

# Project 2007-06.2

Phase 2 of System Protection Coordination  
PER-006-1 Approach

Industry Webinar  
February 23, 2016

**RELIABILITY | ACCOUNTABILITY**



- Presenters
  - Standard drafting team (SDT)
    - Chair, Mark Peterson, Great River Energy
    - Scott Watts, Duke Energy Carolinas
  - NERC
    - Scott Barfield-McGinnis, Standards Developer
- Administrative Items
- Background
- New Approach
- Closing Remarks
- Questions and Answers



# Administrative Items

- 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

- **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**
  - This presentation is not a part of the official project record
  - Comments must be submitted during the formal 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
Yubaraj Sharma	Entergy Services, Inc.
Rui Da Shu	Northeast Power Coordinating Council
Scott Watts	Duke Energy Carolinas



# Background

- Address Federal Energy Regulatory Commission directives
- Consider applicable entities are appropriate
  - E.g., NERC Functional Model
- PRC-001-1.1(ii) Requirements
  - Reliability objectives
  - Ambiguous and duplicative
  - Not measurable
  - What belongs in PRC-001



- R6 – monitoring and notification of SPS (expected to become RAS)
- R5 – notification of system changes “in advance” that impact protection
- R2 – notification of relay and equipment failures and corrective actions as soon as possible
- R1 – familiar with the purpose and limitations of Protection System schemes



# New Approach

- “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 direction 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 plant personnel identified in Applicability Section 4.1.1.1 that are responsible for Real-time control of its generating Facility on the operational functionality of Protection Systems and Remedial Action Schemes that affect output of its generating Facility.  
*[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 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

- 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





# Closing Remarks

- Anticipated Initial posting
  - Mid-March 2016
- Draft RSAW
  - Post within two weeks of initial posting
- SDT in-person meeting to respond to comments
  - Early May 2016
- Final ballot
  - May 2016
- Anticipated NERC Board of Trustees adoption
  - August 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](mailto: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