NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

Meeting Notes

Project 2010-17 Definition of Bulk Electric System (Phase 2) Standard Drafting Team

July 30-31, 2013

Tampa, FL

Administrative

1. **Introductions**
   Pete Heidrich called the meeting to order at 8:00 a.m ET on Tuesday, July 30, 2013 at the FRCC offices in Tampa, FL. Meeting participants were:

Members			
Jennifer Dering, NYPA	Brian Evans-Mongeon, Utility Services	Phil Fedora, NPCC	Ajay Garg, Hydro One
Pete Heidrich, FRCC, Chair	John Hughes, ELCON (day two only)	Barry Lawson, NRECA, Vice Chair	Jeff Mitchell, RFC
Rich Salgo, Sierra Pacific	Jason Snodgrass, GTC	Jennifer Sterling, Exelon	Jonathan Sykes, PG&E
Ed Dobrowolski, NERC			
Observers			
Sean Cavote, NERC	David Dockery, AECI	Tom Duffy, CHGE	Mike Gildea, NERC
Jeff Gindling, Duke	Bill Harm, PJM	Deb Horner, Section 8	Kim Israelsson, WECC
Ruth Kloecker, ITC	Ken Lotterhos, Navigant	Herb Schrayshuen, Power Advisors	DeWayne Scott, TVA
Ken Shortt, Pacificorp	Tim Soles, Occidental	Phil Tatro, NERC	Stacey Tyrewala, NERC

2. **FRCC Logistics and Safety Information**
   Pete Heidrich provided thelogistics and safety information for the FRCC office.
3. **Determination of Quorum**
   Quorum was attained.
4. **NERC Antitrust Compliance Guidelines and Public Announcement**
   The NERC Antitrust Compliance Guidelines and public announcement were delivered.

5. **SDT Participant Conduct Policy**

   The SDT participant conduct policy was reviewed.

6. **SDT E-mail List Policy**

   The SDT e-mail list policy was reviewed.

7. **Membership Changes and Roster Updates**

   Jonathan Sykes updated his contact information to the following:

   Jonathan Sykes, P.E.
   Sr. Manager of System Protection
   PG&E
   6111 Bollinger Canyon Rd.
   Room 2350b
   San Ramon, CA 94602
   1.925.328.5470 (Office)

8. **Review Agenda and Objectives**

   The agenda was approved as posted.
   The objective of this meeting was to finalize all material required for the next posting.

9. **Review of Previous Action Items**

   The sub-team working on the technical justification for sub-100 kV loop analysis will draft a white paper on the topic by June 24, 2013and have a final version ready by July 23, 2013.

   The white paper was distributed to the SDT on July 26, 2013. This item is complete.

10. **Review of Webinar – Pete Heidrich**

    The webinar was held on Wednesday, June 26, 2013 with approximately 450 attendees. The prepared material covered the revisions made in the first posting and is available on the project web page.

11. **Review of Ballot Results – Pete Heidrich**

    The ballot closed on Friday, July 12, 2013. Quorum was achieved but the approval rating was only approximately 50%. In the next posting, the SDT needs to attempt to resolve the commented issues so that approval can be achieved.

12. **Review of Meeting with FERC Staff – Pete Heidrich**

    The SDT leadership met with FERC staff (Office of Electric Reliability and Office of General Counsel) on Monday, July 1, 2013. Staff was encouraged with the first posting revisions. While this included the sub-100 kV loop threshold concept, staff is reserving final judgment until the technical

justification is received. There is an outstanding concern about the schedule and the ability to respond to the directives by year-end.

13. **Review Draft White Paper for sub-100 kV Loop Analysis Approach – Jonathan Sykes**

Jonathan distributed a Power Point presentation highlighting the results of the sub-team analysis.

Step 1 was a coarse screening approach to find the lowest voltage monitored in the eight regions. The sub-team was interested in line elements and not equipment. Data from TVA is not in the attachment but the sub-team did investigate its data. Only 2.5% of monitored elements are below 100 kV and none are below 30 kV. Therefore, 30 kV was selected as the starting point for step 2.

