AGENCY: Federal Energy Regulatory Commission.

ACTION: Final rule.

SUMMARY: The Federal Energy Regulatory Commission (Commission) approves Reliability Standards BAL-005-1 (Balancing Authority Control) and FAC-001-3 (Facility Interconnection Requirements), submitted by the North American Electric Reliability Corporation, as well as the retirement of Reliability Standards BAL-005-0.2b (Automatic Generation Control), FAC-001-2 (Facility Interconnection Requirements), and BAL-006-2 (Inadvertent Interchange).

EFFECTIVE DATE: This rule will become effective [INSERT DATE 60 days after publication in the FEDERAL REGISTER].

FOR FURTHER INFORMATION CONTACT:

Syed Ahmad (Technical Information)
Office of Electric Reliability, Division of Reliability Standards
Federal Energy Regulatory Commission
888 First Street, NE
Washington, DC 20426
Telephone: (202) 502-8718
Syed.Ahmad@ferc.gov
Supplementary Information:
1. Pursuant to section 215 of the Federal Power Act (FPA), the Commission approves Reliability Standards BAL-005-1 (Balancing Authority Control) and FAC-001-3 (Facility Interconnection Requirements), submitted by the North American Electric Reliability Corporation (NERC), as well as the retirement of Reliability Standards BAL-005-0.2b (Automatic Generation Control), FAC-001-2 (Facility Interconnection Requirements), and BAL-006-2 (Inadvertent Interchange). The Commission also approves the associated implementation plans, violation risk factors, and violation severity levels for Reliability Standards BAL-005-1 and FAC-001-3. Finally, the Commission approves three revised definitions for the glossary of terms used in NERC’s Reliability Standards (NERC Glossary).

1 16 U.S.C. 824(o).
2. The Commission determines that Reliability Standards BAL-005-1 and FAC-001-3 will enhance the reliability of the Bulk-Power System, as compared to currently-effective Reliability Standards BAL-005-0.2b and FAC-001-2, by clarifying and consolidating existing requirements related to frequency control. In addition, the Commission determines that the revised Reliability Standards support more accurate and comprehensive calculation of Reporting Area Control Error (Reporting ACE), by requiring timely reporting of an inability to calculate Reporting ACE and by requiring balancing authorities to maintain minimum levels of annual availability of 99.5 percent for each balancing authority’s system for calculating Reporting ACE. Based on the information received in the comments on the Notice of Proposed Rulemaking in this proceeding, as well as in response to a subsequent data request issued to NERC, the Commission has determined that it will not, at this time, direct NERC to restore existing requirements in Requirement R15 of Reliability Standard BAL-005-0.2b related to maintaining and testing backup power supplies at primary control centers and other critical locations. We also approve NERC’s request to retire Reliability Standard BAL-006-2, BAL-005-0.2b and FAC-001-2 upon the effective date of Reliability Standard BAL-005-1.

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I. Background

A. Mandatory Reliability Standards and Order No. 693

3. Section 215 of the FPA requires a Commission-certified Electric Reliability Organization (ERO) to develop mandatory and enforceable Reliability Standards that are subject to Commission review and approval. Specifically, the Commission may approve, by rule or order, a proposed Reliability Standard or modification to a Reliability Standard if it determines that the Reliability Standard is just, reasonable, not unduly discriminatory or preferential and in the public interest.4 Once approved, the Reliability Standards may be enforced by NERC, subject to Commission oversight, or by the Commission independently.5

4. Pursuant to section 215 of the FPA, the Commission established a process to select and certify an ERO,6 and subsequently certified NERC as the ERO.7 On March 16, 2007, the Commission issued Order No. 693, approving 83 of the initial 107 Reliability Standards filed by NERC, including Reliability Standards BAL-005-0 (Automatic Generation Control), FAC-001-0 (Facility Interconnection Requirements), and

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5 Id. 824o(e).


In addition to approving Reliability Standards BAL-005-0 and BAL-006-1, the Commission directed NERC to develop modifications to those Reliability Standards through the NERC standards development process.

5. With respect to Reliability Standard BAL-005-0, the Commission directed NERC to develop a modification that:

   (1) develops a process to calculate the minimum regulating reserve a balancing authority must have at any given time taking into account expected load and generation variation and transactions being ramped into or out of the balancing authority; (2) changes the title of the Reliability Standard to be neutral as to the source of regulating reserves and to allow the inclusion of technically qualified DSM and direct control load management; (3) clarifies Requirement R5 of this Reliability Standard to specify the required type of transmission or backup plans when receiving regulation from outside the balancing authority when using non-firm service; and (4) includes Levels of Non-Compliance and a Measure that provides for a verification process over the minimum required automatic generation control or regulating reserves a balancing authority must maintain.

Subsequently, the Commission approved one interpretation of Reliability Standard BAL-005-0 and two errata filings. The currently-effective version of the Reliability Standard is BAL-005-0.2b.

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9 Id. P 420.

10 See Modification of Interchange and Transmission Loading Relief Reliability Standards; and Electric Reliability Organization Interpretation of Specific Requirements of Four Reliability Standards, Order No. 713, 124 FERC ¶ 61,071 (2008); North American Electric Reliability Corp., Docket No. RD09-2-000 (May 13, 2009) (delegated
6. With respect to Reliability Standard BAL-006-1, the Commission directed NERC to develop a modification “that adds Measures concerning the accumulation of large inadvertent imbalances and Levels of Non-Compliance.” The Commission explained the need for such a modification as follows:

While we agree that inadvertent imbalances do not normally affect the real-time operations of the Bulk-Power System and pose no immediate threat to reliability, we are concerned that large imbalances represent dependence by some balancing authorities on their neighbors and are an indication of less than desirable balancing of generation with load. The Commission also notes that the stated purpose of this Reliability Standard is to define a process for monitoring balancing authorities to ensure that, over the long term, balancing authorities do not excessively depend on other balancing authorities in the Interconnection for meeting their demand or interchange obligations.

