

Template for Quality Review of NERC Reliability Standard BAL-003-1 – Frequency Response and Frequency Bias Setting

Basic Information:

Project number: 2007-12

Project title: Frequency Response

Standard number: BAL-003-1

Standard Title: Frequency Response and Frequency Bias Setting

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Reviewer's Name:

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Summary of Observations:

The QR team felt that overall this was a well-written standard.

The overarching concern is with the standard and the attachments. There appear to be requirements within the attachments for the BA's and FRSG that do not appear in the requirements. This creates an auditing concern. Is there information that can be put into the standard from the attachments? One of the reviewers felt it would be helpful if the tables were in the standard.

Also, is there a way to make it more clear what the responsibilities of the BA and FRSG are and what is the ERO's responsibility?

Purpose – ‘supporting frequency until the frequency is restored’ – How can you support until restored? Is this two different actions? Is this supporting frequency until it can be stabilized?

Applicability - The team has added the term, “Frequency Response Sharing Group” to the list of applicable entities and has not provided confirmation that adding this term is acceptable to the compliance registration folks.

Requirement R1:

- Suggest clarifying R1 to make it clear that each BA must comply – either by acting alone or by acting as part of a FRSG. . .
- The use of the word, ‘or’ between BA and FRSG is not correct – they both must comply
- How do you hold FRSG responsible in audit? Wording suggestion - Each BA (individually or as part of a FRSG). In auditing this would show FRSG achieved.
- The phrase, “adequate level” of FR is ambiguous – however this ambiguity is in the measurability of the reliability outcome, not in the required performance.
- The references to Attachment A are confusing as they reference “calculated and reported” – but the section of Attachment 1 relative to FRM is written in passive language and doesn’t identify what functional entity is responsible for the tasks – and is written so that the mandatory performance is unclear. `
- Attachment A page 3 ** refers to Texas should this be ERCOT?
- Unclear if Attachment A and B can only be changed within standard process?
- Unclear if FRS Forms 1 and 2 are physical attachments to the standard (and can only be changed within standard process) or if they can be changed by ERO.
- Attachment A does not identify how FRO is calculated for the FRSG.
- (as detailed in Attachment A, and calculated and reported in accordance with the methods and formats specified in Attachment A) This appears to be adding obligations to the entities via Attachment A and are two separate activities that are not explicitly spelled out in the requirement.

Requirement R2:

- Remove Tie line bias
- Don't know how to measure, "until a different Frequency Bias Setting is to be implemented" – the sentence structure is a bit awkward – suggest the following: *Also see redlined standard for an additional suggestion.*

Each Balancing Authority that uses a fixed Frequency Bias Setting and does not receive Overlap Regulation Service shall implement the Frequency Bias Setting determined subject to Attachment B and validated by the ERO, into its Area Control Error (ACE) calculation, and shall use this Frequency Bias Setting until directed to change by the ERO to ensure effectively coordinated control.

- Attachment B does not identify how the ERO validates data.
- Auditing for Attachments A and B – How do you audit BA for items the ERO should do? Should the ERO's responsibilities be in the standard? Maybe it should be part of definitions.
- Attachment A, page 4 gives reporting obligation for the BA. Should that be in the requirement?

Requirement R3:

- What is the reliability outcome? Is it to ensure effectively coordinated controls?
- Consider revising the sequence of phrases in the requirement as shown below: *Also see redlined standard for an additional suggestion.*

Each Balancing Authority that uses a variable Frequency Bias Setting and does not receive Overlap Regulation Service shall implement the variable Frequency Bias Setting into its Area Control Error calculation either:

- What does previous and current year refer to – calendar or rolling 12 months? Suggested wording 'Previous annual evaluation period or current annual evaluation period.'

Requirement R4:

- The phrases "being combined" and "being controlled" are both passive – revise to remove the passive language.
- In order to make it clear the FRSG is a responsible entity, see change made to R4.

Measures:

- Ensure the verb that was used in the requirements is used in the measures.
- M1 should say Each BA and each FRSG . . .
- Measures should be modified to conform to adjustments made to the requirements – if the FRSG is added to R2-4, the FRSG should be added to the measures . . .

Compliance Monitoring and Assessment Processes

- The “Periodic Data Submittal” was identified as a method of monitoring compliance but there is no additional language in the “Additional Compliance Information” section telling what or when the periodic data must be submitted – not sure if the team did intend to have a periodic data submittal for compliance purposes or if the periodic data submittal was intended to provide the ERO with data to establish the FRO . . .
- Minor edits shown in redline to match latest default language . . .

Time Horizons

- For R1, although the calculation is done after the fact, is the calculation based on the summation of real-time performance? If yes, then should there be an additional time horizon for real-time operations?
- If the responsible entity has to change its FBS in real-time then shouldn't R3 and R4 have an additional time horizon (a requirement may have more than one time horizon) for real-time operations?

Violation Risk Factors

- R1 - Explanation for meeting NERC's VRF Guideline 1 should be expanded to also include the FRSG. (If the FRSG is added to other requirements, it should be added to the VRF explanations)
- The following language in the VRF explanation for R1 seems misleading – while evidence may be paper-based, isn't the required performance to make adjustments associated with frequency?

This Requirement is more administrative in nature requiring calculated FRM to be equal to or more negative than FRO.
- Same observation for VRF explanation for all other requirements . . .

