

Meeting Notes

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

January 17, 2013

Conference Call with ReadyTalk Web Access

Administrative

1. Introductions

The meeting was brought to order by Charles Rogers, chair, at 11:01 a.m. ET, Thursday, January 17, 2013. Mr. Rogers noted that the goal of the meeting was to finalize documents from the Atlanta meeting last month and address any quality review issues. Those in attendance were:

Name	Company	Member/ Observer
Charles Rogers (Chair)	Consumers Electric	Member
Jeff Billo	ERCOT	Member
S. Bryan Burch	Southern Company	Member
Steven Hataway	Florida Power and Light Company	Member
Jonathan Hayes	Southwest Power Pool, Inc.	Member
Mike Jensen	Pacific Gas and Electric Company	Member
Xiaodong Sun	Ontario Power Generation, Inc.	Member
David Youngblood	Luminant Energy	Member
Syed Ahmad	Federal Energy Regulatory Commission	Observer
Ken Hubona	Federal Energy Regulatory Commission	Observer
Scott Barfield-McGinnis (Standard Developer)	North American Electric Reliability Corporation	Observer

Name	Company	Member/ Observer
Phil Tatro (Technical Advisor)	North American Electric Reliability Corporation	Observer

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 eight of the eleven members were present.

3. NERC Antitrust Compliance Guidelines and Public Announcement

NERC Antitrust Compliance Guidelines and public disclaimer were reviewed by Scott Barfield. There were no questions. Mr. Barfield updated members joining the call late concerning NERC Antitrust.

4. Review Roster

Mr. Barfield noted there have been no changes to the roster.

Agenda

1. Approve meeting notes

Mr. Barfield suggested that the team reconvene one or two weeks later to approve meeting notes so that the team’s conference call time would be maximized reviewing changes and finalizing documents. Mr. Rogers agreed to the suggestion and there were no objections. The review of the meeting notes for December 11, 2012, December 27, 2012, and January 9, 2013 were tabled for a later meeting.

2. Open business from last meeting (Reviewed)

a. Mr. Barfield:

- i. Issue announcement for the quality review response meeting scheduled for January 17, 2013. (Complete)
- ii. Prepare announcement for March 2013 meeting. (Complete)
- iii. Issue documents to the team from this meeting. (Complete)

b. Mr. Jensen:

- i. Prepare Mathcad® calculations for Guidelines and Technical Basis document. (Complete)
- ii. Confirm meeting facility use for the week of March 25-29, 2013. (Complete – Fresno, CA)

3. Finalize documents

Mr. Barfield presented the team members with a redlined version of the standard prior to this meeting for discussion. The team began at the beginning of the standard and went item by item through the redline changes and approved each, except as noted below. Minor editorial edits were made in Attachment 1: Relay Settings for clarity. Table 1: Relay Loadability Evaluation Criteria was updated to more accurately reflect what the drafting team intended and included the following:

- Each relay type, phase distance relay (21) – directional toward the Transmission system, for synchronous generators had a proposed change in the “Pickup Setting Criteria” to move the “115%” margin in the phrase, “The impedance element shall be set less than the calculated impedance derived from 115% of:” to “The impedance element shall be set less than 115% of the calculated impedance derived from:” The team disagreed because it impedance value margin would need to decrease by 115%, meaning it would need to be divided by 115% or be approximately set less than 87% of the derived value. The team agreed making the change would create confusion about the 87% margin. The appended calculations in the Guidelines and Technical Basis clearly illustrate how to arrive at the derived impedance and applicable margin.
- Each relay type, phase time overcurrent relay (51V-R) – voltage-restrained and phase time overcurrent relay (51V-C) – voltage-controlled, for synchronous generators had a proposed change in the “Pickup Setting Criteria” to move the “115%” margin in the phrase, “The impedance element shall be set less than the calculated impedance derived from 115% of:” to “The impedance element shall be set less than 115% of the calculated impedance derived from:” The team agreed this changed added clarity that the derived current had to have a 115% margin.
- Similar proposed changes were not applied to the “Pickup Setting Criteria” for phase distance relay (21) – directional toward the Transmission system, asynchronous generators.
- Similar proposed changes were applied to the “Pickup Setting Criteria” phase time overcurrent relay (51V-R) – voltage-restrained and phase time overcurrent relay (51V-C) – voltage-controlled, for synchronous generators.
- Real Power output (i.e., #1) for each applicable option, the words “maximum gross” were deleted because the megawatt (MW) value is a reported value and not a value the entity will derive for the purposes of the calculations.
- Reactive Power output (i.e., #2) for each applicable option. Previously, the Reactive Power output was only described as “a value that equates to 150% of MW.” Although the team did not have any specific concern about the phrase, it was an area of confusion among commenters from the first formal comment period. The phrase was updated to be consistent with #1 and resulted in, “150% of the MW value, derived from the nameplate MVA rating at rated power factor.”

