

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

January 30, 2009 | 1–3 p.m. Eastern Time

1. Administrative

a) Roll Call

Stephanie Monzon welcomed 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 — Bonneville Power Administration
- 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
- Robert Williams — Florida Municipal Power Agency
- Brian Evans Mongeon — Utility Services, LLC
- Stephanie Monzon — NERC

Observers

- Tony Jablonski — RFC

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. General Project Topics

Stephanie reported that she is working with the NERC meeting coordinator to arrange for a room in a nearby hotel for the first day of the next meeting (February 11 from 1–5 p.m. Central Time) since ERCOT did not have an available conference room for this first day. The following days the team will meet at the ERCOT offices.

Stephanie reported that the UFLS project completion is a NERC goal for 2009. As the project plan suggests the project is expected to be completed by late fourth quarter 2009.

3. Draft Standard (Performance Characteristics)

During the January 13–14, 2009 meeting in Austin, TX the team worked on the continent wide standards. The team did not complete a first pass at the standard. The team reviewed the remainder of the requirements on the call.

The team picked up at Requirement R7. Rob had proposed wording in place of R7 and the team reviewed his proposal. The team decided to eliminate R7 and work on Rob's wording. The team decided to split his suggested wording into two requirements R7 — Planning Coordinator requirement and R8 — Generator Owner requirement.

The team could not decide on the call what to do regarding Requirement R7 and Requirement R8. The group was divided between eliminating R7 or eliminating R8. Some argues that eliminating R7 would ensure that GO's are accountable for ensuring that the program characteristics are met. Others felt that R8 is only an option and not necessarily the only way to ensure that the program meets the performance characteristics. The team decided to engage the full team in its meeting in February to come to a decision.

The team made minor modifications to R9.

Brian M. had concerns with R11 because he is not sure that it allows for the DP to enter into a contractual agreement that would fulfill this requirement as the requirement implies that the DP must own this equipment. Brian suggested that revisiting the applicability discussion may address his concern with this requirement. Rob is going to send some language from the RFC standard that might help address his concern.

The team discussed R12 but the conversation was cut short due to the conference call ending. The team made some modifications to R12. Phil was concerned that the requirement is unclear. He is going to suggest some language to consider in Austin.

4. Project Schedule

Stephanie Monzon did not review the project schedule because of time constraints.

5. Action Items

Stephanie Monzon did not review the actions that were open at the end of the meeting January 13–14, 2009.

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. Stephanie will be expecting Dana, Rob, Phil, and Bob to weigh in on the draft description.	Completed	
Stephanie will follow up with the team via email regarding her initial discussion with NERC Management on the feasibility of Option 3.	Completed	

6. Next Steps

The group will identify next steps.

Date	Location	Comments
March 31–April 1, 2009	Atlanta, GA	SERC to host (Jonathan confirmed) Rescheduled to April (see below)
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

January 30, 2009 from 1–3 p.m. EST	Conference Call	Complete 1/13/09 agenda
April 29–30, 2009 8 a.m.–5 p.m. 8 a.m.–5 p.m.	Atlanta	Jonathan to confirm Southern Co.’s availability
February 27, 2009 from 1–3 p.m. EST	Conference Call	Follow up to the in person meeting in Austin

7. Adjourn

The meeting adjourned at approximately 3:30 p.m. EST.

New definitions to be submitted with the standard:

Coherent Generation Groups: [Need to come up with a definition.]

Island: A portion of a power system or several power systems that is electrically separated from the interconnection due to the disconnection of transmission system elements.

Annually: Once per calendar year, at about the same time each year (plus or minus 1 month).

A. Introduction

1. **Title:** Underfrequency Load Shedding
2. **Number:** PRC-006-01
3. **Purpose:** Establish requirements for the documentation, development, and implementation of automatic underfrequency load shedding (UFLS) programs to arrest declining frequency and assist recovery of frequency following a frequency excursion to ensure the reliability of the Bulk Power System. [\(Will come back to after a review of the standard\)](#)
4. **Applicability:**
 - 4.1. Planning Coordinators
 - 4.2. Distribution Providers with end-use Load connected to their Facilities
 - [4.3.4.2.1](#) Transmission Owners with end-use Load connected to their Facilities [who are required to register as Distribution Providers](#)
 - [4.4.4.3.](#) Generator Owners with an individual nameplate rating or plants, including Wind Generating Stations, with an aggregate nameplate rating of 20 MVA or greater, connected at 69kV or above
5. **(Proposed) Effective Date:**