Since then, the Commission has approved one revision to Reliability Standard BAL-006-1 to remove the regional waiver of certain requirements for the Midcontinent ISO, following the Midcontinent ISO’s transition to a single balancing authority model. The currently-effective version of the Reliability Standard is BAL-006-2.


11 Order No. 693, FERC Stats. & Regs. ¶ 31,242 at P 428.

12 Id.

B. **NERC Petition**

7. On April 20, 2016, NERC filed a petition seeking approval of Reliability Standards BAL-005-1 (Balancing Authority Control) and FAC-001-3 (Facility Interconnection Requirements), nine new or revised definitions associated with the Reliability Standards, and retirement of currently-effective Reliability Standards BAL-005-0.2b (Automatic Generation Control), FAC-001-2 (Facility Interconnection Requirements), and BAL-006-2 (Inadvertent Interchange).

8. In its petition, NERC requested that the two modified Reliability Standards and the revised definitions of Automatic Generation Control, Pseudo-Tie, and Balancing Authority become effective on the first day of the first calendar quarter twelve months from the effective date of the applicable governmental authority’s approval of NERC’s petition. NERC also requested that the retirement of Reliability Standard BAL-006-2 become effective upon the latter of the effective date of proposed Reliability Standard BAL-005-1 and the NERC Operating Committee’s approval of an Inadvertent Interchange Guideline document.

9. For the six remaining definitions (Reporting ACE\(^\text{14}\) and its component definitions: Actual Frequency, Actual Net Interchange, Scheduled Net Interchange, Interchange

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\(^{14}\) NERC states that Reporting ACE “represents a Balancing Authority Area’s (BAA’s) Area Control Error (ACE) measured in megawatts (MW) as the difference between the BAA’s Actual and Scheduled Net Interchange, plus its Frequency Bias Setting obligation and meter error corrections. Reporting ACE helps Responsible Entities provide reliable frequency control by indicating the current state of the entity’s contribution to Reliability.” NERC Petition at 3.
Meter Error, and Automatic Time Error Correction), NERC initially requested an effective date of July 1, 2016, to coincide with the effective date for Reliability Standard BAL-001-2. However, NERC subsequently withdrew its request for approval of the six Reporting ACE-related definitions from the instant docket, and filed for expedited approval of the six definitions in a separate docket. The six definitions were approved by delegated letter order on June 23, 2016, and are no longer at issue in the instant proceeding.\(^\text{15}\)

10. NERC explained in its petition that Reliability Standards BAL-005-1 and FAC-001-3, and the proposed retirement of Reliability Standard BAL-006-2, came about as part of the second phase of NERC’s project to “clarify, consolidate, streamline, and enhance the Reliability Standards addressing frequency control.”\(^\text{16}\) NERC indicated in its petition that the standard drafting team developed the proposed revisions after reviewing applicable Commission directives, “Paragraph 81” criteria, and the recommendations of the periodic review team that examined Reliability Standards BAL-005-0.2b and BAL-006-2.\(^\text{17}\)

\(^{15}\) North American Electric Reliability Corp., Docket No. RD16-7-000 (June 23, 2016) (delegated letter order).

\(^{16}\) NERC Petition at 2 (referencing Project 2010-14.2.1 Phase 2 of Balancing Authority Reliability-based Controls).

\(^{17}\) Id. at 3 (citing North American Electric. Reliability Corp., 138 FERC ¶ 61,193 at P 81, order on reh’g and clarification, 139 FERC ¶ 61,168 (2012); Petition of the North American Electric Reliability Corporation for Approval of Retirement of Requirements in Reliability Standards, Docket No. RM13-8-000, at Exhibit A
11. NERC described the revisions to Reliability Standard BAL-005-0.2b as clarifying and refining the current requirements “for accurate, consistent, and complete” reporting of Reporting ACE, which is a key frequency control and reliability indicator. These revisions include relocating some of the current requirements of Reliability Standard BAL-005-0.2b, which relate to confirming that facilities are within a balancing authority’s metered boundary, into Reliability Standard FAC-001-3. In addition, NERC proposed to relocate Requirement R3 of currently-effective Reliability Standard BAL-006-2 into Reliability Standard BAL-005-1, explaining that the requirement relates to ensuring that balancing authorities use consistent data sources to calculate Reporting ACE, and therefore more properly belongs in Reliability Standard BAL-005.

12. NERC explained that the revised Reliability Standards “represent substantial improvements over existing Reliability Standards by helping to support more accurate and comprehensive calculation of Reporting ACE and satisfying all remaining Commission directives for Reliability Standards BAL-005 and BAL-006.” Further, NERC maintained that Reliability Standard BAL-005-1 is an improvement over the currently-effective version, BAL-005-0.2b, because it “consolidates unnecessary or repetitive Requirements and moves certain metrics for calculating Reporting ACE to the

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18 Id.

19 Id. at 12.
revised, proposed definition of Reporting ACE.” Among other things, NERC proposed to move requirements applicable to generator operators and transmission operators in currently-effective Reliability Standard BAL-005-0.2b, into a more appropriate Reliability Standard, explaining that “[a]s the purpose of FAC-001-3 is more commensurate with interconnection responsibilities, interconnection procedures contained in currently effective BAL-005-0.2b should be included in proposed Reliability Standard FAC-001-3.”

13. In addition, NERC asserted that Reliability Standard BAL-005-1 improves on the currently-effective version of the Reliability Standard because proposed Requirement R2 clarifies the performance expectations for notification to reliability coordinators when a balancing authority is unable to calculate Reporting ACE for 30 minutes or more, and Requirement R5 “introduces a new obligation . . . to assure the availability of a BA’s system used to calculate Reporting ACE,” requiring a minimum availability of 99.5 percent in each calendar year.

14. NERC stated that the package of revisions reflected in its petition addresses the outstanding directives related to Reliability Standards BAL-005 and BAL-006 from Order No. 693. Specifically, NERC stated that the title of Reliability Standard

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20 Id. at 13.

21 Id. at 23.

22 Id. at 16.

23 Id. at 19.
BAL-005-1 has been modified from Automatic Generation Control to Balancing Authority Control “to reflect the connection to Reporting ACE and resource-neutral requirements.” In addition, NERC indicated that it has revised the definition of Automatic Generation Control to ensure a resource-neutral process for controlling demand and resources.

