

Project 2007-06.2

System Protection Coordination
PER-005-3 Approach

Industry Webinar
December 17, 2015

RELIABILITY | ACCOUNTABILITY



- Presenters
 - Standard drafting team (SDT)
 - Chair, Mark Peterson, Great River Energy
 - NERC
 - Scott Barfield-McGinnis, Standards Developer
- Administrative Items
- PER-005-3 Approach
- Closing Remarks
- Questions and Answers



Administrative Items

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- **Public Announcement**
 - 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
- **For the official record**
 - Conference presentation is not a part of the official project record
 - Comments must be submitted via the project web page during posting

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	Entergy Services, Inc.
Rui Da Shu	Northeast Power Coordinating Council
Scott Watts	Duke Energy Carolinas



PER-005-3 Approach

- Training = “Knowledge”
- TOP-009-1
 - Ballot results
 - Which personnel
 - “Effects” – overly broad
 - Composite Protection System
 - Violation Severity Levels
- Reliability Coordinator
- Alternative to connect this “knowledge” to:
 - Operational Planning Analysis
 - Real-time Assessment

- Reliability Coordinator, Balancing Authority, and Transmission Operator
- Generator Operator that has:
 - **Existing** (Section 4.1.5.1) Dispatch personnel at a centrally located dispatch center who receive direction from the Generator Operator's Reliability Coordinator, Balancing Authority, Transmission Operator, or Transmission Owner, and may develop specific dispatch instructions for plant operators under their control. These personnel do not include ~~plant operators located at a generator plant site or~~ personnel at a centrally located dispatch center who relay dispatch instructions without making any modifications.
 - **NEW!** (Section 4.1.5.2) Plant operators located at a generator plant site who are responsible for the Real-time control of a generator.

- **R7.** Each Generator Operator shall use a systematic approach to develop and implement training to its personnel identified in Applicability Sections 4.1.5.1 and 4.1.5.2 on the operational functionality of (1) Protection Systems within its generating Facility(ies) and (2) Remedial Action Schemes that affect the output of its generating Facility(ies).
- **7.1.** Each Generator Operator shall conduct an evaluation each calendar year of the training established in Requirement R7 to identify and implement changes to the training.

- **R8.** Each Reliability Coordinator, Balancing Authority, and Transmission Operator shall use a systematic approach to develop and implement training for its System Operators and Operations Support Personnel on the operational functionality of Protection Systems and Remedial Action Schemes.
- **8.1.** Each Reliability Coordinator, Balancing Authority, and Transmission Operator shall conduct an evaluation each calendar year of the training established in Requirement R8 to identify and implement changes to the training.

- Understanding of the function of protective relays.
- Voltage and current inputs.
- Zones of protection.
- Resulting Actions – Breakers tripped or closed, or generator ramping functions.

- 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.)

- 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.)

- PER-005-3
 - Understood systematic approach to training
 - Training will = operational functionality “knowledge”
 - Measurable
- Revised definitions
 - Codify “functions and limits” (i.e. “effects”)
 - Set the expectation/performance
- Approved TOP/IRO standards
 - Address System Operating Limits and Interconnection Operating Limits
 - OPA and RTA activities include
 - Projection Systems and Remedial Action Schemes
 - Functions and limits

- Systematic approach (Training = Knowledge)
- Personnel identified
 - System Operators
 - Operations Support Personnel
 - Generator Operator dispatch and plant personnel
- “Effects” – removed
- Protection System now used
- Violation Severity Levels balanced
- Reliability Coordinator is applicable
- Revisions to definitions:
 - Operational Planning Analysis
 - Real-time Assessments



Closing Remarks

- Anticipated Initial posting
 - Comment Period: Mid-January 2016
 - Additional ballot: March 2016
- Draft RSAW
 - Post within two weeks of initial posting
- SDT in-person meeting to respond to comments
 - Mid-March 2016
- Final ballot
 - April 2016
- Anticipated NERC Board of Trustees adoption
 - May 2016

- Encourage working through forums or trades
 - To become aware of industry direction on topics
 - Develop consolidated comments informally or during postings
- NERC 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
- Questions & Answers



Questions & Answers