NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

Conference Call Notes
Underfrequency Load Shedding SDT — Project 2007-01

April 2, 2009 | 1–2:30 p.m. Eastern
Conference Call

1. Administrative

a) Roll Call

Stephanie Monzon will welcome the members and guests of the Standard Drafting Team for Project 2007-01 Underfrequency Load Shedding (see Roster — **Attachment 1a**).

- Philip Tatro — National Grid (Chair)
- Paul Attaway — Georgia Transmission Corporation
- Brian Bartos — Bandera Electric Cooperative
- Jonathan Glidewell — Southern Company Transmission Co.
- Gerald Keenan — Northwest Power Pool Corporation
- Robert W. Millard — ReliabilityFirst Corporation
- Steven Myers — Electric Reliability Council of Texas, Inc.
- Mak Nagle — Southwest Power Pool
- Robert J. O'Keefe — American Electric Power
- Brian Evans Mongeon — Utility Services, LLC
- Tony Rodrigues — Pacificorp
- Stephanie Monzon — NERC

Observers

- Anthony Jablonski — ReliabilityFirst Corporation
- Scott Sells — FERC Staff
- Scott Berry — Indiana Municipal Power Agency

b) NERC Antitrust Compliance Guidelines

Stephanie Monzon will review the NERC Antitrust Compliance Guidelines provided in **Attachment 1b**. It is NERC's policy and practice to obey the antitrust laws and to avoid all conduct that unreasonably restrains competition. This policy requires the avoidance of any conduct that violates, or that might appear to violate, the antitrust laws. Among other things, the antitrust laws forbid any agreement between or among competitors regarding prices, availability of service, product design, terms of sale, division of markets, allocation of customers or any other activity that unreasonably restrains competition. It is the

responsibility of every NERC participant and employee who may in any way affect NERC's compliance with the antitrust laws to carry out this commitment.

2. Discussion about Adding a Team Member to Address the Quebec Variance

Stephanie initiated this discussion because a request that was submitted by Guy Zito to Dave T. to add a member to the team to address this Variance. His request was to have the SC approve this person to join the UFLS SDT at their next meeting (mid-April). If this team member is added the team will address the Variance as a part of its activities and will post the Variance requirements along side the continent wide requirements. Stephanie asked the team to address this approach — the team would have to support adding this person to the team.

3. Discussion with PRC-024 Generator Verification Team — Impact to Draft Standard

The team met via conference call with the Generator Verification Standard Drafting Team (GVSDT) to discuss the frequency settings in their respective standards. The GVSDT provided the team feedback. The team will review the feedback and will discuss impact to the standard.

Notes Based on Phil T's e-mail to the team (March 24, 2009):

Apparent Miscoordination between the PRC-024 Curve and UFLS Requirement R6.2

"We discussed the apparent miscoordination between the generator underfrequency tripping requirement proposed in PRC-024 and the UFLS performance characteristics proposed in our Regional Reliability Standard Characteristics and our draft continent-wide standard. We asked the GVSDT team members whether they would consider a request to modify their proposed curve to coordinate with our standard. I have attached an Excel file (UFLS PRC-024 Comparison with Alternates.xls) that shows the proposed PRC-024 curve (salmon) and our proposed performance characteristic (red). I also have indicated the modification to the PRC-024 curve that we requested (olive). Rick Terrill of the GVSDT indicated he thought this request could be accommodated without jeopardizing coordination with turbine limitations, but he would like his team to review the request, in particular with emphasis on the ability to set protective relays to coordinate with both the revised curve and the turbine limitations. Rick will be getting back to us with how long the review may take, but we should have an answer before our call next Thursday. GVSDT members requested that we also consider whether we could modify our performance characteristics in the event our request cannot be accommodated, or if the GVSDT is able to meet us part way between the existing and requested curves. I have added in the Excel spreadsheet two (of potentially many) ways we could revise our characteristic. The first alternate curve (blue) adds another point in Requirement R6.2 while the second alternate (green) specifies a curve that parallels the PRC-024 curve maintaining 0.2 Hz margin to ~800 s.

I have attached two additional Excel spreadsheets. The first (Generator PRC-024 Comparison with Alternates.xls) illustrates the impact on coordination with turbine limitations resulting from our requested modification to the PRC-024 generator underfrequency tripping requirement. The file shows relation between the PRC-024 proposed curve (salmon), the alternate proposal (olive), and the turbine capabilities used by the GVSDT in developing their standard. The second (Regions PRC-024 Comparison with Alternates.xls) illustrates the relation between the PRC-024 proposed curve (salmon), the alternate proposal (olive), and the existing regional requirements.

On our conference call we will discuss the GVSDT response, any concerns our UFLSDT members may have with our alternate proposal for the PRC-024 curve, and alternatives we may pursue, if necessary, to modify our performance characteristic.

Proposed Modification to Our Frequency Overshoot Limit in UFLS Requirement R6.3

We also discussed the change we considered on our last call to raise the frequency overshoot limit in Requirement R6.3 to 62.0 Hz. The GVSDT did not have any concern with this change.

On our conference call we will discuss any concerns our UFLSDT members may have with this change and agree on a final value to be included in our continent-wide standard: the original value of 61.5 Hz, the revised value of 62.0 Hz, or some value in between.

