

Frequency Response Standard Drafting Team Meeting

November 14, 2007 — 12:30 to 2:30 pm Eastern Time

WebEx and Conference Call Agenda

Consortium conference server: 1(732)694-2061

Conference code: 1208111407

WebEx meeting number: 716 364 596

Meeting password: frequency

- 1) Introductions**
 - a) Antitrust & Administrative (Attachment 1)
 - b) Review Meeting Objectives:
 - i) Develop Draft Violation Risk Factors for each Requirement
 - ii) Develop Draft Time Horizons for each Requirement
 - iii) Develop Draft Measures for each Requirement
- 2) Develop Violation Risk Factors (Attachment 2)**
- 3) Develop Time Horizons (Attachment 2)**
- 4) Develop Measures (Attachment 2)**
- 5) Discuss Next Steps**
 - a) Face-to-face Meeting on December 11–12, 2007 (location to be determined)

NERC Antitrust Compliance Guidelines

I. General

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.

Antitrust laws are complex and subject to court interpretation that can vary over time and from one court to another. The purpose of these guidelines is to alert NERC participants and employees to potential antitrust problems and to set forth policies to be followed with respect to activities that may involve antitrust considerations. In some instances, the NERC policy contained in these guidelines is stricter than the applicable antitrust laws. Any NERC participant or employee who is uncertain about the legal ramifications of a particular course of conduct or who has doubts or concerns about whether NERC's antitrust compliance policy is implicated in any situation should consult NERC's General Counsel immediately.

II. Prohibited Activities

Participants in NERC activities (including those of its committees and subgroups) should refrain from the following when acting in their capacity as participants in NERC activities (e.g., at NERC meetings, conference calls and in informal discussions):

- Discussions involving pricing information, especially margin (profit) and internal cost information and participants' expectations as to their future prices or internal costs.
- Discussions of a participant's marketing strategies.
- Discussions regarding how customers and geographical areas are to be divided among competitors.
- Discussions concerning the exclusion of competitors from markets.
- Discussions concerning boycotting or group refusals to deal with competitors, vendors or suppliers.

III. Activities That Are Permitted

From time to time decisions or actions of NERC (including those of its committees and subgroups) may have a negative impact on particular entities and thus in that sense adversely impact competition. Decisions and actions by NERC (including its committees and subgroups) should only be undertaken for the purpose of promoting and maintaining the reliability and

adequacy of the bulk power system. If you do not have a legitimate purpose consistent with this objective for discussing a matter, please refrain from discussing the matter during NERC meetings and in other NERC-related communications.

You should also ensure that NERC procedures, including those set forth in NERC's Certificate of Incorporation, Bylaws, and Rules of Procedure are followed in conducting NERC business.

In addition, all discussions in NERC meetings and other NERC-related communications should be within the scope of the mandate for or assignment to the particular NERC committee or subgroup, as well as within the scope of the published agenda for the meeting.

No decisions should be made nor any actions taken in NERC activities for the purpose of giving an industry participant or group of participants a competitive advantage over other participants. In particular, decisions with respect to setting, revising, or assessing compliance with NERC reliability standards should not be influenced by anti-competitive motivations.

Subject to the foregoing restrictions, participants in NERC activities may discuss:

- Reliability matters relating to the bulk power system, including operation and planning matters such as establishing or revising reliability standards, special operating procedures, operating transfer capabilities, and plans for new facilities.
- Matters relating to the impact of reliability standards for the bulk power system on electricity markets, and the impact of electricity market operations on the reliability of the bulk power system.
- Proposed filings or other communications with state or federal regulatory authorities or other governmental entities.
- Matters relating to the internal governance, management and operation of NERC, such as nominations for vacant committee positions, budgeting and assessments, and employment matters; and procedural matters such as planning and scheduling meetings.

Any other matters that do not clearly fall within these guidelines should be reviewed with NERC's General Counsel before being discussed.