Step 2 determined the voltage level at which a single contingency on the transmission system would cause flows on the low voltage system. Actual examples were utilized and sensitivities were employed on all of the variables. Power System Simulator for Engineering (PSSE) was the tool used for the analysis. 115 kV transmission was used as this presents the worst-case scenario and thus the most conservative approach. Line Outage Distribution Factors (LODF) are shown but it was not the primary factor in the determination. The data in Appendix 1 is confidential in nature as it identifies specific equipment and locations and will be redacted in the posted version of the paper but it will be necessary for the filing. In order to protect the confidentiality of the data two versions of the filing will be made: one public version with the data redacted and one private, confidential version for FERC only. Distribution cases showed no flow reversal up to and including 46 kV. Sub-transmission cases showed flow reversal at 55 kV.

Thus, the sub-team recommends the selection of 50 kV for the threshold. This is a value between the 2 somewhat common operating points (46 and 55 kV) but represents an actual number that doesn't conflict with any known operating level.

SDT members questioned why the 46 kV case was only run against a 155 kV system. This is because the higher transmission value is not needed since the laws of physics for higher transmission voltage levels make it nearly impossible to achieve flow reversal. A sentence will be added to the report to reflect this.

FERC staff had several comments on the report:

- On page 8, Z_{tr} needs to be defined
- Clear non-engineering terms should be used wherever possible
- Clarity is needed as to what 'weak', 'medium', and 'strong' transmission networks means
- Navigation bookmarks would be a welcome addition
- There should be an Executive Summary
- The Executive Summary should contain language explaining the physical mechanisms and equipment that entities routinely employ to prevent reverse flows
- 'All cases' should be changed to something like 'all cases depicted in the analysis to reasonably determine the floor voltage of 50 kV'

- Provide a legend of the parameters represented in the appendices

The sub-team will make as many of these changes as it can prior to the posting and will postpone the others until the final draft.

There is a need to emphasize that the sub-100 kV looping elements are not automatically designated as BES elements.

The SDT leadership congratulated the sub-team on a job well done, particularly in terms of the aggressive schedule that was needed to allow the white paper to be posted with the second posting.

The SDT accepted the 50 kV recommendation

14. **Review Draft Responses to First Posting Comment Form**

Q1 – Rich Salgo
Main concerns were sweeping in the sub-100 kV elements (that is not the case), out flow considerations for local networks (none are allowed and the measure is explained in the Reference Document), the 2nd reference to 100 kV that was not deleted (still needed so retained), permanent flowgate language (still needed so retained), and the 30 kV threshold value (changed to 50 kV due to recommendation in the white paper)

Q2 – Jason Snodgrass
Concerns included adding the term 'BES generation' to Exclusion E1b (redundant – not necessary), retention of the 75 MVA threshold (needed for non-BES generation accumulation), confusion over generator terminals for dispersed power producing resources (not necessary with re-institution of Inclusion I4), confusion over BES generation disqualifying the E3 exclusion (follow the hierarchy of application of the definition), whether Cranking Paths were now in the BES (they are not), and the 30 kV threshold value.

A diagram will need to be added to the Reference Document to show why the 75 MVA threshold is still needed for Exclusions E1 and E3.

Action Item – Pete Heidrich to add a diagram(s) to the Reference Document to show why the 75 MVA threshold is still needed for Exclusions E1 and E3

Q3 – Jonathan Sykes
The chief concerns with this question were the 30 kV threshold, the sub-100 kV equipment being swept into the BES, and use of the note mechanism (retaining the present set-up for consistency).

Q4 – Jennifer Dering & Brian Evans-Mongeon
The main concerns were not realizing that Phase 1 brought in individual dispersed power producing resources when they aggregated to 75 MVA, confusion over generator terminals for dispersed power producing resources, multi-transformation levels (handled in the Reference Document), and

including collector systems when not directed to do so (although several commenters expressed that this was the right thing to do).
There were several comments spread through multiple questions stating that the SDT needed to address the applicability of current standards due to the revisions in the BES definition. Such an exercise is beyond the scope of the SDT. Entities who have such concerns should submit a SAR to address the situation.

