NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

Meeting Notes
Project 2010-13.2 Phase 2 of Relay Loadability: Generation Standard Drafting Team

September 28, 2012
Conference Call

Administrative

1. **Introductions**

The meeting was brought to order by Charlie Rogers, chair, at 1:05 p.m. ET Friday, September 28, 2012. The chair provided an outline of the meeting goals to address quality review.

Those in attendance were:

Name	Company	Member/ Observer
Charlie Rogers	Consumers Energy	Chair
Jeff Billo	ERCOT	Member
Steven Hataway	Florida Power and Light Company	Member
Mike Jensen	Pacific Gas and Electric Company	Member
Xiaodong Sun	Ontario Power Generation, Inc.	Member
Sudhir Thakur	Exelon Nuclear	Member
Joe Uchiyama	U.S. Bureau of Reclamation	Member
Benson Vuong	Salt River Project	Member
David Youngblood	Luminant Energy	Member
Ken Hubona	Federal Energy Regulatory Commission	FERC Staff

Name	Company	Member/ Observer
Scott Barfield-McGinnis (Project Advisor)	North American Electric Reliability Corporation	NERC Staff
Phil Tatro (Technical Advisor)	North American Electric Reliability Corporation	NERC Staff

2. **Determination of Quorum**

   The rule for NERC Standard Drafting Team (SDT or team) states that a quorum requires two-thirds of the voting members of the SDT. Quorum was achieved as nine of the eleven total members were present.

3. **NERC Antitrust Compliance Guidelines and Public Announcement**

   NERC Antitrust Compliance Guidelines and public announcement were reviewed by the advisor. There were no questions raised.

4. **Review of the Roster**

   The team did not review the roster. Advisor noted no changes.

Agenda

1. **Review of Meeting Notes from Previous Meetings**

   The agenda called for the meeting notes to be reviewed later.

2. **Open Business from Last Meeting (Ongoing)**

   a. Project Advisor – Provide feedback to team concerning NERC staff opinion on the potential differences in PRC-023-1 and the draft PRC-025-1. The advisor noted that he is working with NERC staff, Greg Henry.

   The team continues to work the below action items contemporaneously with the posting of the standard.

   b. Team – Work on developing additional technical basis for asynchronous ratings (Option 4) during the first formal comment period

   c. Team – Work on developing the additional technical basis for the margins used in each of the options found in Table 1 of the attachment. The basis may be covered in the introduction or individually in each option. The chair noted that based on time, this option might be covered in this meeting.

3. **Respond to Quality Review**

The generator relay loadability Standard Drafting Team (SDT) responded to the Quality Review Team's suggestions and observations as set forth below using redlining.

~~Red strikethrough for deletions~~
Blue underline for additions

QRT Suggestion: Purpose - To avoid unnecessarily removing generators from service, ~~To set~~ load-responsive generator protective relays at a level such that generators do not trip during system disturbances. ~~that are not damaging to the generator thereby unnecessarily removing the generator from service.~~

SDT Response: The SDT preferred to keep the Purpose statement as originally proposed because it captures all the thoughts of why the standard is written. The suggestion removes "not damaging to the generator" which is important in the scope of the standard. Also, the construct of the Purpose introduces what is expected and then why.

QRT Suggestion: Applicability, 3.2. Functional Entities - Suggested rewording:

3.2 Facilities: The following Elements of the Bulk Electric System generation Facilities, ~~including those identified as Blackstart Resources in the Transmission Operator's system restoration plan:~~

3.2.1 Generating unit(s), including those identified as Blackstart Resources in the Transmission Operator's system restoration plan.

The QR team wondered if BES should be used since the definition is not approved yet.

SDT Response: The SDT believes the currently approved definition for "BES" and any change to the definition should apply in this case and going forward. The SDT disagrees with the proposed change in 3.2. and 3.2.1 in the standard because the suggested change would remove from the Applicability both generation step-up units and auxiliary unit transformers for a Blackstart Facility.

QRT Suggestion: Background - ~~During~~ After analysis of many of the major disturbances in the last 25 years on the North American interconnected power system, generators have been found to have tripped for conditions that did not apparently pose a direct risk to those generators and associated equipment within the time period where the tripping occurred. This tripping has often been ~~evaluated~~ determined to have expanded the scope and/or extended the duration of that disturbance.

SDT Response: Accepted both proposed changes.

QRT Suggestion: Requirement R1 (Only requirement) - The QR team felt that the standard needs to address what happens if alternative settings are required to maintain reliability protection. The team felt that 'while maintaining reliable protection' was confusing and needed additional wording.

With the current wording of the requirement – how does the auditor verify that an entity did not change the setting because it would adversely affect their desired protection goals?

Submitted by SDT: **R1.** Each Generator Owner shall install settings that are in accordance with PRC-025-1 – Attachment 1: Relay Settings, on each load-responsive protective relay while maintaining reliable protection. *[Violation Risk Factor: High] [Time Horizon: Long-Term Planning]*

Proposed by the QRT: **R1.** Each Generator Owner shall *[Violation Risk Factor: High] Time Horizon: Long Term Planning]*

- Install settings that are in accordance with PRC-025-1 – Attachment 1: Relay Settings, on each load-responsive protective relay when the installation of such settings enable the Generator Owner to maintain ~~while maintaining~~ reliable protection.
- Document each equipment limitation, including study results or manufacturer's advisory, that prevents a Generator Owner from maintaining reliable protection if the settings in accordance with PRC-025-1-Attachment 1: Relay Setting, are installed on specific load-responsive protective relays.
- For those specific load-responsive protective relays where the installation of settings in accordance with PRC-025-1-Attachment 1: Relay Setting, are documented to prevent a Generator Owner from maintaining reliable protection, install settings that, in accordance with study results or manufacturer's advisory, enable the Generator Owner to maintain reliable protection.

