

Meeting Notes

Project 2016-04 Modifications to PRC-025-1

February 7, 13, and 16, 2017

Conference Calls

Administrative

1. Introductions

The meeting was brought to order by the chair, C. Turner, 2:05 p.m. Eastern on Tuesday, February 7, 2017. C. Turner provided the team with introductory remarks. Participants were introduced and those in attendance were:

Name	Company	Member/ Observer	In Attendance (Y/N)		
			2/7	2/13	2/16
Carl J. Turner	Florida Municipal Power Agency	Chair	Y	Y	Y
John Schmall	Electric Reliability Council of Texas, Inc.	Vice Chair	Y	Y	Y
Juan Alvarez	Caithness Energy	Member	Y	Y	Y
S. Bryan Burch, P.E.	Southern Company	Member	Y	Y	Y
Walter Campbell	NextEra Energy Resources, LLC	Member	Y	Y	Y
Jason Espinosa	Seminole Electric Cooperative, Inc.	Member	Y	Y	Y
Mike Jensen	Pacific Gas and Electric Company	Member	Y	Y	Y
Charles Yeung	Southwest Power Pool, Inc.	Observer	N	N	Y
Scott Barfield-McGinnis, Senior Standards Developer	North American Electric Reliability Corporation	NERC Staff	Y	Y	Y

Name	Company	Member/ Observer	In Attendance (Y/N)		
			2/7	2/13	2/16
Darrel Richardson, Senior Standards Developer	North American Electric Reliability Corporation	NERC Staff	N	N	N
Lauren Perotti, Counsel	North American Electric Reliability Corporation	NERC Staff	N	N	N
Syed Ahmad	Federal Energy Regulatory Commission	Observer	Y	Y	Y
Joshua Andersen	Salt River Project	Observer	Y	N	N
Marilyne Alarie	Hydro-Québec TransÉnergie	Observer	N	Y	N
Ben Davis	Vestas	Observer	N	N	Y
Gary Condict	SEPC (Sunflower)	Observer	N	Y	N
Colin Forbes	Vestas	Observer	Y	N	Y
Bernard Parent	Hydro-Québec TransÉnergie	Observer	Y	N	N
Si Truc Phan	Hydro-Québec TransÉnergie	Observer	Y	Y	Y
Brian Robinson	Utility Services	Observer	N	Y	N
Steven Saylor	Vestas	Observer	N	N	Y
Masoud Sharifi	Siemens Wind	Observer	N	N	Y
Chuck Woods	MidAmerican Energy	Observer	N	N	Y

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 all of the members were present for all three conference calls.

3. NERC Antitrust Compliance Guidelines and Public Announcement

NERC Antitrust Compliance Guidelines and public announcement were read by S. Barfield-McGinnis. There were no questions raised.

4. Roster updates

The team reviewed the team roster and confirmed that it was accurate and up to date.

Notes

1. Review of project documents (February 7, 2017)

S. Barfield-McGinnis reviewed the project background document with the Standard Authorization Request (SAR) drafting team. There were no substantive questions. Last, an overview of the SAR document was given. Some members had a few comments about issues in the PRC-025-1 standard. Those issues included:

- a. M. Jensen noted that many static inverters have wide ranging fault characteristics. For example, the ranges observed have been from 1.1 per unit (pu) to 2.0 pu.
- b. B. Burch raised a question about collector systems and their applicability under the Bulk Electric System (BES) definition. The concern was the standard's silence on the collector system and how the options in the standard are applied under various conditions or applications. For example, the application of lower voltage dispersed generation resources (DGR), essentially distribution level facilities, should be treated from a standard and compliance standpoint.
- c. C. Turner asked how DGR should respond under the standard. For example, many inverters can actually shutdown faster than a breaker can clear a fault. Should this condition be addressed in the standard?

2. Respond to comments (February 13, 2017)

- a. M. Jensen asked the team what part of SRC's comment was unclear about configurations. C. Turner noted that there is another commenter that raised a questions about topologies. Furthermore, that SRC is pointing out that the fixed margin may not be appropriate given manufacturer limitations and cases where the point of aggregation may lead to similar issues. M. Jensen noted he is familiar with some inverters producing 2.5 pu current for 200 ms during low voltage ride through. B. Burch added that the feeder relays should not be set using the 130% criteria. The team concurred that the Dispersed Generation Resources section of the Guidelines and Technical Basis should be improved to address the lack of clarity about feeders.
- b. C. Turner explained FMPA's comment about the output of synchronous generators. For example, a unit may be capable of producing more than the output reported to the Transmission Planner under the modeling (MOD) Reliability Standards. The team suggested adding language in Table 1 to address these cases.
- c. Tacoma was concerned that the standard limits an entity to using simulation for multiple or parallel lines. For example, if multiple lines are substantially parallel in nature, is it permissible for entities to apply the most appropriate Option 14a, 15a, 16a, 17, 18, or 19 and therefore divide the current by the number of substantially parallel lines? The SAR team concurred that the standard does not limit an entity to using simulation; however, it may provide the most ideal solution given the complexity of the topology. Other solutions are acceptable when apply sound engineering judgement rather than simply dividing the current between the lines.

- d. Duke suggested that the SAR should address the low-side unit auxiliary transformer relays. The team concluded that the NERC System Protection and Control Subcommittee's report, *Unit Auxiliary Transformer Overcurrent Relay Loadability During a Transmission Depressed Voltage Condition*, addressed this concern previously and "[b]ased upon the information contained within this report, the SPCS recommends no further action."

3. Finalize documents (February 16, 2017)

C. Turner started the group off with the comment from ACES. Concerning the implementation plan, B. Burch recapped for the attendees the rationale on how the original team derived the implementation plan, which was five years for settings changes and seven if equipment had to be changed out or removed. The discussion transitioned to the time needed to implement the standard by wind farms for individual units. B. Burch noted that many inverters have an AC line side breaker that is intended to provide protection to the inverter from the system, not for overloading on the inverter. The relays are typically non-directional and set higher than what would be a concern to loadability.

ACES also raised Paragraph 81 as a consideration. S. Barfield-McGinnis provided a little background on the P81 concepts. Those include requirements that do little to improve reliability or are administrative in nature. C. Yeung gave his thoughts on what ACES may have been trying to point out. The team noted that the P81 criteria was assessed during the development of the standard and currently does not meet the criteria.

B. Davis noted that Type III generators cannot develop 130% loading because of the controls and circuitry. The protection systems are designed to allow the maximum output of the unit and to only trip on short circuit.

M. Sharifi noted that the 51 element in low voltage application is not well understood. It could be short circuit or an overload designation.

S. Barfield-McGinnis brought attention to the team on an item raised by an industry stakeholder outside of the meeting. The concern pertained to Figure 1 in the Guidelines and Technical Basis of the standard. The relay located on the transmission end of the line(s) exclusively used to export energy to the transmission system does not appear to be addressed within the standard. The team concluded that it is within the spectrum of PRC-025-1. An issue item was taken to propose a minor revision to clarify the text associated with the figure and to revise the figure.

4. Next steps

S. Barfield-McGinnis noted that the next steps will be to have one or two more calls to finalize documents.

5. Future meeting(s)

Conference calls scheduled for March 2, 9, and 16, 2017, 2:00 – 4:00 p.m. Eastern.

6. Adjourn