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

**Real Power Balancing Control Standards)
Performance Reliability Standard)**

Docket No. RM14-10-000

**COMMENTS OF THE
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION
IN RESPONSE TO NOTICE OF PROPOSED RULEMAKING**

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The North American Electric Reliability Corporation (“NERC”)¹ hereby provides these comments in response to the Federal Energy Regulatory Commission’s (“FERC” or the “Commission”) November 20, 2014, Notice of Proposed Rulemaking (“NOPR”)² proposing to approve Reliability Standard BAL-001-2 (Real Power Balancing Control Performance) and four proposed definitions (“Regulation Reserve Sharing Group,” “Reserve Sharing Group ACE,” “Reporting ACE” and “Interconnection”).

I. Notices and Communications

Notices and communications with respect to this filing may be addressed to the following:³

¹ The Federal Energy Regulatory Commission certified NERC as the electric reliability organization (“ERO”) in its order issued on July 20, 2006, in Docket No. RR06-1-000. *N. Am. Elec. Reliability Corp.*, 116 FERC ¶ 61,062 (2006).

² *Real Power Balancing Control Performance Reliability Standard*, Notice of Proposed Rulemaking, 149 FERC ¶ 61,139 (2014).

³ 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 (2014), to allow the inclusion of more than two persons on the service list in this proceeding.

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II. Background on Petition

On April 2, 2014, NERC submitted a petition for approval of proposed Reliability Standard BAL-001-2 and four proposed definitions. The purpose of proposed Reliability Standard BAL-001-2 is to maintain interconnection frequency within predefined frequency limits. The reliable operation of an electric power system depends on careful management of the balance between generation and load to ensure that system frequency is maintained within narrow limits around a scheduled value.

The proposed Reliability Standard consists of two Requirements. Requirement R1 (commonly referred to as Control Performance Standard 1 (“CPS1”)) is intended to measure how well a Balancing Authority is able to control its generation and load management programs, as measured by its Area Control Error (“ACE”),⁴ to support its interconnection’s frequency over a rolling one-year period. Proposed Requirement R1 is largely a restatement of currently effective BAL-001-1 Requirement R1, but includes proposed revisions that are efficient and that clarify

⁴ Area Control Error (ACE) is the instantaneous difference between a Balancing Authority’s Net Actual and Scheduled Interchange, taking into account the effects of Frequency Bias, correction for meter error, and Automatic Time Error Correction (ATEC), if operating in the ATEC mode.

the intent of the Requirement. Proposed Requirement R2 is a new requirement intended to replace the currently effective BAL-001-1 Requirement R2, commonly referred to as Control Performance Standard 2 (“CPS2”).

Requirement R2 is intended to enhance the reliability of each interconnection by maintaining ACE within predefined limits under all conditions. Under Requirement R2, a Balancing Authority is permitted to be outside its ACE limits for up to 10 percent of 10 minute periods over the course of a one-month period. While Requirement R2 mandates that a Balancing Authority correct its ACE to not exceed specific limits, it fails to recognize the positive or negative impact of that corrective action to maintain interconnection frequency. For example, a Balancing Authority may increase or decrease generation to meet CPS2 limits; however, this corrective move could have an unintended consequence of reducing reliability by moving interconnection frequency further away from its scheduled value.

Using Balancing Authority ACE Limits (“BAAL”), the proposed Requirement R2 is intended to enhance the reliability of each interconnection by maintaining frequency within predefined limits under all conditions. The BAAL limits are based on identified interconnection frequency limits to ensure that the interconnection returns to a reliable state when the ACE of one or more Balancing Authorities deviates into an area that contributes too much risk to reliability. The proposed Requirement R2 provides each Balancing Authority a dynamic ACE limit that is a function of interconnection frequency. In other words, it drives the Balancing Authority’s corrective action in a direction that supports interconnection frequency. Compliance with the BAAL requires the Balancing Authority to balance its resources and demand in Real-Time so that the clock-minute average of its Reporting ACE does not exceed its clock-minute BAAL for more than 30 consecutive clock-minutes. When a Balancing Authority’s operation is not supporting

interconnection frequency (i.e., as frequency moves away from 60 Hz), the BAAL gets tighter for the Balancing Authority. When a Balancing Authority's operation is supporting interconnection frequency (i.e., moving closer to 60 Hz), the BAAL relaxes for the Balancing Authority. A Balancing Authority that exceeds its BAAL is contributing more than its allowed share of risk in an interconnection.