- Mr. Barfield recommended adding a footnote to the “Bus Voltage” column to remind readers of the conditions that Calculations using the generator step-up (GSU) transformer turns ratio shall use the actual tap that is applied (i.e., in service) for GSU transformers with no-load tap changers (NLTC). On-load tap changers (OLTC) are rarely used for GSU transformers; when used, the calculations shall reflect the tap that results in the lowest generator bus voltage. When the criterion specifies the use of the GSU transformer’s impedance, the nameplate impedance at the nominal GSU turns ratio may be used.
- During a previous meeting, the team added the phrase “connected generation” to the “Application” options involving the generator step-up (GSU) transformer and generator interconnection Facilities. The team reconsidered this phrase and decided to use “aggregate generation” to be more consistent with similar uses in reference documents.
- During a previous meeting, the team added Option 13b to account for cases where the unit auxiliary transformer (UAT) may not be fully loaded and a setting based on the UAT nameplate rating would not be practical. Option 13b addressed “measured current,” but Option 13a did not address “calculated current;” therefore, the team added the phrase “calculated current” to Option 13a for clarity.
- The team accepted additional text in the Guidelines and Technical Basis for “Applicability” as suggested by Mr. Tatro.
- The team split the section titled “Synchronous and Asynchronous Generator Performance” into two separate sections for clarity.
- The quoted text taken from Section 4.6.1.1 of the IEEE C37.102-2006, “Guide for AC Generator Protection,” was not accurate likely due to being copied from other sources. The team accepted using the exact text from the reference.
- A section was added to address “Phase Time Overcurrent Relay (51)” that was missing in consideration of the other relay types the document speaks about.
- The remaining sections were edited for readability and structure.
- Section references to the NERC Power Plant and Transmission System Protection Coordination technical reference document were corrected to properly align the correct section to the applicable relay type.
- Calculations for each of the options were appended to the Guidelines and Technical Basis document.

4. Review of the schedule

Mr. Barfield updated the team regarding the 19-week slide in the schedule. The original goal was to post Friday, January 18, 2013; however, with the amount of changes from the January 9, 2013 meeting, NERC would need an additional day to review. Mr. Barfield also advised the team that the

Standards Committee (SC) approved the supplemental Standard Authorization Request (SAR) to revise PRC-023-2 for consistency with the draft PRC-025-1 at their January 16, 2013 meeting. In moving their meeting date to January 16-17, 2013, the SC also added an additional week to the schedule. Given the SC meeting change, the additional time for a final review, and the expected comment period finish, the team moved the next in-person meeting to the end of March 2013 to respond to the initial ballot and comments. The schedule impacts will be re-evaluated following the initial ballot at that meeting.

5. Action items

- a. Mr. Barfield:
 - i. Issue a Doodle to determine availability for an interim call to review meeting notes.
 - ii. Secure the detail and announce the next SDT meeting for the week of March 25-28, 2013 with Monday being a half-day afternoon due to travel to the west coast. Friday, March 29, 2013 would be allocated as a return travel day due to the time differential.

6. Next steps

- a. Post with draft 2 of PRC-025-1 for its second formal comment period for 45 days.
- b. Initial ballot in the last ten days of the comment period.
- c. Post the supplemental SAR for PRC-023-2, draft 1 of PRC-023-3, and a PRC-023 redline to version two of the standard contemporaneously with draft 2 of PRC-025-1.
- d. Post the Phase 2 of the Cost Effective Analysis Process questions regarding Project 2010-13.2 – Phase II Relay Loadability: Generation.
- e. In-person SDT meeting March 25-28, 2013 to respond to comments from the 45-day comment period and initial ballot.

7. Future meeting(s)

There is a meeting scheduled for March 25-28, 2013 at PG&E in Fresno, CA.

8. Adjourn

The meeting adjourned at 2:15 p.m. ET on January 17, 2013.