Violation Severity Levels

- VSLs for R1 add language to the VSL that does not exist in the requirement (VSL ties to Interconnection FRO and requirement is tied to individual BA or FRSG FRO)
- VSLs for R2 – suggest adding more clarity to the time period so that it is easier to determine which VSL applies by adding words such as those shown in green: . . . but did so within 5 calendar days from the last date of the implementation period specified by the ERO.
- VSLs for R3 – add the phrase, “not receiving Overlap Regulation Service and using a variable Frequency Bias Setting”

- VSLs for R3 and R4 use increments of 10% rather than increments of 5% for noncompliant performance – this can be acceptable if the SDT provides a clear justification, but this has not been provided. (Violates NERC’s VSL Guidelines)

Implementation Plan

- The Implementation Plan should identify that FRSGs must be added to the NERC compliance registry criteria before the standard can become effective.
- The SDT should add an explanation for what responsible entities should do to work towards becoming compliant during the delay between the approval and effective dates.
- The SDT needs to ask stakeholders (through the comment form) if they agree that the modification to the definition of Frequency Bias Setting does not modify the intent of the requirements in the following standards:
 - BAL-001-0.1a Real Power Balancing Control Performance
 - BAL-004-0 Time Error Correction
 - BAL-004-1 Time Error Correction
 - BAL-005-0.1b Automatic Generation Control

Other Issues:

Attachment A is very confusing as it mixes statements of required performance for the BA with process steps for the ERO. Attachment A should be revised for clarity and to make it possible for responsible entities to understand the required performance.

- Attachment A includes the following language that appears to be required performance, but there is no link between these and any requirement:

Balancing Authorities that merge or that transfer load or generation need to notify the ERO of the change in footprint and corresponding changes in allocation such that the net obligation for the Interconnection remains the same and so that CPS limits can be adjusted.

If the SDT intends the above to be mandatory and enforceable, then there needs to be a link to a requirement in the standard. As currently written, the only link between mandatory requirements and Attachment A is associated with Requirement 1 relative to achieving an FRM.

- Attachment A includes the following:

An Interconnection may propose alternate FRO protection criteria to the ERO [by submitting a SAR with supporting technical documentation.](#) ~~The ERO will confirm the proposed alternate FRO protection criteria.~~

It isn't clear what process an Interconnection would use to propose an alternative FRO protection criteria . . . nor clear how the ERO would confirm the proposed alternative criteria. . . The process should be documented somewhere – suggest including in a procedure that is a reference document associated with the standard.

- The following is included in Attachment A:

Until the BAL-003-1 process outlined in Attachment 1 is implemented, Balancing Authorities can approximate their FRO by multiplying their Interconnection's FRO by their share of Interconnection Bias. The data used for this calculation should be for the most recently filed Form 714. As an example, a report to NERC in January 2013 would use the Form 714 data filed in 2012, which utilized data from 2011.

The above is unclear. The heading for this section of the attachment states that the ERO establishes FRO – but the performance described is assigned to the BA.

- The following is included in Attachment A:

Each Balancing Authority shall report its previous year's Frequency Response Measure (FRM), Frequency Bias Setting and Frequency Bias type (fixed or variable) to the ERO on FRS Form 1 by January 10 each year.

The text above is written as though it were a requirement (use of the 'shall' word), but its link to R1 is not clear. If the SDT intends the above to be mandatory and enforceable, then there needs to be a link to a requirement in the standard. As currently written, the only link between mandatory requirements and Attachment A is associated with Requirement 1 relative to achieving an FRM.

- The following is included in Attachment A:

Balancing Authorities that provide Overlap Regulation will submit a FRS Form 1 that represents both the provider's and the recipient(s)' footprint.

If the SDT intends the above to be mandatory and enforceable, then there needs to be a link to a requirement in the standard.

- The instructions for calculating FRM never identify that it is the ERO that must do this – these instructions should be clarified to remove the passive language and clarify that the ERO is the responsible entity.

Does the set of requirements in Attachment A address all the variations necessary with respect to how the various BAs implement their Frequency Bias Settings in their ACE equations?

- R2 and R3 are applicable to BAs that are "receiving" ORS and R4 is for BAs that are "providing" ORS – are these the correct verbs? If it is necessary to have two requirements

for the BAs that are “receiving” ORS (one for fixed and one for variable Frequency Bias Settings) is it sufficient to have only 1 requirement for the BAs that are “providing” ORS? Should R4 identify that it is applicable to BAs using both fixed and variable Frequency Bias Settings?

- Is there a BA receiving Overlap Regulation Service and using a variable frequency bias setting? If yes, do we need a requirement to specify how they implement their Frequency Bias Setting in their ACE equation?
- Is there a BA receiving Overlap Regulation Service and using a variable Frequency Bias Setting?

FRS Form 2

- The FRS Form 2 instructions are clearly written for the BA, but nowhere in the standard or the Attachments is it clear that the BA has to complete FRS Form 2. If the team wants this to be enforceable, it needs to be linked to a requirement.

Attachment B

- Because so much of this document is written in passive language, it is not clear what responsible entity is assigned each of the tasks. This document should be revised to remove all passive language and clearly identify which functional entity is responsible for each task.
- Second bullet on page – “Interconnection minimum” – there should be more words after the word, “minimum” so that the intent is clear
- The document indicates the BA/FRSG “reports” data , but the document doesn’t identify who to report the data to and doesn’t identify how often
- The document addresses both the BA and FRSG, but the associated requirement is only assigned to the BA
- Table 1 Chart should use same labels as charts in Attachment A for TX – looks like this was changed to “ERCOT” in Attachment A but not in Attachment B
- The use of the word, “may” in the very last sentence begs additional clarity. Entities will want to know what criteria will be used to make this determination . . .