15. NERC also stated that the requirements of Reliability Standard BAL-005-1 all have a “medium” violation risk factor, thereby addressing the Commission’s directive to revise the violation risk factor for Reliability Standard BAL-005-0, Requirement R17 to “medium.” Similarly, NERC asserted that it met the directive to consider Xcel and FirstEnergy’s comments about the scope of Requirement R17, which set minimum accuracy requirements for time error and frequency devices, by retiring part of the currently-effective requirement and moving the minimum accuracy requirements into Requirement R3 of Reliability Standard BAL-005-1. NERC maintained that this response has “streamlined obligations to use specific frequency metering equipment that is necessary for operation of [automatic generation control (AGC)] and accurate

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24 *Id.* at 13 (referencing Order No. 693, FERC Stats. & Regs. ¶ 31,242 at P 404, and noting that the Commission’s directive related to resource-neutrality for regulating reserves is now moot, as Requirement R2 of Reliability Standard BAL-005-0.2b, which required entities to maintain regulating reserves, has been retired).

25 *Id.* at n.39.

26 *Id.* at 17; *see also North American Elec. Reliability Corp.*, 121 FERC ¶ 61,179, at P 58 (2007).
calculation of Reporting ACE, as this ensures that costs associated with implementation are commensurate with reliability benefit.”

16. NERC proposed to move Requirement R3 from currently-effective Reliability BAL-006-2 into Reliability Standard BAL-005-1, but NERC proposed to retire the rest of the requirements of Reliability Standard BAL-006-2 (Requirements R1, R2, R4, and R5). NERC stated that the standard drafting team determined that, aside from Requirement R3, each of the requirements in Reliability Standard BAL-006-2 are “energy accounting standards” and/or are “administrative” in nature, and should accordingly be retired.

17. NERC acknowledged that the Commission previously directed it to develop measures concerning the accumulation of large inadvertent imbalances, based on the Commission’s concern that large imbalances may indicate an underlying problem. NERC explained, however, that the requirements of Reliability Standard BAL-001-2, which require balancing authorities to maintain clock-minute ACE within the Balancing Authority ACE Limit, as well as the requirements of Reliability Standard BAL-003-1 and proposed Reliability Standard BAL-002-2, which require entities to restore Reporting ACE within predefined bounds, prevent any excessive dependency on other entities. As NERC explained in its petition:

Because entities are supporting frequency through this coordinated suite of reliability standards, entities will not excessively depend on other entities in the Interconnection such that the purely economic issue that was addressed by

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27 NERC Petition at 18.

28 Id. at 25-26.
BAL-006-2 becomes a reliability issue for a NERC Reliability Standard.\textsuperscript{29}

18. In order to address “any remaining or potential concerns with retirement of BAL-006-2,” NERC proposed that the retirement become effective only upon the Operating Committee’s approval of an Inadvertent Interchange Guideline document.\textsuperscript{30} NERC stated that the Inadvertent Interchange Guideline document was based on a white paper developed by the standard drafting team for Reliability Standards BAL-005 and BAL-006, and maintained that it provides an in-depth justification for why a NERC Reliability Standard is not necessary for inadvertent interchange.

19. With respect to the three proposed definitions that remain at issue in this proceeding, NERC explained that: (1) “Automatic Generation Control” has been revised to set forth a resource-neutral process for controlling demand and resources; (2) “Pseudo-Tie” has been updated to reflect the use of the term “Reporting ACE;” and (3) “Balancing Authority” has been revised to more accurately describe a balancing authority’s resource demand function.

C. **NERC Supplemental Filing**

20. On June 14, 2016, NERC submitted supplemental information in support of its April 20, 2016 petition (Supplemental Filing), to provide additional explanation and

\textsuperscript{29} Id. at 27.

support for the retirement of Requirement R15 in currently-effective Reliability Standard BAL-005-0.2b.\textsuperscript{31} In its Supplemental Filing, NERC maintained that Requirement R15 should be retired because the objectives of that requirement (i.e., to ensure the continued operation of AGC and certain data recording equipment during the loss of normal power supply) are being addressed through other Reliability Standards and requirements.

Specifically, NERC maintained that Reliability Standard EOP-008-1 requires a balancing authority to have a backup control center facility and an operating plan that allows it to meet its functional obligations with regard to the reliable operation of the bulk electric system in the event that its primary control center functionality is lost.\textsuperscript{32}

21. In addition, NERC maintained that the proposed performance requirements of Requirement R3 of Reliability BAL-005-1, which would require balancing authorities to “use frequency metering equipment for the calculation of Reporting ACE that is available a minimum of 99.95% of each calendar year,” will help to ensure that balancing authorities can continuously operate the equipment necessary for the calculation of Reporting ACE, effectively eliminating the need for Requirement R15.\textsuperscript{33}

\textsuperscript{31} As NERC notes in its Supplemental Filing, NERC stated in its initial petition that “Requirements R2, R7 and R15 . . . are redundant, ineffective, and should be retired based on Commission-approved Paragraph 81 Criteria.” NERC Supplemental Filing at 1 (quoting NERC Petition at 15).

\textsuperscript{32} NERC Supplemental Filing at 2.

\textsuperscript{33} \textit{Id.} at 4.
D. Notice of Proposed Rulemaking and Data Request

22. On September 22, 2016, the Commission issued a notice of Proposed Rulemaking proposing to approve Reliability Standards BAL-005-1 and FAC-001-3, as replacements for the existing versions of those standards, and to approve the retirement of Reliability Standard BAL-006-2 on the latter of the effective date of BAL-005-1 or the NERC Operating Committee’s approval of an Inadvertent Interchange Guideline. In the NOPR, the Commission raised several questions about the impact of eliminating Requirement R15 from currently-effective Reliability Standard BAL-005-0.2b, which requires responsible entities to maintain and periodically test backup power supplies at primary control centers and other critical locations. The Commission indicated that, depending on the information received in comments in response to its questions, it may decide to issue a directive to restore the substance of Requirement R15 as part of a final rule.