Frequency Response Requirements

Requirement	Violation Risk Factor <i>(Lower, Medium, High)</i>	Time Horizon <i>(Long-term Planning, Operations Planning, Same-day Operations, Real-time Operations, Operations Assessment)</i>	Measure
<p>R1. The RROs in each Interconnection shall annually establish a single Target Frequency Response (MW/Hz) for their Interconnection to analyze Frequency Response.</p>			
<p>R1.1. The RROs shall prorate their Interconnection's Target Frequency Response among its Balancing Authorities (Need to determine how to prorate) to determine each Balancing Authority's Frequency Response.</p>			
<p>R2. Each Balancing Authority shall archive for one calendar year plus the current year the following data (used when calculating and reporting ACE) needed to model the Balancing Authority's sub-minute Frequency Response to a frequency deviation:</p> <ul style="list-style-type: none"> R2.1. Time R2.2. Actual Frequency R2.3. Scheduled Frequency R2.4. Bias R2.5. Actual Interchange R2.6. Scheduled Interchange 			
<p>R3. By the 10th of the following month, each Balancing Authority</p>			

Requirement	Violation Risk Factor <i>(Lower, Medium, High)</i>	Time Horizon <i>(Long-term Planning, Operations Planning, Same-day Operations, Real-time Operations, Operations Assessment)</i>	Measure
shall report the following frequency event information to its RRO:			
<p>R3.1. MW magnitude for each generation, load, and islanding event with loss within one minute greater than the following values for each Interconnection:</p> <p>R3.1.1. Eastern 750 MW</p> <p>R3.1.2. Western 1100 MW</p> <p>R3.1.3. ERCOT 625 MW</p>			
<p>R3.2. Date/time in GMT of the event</p>			
<p>R4. The RROs in each Interconnection shall identify a list of events for each quarter for which Frequency Response shall be analyzed by the end of the month following the end of the quarter.</p>			
<p>R5. Within 30 days of the end of the quarter, the RROs in each Interconnection shall request from all of its Balancing Authorities the archived data collected in R2 to perform the Frequency Response analysis for the list of events.</p>			
<p>R6. Within 30 days of the RRO's request, each Balancing Authority shall provide the archived data collected in R2 for the set of events.</p>			

Requirement	Violation Risk Factor (Lower, Medium, High)	Time Horizon (Long-term Planning, Operations Planning, Same-day Operations, Real-time Operations, Operations Assessment)	Measure
R7. The RROs in each Interconnection shall determine the Frequency Response for each of its Balancing Authorities to identify the Balancing Authorities with less than 75% of their share of the Target Frequency Response for each quarter.			
R8. The RROs in each Interconnection shall prepare and publically post a quarterly report that includes the following information:			
R8.1. Each Balancing Authority's calculated Frequency Response			
R8.2. Each Balancing Authority that has achieved less than 75% of the its share of the Target Frequency Response			
R9. Each Balancing Authorities with less than 75% of its share of Target Frequency Response shall identify and provide to its RRO the reason(s) for its Frequency Response being less than its Target Frequency Response.			
R9.1. Upon request from its Balancing Authority, each Generator Operator that operates a generator larger than [10 MW] shall provide the following generation data for use in			

Requirement	Violation Risk Factor <i>(Lower, Medium, High)</i>	Time Horizon <i>(Long-term Planning, Operations Planning, Same-day Operations, Real-time Operations, Operations Assessment)</i>	Measure
the development of models for Frequency Response for its Interconnection: R9.1.1. ???			
R9.2. Upon request from its Balancing Authority, each Load Serving Entity shall provide the percentage of each type of load (residential, commercial, and industrial) for use in the development of models of Frequency Response for its Interconnection.			

Violation Risk Factors

The following criteria have been filed with FERC as part of the ERO's Sanctions Guidelines and must be used to determine a violation risk factor for each requirement:

High Risk Requirement

A requirement that, if violated, could directly cause or contribute to bulk electric system instability, separation, or a cascading sequence of failures, or could place the bulk electric system at an unacceptable risk of instability, separation, or cascading failures;

or a requirement in a planning time frame that, if violated, could, under emergency, abnormal, or restorative conditions anticipated by the preparations, directly cause or contribute to bulk electric system instability, separation, or a cascading sequence of failures, or could place the bulk electric system at an unacceptable risk of instability, separation, or cascading failures, or could hinder restoration to a normal condition.

Medium Risk Requirement

A requirement that, if violated, could directly affect the electrical state or the capability of the bulk electric system, or the ability to effectively monitor and control the bulk electric system. However, violation of a medium risk requirement is unlikely to lead to bulk electric system instability, separation, or cascading failures;

or a requirement in a planning time frame that, if violated, could, under emergency, abnormal, or restorative conditions anticipated by the preparations, directly and adversely affect the electrical state or capability of the bulk electric system, or the ability to effectively monitor, control, or restore the bulk electric system. However, violation of a medium risk requirement is unlikely, under emergency, abnormal, or restoration conditions anticipated by the preparations, to lead to bulk electric system instability, separation, or cascading failures, nor to hinder restoration to a normal condition.