SDT Response: The SDT contended that the limitation is not with the generator equipment itself; that a limitation may exist with the entity's protection equipment or philosophy. If so, the entity may have to consider upgrading to protection equipment that will achieve both the standard's intent and the entity's protection goals. The setting criteria were derived with consideration of both the disturbance magnitude and the generator capability. The SDT decided not to implement the proposed suggestions and allow industry comment to reveal if there is a potential issue with meeting both the standard and the entity's protection goals.

QRT Suggestion: Suggested rewording of Measure M1 in coordination with Requirement R1 suggestion.

Proposed by SDT: **M1.** For each load-responsive protective relay in accordance with *PRC-025-1 – Attachment 1: Relay Settings*, each Generator Owner shall have and provide as evidence, dated documentation of: (1) settings calculations, and (2) that settings were installed.

Proposal by the QRT: **M1.** For each load-responsive protective relay in accordance with *PRC-025-1 – Attachment 1: Relay Settings*, each Generator Owner shall have and provide as evidence, dated documentation of: (1) relay settings calculations, and (2) that relay settings were installed and if appropriate, study results or manufacturer's advisory documenting equipment limitations for specific lead-responsive protective relays for which the settings in PRC-025-1-Attachment 1: Relay Setting, could not be applied without impacting the Generator Owner's ability to maintain reliable protection.

SDT Response: The SDT did not adopt the changes from the Requirement suggestions; therefore, did not make any change to the Measure M1.

QRT Suggestion: Compliance Enforcement Authority - Deleted info below is not needed for this standard.

~~The Regional Entity shall serve as the Compliance Enforcement Authority (CEA) unless the applicable entity is owned, operated, or controlled by the Regional Entity. In such cases the Electric Reliability Organization or a Regional Entity approved by FERC or other applicable governmental authority shall serve as the CEA.~~

~~For NERC, a third-party monitor without vested interest in the outcome for NERC shall serve as the CEA.~~

SDT Response: Agreed, the SDT removed the unnecessary language from the CEA section of the standard.

QRT Suggestion: Evidence Retention - Spell out "Compliance Enforcement Authority."

SDT Response: No action take as the current format meets the NERC Style Guideline for documents.

QRT Suggestion: Evidence Retention - The Generator Owner shall retain evidence of ~~for~~ Requirement R1 and Measure M1 ~~shall retain documentation~~ for the most recent three calendar years.

The CEA shall keep the latest last audit records and all requested and submitted subsequent audit records.

SDT Response: Accepted, the SDT made the proposed changes to be consistent with the quality review background document.

QRT Suggestion: Attachment 1, Table 1, Options -

Option 1-The impedance element shall be set less than the impedance derived from 115 percent of:

Option 9 -Voltage control setting shall be set less than 75 percent of the nominal generator bus voltage

SDT Response: Accepted, the SDT added the word "set" to Option 1 and to Option 9.

QRT Suggestion: Attachment 1, Table 1, Bus Voltage – The QR team understands they did not have the technical expertise to fully understand the Bus Voltage wording but posed the following two questions about the bus voltage.

1. Should Options 1 & 2 have the same wording for bus voltage?
2. What about wording for other options in bus voltage?

SDT Response: The SDT did not make a change here and notes that Options 1 and 2 are explicitly different. Option 1 is 95 percent of the generator voltage and Option 2 is based on an 85 percent system high-side voltage calculated to the generator bus and includes the transformer impedance and turns ratio.

QRT Suggestion: Attachment 1, Table 1, Settings – The QR team understands they lack technical expertise in this area; however, pose the following question.

Should there be settings related to timing settings?

The technical basis notes that the generator relays should not operate too fast but there is nothing in the requirements about that.

Here the technical basis talks about timing being an important consideration--Page 16… "*consideration should be given to reducing the reach of the relay and/or coordinating the tripping time delay with the time delays of the protective devices in the voltage regulator.*"

SDT Response: The time setting of load-responsive protective relays in this standard is not necessary because the relay settings are based on a pickup value. No change necessary.

QRT Suggestion: Attachment 1, Table 1, Guidelines and Technical Basis, Introduction -

The document, "Power Plant and Transmission System Protection Coordination," published by the NERC System Protection and Control Subcommittee provides extensive general discussion about the protective functions and generator performance addressed within this standard. ~~As of September 2012, this~~ This document was last revised in July 2010.

SDT Response: Accepted, the SDT applied the above change.

4. **Review of the Schedule**

   The project advisor reviewed the schedule to note the risks if the team did not make its initial posting by October. If so, the team would miss the window to meet prior to the Thanksgiving holidays.

5. **Action Items**

   a. Project advisor to issue meeting announcement for Phoenix meeting.

6. **Next Steps**

   The next step will be a 30-day formal comment period.

7. **Future meeting(s)**

   There is a meeting scheduled the week of November 12 in Tempe, AZ (Note: Monday is Veteran's Day). The meeting will be Tuesday, November 13, 2012 from 8:00 a.m. MT thorough Friday, November 16, 2012 noon MT (3.5 days).

8. **Adjourn**

   The meeting adjourned at 3:03 p.m. ET on September 28, 2012.