23. Five sets of comments were filed in response to the NOPR. Subsequently, the Commission staff issued a data request to NERC seeking additional information about the current practices of a representative sample of entities concerning the use of backup power supplies. Specifically, the Commission sought further information from a

34 NOPR, 156 FERC ¶ 61,210 at PP 26-33.

35 Id. P 25.

36 The Appendix lists the entities that submitted comments and the shortened names used throughout this Final Rule to describe those entities.

37 Data Request in Response to Petition Seeking Approval of Reliability Standards BAL-005-1 and FAC-001-3, Docket No. RM16-13-000 (March 7, 2017) (March 7 Data Request).
sample of existing balancing authorities, reliability coordinators, and transmission operators related to the kinds of backup power supply they maintain at control centers and other critical locations, including current testing practices for those backup power supplies. NERC submitted its response to the data request on April 7, 2017.

II. Discussion

24. Pursuant to FPA section 215(d)(2), the Commission approves Reliability Standards BAL-005-1 and FAC-001-3 as just, reasonable, not unduly discriminatory or preferential, and in the public interest. Reliability Standard BAL-005-1 and FAC-001-3 will enhance reliability as compared to currently-effective Reliability Standards BAL-005-0.2b and FAC-001-2, because the Reliability Standards clarify and consolidate existing requirements related to frequency control. In addition, Reliability Standard BAL-005-1 supports more accurate and comprehensive calculation of Reporting ACE by requiring timely reporting of an inability to calculate Reporting ACE (Requirement R2) and by requiring minimum levels of availability and accuracy for each balancing authority’s system for calculating Reporting ACE (Requirement R5).

25. We also approve the violation risk factors and violation severity levels associated with Reliability Standards BAL-005-1 and FAC-001-3; the revisions to the definitions of Automatic Generation Control, Pseudo-Tie, and Balancing Authority as proposed by NERC; the retirement of Reliability Standards BAL-005-0.2b, FAC-001-2, and
BAL-006-2 in accordance with NERC’s implementation plan;\textsuperscript{38} and NERC’s implementation plans for proposed Reliability Standards BAL-005-1 and FAC-001-3.

26. As discussed below, the Commission determines not to direct NERC to restore the requirement, currently found in Requirement R15 of Reliability Standard BAL-005-0.2b, to maintain and test backup power supplies at primary control centers and other critical locations at this time.

A. Reliability Standards BAL-005-1 and FAC-001-3

\textbf{NOPR}

27. In the NOPR, the Commission proposed to approve Reliability Standards BAL-005-1 and FAC-001-3. The Commission noted that the modified Reliability Standards would clarify and consolidate existing requirements related to frequency control, and that Reliability Standard BAL-005-1 would support more accurate and comprehensive calculation of Reporting ACE.

\textbf{Comments}

28. NERC, Trade Associations, and BPA submitted comments in support of the Commission’s proposal to approve Reliability Standards BAL-005-1 and FAC-001-3. NERC maintains, as it did in its petition and supplemental filing, that the modified

\textsuperscript{38} As discussed above, NERC requested that the retirement of Reliability Standard BAL-006-2 become effective upon the latter of the effective date of proposed Reliability Standard BAL-005-1 and the NERC Operating Committee’s approval of the Inadvertent Interchange Guideline document. Because the NERC Operating Committee has now approved the guideline document, we approve the retirement of BAL-006-2 as of the date BAL-005-1 goes into effect.
Reliability Standards not only address all remaining directives related to BAL-005 and BAL-006, but also “substantially improve existing frequency control requirements and support stronger frequency control performance.”\(^{39}\) Similarly, Trade Associations argue that the Reliability Standards will support more accurate and comprehensive calculation of Reporting ACE, as the Commission recognized in the NOPR.\(^{40}\)

**Commission Determination**

29. We approve Reliability Standards BAL-005-1 and FAC-001-3. As proposed in the NOPR, the Commission determines that the modified Reliability Standards will, overall, enhance reliability by clarifying and consolidating existing requirements related to frequency control. Specifically, the Reliability Standards will support more accurate and comprehensive calculation of Reporting ACE by requiring timely reporting of an inability to calculate Reporting ACE and by requiring balancing authorities to maintain minimum levels of annual availability of 99.5 percent for each balancing authority’s system for calculating Reporting ACE.

**B. Retirement of Reliability Standard BAL-005-0.2b, Requirement R15**

**NOPR**

30. The NOPR observed that Reliability Standard BAL-005-1 does not include a requirement comparable to currently-effective Requirement R15 of Reliability Standard BAL-005-0.2b, which states as follows:

\(^{39}\) NERC Comments at 4.

\(^{40}\) Trade Associations Comments at 4.
The Balancing Authority shall provide adequate and reliable backup power supplies and shall periodically test these supplies at the Balancing Authority’s control center and other critical locations to ensure continuous operation of AGC and vital data recording equipment during loss of the normal power supply.\(^{41}\)

31. The NOPR recognized that the approach taken in Reliability Standard BAL-005-1, when combined with the requirements of other Reliability Standards requiring entities to meet their functional obligations in the event of the loss of a primary control center, was intended to be a more performance-based approach to ensuring reliable operation of the bulk electric system.\(^{42}\) However, the Commission expressed concern that the objectives of Requirement R15 would not be fully met by the other Reliability Standards and requirements NERC had identified, and in particular pointed out the following potential gap:

Requirement R15 of currently-effective Reliability Standard BAL-005-0.2b helps to ensure continued operability of balancing authorities’ primary control centers, despite the loss of normal power supply, without evacuation to or activation of backup control centers. Thus, this provision appears to provide additional robustness in the primary control center and mitigates the risk of problems occurring in the transition to a secondary control center.\(^{43}\)

The NOPR also pointed out that balancing authorities currently appear to be the only type of functional entity explicitly required to have and to test adequate and reliable backup

\(^{41}\) See NOPR, 156 ¶ 61,210 at P 26.

\(^{42}\) Id. at 30.

