

Unofficial Comment Form

Project 2017-01 Modifications to BAL-003, Phase II

Do not use this form for submitting comments. Use the [Standards Balloting and Commenting System \(SBS\)](#) to submit comments on the White Paper for Phase II of Project 2017-01 Modifications to BAL-003 by **8 p.m. Eastern, April 27, 2021**.

Additional information is available on the [project page](#). If you have questions, contact Standards Developer, [Laura Anderson](#), or at 404-446-9671.

Background Information

Reliability Standard BAL-003-1 became effective in 2015. Supporting documents for BAL-003-1 were developed using engineering judgment on the data collection and process needed to determine the Interconnection Frequency Response Obligation (IFRO), as well as the processing of raw data to determine compliance. In the course of implementing the standard, minor errors in assumptions and process inefficiencies have been identified. Further, it was anticipated that as frequency response improves, the approaches embedded in the standard for collecting annual samples would need to be modified.

In addition to fixing the inconsistencies identified in the Frequency Response Annual Analysis Report¹ (FRAA) supporting procedural and process steps have been removed from Attachment A and reassigned to the *Procedure for ERO Support of Frequency Response and Frequency Bias Setting Standard*, an ERO and NERC Operating Committee approved reference document.², an ERO and NERC Operating Committee approved Reference Document, such that timely process improvements can be made as future lessons are learned.

This project is a two-phase approach. The first phase addressed the Phase 1 recommendations in the SAR. The scope of the work identified in the second phase will be to (1) establish a real-time reliability standard addressing the necessary frequency response to maintain reliability; (2) establish comparability for the correct responsible entity; (3) develop real-time measurements incorporating topology difference, and (4) eliminate the incorrect indicators.

The second phase will address the Phase II recommendations in the SAR: Make the Interconnection Frequency Response Obligation (IFRO) calculations and associated allocations: (1) more reflective of

¹ See e.g., FRAA Report, at p. v, available at, http://www.nerc.com/comm/OC/Documents/2016_FRAA_Report_2016-09-30.pdf (discussing IFRO calculations).

² As provided in the Procedure, any changes must be "... submitted to the ERO or its designee for consideration. The request must provide a technical justification for the suggested modification. The ERO shall publicly post the suggested modification for a 45-day formal comment period and discuss the request in a public meeting. The ERO will make a recommendation to the NERC Board of Trustees (BOT), which may adopt the revision request, reject it, or adopt it with modifications. Any approved revision to this Procedure shall be filed with the Federal Energy Regulatory Commission (FERC) for informational purposes."

current conditions; (2) consider all characteristics affecting Frequency Response (e.g., load response, mix and type of generation); (3) include all applicable entities; and (4) be as equitable as possible; and Frequency Response Measure (FRM): (1) ensure that over-performance by one entity does not negatively impact the evaluation of performance by another; (2) measure types/periods of response in addition to secondary Frequency Response, particularly primary Frequency Response; (3) include all applicable entities; and (4) make allocations as equitable as possible.

Questions

1. Concerns related to the current performance metric for Balancing Authorities, where the median performance of all Operating Year selected events is used to determine compliance, potentially allows for an entity to perform well in the first half of the year and then “detune” their performance for the second half of the year. Discussions related to the current requirement (Requirement R1) concluded that the after-the-fact methodology, with a median performance metric, is the preferred method to measure performance.

To address the concern of Balancing Authorities only performing for a partial year, the Standards Drafting Team (SDT) is proposing a requirement similar to BAL-002-3, Requirement R2. This new requirement in BAL-003 would mandate that an entity must have an Operating Process as part of its Operating Plan to address the needed Frequency Responsive reserves (See BA-R3 in White Paper).

Based on discussions in the White Paper, do you agree or disagree that there is a need to add the requirement BA-R3 as described in the White Paper? Please provide the reasoning or justification for your position.

- Agree
 Disagree

Please provide the reasoning or justification for your position:

2. Comments have been made that the Balancing Authorities are not seeing the Frequency Response expected from resources. To address this concern, the drafting team has discussed whether the Balancing Authorities should be directing the Generator Owners to set droop and deadband characteristics, within certain parameters, and have a process to allow for exemption from these parameters. In the White Paper, BA-R4 and BA-R5 would address this process.

(a.) Do you support adding requirements similar to BA-R4 and BA-R5 in the White Paper to BAL-003?

- Yes
 No

Please provide the reasoning or justification for your position:

(b.) Instead of BA-R4 and R5, do you support a requirement for the BA to request the governor droop and deadband settings (or functional equivalent) information from the Generator Owner and a companion requirement for the Generator Owner to provide this information?

- Yes
 No

Please provide the reasoning or justification for your position:

3. The SAR directs the SDT to review the applicability of the standard to determine if other entities should have some obligation under BAL-003. Most of the comments related to this issue focus on a concern that the majority of the response comes from generators and that Balancing Authorities cannot provide response without the generators performing as expected. Therefore, the SDT discussed if the GO/GOP should be an applicable entity to the standard and if performance requirements for generators are necessary.

(a.) The SDT has discussed this issue as documented in Section 3 of the White Paper. After reading Section 3, do you believe generator performance requirements are needed?

- Yes
 No

Please provide the reasoning or justification for your position:

(b.) If a generator performance requirement moves forward, what option detailed in Section 3 of the White Paper would be best?

