NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

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

Industry Webinar
May 19, 2023

RELIABILITY | RESILIENCE | SECURITY




Administrative Items

- North American Electric Reliability Corporation (NERC) Antitrust Guidelines
  - 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
- Notice of Open Meeting
  - Participants are reminded that this webinar is public. The access number was widely distributed. Speakers on the call should keep in mind that the listening audience may include members of the press and representatives of various governmental authorities, in addition to the expected participation by industry stakeholders.

BAL-003-3

- Use the Standards Balloting and Commenting System (SBS) to submit comments on draft two of proposed Reliability Standard BAL-003-3 Frequency Response and Frequency Bias Setting by 8 p.m. Eastern, Thursday, June 1, 2023.
- Questions should be submitted in the Q&A feature.
- All questions will be read and answered at the end of the presentation.
- If we do not get to your question, please email NERC staff: Laura Anderson or call (404) 782-1870

Agenda

- Welcome and Introductions - **Laura Anderson**, NERC Standards Developer
- Project Background – **David Lemmons**
- Project Overview – **David Lemmons**
- Modifications to Requirements based on Industry Comments, **Rich Hydzik**
- Balancing Authority Requirements, **Greg Park**
- Questions and Answers

Background

- **Phase I**
- Revise the IFRO calculation in BAL-003-1 due to issues identified in the 2016 Frequency Response Annual Analysis (FRAA) Report, such as the Interconnection Frequency Response Obligation (IFRO) values with respect to Point C and varying Value B;
- Reevaluate the interconnections' Resource Contingency Protection Criteria;
- Reevaluate the frequency nadir point limitations (currently limited to t0 to t+12);

Background

- Review and modify as necessary Attachment A of the Reliability Standard to remove administrative tasks and provide additional clarity, e.g., related to Frequency Response Reserve Sharing Groups (FRSG) and the timeline for Frequency Response and Frequency Bias Setting activities; and
- Make enhancements to the BAL-003-1.1 FRS Forms that include, but may not be limited to, the ability to collect and submit FRSG performance data.

- Completed – BAL-003-2 effective 12/01/2020

Background

- **Phase II**
- Both the IFRO calculations and the allocation of IFROs to reliability entities are retrospective (up to 2 years). The review should determine if there are alternate methodologies which consider characteristics affecting Frequency Response (e.g., load response, mix and type of generation, BAA footprint changes) to make allocation as equitable as possible;

Background

- Although BAs and FRSGs are responsible for coordination and/or management of Frequency Response from both resources and loads, response from resources is not addressed. The review should determine if additional reliability entities should have responsibility (e.g., GOPs) for provision of generator governor response; and
- Review the measurement methodology of Frequency Response (both System and equipment level):
  - The FRM should be reviewed to ensure that over-performance by one entity does not negatively impact the evaluation of performance by another.

Overview

- The SDT discussed several different options while trying to address the concerns raised in the SAR. These options include:
  - Potentially adding additional Balancing Authority (BA) requirements to address Real-time primary Frequency Response reserves;
  - Modification to existing BA requirements on performance measurements; and
  - Adding Generator Owner (GO) and Generator Operator (GOP) requirements for operational and responsive control.
- Based on the feedback received from the SDT's White Paper, the initial project posting and continued discussions by the SDT, the SDT has posted for comment draft two of proposed Reliability Standard BAL-003-3

Overview

- The SDT determined that the BA performance requirement (R1) must remain in place for multi-BA Interconnections.
- The measurement methodology has been modified to address certain issues but:
  - The BAs (or Reserve Sharing Groups, if applicable) have ultimate responsibility for ensuring ***all*** reserve requirements are met at the BA level.
  - There is no other NERC Registered Entity that is in the position to ensure resources are scheduled to provide the needed service.
  - GOs and GOPs are not able to ensure that any single generator is committed and dispatched in such a way to allow the generator to respond to an event.

Modifications From First Posting

The SDT-proposed new requirements in draft one have been either revised or removed from draft two of the proposed standard.

- Requirement R5 – Balancing Authority must have an Operational Planning process to address Frequency Responsive Reserves; *Removed from draft two.*
  - Industry comments suggested this requirement is administrative in nature and redundant to requirements in other standards.
- Requirement R7 - Generator Owner to have governor settings of no more than 0.036 Hz deadband and a droop of 5 percent or less. If settings are not within these parameters, notify the Balancing Authority. *Removed from draft two.*
  - Industry comments suggested that the BA data specification for TOP-003 is where this instruction is housed.

Modifications From First Posting

- Requirement 6 in draft one – now **Requirement R5** of draft two. The Generator Operator will operate the unit with the frequency response capability operational or the Balancing Authority has been notified that it is not responsive. *Revised.*
  - New Requirement R5: "Each Generator Operator shall operate each generating unit/facility connected to an interconnection with its Governor in speed or frequency control mode unless:
    - The generating unit/generating facility is not equipped with a Governor;
    - System operating conditions are incompatible with the generating facility operating the Governor in speed or frequency control mode as determined by the Balancing Authority; or
    - The generating unit/generating facility is being operated in start-up, shut-down, experiences a failure, or other temporary mode that requires the Governor speed or frequency control mode to be temporarily disabled."
    - Requirement R5, Part 5.1: "Other control modes, such as outer loop control, shall not override the Primary Frequency Response of the Governor."