\(^{43}\) Id. P 31.
supply at critical locations, and that there is no provision parallel to Requirement R15 for reliability coordinators or transmission operators.\textsuperscript{44}

32. The NOPR requested comments from NERC and others on the retirement of Requirement R15 of Reliability Standard BAL-005-0.2b, specifically asking for comment on the benefits and potential burden of retaining Requirement R15, and an explanation as to why there is no parallel to Requirement R15 for reliability coordinators and transmission operators, including whether any reason exists to distinguish between balancing authorities and other entities that may operate a control center or critical facility.\textsuperscript{45} In addition, the Commission asked commenters to respond to six specific questions regarding the impact of retiring Requirement R15; current practices with respect to backup power supply at control centers; and the scope of other requirements identified by NERC as fulfilling the same objectives as current Requirement R15.\textsuperscript{46}

**Comments**

33. NERC, Trade Associations, and BPA maintain that Requirement R15 should be retired without further directive from the Commission, as the results-based requirements of Reliability Standard BAL-005-1 represent a more comprehensive and superior approach. NERC asserts that Reliability Standard EOP-008-1’s results-based or

\textsuperscript{44} *Id.* P 30.

\textsuperscript{45} *Id.* P 32.

\textsuperscript{46} *Id.* P 33.
functionality-based approach is preferable overall,\textsuperscript{47} while Trade Associations and other commenters point out that the performance levels required in Reliability Standard BAL-005-1, Requirements R3 and R5, cannot be achieved without having critical backup systems, including a backup power supply that is routinely maintained and tested.\textsuperscript{48}

34. NERC contends that the existing requirements of R15 focus on only one factor contributing to reliable control center performance (i.e., backup power supplies), while Reliability Standard BAL-005-1 includes two performance obligations “that subsume requirement R15.”\textsuperscript{49} Specifically, NERC points out that Requirement R3 requires balancing authorities to use frequency metering equipment for calculation of Reporting ACE that is available at least 99.95 percent annually, with minimum accuracy of 0.001 Hz, and Requirement R5 requires that each system used by a balancing authority to calculate Reporting ACE also be available at least 99.5 percent annually. NERC states that these performance obligations, which provide no exceptions and include other critical elements such as data acquisition and communications, frequency metering, and ACE calculation systems, contrast with existing Requirement R15, which focuses on only one component (power supply) that contributes to performance.\textsuperscript{50} In addition, NERC

\begin{itemize}
\item \textsuperscript{47} NERC Comments at 8-9.
\item \textsuperscript{48} Trade Associations Comments at 8; see also BPA Comments at 4.
\item \textsuperscript{49} NERC Comments at 5; Trade Associations Comments at 7-9.
\item \textsuperscript{50} NERC Comments at 6; see also Trade Associations Comments at 8 (asserting that Reliability Standard BAL-005-1’s required minimum performance level for calculating ACE “provides real performance measures that far exceed” the current requirements of BAL-005-0.2b, and that “entities will not be able to ensure that they can
maintains that new Requirement R3 “will ensure virtual ‘continuous operation of AGC and vital data recording equipment during loss of the normal power supply,’” thereby effectively replacing Requirement R15.\footnote{Id. at 6 (responding to NOPR Question 5).}

35. NERC also maintains, as it did in its petition, that Requirement R15 should be retired, as it is redundant with broader obligations imposed on balancing authorities, reliability coordinators, and transmission operators in Reliability Standard EOP-008-1. NERC contends that applicable entities cannot comply with Reliability Standard EOP-008-1 without addressing power sources, although NERC acknowledges that backup power supply may not always be necessary to support the required backup functionality for control center functions. NERC further points out that the functionality obligations under Requirement R1 of Reliability Standard EOP-008-1 include the obligation to address operation of vital equipment necessary for the collection of data to calculate Reporting ACE, assuming frequency metering equipment does not meet the minimum performance requirement under new Requirement R3 of BAL-005-1.\footnote{Id. at 8-9 (responding to NOPR Question 6).}

Overall, NERC maintains that Requirements R1 and R7 of Reliability Standard EOP-008-1 “are broader and clearer than Requirement R15, by requiring [applicable entities] achieve this level of performance without having critical backups,” including reliable backup power.)
to have in place and test Operating Plans that address all elements (including any power sources) necessary for backup functionality.”

36. Trade Associations maintain, on a more general level, that overly-prescriptive requirements can be burdensome and often ineffective. Trade Associations assert that in determining whether there is adequate justification for the retirement of Requirement R15, the Commission should assess “whether [the new and remaining] requirements have sufficient rigor to ensure [bulk electric system] reliability through the continuous efforts to design, build and maintain systems to achieve the desired level of performance.”

Trade Associations note that NERC’s Independent Expert Review Panel concluded that results-based Reliability Standards would improve overall reliability. Moreover, Trade Associations contend that the absence of a recommendation by the Independent Expert Review Panel to retire Requirement R15 as part of its 2013 report has no bearing on the question of retirement now, given the improvements and enhancements associated with Reliability BAL-005-1. Finally, Trade Associations raise a concern that the Commission may be misconstruing Reliability Standard BAL-005-0.2b to address a reliability concern beyond that intended for BAL-005. Trade Associations maintain that the BAL-005 Reliability Standards “were written for the express purpose of ensuring [balancing

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53 Id. at 10.

54 Trade Associations Comments at 6-7.

55 Id. at 7 (citing Standards Independent Expert Review Project; Chapter 5; Conclusions; at 18).
authorities] can reliably and effectively calculate Reporting ACE in order to maintain resource and demand balance within their area of responsibility.”

37. As to what obligations would still exist under Reliability Standard EOP-008-1 if the backup power supply obligation in Requirement R15 was retired, NERC, Trade Associations, and all other commenters addressing the question acknowledge that EOP-008-1 does not require applicable entities to have backup power supply at the primary or the secondary control center. However, NERC asserts that backup functionality obligations under Requirement R1 of Reliability Standard EOP-008-1 “include the obligation to address operation of vital equipment necessary for the collection of data to calculate Reporting ACE if frequency metering equipment does not meet the minimum performance requirements under proposed R3 of BAL-005-1.” By contrast, the Trade Associations acknowledge that Reliability Standard EOP-008-1 does not ensure continuous operation of AGC and vital data recording equipment during the loss of normal power supply.