B. Requirements

- R1.** Each Planning Coordinator ~~shall~~ [shall join a group consisting of all the Planning Coordinators within the region in each region in which they perform the Planning Coordinator function.](#)
- R2.** [Each group of Planning Coordinators shall](#) ~~work with their respective Regional Entity to~~ [develop an under frequency load shedding program- to be applied consistently across the region.](#)
- R3.** [Each group of Planning Coordinators shall document and use its methodology to investigate and locate portions of the system that may form islands including how historical events, system studies, and system operations were considered.](#)
- R4.** [Each group of Planning Coordinators shall develop and implement a procedure for coordinating with groups of Planning Coordinators in neighboring regions to identify](#)

and reach agreement on islands between its region and neighboring regions. The procedure shall identify how the neighboring entities will assist in the UFLS studies and analyses and provide concurrence of study results.

R5. Each group of Planning Coordinators shall identify islands for which the performance characteristics of Requirement R6 below shall apply. All portions of the region's system shall be included in at least one island. The identified islands shall include:

R5.1. those islands selected, if any, from the list of islands identified by implementing the methodology described in Requirement R3

R5.2. Any portions of the system that are designed to be detached from the interconnection (planned islands) as a result of the operation of a relay scheme shall be included among the identified islands.

R5.3. Interregional islands agreed on by the Planning Coordinators shall be included among the identified islands.

R5.4. any other islands necessary to ensure that all portions of the region's system are included in at least one island

R6. Each group of Planning Coordinators shall specify the technical design parameters of the underfrequency load shedding program required to meet the following performance characteristics in simulations of underfrequency conditions resulting from an imbalance between load and generation of at least 25 percent within the identified island(s):

R6.1. Arrest frequency decline at no less than 58.0 Hz.

R6.2. Frequency shall not remain below 58.5 Hz for greater than 10 seconds, cumulatively, and shall not remain below 59.5 Hz for greater than 30 seconds, cumulatively.

R6.3. Frequency overshoot resulting from operation of UFLS relays shall not exceed 61.0 Hz for any duration and shall not exceed 60.5 Hz for greater than 30 seconds, cumulatively.

R6.4. Control Bulk Electric System voltage during and following UFLS operations such that the per unit Volts per Hz (V/Hz) does not exceed 1.18 for longer than two seconds cumulatively, and does not exceed 1.10 for longer than 45 seconds cumulatively.

R7. Each Planning Coordinator shall design a program that is compliant with the performance characteristics including in those instances where a generator must be tripped for its own protection prior to or during the last stage of UFLS. If necessary, this shall be accomplished by increasing the percentage of UFLS within the identified island(s) in which the generator is located.

R8. Each Generator Owner shall arrange for additional UFLS to be installed within the island(s) in which the generator is located if it is found by Planning Coordinator that the performance characteristics still cannot be met under all conditions of generator's MW dispatch. This additional UFLS shall trip an amount of load equivalent to the generator's MW dispatch at the same time that the generator is set to trip.

- R9. Each group of Planning Coordinators shall create a UFLS database containing relay information needed for assessments and event analysis and shall annually incorporate the data provided by the Transmission Owners and Distribution Providers.
- R10. Each Transmission Owner and Distribution Provider shall annually provide data upon request of the group of Planning Coordinators to support maintenance of the database.
- R11. Each Transmission Owner and Distribution Provider shall provide equipment with settings in order to implement the UFLS program designed by the group of Planning Coordinators for each region in which they operate^[sm2].
- R12. Each group of Planning Coordinators shall conduct a UFLS assessment at least once every five years that verifies through dynamic simulation that the implementation of the UFLS program is adequate to meet the performance characteristics^[sm3] in Requirement R6 above for the system boundaries and conditions for the identified islands specified in accordance with Requirement R5 above.
- R13. Each group of Planning Coordinators shall provide the assessment results to the Regional Entity and NERC within 30 calendar days of a request.
- R14. Each group of Planning Coordinators shall provide the UFLS database and assessment results to the Regional Entity and NERC within 30 calendar days of a request.

R15.

R16.

C. Measures

M1. Text

D. Compliance

1. Compliance Monitoring Process

1.1. Compliance Enforcement Authority

Text

1.2. Compliance Monitoring Period and Reset Time Frame

Not applicable.

1.3. Data Retention

Text

1.4. Compliance Monitoring and Assessment Processes

Text

1.5. Additional Compliance Information

Text

2. Violation Severity Levels

R #	Lower VSL	Moderate VSL	High VSL	Severe VSL
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E. Regional Variances

None.

F. Associated Documents

Version History

Version	Date	Action	Change Tracking