A field trial was initiated in July 2005 which examines whether there is any relationship between BAAL (and its associated large ACE swings) and unscheduled power flows as well as between BAAL and accumulated Inadvertent Interchange. The effectiveness of the BAAL at the interconnection level was determined by assessing the duration during which frequency remains outside permissible limits. In its July 31, 2014 interim report on the field trial, NERC reported to the Commission that throughout the duration of the field trial in the Eastern Interconnection, no Balancing Authority, Reliability Coordinator or other reliability entity cited problems with unscheduled flows associated with the operation of the field trial. In the Western Interconnection, NERC observed no conclusive evidence that BAAL had any effect on congestion management / unscheduled flow within the Western Interconnection. Also in the Western Interconnection, WECC examined the possible effect of transmission flows as a direct result of stressing the limits of BAAL. Under this stressed condition in the Western Interconnection, WECC observed that accumulated Inadvertent Interchange reached high levels several times; however, WECC found no relationship between the field trial and accumulated Inadvertent Interchange. Overall, NERC found that the initial field trial results demonstrate that BAL-001-2 supports frequency and improves reliability.

III. Comments on Proposed Requirement R2

On November 20, 2014, the Commission issued a NOPR proposing to approve proposed Reliability Standard BAL-001-2 and the proposed new definitions submitted by NERC. The Commission did, however, note some concerns regarding the implementation of BAL-001-2:

- (1) allowing BAs to have “very large deviation[s] from an ACE of zero and [yet] still be compliant with the dynamic values of the BA ACE limits in the proposed [Requirement R2]”;
- (2) the possibility that “an unintended consequence of (i) allowing significant amounts of unscheduled power flows, creating an undue burden for transmission operators and reliability coordinators to address power flows approaching or exceeding system operating limits or interconnection reliability operating limits, and (ii) significant increase in inadvertent interchange *could* result in an adverse reliability impact between real-time operations and day and/or hour-ahead analysis performed by reliability coordinators and transmission operators”.⁵

These concerns stemmed from several commenters raising the *possibility* of (i) significant amounts of unscheduled power flows causing large ACE swings and thereby approaching or exceeding system operating limits or interconnection reliability operating limits (“SOL/IROL”) which can be a burden to Transmission Operators and Reliability Coordinators and (ii) significant increases in Inadvertent Interchange resulting in an Adverse Reliability Impact between Real-Time operations and day and/or hour-ahead analysis performed by Reliability Coordinators and Transmission Operators.⁶

Given the *possibility* that large ACE swings are correlated with unscheduled power flow and Inadvertent Interchange causing SOL/IROL exceedances, a correlation which has not been established in the field trial, the Commission proposed a directive asking NERC to submit an informational filing following the implementation of the proposed Reliability Standard. The

⁵ NOPR at PP 21-22.

⁶ See NOPR at P 20.

purpose of this informational filing is to “monitor unscheduled power flows and Inadvertent Interchange in the Western and Eastern Interconnections” for a two-year period following implementation (i.e., the effective date) of the proposed Reliability Standard.⁷ The Commission proposed that the informational filing include data regarding SOL/IROL violations, the date and time, location, the duration and magnitude, *due to unscheduled power flows and Inadvertent Interchange within the Western and Eastern Interconnections*.⁸ The Commission maintains that this data on unscheduled power flows and Inadvertent Interchange will provide NERC, the Commission and other interested entities with the material to evaluate the effect of proposed Reliability Standards BAL-001-2 on unscheduled power flows and Inadvertent Interchange and the resulting consequences on the Bulk-Power System.⁹ The Commission seeks comments on the proposed informational filing and specifically on (i) whether any additional data would support this analysis, and (ii) whether a regional variance would be necessary for those regions that experience adverse impacts during the field trial due to Inadvertent Interchange.¹⁰

IV. Comments

NERC does not support the Commission’s proposed directive to submit an informational filing with the data outlined above following implementation of the proposed Reliability Standard because the data that the Commission is proposing NERC collect will not conclusively demonstrate that large ACE swings are correlated with unscheduled power flow and Inadvertent Interchange causing SOL/IROL exceedances. Additionally, NERC does not currently collect data, as proposed by the Commission, nor is it common practice of the industry to determine whether

⁷ NOPR at P 23.

⁸ NOPR at P 23 (emphasis added).

⁹ NOPR at P 23.

¹⁰ NOPR at P 24.

large ACE swings coincide with with unscheduled power flow or Inadvertent Interchange which might cause SOL/IROL exceedances. Furthermore, in order to demonstrate a correlation between BAAL and ACE swings, sub-hourly Inadvertent Interchange data, as well as data at the Balancing Authority and interconnection level, would have to be collected.