56 Id. at 7.

57 NERC notes, for example, that Reliability Standard EOP-008-1, Requirement R1 requires entities to address power and backup power as part of their emergency plans, but acknowledges that it does not necessarily require backup power at either the primary or secondary control center. See also Trade Associations at 12; BPA at 3 (stating that without R15, BPA “does not believe there is an enforceable requirement to have a backup power supply to support frequency metering equipment”).

58 NERC Comments at 8-9 (responding to NOPR Question 6).

59 Trade Associations Comments at 16.
38. With respect to the NOPR’s questions on current practices regarding backup power supply, BPA and Idaho Power indicate that they have backup power supply at all of their primary and secondary control centers.\textsuperscript{60} Trade Associations state that most companies have many layers of backup to ensure continued control center functionality, which may include backup power, backup generators and uninterrupted power supply.\textsuperscript{61}

In response to the NOPR’s questions about the definition of “critical location” as currently used in Reliability Standard BAL-005-0.2b, Trade Associations state that the “other critical locations” referenced in current requirement R15 could refer to frequency metering equipment (including equipment outside the control center), ancillary computer rooms with energy management systems (EMS) and EMS backups, and other data systems needed for ACE calculation.\textsuperscript{62}

39. With respect to the benefits and burdens of having backup power supply at certain locations, Idaho Power acknowledges the benefits of having backup power supply at primary control centers and other critical locations (including the benefit of ensuring compliance with other reliability requirements), and it states that the potential impact to reliability is no different for reliability coordinators or transmission operators.\textsuperscript{63} Trade Associations maintain, however, that there is no need for additional requirements for

\textsuperscript{60} BPA Comments at 3; Idaho Power Comments at 3.

\textsuperscript{61} Trade Associations Comments at 14.

\textsuperscript{62} Id. at 14.

\textsuperscript{63} Idaho Power Comments at 2.
reliability coordinators and transmission operators related to backup power supply, because other Reliability Standards require or encourage certain levels of reliability and functionality at these locations, as evidenced by the historical lack of problems with loss of EMS or loss of power supply at control centers.  

40. Appelbaum primarily discusses the importance of backup power supplies in the context of communications networks. Appelbaum points to a report issued by the Federal Communications Commission in response to the June 2012 “derecho” event on communications networks and services in Virginia. The report found that communications were disrupted in large part during that event because of avoidable planning and system failures, including the lack of functional backup power, notably in central offices. Appelbaum contends, based on the derecho event, that the need to properly plan and design backup power is a critical component of reliability, and asks that the findings of the derecho event be considered when the Commission assesses the functional approach of Reliability Standard EOP-008-1. Appelbaum points out that “there is no specific mention of the performance requirements of the backup power supply, the required design, or reference to an Industry Standard” in Reliability Standard EOP-008-1, which “creates a degree of ambiguity that can be exploited to avoid installing a sufficient level of redundancy in power supplies.”

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64 Trade Associations Comments at 9-11.
65 See Appelbaum Comments at 4.
66 Id.
requirement for backup power design and testing should extend to reliability coordinators, transmission operators, and balancing authorities.\textsuperscript{67} In sum, Appelbaum’s comments stress the overall need to impose specific requirements, not merely functional obligations, related to backup power supply for critical systems.

**Response to Data Request**

41. In response to the Commission’s March 7 Data Request requesting information on specific backup supply practices from a sampling of registered entities, NERC indicated that it collected data from nine entities, all registered as a balancing authority, reliability coordinator, transmission operator, or some combination of those functional categories. NERC indicated that the sample reflected some diversity as to size and type of entity and, therefore, the information “should be reflective of current practices throughout the industry.”\textsuperscript{68}

42. NERC’s response indicates that all surveyed entities have backup power supplies at their primary and backup control centers. A number of entities responded that these backup supplies were installed prior to the effective date of NERC’s mandatory Reliability Standards, and that they would not change their practices if the Commission approved the retirement of Requirement R15 of Reliability Standard BAL-005-0.2b. NERC reported that the surveyed entities have backup power supply at a number of other critical locations, which include data centers, corporate facilities, and operations centers

\textsuperscript{67} Id. at 5.

\textsuperscript{68} NERC Response to Data Request at 3.
(e.g., those housing cyber and physical security operations). NERC indicated that the surveyed entities have two types of backup power supplies at their control centers: backup generators and uninterruptible power supplies. According to NERC, each of the surveyed entities reported that it regularly tests its backup power supplies in accordance with written procedures, the majority doing monthly run testing. NERC reported that some entities also perform switchover or transfer testing on a monthly basis, while others perform such testing at longer intervals.

**Commission Determination**

43. We approve the retirement of Reliability Standard BAL-005-0.2b, including Requirement R15, upon the effective date of Reliability Standard BAL-005-1. Based on the NOPR comments, we determine not to direct NERC to develop modifications to the Reliability Standards to restore the substance of Requirement R15 at this time. We conclude that the performance obligations of Reliability Standards BAL-005-1 and EOP-008-1 will ensure the continued operation of AGC and certain data recording equipment during the loss of normal power supply. Moreover, based on the responses to the March 7 Data Request, we are satisfied that backup power supplies at primary and secondary control centers and other critical locations will likely continue to be used even after the retirement of Reliability Standard BAL-005-0.2b, Requirement R15. Should that practice change to the detriment of Bulk-Power System reliability after the revised Reliability Standards go into effect, the Commission may revisit this issue.
III. **Information Collection Statement**

44. The Paperwork Reduction Act (PRA)\(^69\) requires each federal agency to seek and obtain Office of Management and Budget (OMB) approval before undertaking a collection of information directed to ten or more persons, or contained in a rule of general applicability. The OMB regulations require that OMB approve certain reporting and recordkeeping (collections of information) imposed by an agency.\(^70\) Upon approval of a collection(s) of information, OMB will assign an OMB control number and expiration date. Respondents subject to the filing requirements of this rule will not be penalized for failing to respond to these collections of information unless the collections of information display a valid OMB control number.

