

Unofficial Comment Form for BAL-003-1 Frequency Response and Frequency Bias Standard

Please **DO NOT** use this form to submit comments on the 1st draft of BAL-003-1 – Frequency Response and Frequency Bias Setting. Comments must be submitted by **March 7, 2011**. If you have questions please contact Darrel Richardson by email at darrel.richardson@nerc.net or by telephone at 609.613.1848.

Background Information:

Frequency Response, a measure of an Interconnection's ability to stabilize frequency immediately following the sudden loss of generation or load, is a critical component to the reliable operation of the bulk power system, particularly during disturbances and restoration. The proposed standard's intent is to collect data needed to accurately analyze existing Frequency Response, set a minimum Frequency Response obligation, provide a uniform calculation of Frequency Bias Settings that transition to values closer to Frequency Response, and encourage coordinated AGC operation. There is evidence of continuing decline in Frequency Response over the past 10 years, but no confirmed reason for the apparent decline. The proposed standard requires entities to provide data so that Frequency Response in each of the Interconnections can be analyzed, and the reasons for the decline in Frequency Response can be identified. Once Frequency Response has been analyzed and confirmed, requirements can be modified to maintain reliability.

The Drafting Team would like to receive industry comments on this standard. Please submit your comments using the electronic form **by March 7, 2011**.

You do not have to answer all questions. Enter All Comments in Simple Text Format.

Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

1. The SDT has developed three new terms to be used with this standard.

Single Event Frequency Response Data (SEFRD)

The individual sample of event data from a Balancing Authority which represents the change in Net Actual Interchange (NI_A), divided by the change in frequency, expressed in MW/0.1Hz.

Frequency Response Measure (FRM)

The median of all Single Event Frequency Response Data observations reported annually on FRS Form 1.

Frequency Response Obligation (FRO)

The Balancing Authority's contribution to the total aggregate Frequency Response needed for reliable operation of an Interconnection assigned by the ERO.

Comment Form — BAL-003-1 Frequency Response & Frequency Bias Standard

Do you agree with the proposed definitions in this standard? If not, please explain in the comment area.

Yes

No

Comments: For Frequency Response Measure, the drafting team should consider using average rather than median. Because median is literally the middle value, a Balancing Authority could have 12 really bad Single Event Frequency Response Data and still comply. Average values would prevent this from happening.

Should FRM be clear that it includes at least 25 events in the definition? While that can be garnered from Attachment A, it is not specified in the Form 1 instructions. We are concerned that the regulators may argue that 25 events do not apply because an attachment is not part of the standard.

2. The SDT has modified the definition for the term Frequency Bias Setting. The new definition is shown below in redline to show the changes proposed.

Frequency Bias Setting

A value, (either a fixed or variable Frequency Bias), usually expressed in MW/0.1 Hz, set into a Balancing Authority Area Control Error algorithm equation that allows the Balancing Authority to contribute its frequency-Frequency rResponse to the Interconnection.

Do you agree with this new definition for Frequency Bias Setting? If not, please explain in the comment area.

Yes

No

Comments: Given that frequency response is "contributed" long before AGC has an impact, "contribute" should probably be changed to "maintain". The goal is to ensure AGC does not withdraw frequency response and that it is maintained while frequency is depressed.

We are not sure if Frequency Response has a precise enough definition and it is part of the definition of Frequency Bias Setting. The definition of Frequency Response really just reflects how it is measured. It does not define what it really is which is the dynamic response of load, generation, and other frequency responsive devices to a perturbation in frequency.

The drafting team should also consider resolving the definition of Frequency Bias. Is it needed? It is often confused with Frequency Bias Setting and is often used interchangeably with Frequency Response even though the meanings are slightly different.

3. The proposed purpose statement in the draft standard is:

To require sufficient Frequency Response from the Balancing Authority to maintain Interconnection Frequency within predefined bounds by arresting frequency deviations and supporting frequency until the frequency is restored to schedule. To provide consistent methods for measuring Frequency Response and determining the Frequency Bias Setting.

Comment Form — BAL-003-1 Frequency Response & Frequency Bias Standard

Do you agree with this purpose? If not, please explain in the comment area.