To address the 75 MVA aggregation comments, the SDT re-instituted Inclusion I4 with appropriate language so that the aggregation facilities, from the point where generation accumulates to greater than 75 MVA to the connection point with the BES, are now included in the BES. In such situations, the individual generating units were included by the Commission's acceptance of Phase 1. (The equipment between the individual generating units and the aggregation point is distribution level voltages and as such is not included in the BES.)

Q5 – Phil Fedora
The issues brought up in comments included: (1) Inclusion I2 – changing 'OR' to 'Or'; (2) Exclusion E3 – questions on the type of flowgates referenced (no change made); and (3) Exclusion E4 – pluralize customers.

Q6 – Pete Heidrich
A number of issues were raised: sub-100 kV loop equipment clarification, non-retail generation definition (provided in the Reference Document), review of standard applicability (not in scope for SDT), semantics on use of notes, time duration for blackstart units (not considered as pertinent by SDT) , single point of connection clarification (handled in the Reference Document), PC report threshold values (out of control of the SDT), Reference Document update (see item #17), output from local networks, normal/emergency application of definition (definition is stateless), use of flowgate terminology, contiguity of reactive resources (contiguity issues from Orders addressed), and a change to the implementation date language (suggested change made)

15. **Develop Revisions to the BES Definition (if necessary) Based on the Comments Received**

    Proposed revisions to the definition were made as the comments were reviewed and discussed.

16. **Develop Comment Form for Second Posting of Phase 2**

    There will be 4 questions for the second posting. Question 1 will be handled by Phil Fedora and will be about the re-institution of Inclusion I4. Question 2 will be on the shift from 30 kV to 50 kV for the loop analysis issue and will be answered by Jonathan Sykes. Question 3 will be done by Rich Salgo and will be about the addition of 'real' as a clarification in Exclusion E3. Question 4 will be the catch-all question and will be completed by Pete Heidrich.

17. **Discuss Phase 2 Reference Document**

    The Reference Document will be updated in a timeframe similar to that of Phase 1. When the definition is finalized, the changes will be made and posted for industry comment and questions.

18. **Phase 2 Schedule**

The goal is still to provide an approved definition to the Board for its November 7, 2013 meeting and to file no later than the end of the year. The SDT decided to continue the present course of action and to request a posting for a successive comment and ballot period. The original schedule approved by the Standards Committee showed all successive comment periods at 30 days. However, the newly approved Standards Process Manual requires 45 day successive comment periods. Therefore, to continue with the project schedule as originally planned, the SDT leadership and NERC staff is going to request a waiver from the Standards Committee of the 45 day posting requirement. If this successive ballot is successful, then the next posting would be the recirculation ballot.

19. **Next Steps**

The next step in the process is to achieve posting no later than August 7, 2013. Documents will be submitted to Quality Review as quickly as possible in order to achieve this milestone.

20. **Future Meetings**

There will be a webinar for the second posting. When the date is finalized, a notice will be distributed.

Due to the uncertainty in whether the next step will be another successive ballot or a recirculation ballot and the need for members to have sufficient advance notice to obtain reasonable airfares, the next meeting will be a web/conference call on Tuesday, September 24, 2013 from 11:00 a.m. to 5:00 p.m. EDT and Wednesday, September 25, 2013 from 11:00 a.m. to 5:00 p.m. EDT. Details will be distributed at a later date.

21. **Action Item Review**

The following action item was developed during the meeting:

- Pete Heidrich to add a diagram(s) to the Reference Document to show why the 75 MVA threshold is still needed for Exclusions E1 and E3.

22. **Adjourn**

The SDT thanked FRCC for its hospitality and the Chair adjourned the meeting at 1:00 p.m. ET on Wednesday, July 31, 2013.