45. This Final Rule approves revisions to Reliability Standards BAL-005, associated with FERC-725R, and FAC-001, associated with FERC-725D. These revisions streamline and clarify the current requirements related to the calculation of Reporting ACE, a key frequency control and reliability indicator factor, including consolidating the seventeen requirements of currently-effective Reliability Standard BAL-005-0.2b, associated with FERC-725R, into seven requirements in Reliability Standard BAL-005-1; relocation of certain requirements related to interconnection requirements for transmission owners and generation owners into Reliability Standard FAC-001-3; relocation of Requirement R3 in currently-effective Reliability Standard BAL-006-2 into

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\(^69\) 44 U.S.C. 3501-3520.

\(^70\) 5 CFR 1320.11.
Reliability Standard BAL-005-1; and relocation of certain metrics and calculations required for calculating Reporting ACE into the NERC definition of Reporting ACE and its component definitions.

46. The revisions to Reliability Standards BAL-005 and FAC-001 will not result in an increase in the record-keeping and reporting requirements imposed on balancing authorities, other than the one-time cost of administering the change to the revised Reliability Standards. All other recordkeeping and reporting obligations imposed on balancing authorities under the modified requirements essentially track those that already exist under currently-effective Reliability Standards BAL-005-0.2b and FAC-001-2. The modifications to Reliability Standard FAC-001-3 will result in a limited increase in the record-keeping and reporting requirements imposed on those transmission owners and generator owners that are not also transmission operators and generator operators (an estimated 161 entities in the United States), as shown in the chart below.  

Many of the modifications to the Reliability Standards reflected in this Final Rule were developed to help clarify and streamline existing requirements related to calculation of Reporting ACE, and they are expected to reduce these entities’ overall burden with respect to

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71 Reliability Standard FAC-001-3 replaces and strengthens currently-effective Reliability Standard FAC-001-2 by moving currently-effective Requirement R1 of Reliability Standard BAL-005-0.2b to Reliability Standard FAC-001-3, requiring that transmission owner and generator owner interconnection requirements include procedures for confirming that new or materially modified facilities connecting to the bulk electric system are within a balancing authority’s metered boundaries. NERC explains that these interconnection requirements should be relocated to Reliability Standard FAC-001-3, as FAC-001-3 establishes facility interconnection requirements.
recordkeeping, reporting, and compliance. Moreover, the Final Rule approves the retirement of the majority of the requirements in Reliability Standard BAL-006-2, further reducing the overall record-keeping and reporting requirements for balancing authorities. Accordingly, the Commission estimates that the overall change in the record-keeping and reporting requirements as a result of this Final Rule will be *de minimis* on a per-entity basis.

47. **Public Reporting Burden:** The changes reflected in Reliability Standard BAL-005-1 are not expected to result in an increase in the annual record-keeping and reporting requirements on applicable entities (balancing authorities). However, balancing authorities will have to perform a one-time review of the modified Reliability Standard to ensure that their compliance practices (including record-keeping) are consistent with the revised requirements. The relocation of Requirement R1 of Reliability Standard BAL-005-0.2b into Reliability Standard FAC-001-3 will result in an increase in the number of entities subject to the requirement, as the requirement will be applicable to transmission owners and generator owners rather than transmission operators and generator operators. However, this limited increase in annual record-keeping and reporting burden, along with the one-time burden of administering the change from Reliability Standard BAL-005-0.2b to BAL-005-1, is expected to be offset to some extent by the decrease in record-keeping and reporting burden associated with the retirement of Reliability Standard BAL-006-2.
<table>
<thead>
<tr>
<th>Data Collection</th>
<th>Number of Respondents</th>
<th>Number of Responses per Respondent</th>
<th>Total Number of Responses</th>
<th>Average Burden Hours &amp; Cost per Response</th>
<th>Annual Burden Hours &amp; Total Annual Cost</th>
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<td>1 (one-time)</td>
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</table>

The estimated number of respondents is based on the NERC compliance registry as of April 07, 2017. According to the NERC compliance registry, there are 64 U.S. balancing authorities (BA) in the Eastern Interconnection, 34 balancing authorities in the Western Interconnection and one balancing authority in the Electric Reliability Council of Texas (ERCOT).

The burden hours and cost are based on the hourly cost for an engineer for BAL-005-1, the average of the hourly cost for an engineer and clerical staff for FAC-001-3, and the hourly cost for clerical staff for changes associated with the retirement of BAL-006-2. The estimates for cost per hour are based on 2015 wage figures and derived as follows:

- $64.29/hour, the average salary plus benefits per engineer (from Bureau of Labor Statistics at [https://www.bls.gov/oes/current/naics2_22.htm](https://www.bls.gov/oes/current/naics2_22.htm));
- $37.75/hour, the average salary plus benefits per information and record clerks (from Bureau of Labor Statistics at [https://www.bls.gov/oes/current/naics2_22.htm](https://www.bls.gov/oes/current/naics2_22.htm)).

Solely for purposes of determining the overall annual cost of the record-keeping and reporting changes reflected in this Final Rule, the one-time cost associated with
Title: FERC-725A, Mandatory Reliability Standards for the Bulk-Power System; FERC-725D, Mandatory Reliability Standards: FAC Reliability Standards; FERC-725R1, Mandatory Reliability Standards: BAL Reliability Standards

Action: Revision to existing collections.

OMB Control No: 1902-0244 (FERC-725A); 1902-0247 (FERC-725D); TBD (FERC-725R1).

Respondents: Business or other for-profit and not-for-profit institutions.

Frequency of Responses: On-going.

Necessity of the Information: The Commission has reviewed the requirements of Reliability Standards BAL-005-1 and FAC-001-3 and has made a determination that the requirements of these Reliability Standards are necessary to implement section 215 of the FPA.

Internal Review: The Commission reviewed the revised Reliability Standards and made a determination that its action is necessary to implement section 215 of the FPA. The Commission has assured itself, by means of its internal review, that there is specific, objective support for the burden estimates associated with the information requirements.