Yes

No

Comments: In general, we don't have significant issues with a standard that attempts to establish a minimum Frequency Response performance level. However, we caution the drafting team that the minimum level established needs to be determined based on an extensive data analysis based on the field trial, based on the Frequency Response Initiative Work Plan that NERC filed in response to the Commission's September 23 technical conference and based on the plan outlined in NERC's October 25, 2010 compliance filing.

4. Requirement 1 identifies a minimum level of Frequency Response.

R1. Each Balancing Authority shall achieve a Frequency Response Measure (FRM) (as detailed in Attachment A and calculated on FRS Form 1) that is equal to or more negative than its Frequency Response Obligation (FRO).

Do you agree with the concept that a Balancing Authority should be required to achieve a minimum level of Frequency Response and the method for measurement? If not, please explain in the comment area.

Yes

No

Comments: In general, we don't have significant issues with a standard that attempts to establish a minimum frequency response performance level. However, we caution the drafting team that the minimum level established needs to be determined based on an extensive data analysis based on the field trial, based on the Frequency Response Initiative Work Plan that NERC filed in response to the Commission's September 23 technical conference and based on the plan outline in NERC's October 25, 2010 compliance filing.

The effects of the nonconforming load should be considered in the calculation of the frequency response obligation in order to get accurate results.

5. Requirement 2 identifies when the Balancing Authority must implement its Frequency Bias Setting.

R2. Each Balancing Authority shall implement the Frequency Bias Setting (fixed or variable) provided by the ERO into its Area Control Error (ACE) calculation beginning on the date specified by the ERO to ensure effective coordinated secondary control, using the results from the calculation methodology detailed in Attachment A.

Do you agree with this implementation? If not, please explain in the comment area.

Yes

No

Comments: Flexibility established in the date is better than the existing currently defined date in the standards. It is better to allow the ERO to specify the date to allow some flexibility in implementation.

It appears that the responsible for identifying Frequency Bias Setting is being removed from the Balancing Authority. There is an implied obligation that the ERO will determine

Comment Form — BAL-003-1 Frequency Response & Frequency Bias Standard

the Frequency Bias Setting but it is not stated explicitly. Thus, we are left wondering who has the responsibility for determining the Frequency Bias Setting.

Frequency Response of the interconnection is constantly changing. As a result, the Frequency Bias Setting will never match the Frequency Response exactly. It is better to overbias than underbias to prevent withdrawal of frequency response by AGC. Historically, the 1% floor for frequency bias setting was chosen to ensure that BAs are always over-biased. The standard needs to allow some margin in the frequency bias setting to ensure that the bias setting is overbiased.

6. Requirement 3 mandates that a Balancing Authority operate its Automatic Generation Control (AGC) on Tie Line Bias unless it becomes adverse to the integrity of its system.

R3. Each Balancing Authority shall operate its Automatic Generation Control (AGC) on Tie Line Bias, unless such operation would have an Adverse Reliability Impact on the Balancing Authority's Area.

Do you agree that a Balancing Authority should operate its AGC on Tie Line Bias unless it becomes adverse to its system? If not, please explain in the comment area below.

Yes

No

Comments:

7. Do you agree with the proposed Implementation Plan for this standard? If not, please explain in the comment area.

Yes

No

Comments: We agree with the plan to phase out BAL-003-0.1b R5 over a period of years rather than abruptly terminate it because it will take several years to assess the impact. We recommend a wording change to the implementation plan. Please change 'BAL-003-0 Requirement 5 should be retired as outlined in the following table,' to "BAL-003-0.1b Requirement 5 should be phased out by reducing the minimum frequency bias setting per the table."

It is not clear if the minimum frequency bias setting can be modified without modifying the existing BAL-003-0.1b standard. Is this being accomplished through the field trial? The implementation plan makes no mention of a field trial. It should.

Please change all BAL-003-0 to BAL-003-0.1b.

8. This standard proposes to eliminate the 1% minimum Frequency Bias over a period of 4 years as outlined in the Implementation Plan. Do you agree that the elimination of the 1% minimum will bring Frequency Bias closer or equal to natural Frequency Response? If not, please explain in the comment area.