NERC established a metric, ALR3-5 Interconnection Reliability Operating Limit Exceedances, which tracks IROL exceedances (and SOL in exceedances in the Western Interconnection). The *State of Reliability 2014* report analyzed the data and found that in the Eastern Interconnection, most exceedances were due to planned transmission outages resulting in congestion and higher flows on the remaining paths.¹¹ Additionally, only two IROL exceedances were longer than 30 minutes. No exceedances were longer than 30 minutes in the Western Interconnection or the ERCOT interconnection. This data was collected during the time that the field trial was in place. Based on this analysis, NERC does not expect SOL/IROL exceedances to increase with the implementation of BAL-001-2.

It is also unclear how NERC would “monitor unscheduled power flows.” Power flows on the system are a combination of network topology, generation dispatch to meet load, scheduled power transactions between Balancing Authorities, time error corrections, and ACE recoveries. Only scheduled power transactions between Balancing Authorities based on contract paths have defined schedules associated with them. All others are “unscheduled.” An analysis of unscheduled power flows specifically associated with the implementation of BAL-001-2 would require all entities in North America to provide a snapshot of all load, generation dispatched, system topology, and scheduled transactions. That data would then be loaded into a power flow model to calculate line outage distribution factors and power transfer distribution factors for

¹¹ State of Reliability 2014, [http://www.nerc.com/pa/RAPA/PA/Performance Analysis DL/2014_SOR_Final.pdf](http://www.nerc.com/pa/RAPA/PA/Performance%20Analysis%20DL/2014_SOR_Final.pdf) page 53

generation dispatch. That would allow for the calculation of the contribution of unscheduled power flows on the SOL/IROL transmission element. That would need to be repeated for each change in network topology that would occur.

The Commission's proposed directive is based on the speculative opinions of commenters, supported by no documented evidence that the proposed Reliability Standard contributes to unscheduled power flows and Inadvertent Interchange. The Commission is, in essence, asking NERC to disprove a negative. The work required to collect the data and perform the analysis for two years to disprove unsupported speculation is not an effective use of ERO and industry resources. As described above, NERC conducted a field trial that produced no conclusive results that large ACE swings are correlated with unscheduled power flow and Inadvertent Interchange causing SOL/IROL exceedances. That is, the field trial has not resulted in any positive evidence that implementing BAAL either (i) has a negative effect on frequency by resulting in high ACE swings or (ii) has any relationship with unscheduled power flows or accumulated Inadvertent Interchange resulting in SOL/IROL exceedances in either the Eastern or Western Interconnections. In fact, the only conclusive observation made during the field trial linking BAAL to Inadvertent Interchange was a result of deliberate stress testing in the Western Interconnection. Even if the field trial produced different results, high ACE swings are not necessarily determinative of overloading transmission or SOL/IROL exceedances because SOL/IROL exceedances can still occur when ACE is zero.

Accordingly, as a first step to addressing the Commission's concerns articulated in the NOPR, and in order to investigate a possible correlation between BAAL and SOL/IROL exceedances as attributed to Inadvertent Interchange and unscheduled power flows, NERC proposes that it first collect a set of baseline data. This baseline data would consist of tracking the

number of SOL/IROL exceedances occurring in each interconnection where a Balancing Authority's ACE was within BAAL. NERC would collect this data for the same time period proposed by the Commission in the NOPR – for a two-year period following implementation of the proposed Reliability Standard. Once this data is collected, NERC proposes to submit an informational filing to the Commission with the results of the data with a commitment to work with FERC's Office of Electric Reliability staff in analyzing the data to determine if there is a coincidence between Inadvertent Interchange and unscheduled power flows resulting in SOL/IROL exceedances. If NERC and OER staff determine a possible coincidence, NERC will do further analysis to determine whether a regional variance should be developed or modifications to the Reliability Standard may be necessary.

V. **Conclusion**

For the reasons set forth above, NERC respectfully requests that the Commission issue an order consistent with the comments herein.

Respectfully submitted,

/s/ Nina H. Jenkins-Johnston

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Date: January 26, 2015

CERTIFICATE OF SERVICE

I hereby certify that I have served a copy of the foregoing document upon all parties listed on the official service list compiled by the Secretary in this proceeding.

Dated at Washington, D.C. this 26th day of January, 2015.

/s/ Nina H. Jenkins-Johnston

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