Proposed Defined Terms

- **Governor** – The electronic, digital or mechanical device that implements Primary Frequency Response of generating units/generating facilities or other system elements.
  - This is the currently-approved Texas RE Regional definition of Governor.
- **Primary Frequency Response** – The immediate proportional increase or decrease in real power output provided by generating units/generating facilities in response to system Frequency Deviations. The response is in the direction that stabilizes frequency.
  - This is the currently-approved Texas RE Regional definition of Primary Frequency Response.

Purpose

- To ~~require~~ ensure sufficient Frequency Response ~~from the Balancing Authority (BA)~~ within the Interconnection to maintain Interconnection Frequency within predefined bounds by arresting frequency deviations and supporting frequency until the frequency is restored to its scheduled value. To provide consistent methods for measuring Frequency Response and determining the Frequency Bias Setting.

Functional Entities

- **Applicability**

4.1. Functional Entities:

4.1.1. ~~Balancing Authority~~ Responsible Entity

4.1.1.1. Balancing Authority

4.1.1.1.1. Balancing Authority is the responsible entity unless the Balancing Authority is a member of a Frequency Response Sharing Group, in which case, the Frequency Response Sharing Group becomes the responsible entity.

4.1.1.2. Frequency Response Sharing Group

4.1.2 Generator Operator

~~**4.1.3** Generator Owner~~

Data Collection Process

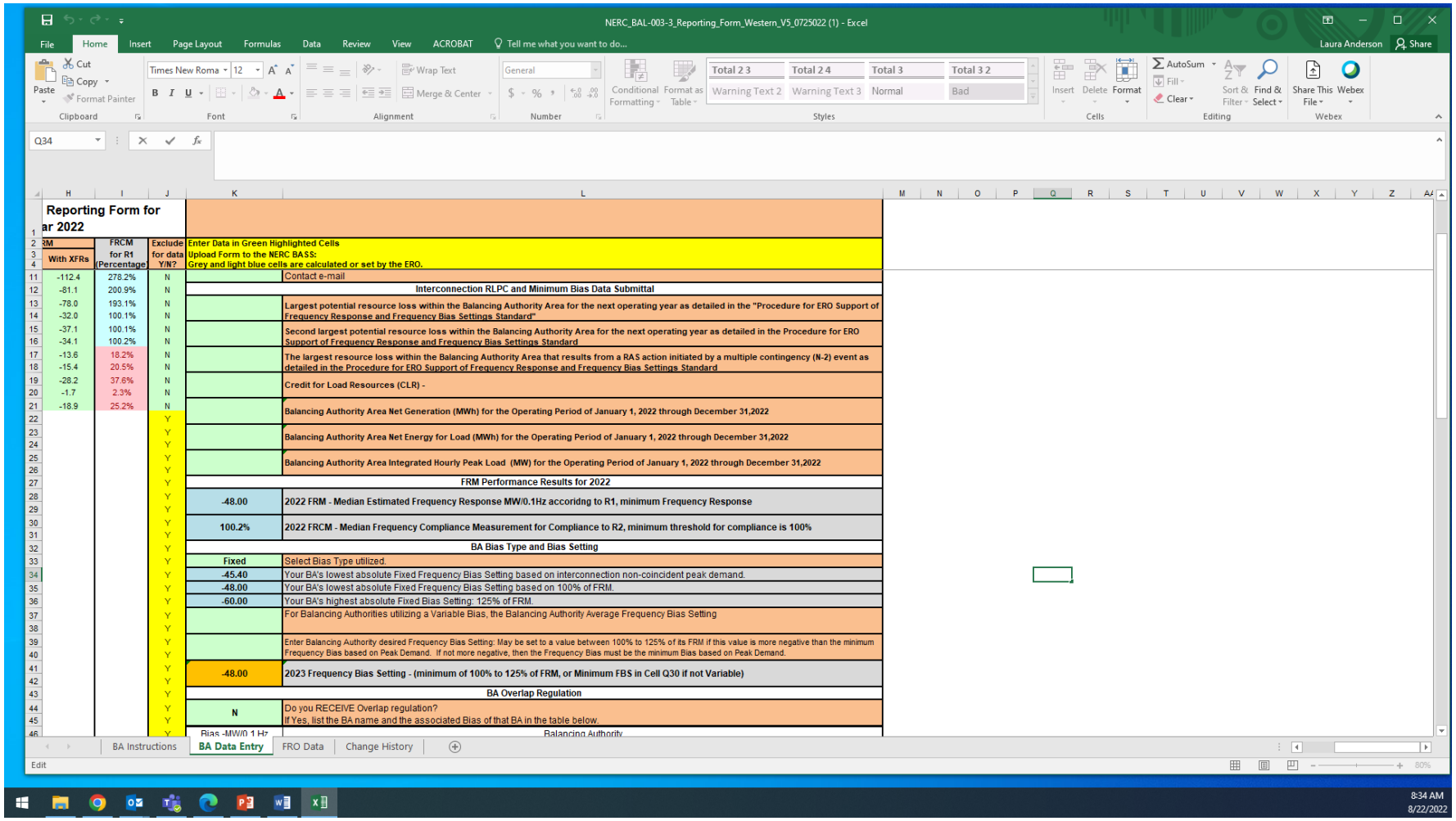
Data Collection Modifications

- We are removing the requirement to use specific forms for calculations.
- Data collection will occur through ERO determined process (Procedure for ERO Support of Frequency Response and Frequency Bias Setting Standard).
- The goal is to eventually move to a more programmatic process that does not require complex Excel spreadsheets for data submittal.