Yes

No

Comments: We do note that the question asks if we disagree with eliminating Frequency Bias over a four year period. The requirement actually applies to Frequency Bias Setting. This is important because there has been confusion in some regulatory filings over the Frequency Response versus Frequency Bias Setting. Our comments below

Comment Form — BAL-003-1 Frequency Response & Frequency Bias Standard

assume that Frequency Bias Setting was intended to be used in the question since it is what is in the BAL-003-0.1b R5.

We do not question the plan to change the minimum Frequency Bias Setting over a period of 4 years per se in attempt to optimize AGC response by matching the Frequency Response of the system. However, Frequency Response of the interconnection is constantly changing. As a result, the Frequency Bias Setting will never match the Frequency Response exactly. It is better to overbias that underbias to prevent withdrawal of frequency response by AGC. Historically, the 1% floor for Frequency Bias Setting was chosen to ensure that BAs are always over-biased. The standard needs to allow some margin in the Frequency Bias Setting to ensure that the bias setting is overbiased.

9. Do you agree with the drafting team that this standard should be field tested? If not, please explain in the comment area.

Yes

No

Comments: The field test is not identified in the implementation plan. It should be.

10. Attachment A of the proposed standard describes the criteria for selecting events to be analyzed. Do you agree with the criteria as described in Attached A? If not, please explain in the comment area.

Yes

No

Comments:

11. The proposed standard has a document attached to it that describes the SDT's reasoning for the Requirements (Attachment A - Frequency Response Background Document). Do you agree with the SDT that this document is useful and provides a clear understanding of the Requirements? If not, please explain in the comment area.

Yes

No

Comments: Overall, we agree that the document is helpful. However, we do believe additional explanation is necessary for Requirement 2. It appears that the responsibility for identifying Frequency Bias Setting is being removed from the Balancing Authority. There is an implied obligation that the ERO will determine the Frequency Bias Setting but it is not stated explicitly. Thus, we are left wondering who has the responsibility for determining the Frequency Bias Setting.

On page 3 in the last paragraph of the Frequency Response Obligation and Allocation section, we suggest expanding the explanation of why Frequency Response Obligation is based on $(\text{peak generation} + \text{peak load})/2$. This will result in less responsibility of Frequency Response today for a generator only control area than there currently is. Since load does respond to frequency, we are not suggesting this is wrong. We think it simply needs to be expanded upon in the explanation. Does load contribute the same amount as generation? If not, perhaps the ratio of gen and load response to total response should be reflected in the calculation.

Comment Form — BAL-003-1 Frequency Response & Frequency Bias Standard

12. The proposed standard requires the use of FRS Form 1 for calculating a Balancing Authority's FRM. Do you agree with the SDT that this is the proper method to calculate its FRM? If not, please explain in the comment area and if possible provide an alternate method to calculate FRM.

Yes

No

Comments:

13. The proposed standard requires the use of FRS Form 1 for calculating a Balancing Authority's Frequency Bias Setting. Do you agree with the SDT that this is the proper method to calculate its Frequency Bias Setting? If not, please explain in the comment area and if possible provide an alternate method to calculate Frequency Bias Setting.

Yes

No

Comments: We agree that using Points A and B is correct and the calculations in the spreadsheet are correct.

14. The SDT has provided a document (FRS Form 1 Instructions) describing how to use FRS Form 1 for calculating FRM and Frequency Bias Setting. Do you agree with the SDT that this document provides a clear understanding of how to use the form? If not, please explain in the comment area.

Yes

No

Comments: On page 5 and 6, graphics appear to be missing. This document really provides no instructions but rather explanations and background material for measuring frequency events. Instructions would be more along the lines of step 1: Enter date in box, etc.

15. The SDT is soliciting comments on methods of obtaining Frequency Response to meet the FERC Order 693 directive. If possible please provide any thoughts you may have on this subject.

Comments:

16. If you are aware of any conflicts between the proposed standard and any regulatory function, rule order, tariff, rate schedule, legislative requirement, or agreement please identify the conflict here.

Comments:

17. Please provide any other comments (that you have not already provided in response to the questions above) that you have on the draft standard BAL-003-1.

Comments:

We feel the Reserve Sharing Group should be removed from the applicability section as it's not included in any requirement.