Lower Risk Requirement

A requirement that, if violated, would not be expected to adversely affect the electrical state or capability of the bulk electric system, or the ability to effectively monitor and control the bulk electric system. A requirement that is administrative in nature;

or a requirement in a planning time frame that, if violated, would not, under the emergency, abnormal, or restorative conditions anticipated by the preparations, be expected to adversely affect the electrical state or capability of the bulk electric system, or the ability to effectively monitor, control, or restore the bulk electric system. A planning requirement that is administrative in nature.

Time Horizons

Time Horizons are also used as a factor in determining the size of a sanction. If an entity violates a requirement and there is no time to mitigate the violation because the requirement takes place in real-time, then the sanction associated with the violation is higher than it would be for violation of a requirement that could be mitigated over a longer period of time.

When establishing a time horizon for each requirement, the following criteria should be used:

- **Long-term Planning** — a planning horizon of one year or longer.
- **Operations Planning** — operating and resource plans from day-ahead up to and including seasonal.
- **Same-day Operations** — routine actions required within the timeframe of a day, but not real-time.
- **Real-time Operations** — actions required within one hour or less to preserve the reliability of the bulk electric system.
- **Operations Assessment** — follow-up evaluations and reporting of real time operations.

In general, a requirement and its sub-requirements should be assigned a single violation risk factor if that requirement will be measured with a single measure. Some requirements include performance elements that may take place over different time horizons, and it is acceptable to include more than one time horizon for such a requirement.

If a requirement has sub-requirements, and some of the sub-requirements are much more critical to reliability than others, then the SDT should assign a violation risk factor to the individual sub-requirements.

Violation risk factors should not be assigned to portions of requirements that contain no performance elements. For example – the following R1 is a leading phrase and has no performance associated with it – the violation risk factors should be assigned to the sub-requirements.

Not all requirements lend themselves to quantitative measures, but if performance results can be practically measured quantitatively, metrics should be provided within the requirement.

Measures

Measures are proxies to assess required performance or outcomes. Achieving the full compliance level of each measurement should be a necessary and sufficient indicator that the requirement was met.

Each requirement must have at least one measure. A single measure can be used for more than one requirement. Each measure should identify the requirement or requirements associated with that measure. The SDT can begin writing measures by identifying how a compliance monitor could objectively measure the performance identified in the associated requirement.

Each measurement must identify the functional entity with the performance being measured – the same functional entity that is responsible for the associated requirement. Each measurement must be tangible, practical, and as objective as is practical. Measures should support requirements by identifying what evidence or types of evidence could be used to show that an entity is compliant with the requirement. For some requirements, only one type of evidence is acceptable – but for many requirements, a range of evidence could be acceptable. A goal in implementing the reliability standards process is to avoid requiring entities to modify existing practices by adopting tools or techniques that don't contribute to improved reliability. For that reason, requiring entities to all use the same method of demonstrating compliance should be avoided unless it is necessary for reliability.

Measures should include a reference to their associated requirement. This is especially important for those instances where a single measure is used to assess compliance with multiple requirements.

Here are some samples of measures:

- Demonstrations — When requested, the Reliability Coordinator shall be able to demonstrate that its backup communication plan can be implemented within the timeframe specified in R5.
- Event information distributed — The responsible entity shall have, and provide upon request, a copy of an e-mail message or other equivalent evidence to show that the information in R1 was distributed to the entities specified in R2 and R3.
- Voice recordings or operating logs — The Reliability Coordinator shall have, and provide upon request, evidence that could include, but is not limited to, operating logs, voice recordings, transcripts of voice recordings, or other equivalent evidence that will be used to confirm that it acted or directed others to act in accordance with R3 and R4. .
- Documentation — The Reliability Coordinator shall have, and provide upon request, one or more documented Operating Processes, Procedures, or Plans that that will be used to confirm that it has Operating Processes, Procedures or Plans to address both preventing and mitigating instances of exceeding IROLs in accordance with Requirement 1 and Requirement 2.