
**UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION**

**North American Electric Reliability
Corporation**)

Docket No. RM14-10-000

**SUPPLEMENTAL INFORMATION TO PETITION OF THE
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION
FOR APPROVAL OF RELIABILITY STANDARD
BAL-001-2—REAL POWER BALANCING CONTROL PERFORMANCE**

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Pursuant to Section 215(d)(1) of the Federal Power Act (“FPA”)¹ and Section 39.5² of the Federal Energy Regulatory Commission’s (“FERC” or “Commission”) regulations, the North American Electric Reliability Corporation (“NERC”)³ hereby submits supplemental information to its April 2, 2014 petition for approval of proposed Reliability Standard BAL-001-2—Real Power Balancing Control Performance (“Petition”).⁴ NERC is providing this supplemental information in order to address the status of a Commission directive in Order No. 693 and update the Commission regarding the status of the field trial for proposed Reliability Standard BAL-001-2.

I. SUMMARY OF PROPOSED RELIABILITY STANDARD BAL-001-2

Proposed Reliability Standard BAL-001-2 defines Balancing Authority ACE Limits (“BAAL”) which are unique for each Balancing Authority and provide dynamic limits for the Balancing Authority’s ACE value as a function of the Interconnection frequency.⁵ These ACE

¹ 16 U.S.C. § 824o (2006).

² 18 C.F.R. § 39.5 (2013).

³ The Commission certified NERC as the electric reliability organization (“ERO”) in accordance with Section 215 of the FPA on July 20, 2006. *N. Am. Elec. Reliability Corp.*, 116 FERC ¶ 61,062 (2006).

⁴ The BAL-001 Reliability Standard is also commonly referred to as the “Control Performance Standard” and its two requirements are known as “Control Performance Standard 1” or “CPS 1” and “Control Performance Standard 2” or “CPS2.” In the proposed BAL-001-2 Reliability Standard, the underlying performance aspect of the Requirement is unchanged and Requirement R1 is still commonly referred to as “CPS 1.” Requirement R2 of the proposed BAL-001-2 Reliability Standard has been substantively changed and is commonly referred to as “BAAL.”

⁵ “Balancing Authority ACE Limit” or “BAAL” was derived based on reliability studies and analysis which defined a Frequency Trigger Limit bound measured in Hz. The Frequency Trigger Limit is equal to Scheduled

limits are pre-established, vary as a function of the deviation of actual Interconnection frequency from the scheduled Interconnection frequency, and become more limiting as deviations become larger. One of the reliability benefits of the proposed Reliability Standard is that it allows Balancing Authorities to calculate their position within these boundaries on a Real-time basis and take action to support reliability. While the proposed BAL-001-2 Reliability Standard is applicable to Balancing Authorities, it is functionally an Interconnection-wide Reliability Standard.

Proposed Reliability Standard BAL-001-2 consists of two requirements that work together to ensure both long-term and short-term reliability. Requirement R1 (also commonly referred to as “CPS 1”) is intended to measure how well a Balancing Authority is able to control its generation and load management programs, as measured by its ACE, to support its Interconnection’s frequency over a rolling one-year period. Requirement R2 (also commonly referred to as “BAAL”) is intended to enhance the reliability of each Interconnection by maintaining frequency within predefined limits under all conditions and includes a 30 consecutive clock-minute component.

The body of NERC Reliability Standards work together as an integrated whole to protect and preserve the reliability of the Bulk-Power System. In particular, the Resource and Demand Balancing (“BAL”) Reliability Standards work together to address various aspects of interconnection frequency as it pertains to reliable operations. Reliability Standard BAL-001 controls Interconnection frequency within defined limits. Reliability Standard BAL-002 ensures

Frequency, plus or minus three times an Interconnection’s Epsilon 1 value. Epsilon 1 is the root mean square targeted frequency error for each Interconnection, as recommended by the NERC Resources Subcommittee and approved by the NERC Operating Committee. Epsilon 1 values for each Interconnection are unique. When a Balancing Authority exceeds its BAAL, it is providing more than its share of risk that the Interconnection will exceed its Frequency Trigger Limit. When all Balancing Authorities are within their BAAL (high and low), the Interconnection frequency will be within its Frequency Trigger Limits.

that Balancing Authorities or Reserve Sharing Groups balance resources and demand and return Area Control Error to defined values. Reliability Standard BAL-003 provides consistent methods for measuring Frequency Response and determining the Frequency Bias Setting. In particular, these three BAL Reliability Standards work together because the components of Operating Reserve – frequency responsive reserve, Regulating Reserve and Contingency Reserve are always used in conjunction with one another.

II. SUPPLEMENTAL INFORMATION

A. The Proposed Reliability Standard BAL-001-2 Addresses a Commission Directive in Order No. 693

The proposed BAL-001-2 Reliability Standard addresses a Commission directive in Order No. 693 (at P 355) in an equally efficient and effective manner. In Order No. 693, the Commission noted that the BAL-002-0 Reliability Standard did not define a significant deviation or a reportable event. The Commission stated:

we direct the ERO, through the Reliability Standards development process, to modify this Reliability Standard to define a significant deviation and a reportable event, taking into account all events that have an impact on frequency, e.g., loss of supply, loss of load and significant scheduling problems, which can cause frequency disturbances and to address how balancing authorities should respond. As suggested by NRC, this or a related Reliability Standard should also include a frequency response requirement. The present Control Performance Standards represent the monthly and yearly averages which are appropriate for measuring long-term trends but may not be appropriate for measuring short-term events. In addition, the measures should be available to the balancing authorities to assist in real-time operations.⁶

As the Commission noted in Paragraph 355 of Order No. 693, loss of supply, loss of load and significant scheduling problems, can cause frequency disturbances – all of which are captured by the limits established in proposed Reliability Standard BAL-001-2. By establishing safe

⁶ Order No. 693 at P 355 (internal citation omitted).

operating frequency ranges, events that cause frequency disturbances are captured as deviations. While the Commission directed NERC to modify the BAL-002-0 Reliability Standard to address this issue, the revisions to proposed Reliability Standard BAL-001-2 are equally efficient and effective.

