NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

Meeting Notes
Project 2016-EPR-02

August 11, 2016

Conference Call

Administrative

1. **Introductions**

   The meeting was brought to order by the Chair S. Solis at 3:00 p.m. Eastern, Thursday, August 11, 2016. S. Solis provided the team with general comments and a welcome introduction. Participants were introduced and those in attendance were:

Name	Company	Member/ Observer
Stephen Solis	Electric Reliability Council of Texas, Inc.	Chair
Dennis Sauriol	American Electric Power	Vice Chair
Alex Chua	Pacific Gas & Electric	Member
Kevin Harrison	ITC Holdings	Member
Bill Harm	PJM Interconnection, LLC	Member
Tim Kucey	PSEG Fossil, LLC	Member
Michael Scott	NextEra Energy, Inc.	Member
Scott Barfield-McGinnis	North American Electric Reliability Corporation	NERC Staff
Lauren Perotti	North American Electric Reliability Corporation	NERC Staff
Amy Casuscelli	Xcel Energy, Inc.	Observer
Al Engelmann	Commonwealth Edison (Exelon)	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 all seven members were present.

3. **NERC Antitrust Compliance Guidelines and Public Announcement**
   NERC Antitrust Compliance Guidelines and public announcement were reviewed 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.

Agenda

1. **Review of Standards Development Information**
   S. Barfield-McGinnis walked attendees on the call through the resources they will use as a part of the enhanced periodic review (EPR). Resources include the Standard Committee (SC) Standard Review Team grading document and comment report, Drafting Team Resources (provided prior to project work), and the project background document developed by S. Barfield-McGinnis to provide an easy reference for the team's use to all things related to VAR. S. Solis suggested adding a link in the resource document for a prior VAR project, 2013-04. He also noted that he is participating on another standard drafting team for Project 2015-09 – Establish and Communicate System Operating Limits that is reviewing the definitions around System Operating Limits which includes system voltage limits. S. Solis will keep the team informed of developments in 2015-09 and provide cross-project coordination with the enhanced periodic review. S. Barfield-McGinnis highlighted the importance of understanding how projects and other industry work may impact the team's EPR. For example, the recently posted draft Reliability Guideline concerning Reactive Power Planning and Operations (June 2016).

   T. Kucey asked to what extent would the EPR team present potential revisions to the VAR standards. For example, would the team be redlining a standard during its first in-person meeting? S. Barfield-McGinnis explained that the team would be focusing on any deficiencies according to the EPR process. Any deficiencies would be scoped and presented in the form of a Standards Authorization Request (SAR) then presented to the SC for authorization to post for industry comment. Although the team may need to discuss specific language in a standard to perhaps reveal scoping problems with the SAR, a redline to the standard(s) would generally not be presented contemporaneously with the SAR. S. Solis asked if the team is limited to the review process or can the team bring specific issues for consideration. S. Barfield-McGinnis noted that the sky is the limit. If issues are known to industry, the team needs to consider those as a part of their review. There is nothing wrong with creating a punch list or parking lot of items for consideration and discussion. The goal is to make sure the standards meet the ERP criteria for steady-state, but also ensure they are current with today's Bulk Electric System operations and industry practices. A team member asked if the EPR team would be drafting items presented in a SAR. S. Barfield-McGinnis responded that if the EPR team presented a SAR to the SC, the SC could elect to maintain the current team for revising the standard. If there is a technical reason to do so, the SC may direct NERC to augment the team with additional members. The EPR team was kept small in case

additions were necessary. It is unlikely that the SC will decide to appoint a new team for revising the standards.

2. **Future meeting(s)**
   a. Wednesday, August 17, 2016 | Conference Call
   b. Thursday, September 1, 2016 | Conference Call
   c. Wednesday-Friday, September 7-9, 2016 | In-person meeting at PJM
3. **Adjourn**
   The meeting adjourned at 4:15 p.m. Eastern, Thursday, August 11, 2016

NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

Meeting Notes
Project 2016-EPR-02

August 17, 2016

Conference Call

Administrative

1. **Introductions**

   The meeting was brought to order by the Chair S. Solis at 3:05 p.m. Eastern, Wednesday, August 17, 2016. S. Solis provided the team with general comments and a welcome introduction. Participants were introduced and those in attendance were:

