remedial Action Schemes (RAS) that affect the output of the generating Facility(ies) it operates. [*Violation Risk Factor: Medium*] [*Time Horizon: Long-term Planning*]
- **M1.** Each Generator Operator shall have available for inspection, evidence that the applicable personnel completed training. This evidence may be documents such as training records showing successful completion of training that includes training materials, the name of the person, and date of training.

- May include, but is not limited to the following:
 - Purpose of protective relays and RASs
 - Zones of protection
 - Protection communication systems (e.g., line current differential, direct transfer trip, etc.)
 - Voltage and current inputs
 - Station dc supply associated with protective functions
 - Resulting actions – Tripping/closing of breakers; tripping of a generator step-up (GSU) transformer; or generator ramping/tripping control functions

- The Generator Operator failed to provide training as described in Requirement R1 to the greater of:
 - Number of personnel at a single Facility, or
 - A percentage of the overall Generator Operator function
- Does not favor an entity based on size

- PER-006-1
 - Specific training by GOP
 - “Operational functionality” clarifies “familiar with purpose and limitation”
 - Measurable – training records
- Revised definitions
 - Require RC and TOP to integrate the functions and limits of Protection Systems and RASs into their OPA/RTA
 - Ensures operation within SOLs and IROLs
- Retirement of PRC-001-1.1(ii)
 - Requirement R1
 - Supported by PER-006-1 for GOP
 - Supported by PER-003-1 and PER-005-2 for BA
 - Supported by PER-003-1, PER-005-2, and OPA/RTA definitions for RC and TOP
 - Requirements R2, R5, and R6 supported by other standards

- To send questions before the Q & A
 - Scott Barfield-McGinnis, Senior Standard Developer
 - Scott.Barfield@nerc.net or call 404-446-9689
- Project posted
 - Formal 45-day comment period – March 10 – April 25
 - Draft RSAW within two weeks of posting
 - Initial ballots of PER-006-1, definitions, and non-binding poll of VRF/VSL
- Approval of this Phase 2 project with Phase 1 (PRC-027-1) allows the complete retirement of PRC-001-1.1(ii)
- Q & A Sessions
 - Thursday, March 24, 2016 from Noon-1:00 p.m. Eastern
 - Tuesday, April 5, 2016 from 3:00-4:00 p.m. Eastern
- Sessions will be recorded and posted



Questions and Answers

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Q & A Session 2 of 2
April 5, 2016

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- 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.

- 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.

- Informal discussion
 - Via chat & live
 - Respond to stakeholder questions
 - Present online polls
- Help the team facilitate chat questions by
 - Prefacing comments with “Comment:”
 - Prefacing questions with “Question:”
- Other
 - Some questions may require future team consideration
 - Please reference slide number, standard section, etc.
 - Team will address as many questions as possible
 - Webinar and chat comments are not a part of the official project record
 - Q&A recording will be posted within 24-48 hours



Questions and Answers

- Encourage working through forums or trades
 - To become aware of industry direction on topics
 - Develop consolidated comments informally or during postings
- NERC Senior Standards Developer
 - Project 2007-06.2, Scott.Barfield@nerc.net, 404-446-9689
- SDT members and NERC staff are available to address other groups (e.g., Regional working groups, trades, etc.)
 - Contact the Standards Developer to arrange
- Comment period open through 8:00 p.m. ET April 25
- Ballot period open from April 15 to April 25
- Questions & Answers