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preventing the change to Reliability Standard BAL-005-1 is being treated as an annual cost.

75 Per the NERC compliance registry, in the United States there are 54 generator owners (GO) that are not also generator operators and 107 transmission owners (TO) that are not also transmission operators, for a total of 161 new entities in the United States subject to Reliability Standard FAC-001-3, Requirement R3.
48. Interested persons may obtain information on the reporting requirements by contacting the following: Federal Energy Regulatory Commission, 888 First Street, NE Washington, DC 20426 [Attention: Ellen Brown, Office of the Executive Director, e-mail: DataClearance@ferc.gov, phone: (202) 502-8663, fax: (202) 273-0873].

49. For submitting comments concerning the collection(s) of information and the associated burden estimate(s), please send your comments to the Commission and to the Office of Management and Budget, Office of Information and Regulatory Affairs, Washington, DC 20503 [Attention: Desk Officer for the Federal Energy Regulatory Commission, phone: (202) 395-4638, fax: (202) 395-7285]. For security reasons, comments to OMB should be submitted by e-mail to: oira_submission@omb.eop.gov. Comments submitted to OMB should include FERC-725A, FERC-725D, and FERC-725R1 and Docket Number RM16-13-000.

IV. **Environmental Analysis**

50. The Commission is required to prepare an Environmental Assessment or an Environmental Impact Statement for any action that may have a significant adverse effect on the human environment.\(^{76}\) The Commission has categorically excluded certain actions from this requirement as not having a significant effect on the human environment. Included in the exclusion are rules that are clarifying, corrective, or procedural or that do

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not substantially change the effect of the regulations being amended.\textsuperscript{77} The actions taken here fall within this categorical exclusion in the Commission’s regulations.

V. \textbf{Regulatory Flexibility Act Certification}

51. The Regulatory Flexibility Act of 1980 (RFA)\textsuperscript{78} generally requires a description and analysis of proposed rules that will have significant economic impact on a substantial number of small entities. The RFA does not mandate any particular outcome in a rulemaking. It only requires consideration of alternatives that are less burdensome to small entities and an agency explanation of why alternatives were rejected. The Small Business Administration (SBA) revised its size standard effective January 22, 2014 for electric utilities from a standard based on megawatt hours to a standard based on the number of employees, including affiliates. Under SBA’s size standards, some balancing authorities, generation owners, and transmission owners will fall under the following category and associated size threshold: electric bulk power transmission and control, at 500 employees.\textsuperscript{79}

52. As stated in the NOPR, the Commission estimates a very limited, one-time increase in record-keeping and reporting burden on balancing authorities due to the changes in the revised Reliability Standards, with no other increase in the cost of compliance. Approximately 24 of the 99 balancing authorities are expected to meet the

\textsuperscript{77} 18 CFR 380.4(a)(2)(ii).

\textsuperscript{78} 5 U.S.C. 601-612.

\textsuperscript{79} 13 CFR 121.201, Sector 22 (Utilities), NAICS code 221121 (Electric Bulk Power Transmission and Control).
SBA’s definition for a small entity. In addition, approximately 161 entities will be subject annually to new record-keeping and reporting requirements under revised Reliability Standard FAC-001-3, with no other increase in the cost of compliance.

53. Even assuming that the one-time cost of compliance for administering the change from Reliability Standard BAL-005-0.2b to BAL-005-1 is an annual cost, and assuming that all of the entities affected by the revisions to both BAL-005 and FAC-001 qualify as small entities, the estimated total annual cost to the industry as a whole is minimal ($19,055.90), and the average cost per affected entity is $118.36.

54. According to SBA guidance, the determination of significance of impact “should be seen as relative to the size of the business, the size of the competitor’s business, and the impact the regulation has on larger competitors.”\(^\text{80}\) The Commission does not consider the estimated burden to be a significant economic impact. As a result, the Commission certifies that the revised Reliability Standards will not have a significant economic impact on a substantial number of small entities.

VI. Document Availability

55. In addition to publishing the full text of this document in the Federal Register, the Commission provides all interested persons an opportunity to view and/or print the contents of this document via the Internet through the Commission's Home Page (http://www.ferc.gov) and in the Commission's Public Reference Room during normal

business hours (8:30 a.m. to 5:00 p.m. Eastern time) at 888 First Street, NE, Room 2A, Washington, DC 20426.

56. From the Commission's Home Page on the Internet, this information is available on eLibrary. The full text of this document is available on eLibrary in PDF and Microsoft Word format for viewing, printing, and/or downloading. To access this document in eLibrary, type the docket number of this document, excluding the last three digits, in the docket number field.

57. User assistance is available for eLibrary and the Commission’s website during normal business hours from the Commission’s Online Support at (202) 502-6652 (toll free at 1-866-208-3676) or e-mail at ferconlinesupport@ferc.gov, or the Public Reference Room at (202) 502-8371, TTY (202) 502-8659. E-mail the Public Reference Room at public.referenceroom@ferc.gov.

VII. Effective Date and Congressional Notification

58. These regulations are effective [INSERT DATE 60 days after publication in the FEDERAL REGISTER]. The Commission has determined, with the concurrence of the Administrator of the Office of Information and Regulatory Affairs of OMB, that this rule
is not a “major rule” as defined in section 351 of the Small Business Regulatory Enforcement Fairness Act of 1996.

By the Commission.

( S E A L )

Nathaniel J. Davis, Sr.,
Deputy Secretary.
## Appendix

### List of Commenters

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Commenter</th>
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<tr>
<td>NERC</td>
<td>North American Electric Reliability Corporation</td>
</tr>
<tr>
<td>Trade Associations</td>
<td>Edison Electric Institute, American Public Power Association, and Large Public Power Council</td>
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<tr>
<td>BPA</td>
<td>Bonneville Power Administration</td>
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<tr>
<td>Idaho Power</td>
<td>Idaho Power Company</td>
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<tr>
<td>Appelbaum</td>
<td>Jonathan Appelbaum</td>
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