Name	Company	Member/ Observer
Stephen Solis	Electric Reliability Council of Texas, Inc.	Chair
Dennis Sauriol	American Electric Power	Vice Chair
Kevin Harrison	ITC Holdings	Member
Bill Harm	PJM Interconnection, LLC	Member
Tim Kucey	PSEG Fossil, LLC	Member
Michael Scott	NextEra Energy, Inc.	Member
Scott Barfield-McGinnis	North American Electric Reliability Corporation	NERC Staff
Lauren Perotti	North American Electric Reliability Corporation	NERC Staff
Juan Villar	Federal Energy Regulatory Commission	Observer
Amy Casuscelli	Xcel Energy, Inc.	Observer
Michael Cruz-Montes	CenterPoint Energy	Observer
Michael Godbout	Hydro Québec-TransÉnergie	Observer
Nick Giffin	ATC	Observer
Alan Engelmann	Commonwealth Edison (Exelon)	Observer

Name	Company	Member/ Observer
Andy Pusztai	ATC, LLC	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 six of the seven total members were present.
3. **NERC Antitrust Compliance Guidelines and Public Announcement**
   NERC Antitrust Compliance Guidelines and public announcement were reviewed 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.

Agenda

1. **Review VAR History and Project Background**
   S. Solis noted that the ERCOT Voltage and Reactive Requirements and Compliance Monitoring[1] document listed in the SDT Background Document is rather old and to be mindful there are newer documents. B. Harm noted that the Transmission Information Subcommittee (now the System Analysis & Modeling Subcommittee or SAMS) whitepaper[2] is being replaced by the draft Reliability Guideline – Reactive Power Planning and Operations (June 2016)[3] and is currently posted for comment. Also, B. Harm can be the SAMS liaison for the team.

   It was mentioned that FERC Order No. 827[4] is eliminating the exemptions for wind generators from the requirement to provide reactive power (by revising the Large Generator Interconnection Agreement or LGIA). S. Solis stated that members may confuse the VAR-001, R1 voltage schedule with voltage limit.

   A. Engelman asked if the team would be considering the MRO Feedback loop concerning VAR-001. S. Barfield responded that he had the MRO Standards Authorization Request and would distribute it to the team.

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[1] https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=9&cad=rja&uact=8&ved=0ahUKEwiw1ufuvqrOAhUCJCYKHeo6Bj4QFghOMAg&url=http%3A%2F%2Fwww.ercot.com%2Fcontent%2Fmeetings%2Ftac%2Fkeydocs%2F2003%2F0508%2FTAC05082003-7.doc&usg=AFQjCNENavSHtSDh--vluNJ0AuGosB0h7A&bvm=bv.128617741,d.eWE

[2] Reactive Support and Control Whitepaper TIS (Transmission Issues Subcommittee) - Reactive Support and Control Subteam, May 18, 2009, http://www.nerc.com/pa/stand/project%20200801%20voltage%20and%20reactive%20planning%20and%20c/project2008-01_white_paper_2009may18_appendix_1-11_2009aug17.pdf

[3] http://www.nerc.com/comm/PC/Documents/Reliability%20Guideline%20-%20Reactive%20Power%20Planning%20and%20Operations.pdf

[4] FERC Order No. 827, Reactive Power Requirements for Non-Synchronous Generation, 155 FERC ¶ 61,277, June 16, 2016, http://www.ferc.gov/whats-new/comm-meet/2016/061616/E-1.pdf.

2. **Review Independent Expert Review Panel criteria**
   S. Barfield provided a review of the Independent Expert Review Panel (IERP) report (June 2013) pertaining to the Content and Quality criteria the team would use as a starting point.

3. **Review Grading Criteria**
   S. Barfield presented a blank Standards Grading Tool (spreadsheet) that was used by the Standards Committee Standing Review Team for grading a number of Reliability Standards. He noted that he would populate the three Content criteria questions and 12 Quality criteria from the IERP report into the tool and send it to team members to be completed by August 30, 2016. S. Barfield will aggregate responses prior to the conference call on September 1, 2016.

   S. Solis mentioned that team members should also record any items that are notable when conducting their reviews. For example, S. Solis has observed confusion between voltage limits and voltage schedule described in VAR-001-4, R1. S. Barfield noted that the team could simply list those in an MS Word document, separate from the grading review.