Phil provided a summary of the discussion with the GVSDT team. Two issues were discussed

- It is not readily apparent that there is not a miscoordination between the PRC-024 curve and the UFLS curve. 57.8 at two seconds could move it to 57.8 at five seconds this would allow it to coordinate with our characteristics when plotted as a staircase function. The team could also modify our characteristics to coordinate with the GVSDT. One way to do it would be to add a sub-requirement to requirement R6 with another point or we could provide a curve which would require more explaining at the next posting. Rob and Bob suggested that moving the UFLS UF characteristics would be the preferred approach since moving the generator curve on the PRC-024 side has more impact. Phil asked if anyone objected to adding a point and none objected. The team agreed to change Requirement R6.2 to add 58.2 Hz for four seconds. The team will have to modify the response to comments and the comment form.
- The overfrequency performance characteristics were also discussed in particular the 62.0 Hz with the GVSDT. The GVSDT did not have concerns with this team moving to 62.0 Hz from 61.5 Hz. Rob has

concerns with moving it to 62.0 Hz – the .2 Hz margin is not large enough. Rob thinks that allowing more margin will constrain the simulation and less likely to design a UFLS program that would exceed the upper bound set in the standard. Phil acknowledged this concern and suggested that moving it to 61.8 (Requirement R6.3) would allow greater margin and provide extra room for designing for a more realistic governing response. It would also tie in with some of the comments that were received during the first posting. Bob agreed that addressing the comments would be beneficial – making the requirement 61.8 Hz. The team will have to modify the response to comments.

4. Review Feedback on Draft Standard

The draft standard and associated documents were provided to Maureen Long for review prior to posting. Maureen provided feedback on the draft standard. The team will review and discuss the feedback and determine impact on the draft standard. Based on the comments it is suggested that the team discuss the comments related to the following:

- Responsible entity issues (R1-R9)
- Lack of reliability-based purpose (R3, R10-R12)
- Unclear performance requirements (R2-R7, R12)

5. Mapping Document, Comment Form, and Response to Comments

The team did not discuss these documents as time ran out during the call.

6. Project Schedule

Stephanie Monzon did not review the project schedule during the call.

7. Action Items

Stephanie Monzon reviewed the actions that were open at the end of the meeting.

Action Items:	Status:	Assigned To:
The remaining questions for the comment report: Question 6: Phil T. and Jonathan Question 7: Gary K. Question 8: Larry B. and Bob M. Question 9: Rob O.	**Completed**	See first column
Stephanie will compile the draft responses and send out to the SDT prior to the next meeting (October 22–23).	**Completed**	Stephanie
Stephanie will draft the first draft of Option 3 and distribute to a sub group for review. Stephanie will use the description of Option 3 to facilitate her initial discussion with Gerry Adamski and Dave Cook.	**Completed**	

Action Items:	Status:	Assigned To:
Stephanie will be expecting Dana, Rob, Phil, and Bob to weigh in on the draft description.		
Stephanie will follow up with the team via email regarding her initial discussion with NERC Management on the feasibility of Option 3.	**Completed**	
Stephanie to follow-up with Compliance and Standards to determine if the draft standard can require that the group of PC's use their regional standards development processes to develop the UFLS program.	**Created 2/11** **By 2/20 conference call**	Stephanie
Standard: The team needs to finalize the language in Requirement R6.4 — generator level	**Completed**	All
Response to Comments: Question 6: Phil and Jonathan have a draft for the **2/20** conference call (by 2/19) Completed Question 7: Rob and Brian M. to have a draft for the **2/20 call** (by 2/19) Completed Question 8: Brian Bartos to have a draft **for 2/27** conference call (by 2/24) — Phil provided a first pass to Question 8: completed Question 9: Rob to have a draft for **the 2/27** conference call (by 2/24) Completed	**Completed**	Rob, Brian B., Phil, Brian M.
General Response to Comments (Find/Replace) – Jonathan at the final pass of the comment report (March 4th) Jonathan emailed out a version of the comment report for review on the 3/4/09 call.	**Completed**	Jonathan
General Response to Comments — Summary of Comments — Stephanie and Phil to have a draft **2/27 (by 2/24)**	**Completed**	Stephanie, Phil
Mapping Document (characteristics to the draft standard) — Phil to create first draft by 2/24/09 (to be reviewed on the **2/27 call**) — Completed	**Completed**	Phil
Comment Form — Stephanie to have a draft for the **3/4 conference** call	**Completed**	Stephanie

8. Next Steps

Stephanie discussed the next meeting. She indicated that the team is available at the end of May for an in person meeting; however, the team would have to post in mid-April for this meeting to take place.

Date	Location	Comments
January 30, 2009 from 1–3 p.m. EST	Conference Call	Complete 1/13/09 agenda
February 11, 2009 from noon–5 p.m. Lunch February 12, 2009 from 8 a.m.–5 p.m. Lunch February 13, 2009 from 8 a.m.–noon	Austin, TX ERCOT Offices	ERCOT to host — confirmed with Steve
February 20, 2009 from 1–3 p.m. EST	Conference Call and WebEx	To discuss Question 6 and Question 7 (response to comments) and to discuss Requirement R6.4
February 27, 2009 from 1–3 p.m. EST	Conference Call and WebEx	To discuss Question 8 and Question 9, General Response to Comments (summary) and the Mapping Document.
March 2, 2009 from 2–5 p.m. EST	Conference Call and WebEx	To complete Question 9, Review Summary Responses to Comments and the Mapping document.
March 4, 2009 from 1–3 p.m. EST	Conference Call and WebEx	To discuss the Comment Form and one final review of the response to comments.
Canceled April 29–30, 2009 — 8 a.m.–5 p.m. both days	Atlanta	Jonathan confirmed Southern Co.'s availability
March 13, 2009 1–3:30 p.m. EST	Conference call and WebEx	To discuss the comment form, a final pass (by exception) of the mapping document and the response to comments and a review of the draft standard.
April 2, 2009	Conference call and WebEx	To discuss the call with the PRC-024 team.
PROPOSED **May 27–29**	In Person Meeting (Atlanta?)	Team to discuss at the next call (April

9. Adjourn