Attachment A

- Instructions to complete the individual event analyses to populate the submittal are included in Attachment A.
- No changes to the calculation methods have been made.
- No changes to the allowed adjustments have been made.
- The calculation of the final step to determine the FRCM (FRM/FRO) for each event has been added.
- Instructions on calculations for FRSGs has been added.

Data Collection Process



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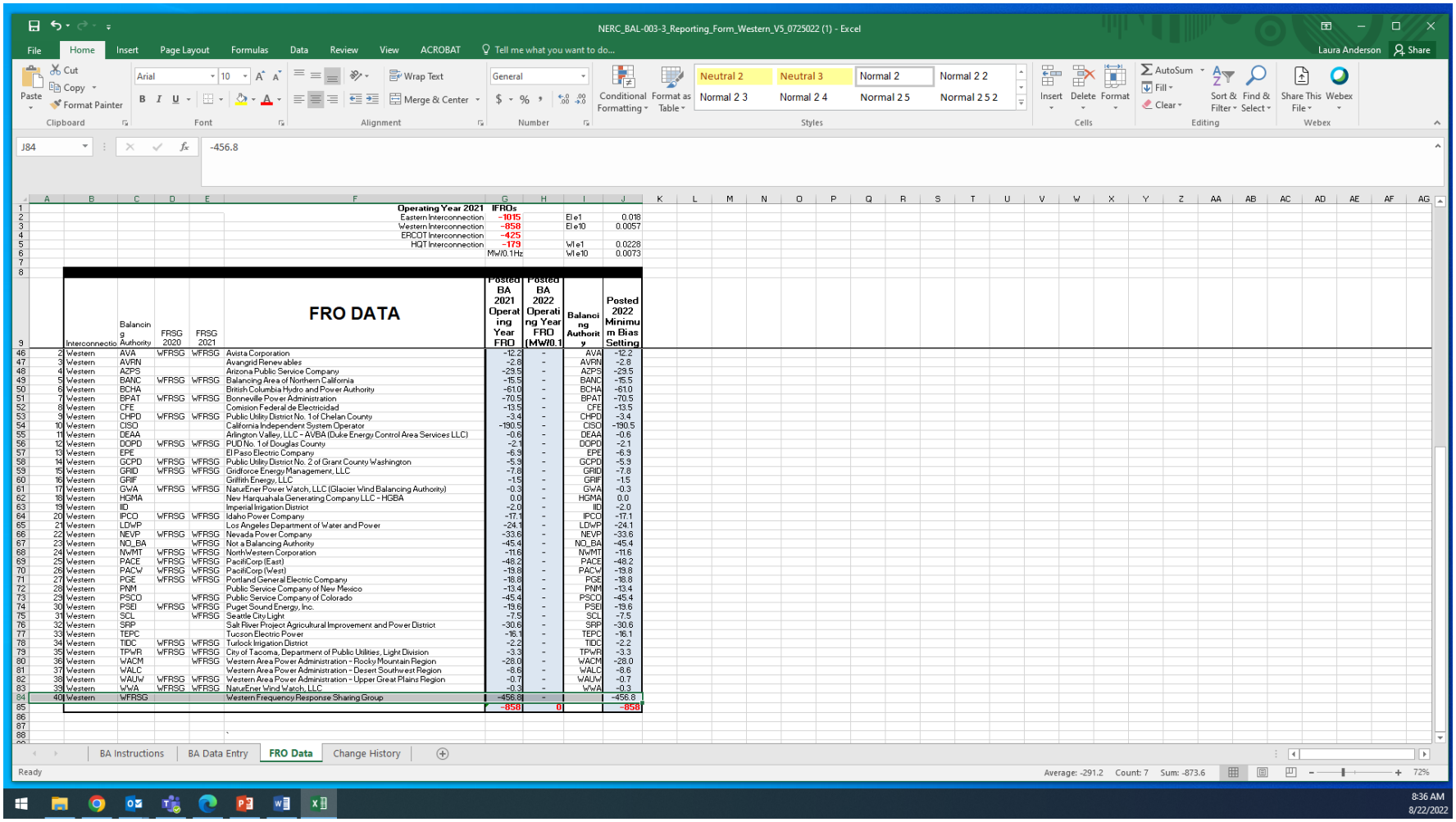
Data Collection Process



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- Slides and recording from the webinar will be posted to the NERC website.
- If we did not get to your question, please email NERC staff: Laura Anderson or call (404) 404-1870

Questions and Answers