4. **Future meeting(s)**
   a. Thursday, September 1, 2016 | Conference Call
   b. Wednesday-Friday, September 7-9 | In-person meeting at PJM

5. **Adjourn**
   The meeting adjourned at 3:58 p.m. Eastern, Wednesday, August 17, 2016

NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

Meeting Notes
Project 2016-EPR-02

September 1, 2016

Conference Call

Administrative

1. **Introductions**

   The meeting was brought to order by the Chair S. Solis at 12:04 p.m. Eastern, Thursday, September 1, 2016. S. Solis provided the team with general comments and a welcome introduction. Participants were introduced and those in attendance were:

Name	Company	Member/ Observer
Stephen Solis	Electric Reliability Council of Texas, Inc.	Chair
Alex Chua	Pacific Gas & Electric	Member
Kevin Harrison	ITC Holdings	Member
Bill Harm	PJM Interconnection, LLC	Member
Tim Kucey	PSEG Fossil, LLC	Member
Michael Scott	NextEra Energy, Inc.	Member
Laura Anderson	North American Electric Reliability Corporation	NERC Staff
Scott Barfield-McGinnis	North American Electric Reliability Corporation	NERC Staff
Lauren Perotti	North American Electric Reliability Corporation	NERC Staff
Juan Villar	Federal Energy Regulatory Commission	Observer
Juan Luz	Federal Energy Regulatory Commission	Observer
Ayesha Bari	Entergy	Observer
Wendy Croft	Exelon Nuclear	Observer
Amy Casuscelli	Xcel Energy, Inc.	Observer

Name	Company	Member/ Observer
Alan Engelmann	Commonwealth Edison (Exelon)	Observer
Sharma Kolluri	Entergy	Observer
Alison MacKellar	Exelon Nuclear	Observer
Mary Peterson	Entergy	Observer
Andy Pusztai	ATC, LLC	Observer
Chris Scanlon	Exelon	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 six of the seven total members were present.
3. **NERC Antitrust Compliance Guidelines and Public Announcement**
   NERC Antitrust Compliance Guidelines and public announcement were reviewed 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.

Agenda

1. **Review Summary of Team's Preliminary Review**
   The team reviewed the grading spreadsheet with the contributors input. The following are the highlights:

   For VAR-001-4.1, Requirement R1, the content question regarding **is the content of the requirement technically correct, including identifying who does what and when**? T. Kucey provided detail concerning his comments that in addition to a schedule ("which is either a range or a target value with an associated tolerance band") the Transmission Operator must identify acceptable deviation tolerances from the schedule in terms of time and/or magnitude (including direction), or some combination of these. As an example, an excursion outside of range or tolerance band like an Area Control Error (ACE) exceedance requirements in BAL-002 (15 min ACE recovery limit) and BAL-001 Control Performance Standard 1 (CPS1).

   Should the requirement stand alone as is or should it be consolidated with other standards? T. Kucey questioned whether it is an appropriate place in NERC standards to require a system voltage schedule (that is assuming this requirement is intending that the system voltage schedule be the

same concept as system voltage limits). S. Solis questioned whether voltage schedule need to be clarified or defined? It has been often misinterpreted to be synonymous with voltage limits. The draft Reactive Guideline[1] document does offer clarity. Also, is this voltage schedule at every Transmission bus, or only at the busses that correspond to Requirement R5, or all of the above? Does Requirement R1 work with System Operating Limits (SOL) and Interconnecting Reliability Operating Limits (IROL) with the new Operations Planning Assessment (OPA), which includes the next day or greater concept, in the Transmission Operations (i.e., TOP Standards) family of standards that will become effective April 1, 2016. (i.e., how do you know what the SOLs/IROLs are other than voltage limits, months in advance? Should there be off-line studies or analysis?). Part 1.1 may be duplicative of IRO-010-2 (*Reliability Coordinator Data Specification and Collection*) and TOP-003-3 (*Operational Reliability Data*) data specification, or any other Reliability Standards. What if an entity has reactive optimization in a next-day process and how do modifications of voltage schedules fit in with a 30-day delivery if Operations Planning can be up to a next-day time frame?

VAR-001-4.1, Requirement R2 concerning whether it would be **appropriate as a guide rather than a standard**? T. Kucey noted that it could be, partially. The statement "Transmission Operators (TOP) can provide sufficient reactive resources through various means including, but not limited to, reactive generation scheduling, transmission line and reactive resource switching, and using controllable load" is guidance or a measure and is unnecessary in the requirement. Perhaps the requirement should be moved to a guidance section or document. Also, the requirement does not provide a timeframe. For **measurability**, K. Harrison noted that there seems to be a lack of clarity between planned and operating conditions of Requirement R2 and even Requirement R1. S. Solis stated that he believes that Requirement R2 is more day-ahead. For terms in Requirement R2, T. Kucey noted that "controllable load" not defined. Could or should a Glossary term be set up for it and "Reactive Resources," for example? K. Harrison had an input comment about what are “normal and Contingency conditions” as opposed to referencing operating within SOL and IROL conditions.

S. Solis noted that Requirement R2 uses "schedule" in one place and "provide" in another and uses somewhat ambiguous terminology in "sufficient to regulate" which can vary with interpretations. The term "schedule" should be clarified. Contingency conditions could be interpreted either as single, multiple, or consistent with the use of “post contingency” in the defined terms of Real-time Assessment (RTA) and OPA, therefore should be evaluated. The second sentence (R2) is not a requirement but rather an informative sentence and could move to a guideline or measure. Also, TOPs in themselves do not have direct control of some reactive resources and, for example, would have to instruct a Balancing Authority (BA) or Generator Operator (GOP) to activate or deactivate certain reactive resources or bring on additional generation.

[1] NERC Reliability Guideline (DRAFT), Reactive Power Planning and Operations, June 2016, (http://www.nerc.com/comm/PC/Documents/Reliability%20Guideline%20-%20Reactive%20Power%20Planning%20and%20Operations.pdf)

VAR-001-4.1, Requirement R3 concerning **does the requirement meet Paragraph 81 criteria**? T. Kucey raised a concern that it potentially overlaps or may be redundant to TOP-001-3 (), which will become effective April 1, 2017. TOP-001-3 (*Transmission Operations*) requires the TOP to direct actions (Requirement R1) to maintain reliability or are there other TOP or Interconnection Reliability Operations and Coordination (i.e., "IRO") standards that cover the need in the requirement?

VAR-001, Requirement R4, T. Kucey pointed out an auditor could ask for evidence that the TOP provided the criteria to GOPs for cases where the GOP had not actually made a request. Other meeting attendees expressed support for a requirement that could be structured to avoid inadvertently placing a compliance burden on the TOP. S. Solis noted that a timeframe may need to be considered as well.

The team will resume its review and discussion starting with Requirement R5 during their in-person meeting at PJM next week. The remaining time of the meeting was spent covering logistics for the meeting next week.

2. **Parking Lot Items**

VAR-001, R1: (1) Consider adding clarity to the need for a voltage schedule. For example, looking at the Facilities Design, Connections, and Maintenance (FAC) family of standards. How does the voltage schedule add to reliability? (2) Should "system voltage limit" be defined as a NERC Glossary term? (3) The main requirement uses singular "voltage schedule" and part 1.1 uses "voltages schedules." (4) As a general practice for data or information transaction, the team needs to ask if the transaction component is redundant (e.g., a Paragraph 81[2] question, with IRO standards).

VAR-001, R2: (1) Components of the requirement may need to go to a guideline. (2) The appropriateness of the applicable entities needs to be evaluated. (3) The requirement does not have a timeframe (e.g., Day-ahead or Real-time) and should be discussed. (4) There seems to be a lack of clarity between planned and operating conditions (confirm with Functional Model).

VAR-001, R3: (1) This requirement may be duplicative of TOP/IRO standards. (2) The team should evaluate the how the requirement fits with the need for monitor and ensure sufficient reactive reserves. This context may have been lost with prior revisions of the standard. (3) Consider relationship of requirement to VAR-002, directing the Generator Operator (it is not limited to GOPs only). (4) Review the Midwest Reliability Organization (MRO) Standards Authorization Request (SAR) with respect to requirement. (5) Define the term "devices?".

VAR-001, R4: (1) Consider the structure of the requirement as it may lead an auditor to ask for evidence that the TOP provided the criteria to GOPs for cases where the GOP has not made a request. (2) Consider the need for a timeframe. (3) Part 4.1 does not differentiate that the GOP is the "requesting" GOP.

[2] http://www.nerc.com/pa/Stand/Pages/Project2013-02_Paragraph_81.aspx

VAR-001, R5: Consider how to address excursions outside the schedule for a GOP.

3. **Future meeting(s)**

   PJM, September 7-9, 2016

   a. Roundtable discussion on voltage schedules in general.

   b. Roundtable discussion on reactive reserves (e.g., for small units that are operating at the upper end of the reactive out to meet the voltage schedule). Is this good for reliability?

4. **Adjourn**

   The meeting adjourned at 2:00 p.m. Eastern, Thursday, September 1, 2016