Under BAL-001-2, BAAL and CPS 1 work together to support Interconnection frequency. An entity is in violation of Requirement R2 of proposed Reliability Standard BAL-001-2 when it exceeds its BAAL for 30 consecutive clock-minutes or more. While entities could be out of limits for a time period less than that, this performance is captured by Requirement R1, which measures long-term trends. For example, if a Balancing Authority ACE is exactly equal to its BAAL, its CPS 1 under Requirement R1 is -700%. For each minute that the Balancing Authority exceeds its BAAL, or is operating close to its BAAL, it is accumulating substantial negative values of CPS 1 (under Requirement R1). Such negative values must then be balanced by substantially better performance by an entity -- and all of this performance is factored into compliance, given the manner in which Requirements R1 and R2 are interrelated.

When a Balancing Authority's operation is hurting Interconnection frequency, the BAAL gets tighter for the BA as the frequency moves away from 60 Hz. While an entity might not be in violation of Requirement R2 if it exceeds its BAAL for less than 30 consecutive clock-minutes, it may be in violation of Requirement R1. To the extent that a BA's operation is supporting frequency, both CPS 1 and BAAL do not require corrective action. However, operations in support of Interconnection frequency also cannot be excessive, as any change in Interconnection frequency could render such action outside of limits. The proposed Reliability Standard incentivizes applicable entities to stay within these limits.

One of the reliability benefits of the proposed BAL-001-2 Reliability Standard is that it now contains real-time requirements necessary for proper control by allowing Balancing Authorities

to calculate their position within pre-established boundaries on a real-time basis. The Commission noted in Order No. 693 that “while the control performance standard metric is useful in identifying trends relating to poor regulating practices, specification of minimum reserve requirements to be maintained at all times would complement the control performance standard metrics by providing real-time requirements necessary for proper control.”⁷ The proposed Reliability Standard allows Balancing Authorities to calculate their position within pre-established boundaries on a real-time basis and take action to support reliability. Proposed Requirement R1 addresses long-term reliability and proposed Requirement R2 addresses short-term reliability. Collectively, the two Requirements of the proposed Reliability Standard define limits and significant deviations that impact frequency.

As noted herein, the BAL Reliability Standards work closely together. Revisions to the BAL-002 Reliability Standard are currently in development and will complement the proposed revisions to the BAL-001-2 Reliability Standard and will also address the Commission’s concerns in Order No. 693 regarding the need to define reportable events.

B. Status of Field Trial for Proposed Reliability Standard BAL-001-2

As NERC noted in its Petition, the field trial for proposed Reliability Standard is ongoing.⁸ The participation of Balancing Authorities in the field trial is in the interest of reliability due to the improvements proposed in Reliability Standard BAL-001-2, which requires a Balancing Authority to balance its resources and demand in real-time. There are significant costs for

⁷ Order No. 693 at P 397.

⁸ Petition at p. 6. In January 2013, the Western Electricity Coordinating Council presented a report on the field trial at its Board of Directors meeting. *Available at:* <http://www.wecc.biz/committees/BOD/20130123/Lists/Minutes/1/2013%2001%2023%20Board%20Packet.pdf>, beginning at p. 32. The report states that no trends were noticed in both NERC Inadvertent Interchange and the Primary Inadvertent Interchange accumulations for the participating BAs in the Western Interconnection during the field trial.

entities that are associated with changing between the currently-effective BAL-001-1 Reliability Standard and the proposed BAL-001-2 Reliability Standard because energy management system (“EMS”) changes are required and there may also be associated information technology changes required. In some cases, operators may require training to implement these changes. The widespread participation of Balancing Authorities has provided insight into how the changes in proposed Reliability Standard BAL-001-2 will impact reliability. Currently, there are 47 Balancing Authorities participating in the field trial (16 in the Eastern Interconnection, 29 in the Western Interconnection, ERCOT and Quebec). For these reasons, NERC supports the participation of additional Balancing Authorities in the field trial. A report on the field trial will be submitted to the Commission in this proceeding for informational purposes, by no later than July 31, 2014. The field trial will end for participating entities upon the effective date of Reliability Standard BAL-001-2.

III. NOTICES AND COMMUNICATIONS

Notices and communications with respect to this filing may be addressed to the following:⁹

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⁹ Persons to be included on the Commission's service list are identified by an asterisk. NERC respectfully requests a waiver of Rule 203 of the Commission's regulations, 18 C.F.R. § 385.203 (2013), to allow the inclusion of more than two persons on the service list in this proceeding.

IV. **CONCLUSION**

NERC respectfully requests that the Commission consider the comments submitted herein.

Respectfully submitted,

/s/ Stacey Tyrewala

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