- Option 1
 Option 2
 Option 3
 Option 4

Please provide the reasoning or justification for your position:

4. During the SDT discussions, it has been identified that the Balancing Authority would be better able to plan to operate with adequate responsive reserves if the Balancing Authority has knowledge of the resources that have the Frequency Response capability in service, and notification if the capability is not in service. Do you agree with adding requirements to BAL-003 for the Generator Owner to have the Frequency Response capability in service and for the Generator Operator to notify the Balancing Authority if there is a change in capability status?

- Agree
 Disagree

Please provide the reasoning or justification for your position:

5. Is there any other feedback you would like to provide, which you haven't already provided, to the SDT at this time related to potential modifications to the standard for a Balancing Authority, Generator Owner, and/or Generator Operator?

- Yes
 No

Comments:

Several proposed standard requirements described in the whitepaper are similar to current requirements listed in BAL-001-TRE. It would provide useful context to identify that the Texas Interconnection is a single BA interconnection. Though it has a relatively high percentage of inverter-connected resources, not all of the lessons learned in Texas are applicable in the other interconnections which must consider the nuances of numerous BA's. Consideration must be taken for the differences that occur in a multi-BA interconnection; for example, noisy NAI data (Texas does not have this problem) as well as the mechanics of implementation over a wide range of entities.

- Several proposed additions to BAL-003 Phase II (from the draft whitepaper) will likely require a sea-change in both BA and GO requirements and processes (e.g., potential for BAs to have to implement real-time monitoring of resource/system frequency response capability). While the changes might be necessary, the effort required to develop, pass, implement, and enforce such fundamental changes might be better spent on other ideas (e.g., requiring tighter dead bands, requiring frequency response from inverter connected load and generation, requiring all resources to provide frequency response, perhaps other ideas as well)
- The BAL standards used to be prescriptive and require BAs to do certain things even if there was no performance-based justification for these requirements, this gave way to performance-based standards. It seems we are now going back to prescriptive requirements. The justification for doing so is unclear.
- Is this revision of the BAL standard intended to be a direct response to FERC order 842?
- There are basically two options to ensure that there are enough frequency responsive resources available to immediately respond to any circumstance:

- A. (Option A) Require all resources that are capable of providing frequency response to do so – this means that under any scenario of supply and demand, the system would be secure.
 - i. This is the model that some BAs/interconnections operate under, e.g., the Quebec interconnection
 - ii. This could, for example include all modern inverter connected supply and demand (since frequency sensing is in-essence required for inverters to work in AC power systems)
 - iii. This route would seem to align with FERC order 842 which requires that all new generating facilities install, maintain and operate a functioning governor or equivalent controls as a precondition of interconnection. Also requiring agreements to include certain operating requirements such as maximum droop and deadband parameters, and sustained response provisions.
- B. (Option B) Make frequency response a market product and then allow resources to offer into this market.
 - i. This is the model that some BAs/interconnections operate under, e.g., the Texas Interconnection

The problem with Option B is that since it is a market product, there is pressure to ensure that the market is not wasteful – this means that there will be pressure to reduce the required amount of frequency response to the bare minimum that is required given the system conditions. System conditions can change very quickly and a market system takes time to react. This inherent market delay means that a contingency could quickly deplete the amount of frequency responsive resources available leading to risks in BPS reliability with potentially catastrophic results.

There would be additional market pressure to reduce the number of resources providing frequency response to those that do so in the most economical fashion, thereby narrowing the field of frequency responsive resources. Again, system conditions can change quickly and that could lead to deliverability issues from some (or more) of these resources which could again expose the interconnection to unacceptable frequency deviations. A perhaps incalculable benefit of Option A is that the widespread distribution of frequency response (across each BA and the Interconnection itself) can more easily mitigate large-scale disruptions as well as facilitate the faster recovery from large-scale events. Another well documented set of benefits of this wide distribution of frequency response (shown conclusively by Texas’ fairly recent change to tighten governor deadbands) is:

- reduced movement and effort for any individual resource (the “many hands make light work” effect) and;
- improved BA and Interconnection frequency response.

In sum, there are a host of important reasons to have copious amounts of widely dispersed frequency response.

The whitepaper provides a good overview within the Background section of the core issues the effort is trying to address (i.e., it describes the main excerpts from the SAR). However, given the scope and extent of changes discussed in this paper for potentially a very large number of BPS Entities, more technical justification may be needed to put things into the 2020 and long term perspectives. For example, the 2016 Frequency Report Annual Analysis (FRAA) report is cited; how has the picture changed through each year into 2020, and where are we headed? The 2020 State of Reliability Report says that, despite increasing percentages of inverter interfaced generation, frequency response has generally improved or remained stable for all Interconnections: one would think nothing new is needed.

The problem the SDT is trying to address has many similarities to NERC and industry’s work into resilience³: robustness (“the ability to absorb shocks and continue operations”), resourcefulness (“the ability to detect and manage a crisis as it unfolds”), rapid recovery (“the ability to get services back as quickly as possible in a coordinated and controlled manner and taking into consideration the extent of the damage”) and adaptability (“the ability to incorporate lessons learned from past events to improve resilience”). Answering the why question in this context could greatly benefit the SDT’s ability to provide additional context to the whitepaper to help industry and the reader better understand why change is needed.

Questions

6.

- Yes
 No

Comments:

7.

- Yes
 No

Comments:

³[https://www.nerc.com/comm/RISC/Related%20Files%20DL/RISC%20Resilience%20Report Approved RISC Committee November 8 2018 Board Accepted.pdf](https://www.nerc.com/comm/RISC/Related%20Files%20DL/RISC%20Resilience%20Report%20Approved%20RISC%20Committee%20November%208%202018%20Board%20Accepted.pdf)

8.

- Yes
- No

Comments:

9.

Comments: