

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

Balancing Authority Control,)	
Inadvertent Interchange and)	Docket No. RM16-13-000
Facility Interconnection)	
Reliability Standards)	

**COMMENTS OF
THE EDISON ELECTRIC INSTITUTE, AMERICAN PUBLIC POWER
ASSOCIATION, AND LARGE PUBLIC POWER COUNCIL**

The Edison Electric Institute (“EEI”), American Public Power Association (“APPA”), and Large Public Power Council (“LPPC”) (collectively referred hereinafter as “Trade Associations”) on behalf of their respective member companies, hereby respectfully submits Comments in response to the Notice of Proposed Rulemaking (“NOPR”) issued by the Federal Energy Regulatory Commission (“the Commission” or “FERC”) on September 22, 2016, in the above-referenced docket.¹

EEI is the trade association that represents all U.S. investor-owned electric companies. EEI members provide electricity for 220 million Americans, operate in all 50 states and the District of Columbia, and directly employ more than 500,000 workers. With more than \$85 billion in annual capital expenditures, the electric industry is responsible for millions of jobs related to the delivery of power, including the construction of modified or new infrastructure. Reliable, affordable, and sustainable electricity powers the economy and enhances the lives of all Americans. EEI also has 70 international electric companies as Affiliate Members, and 250

¹ See *Balancing Authority Control, Inadvertent Interchange and Facility Interconnection Reliability Standards*, Notice of Proposed Rulemaking, 156 FERC ¶ 61,210 (2016).

industry suppliers and related organizations as Associate Members. Organized in 1933, EEI provides public policy leadership, strategic business intelligence, and essential conferences and forums. In addition, its members include Generator Owners and Operators, Transmission Owners and Operators, Load-Serving Entities, and other entities that are subject to mandatory Reliability Standards developed and enforced by the North American Electric Reliability Corporation (“NERC”).

The APPA is the national service organization representing the interests of not-for-profit, state, municipal and other locally owned electric utilities in the United States. More than 2,000 public power utilities, doing business in every state but Hawaii, account for over 15 percent of all electric energy (kilowatt-hours) sales to ultimate consumers in the nation and collectively serve over 48 million people. APPA utility members’ primary goal is providing customers in the communities they serve with reliable electric power and energy at the lowest reasonable cost, consistent with good environmental stewardship. This orientation aligns the interests of APPA member electric utilities with the long-term interests of the residents and businesses in their communities.

LPPC is an association of the 26 largest state-owned and municipal utilities in the nation.² LPPC's membership is located throughout the nation, both within and outside Regional Transmission Organization boundaries, and the members comprise the larger, asset owning members of the public power community.

² LPPC’s members are: Austin Energy, Chelan County Public Utility District No. 1, Clark Public Utilities, Colorado Springs Utilities, CPS Energy (San Antonio), ElectricCities of North Carolina, Grand River Dam Authority, Grant County Public Utility District, IID Energy (Imperial Irrigation District), JEA (Jacksonville, FL), Long Island Power Authority, Los Angeles Department of Water and Power, Lower Colorado River Authority, MEAG Power, Nebraska Public Power District, New York Power Authority, Omaha Public Power District, Orlando Utilities Commission, Platte River Power Authority, Puerto Rico Electric Power Authority, Sacramento Municipal Utility District, Salt River Project, Santee Cooper, Seattle City Light, Snohomish County Public Utility District No. 1, and Tacoma Public Utilities.

EXECUTIVE SUMMARY

The Trade Associations support the Commission’s proposal, pursuant to section 215 of the Federal Power Act (“FPA”),³ to approve Reliability Standards BAL-005-1 (Balancing Authority Control) and FAC-001-3 (Facility Interconnection Requirements) submitted by NERC.⁴ The Trade Associations also support the NOPR’s proposals to retire Reliability Standards BAL-005-0.2b (Automatic Generation Control), FAC-001-2 (Facility Interconnection Requirements) and BAL-006-2 (Inadvertent Interchange), as well as to approve the associated implementation plans, violation risk factors, and violation severity levels for proposed Reliability Standards BAL-005-1 and FAC-001-3. Additionally, the Trade Associations support the NOPR proposal to approve three revised definitions for the glossary of terms used in the NERC Reliability Standards (“NERC Glossary”).

The Trade Associations appreciate that the NOPR recognizes the approach taken in revised Reliability Standard BAL-005-1 when combined with the requirements of Reliability Standard EOP-008-1 represents a more performance-based approach to maintaining the functionality for reliable operation of the interconnected Bulk-Power-System (“BPS”). The Trade Associations also appreciate the opportunity to provide additional justification and support of NERC’s proposal to retire Requirement R15 of Reliability Standards BAL-005-0.2b (Automatic Generation Control) and to provide meaningful background about why there are not similar requirements to Requirement R15 in the body of NERC Reliability Standards for Reliability Coordinator (“RC”) and Transmission Operator (“TOP”) Control Centers.

³ 16 U.S.C. 824(o).

⁴ NOPR at PP 1 and 23-24.

BACKGROUND

On April, 20, 2016, NERC filed a petition seeking approval of proposed Reliability Standards BAL-005-1 (Balancing Authority Control) and FAC-001-3 (Facility Interconnection Requirements), nine new or revised definitions associated with the proposed 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). In relevant part, NERC describes the revisions to the Reliability Standard BAL-005-0.2b as clarifying and refining the current requirements for “accurate, consistent, and complete” Reporting Area Control Error (“ACE”).⁵ NERC further explains that the proposed Reliability Standards “represent substantial improvements over existing Reliability Standards by helping support more accurate and comprehensive calculation of Reporting ACE and satisfying all remaining Commission directives.”⁶

COMMENTS

The Trade Associations agree with FERC that proposed Reliability Standards BAL-005-1 and FAC-001-3 along with the proposed revised definitions for Automatic Generation Control, Pseudo-Tie, and Balancing Authority (“BA”) will enhance the reliability of the BPS, as compared to currently-effective Reliability Standards BAL-005-0.2b, BAL-006-2 and FAC-001-2, by clarifying and consolidating existing requirements related to frequency control. The proposed 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

⁵ See NOPR at P 12.

⁶ See *Mandatory Reliability Standards for the Bulk-Power System*, Order No. 693, FERC Stats. & Regs. ¶ 31,242, at P 420, *order on reh’g*, Order No. 693-A, 120 FERC ¶ 61,053 (2007).

requiring BAs to maintain minimum levels of annual availability of 99.5 % for each BA’s system for calculating Reporting ACE.⁷

The Trade Associations appreciate the opportunity to provide this input on the questions presented in the NOPR and explain the Trade Associations’ perspective regarding backup power at Control Centers and impacts related to the proposed retirement of Reliability Standard BAL-005.0.2b, Requirement R15. The NOPR also asks for comment regarding how the proposed retirement of Requirement R15 of Reliability Standard BAL-005.0.2b might affect BA responsibilities related to routine maintenance and periodic testing of backup power supplies at primary Control Centers and other critical locations. While the NOPR indicates that the Commission may issue a directive in the Final Rule to restore the substance of Requirement R15 in the Reliability Standards,⁸ the Trade Associations do not believe there is a need. As explained below, the requirements contained in the proposed BAL-005-1 Reliability Standard provide all of the necessary protections needed to ensure that BAs can reliably calculate Reporting ACE, within a flexible performance, or “results-based” framework. The Trade Associations urge the Commission to support this approach, and to refrain from directing the Electric Reliability Organization (“ERO”) to restore language reflecting an approach that is inconsistent with the results-based approach that is proving to serve the public and the electric utility industry so well through consistent reliability improvements.

⁷ See *id.* at P 2.

⁸ See NOPR at P 3.

I. It is important to overall Bulk Electric System (“BES”) Reliability that the Commission support results based standards

Although prescriptive requirements can provide clear and unambiguous language in NERC Reliability Standards, over time the Trade Associations have learned that such an approach to Reliability Standards is burdensome and often ineffective at achieving tangible reliability improvements. As a result, in the last number of years, the Trade Associations observe that NERC has sought to rethink how to better focus standards in ways that more effectively address the purpose and required performance necessary to achieve the desired objectives within a wide range of Reliability Standards. Thus, since fall of 2010, NERC has been developing results based standards. This approach provides a “defense-in-depth” strategy that has proven effective at achieving continued reliability improvements that can be seen in NERC’s State of Reliability Reports.⁹ The Trade Associations note that in the 2016 State of Reliability Report that there “were fewer total events of Category 2 or higher in 2015, no Category 4 or 5 events, and only one Category 3” event. The Trade Associations believe that such improvements are advanced through the results based standards process. More importantly, results based standards are specifically designed to ensure that the electric utility industry can achieve an “Adequate Level of Reliability” by allowing more attention to be placed on performance that actually improved BES reliability.

With this in mind, the Trade Associations believe that the issue of whether there is adequate justification for the proposed retirement of Requirement R15 of Reliability Standard BAL-005-0.2b, should hinge on whether requirements have sufficient rigor to ensure BES reliability through the continuous efforts to design, build and maintain systems to achieve the desired level

⁹ See NERC State of Reliability 2016 (issued May 2016).
http://www.nerc.com/pa/RAPA/PA/Performance%20Analysis%20DL/2016_SOR_Report_Final_v1.pdf

of performance. The Trade Associations also believe it is important to remind the Commission of the advice provided by the NERC Independent Experts regarding the value of results based standards, which concluded that “results-based Reliability Standards will improve the overall BES reliability. Further, the Trade Associations believe that moving to a body of stable standards enable registered entities to improve BES reliability by focusing scarce resources on activities that directly impact reliability.”¹⁰ While the June 2013 Independent Expert Report did not specifically identify Requirement R15 for retirement, the Trade Associations believe that the changes made to the proposed BAL-005-1 Reliability Standard improved, enhanced and strengthened the performance requirements in the currently existing standard, therefore providing further justification for the proposed retirement of Requirement R15 of Reliability Standard BAL-005-0.2b.

II. BAL-005-1, Requirements R5 and R3, in addition to EOP-008, provide equally effective protections to those found in Reliability Standard, BAL-005-0.2b, Requirement R15

On June 14, 2016, in the above-referenced docket, NERC made a supplemental filing describing how Reliability Standard EOP-008-1 and Requirement R3 of proposed Reliability Standard BAL-005-1 achieve the reliability objective of Requirement R15 of Reliability Standard BAL-005-0.2b. The Trade Associations agree, and here voice the added concern that the Commission may have misconstrued BAL-005-0.2b, Requirement R15 to address some reliability concern beyond what is otherwise addressed in the revised BAL-005 Standard. As revised, all of the requirements included in BAL-005 were written for the expressed purpose of ensuring BAs can reliably and effectively calculate Reporting ACE in order to maintain resource and demand balance within their area of responsibility. Prior to implementing a results-based

¹⁰ Standards Independent Expert Review Project; Chapter 5; Conclusions; at 18.

approach, standards developers needed to identify and articulate specific items that might be necessary to achieve that purpose. For the purpose of BAL-005-0.2b, this means that all systems including backup power requirements were identified. As Reliability Standards are reviewed and updated, such specifics are no longer enumerated within the newer generation of Reliability Standards. Instead, these standards are designed to be performance, risk and competency based. Drafting teams have also been focusing on enumerating the reliability goals without dictating specific methods for achieving these goals. If correctly written, the requirements provide effective performance measures that better ensure the necessary reliability objectives are met while allowing each responsible entity the latitude to determine how best to achieve those objectives.

The Trade Associations believe that in developing revised BAL-005-5, the Standards Drafting Team (“SDT”) employed an approach that is more efficient at ensuring the reliable calculation and delivery of Reporting ACE than the currently effective BAL Reliability Standard. BAL-005-1 provides real performance measures that far exceed the requirements as contained in BAL-005-0.2b. This is done by measuring a BA’s ability to calculate Reporting ACE to a defined minimum acceptable performance level (99.5%) over each calendar year. The Trade Associations strongly believe that entities will not be able to ensure that they can achieve this level of performance without having critical backups, including reliable backup power that is routinely tested and maintained. On this basis, the Commission should allow the SDT’s approach a reasonable chance to prove its effectiveness before issuing new directives to solve a problem that may not exist. Furthermore, the Commission should not expand the scope of Requirement R15 of BAL-005-0.2b beyond what was originally intended. In this light, the Trade Associations note that the power requirements for BA Control Centers were never

intended to do any more than ensure necessary data and systems were available to ensure the reliable calculation of Reporting ACE, all of which is provided with clear and effective performance requirements through requirements R3 and R5.

Finally, before issuing new directives, the Trade Associations ask the Commission to consider whether it would be more effective to require an entity to have adequate and reliable backup power supplies and test those supplies or simply provide a performance benchmark that removes all ambiguity regarding the desired level of performance, such as provided in BAL-005-1, Requirement R5. In this context, the performance requirement in the proposed Reliability Standard is far clearer and more likely to accomplish the same desired goal through results based controls. The Commission should also consider that the revised language does not limit performance to simply having and maintaining power supplies but expands the scope to all of the systems, including power supplies, necessary for calculating Reporting ACE. Therefore, from the perspective of rigor and effectiveness, the Trade Associations consider the revised language to be more effective at enhancing reliability.

III. BAL-005-0.2b, Requirement R15 and Reliability Coordinators (RCs) and Transmission Operators (TOPs) Control Centers

While the Trade Associations agree that there are no overt or parallel requirements similar to BAL-005-0.2b, Requirement R15 for RC and TOP Control Centers, the Trade Associations believe that such requirements have never proven to be necessary. It is also well understood by owners and operators that BES Control Centers represent the nerve centers for monitoring and control of the BES. Furthermore, companies have long recognized the importance of the reliable operation of BES Control Centers and have taken necessary steps to build a system of monitoring and control (i.e., Control Centers) that have been demonstrated to be highly reliable.

Thus, the Trade Associations question whether the record of reliability for these facilities justifies new directives or Commission concern.

The Commission should also consider that there are a number of performance requirements that would encourage RCs and TOPs to build similar reliability into their Control Centers. While the following list is not intended to be exhaustive or comprehensive, these Reliability Standards do appear to require performance by BAs, RCs and TOPs that would result in these entities having appropriate reliable backup power at their Control Centers:

- TOP-004-2, Requirement R4
- TOP-001-1a, Requirement R8
- TOP-006-2, Requirement R2, R5
- TOP-007-0, Requirement R2
- IRO-008-2 Requirement R4 (Enforcement Date: 4/01/2017)
- TOP-001-3 Requirement R13 (Enforcement Date: 4/01/2017)

The Commission should also acknowledge that while Control Centers do on occasion experience outages, the 2016 NERC State of Reliability Report stated that “EMS systems are extremely reliable and are typically redundant.”¹¹ It is also important to note that the ERO actively monitors and analyzes EMS outages through the EMS Task Force and recently transformed this group into a permanent working group. More significantly to the Commission’s concerns regarding backup power, this issue has never been identified as a contributing or reoccurring issue effecting reliability. The Trade Associations credit this accomplishment to a commitment by companies to providing reliable power at Control Centers. Moreover, the Trade

¹¹ NERC 2016 State of Reliability Report, May 2016, Appendix F – Event Analysis Discussion, Monitoring and Situational Awareness (Real-Time Tools).

Associations understand that most of these facilities already contain backup power, backup generators and Uninterruptable Power Systems (“UPS”).

While there are no Reliability Standards that would require entities to design these facilities in this manner, it is widely recognized that outages at these facilities can be devastating to system operations while affecting performance requirements in many Reliability Standards. Additionally, “[i]t is not practical, effective, or sustainable for the ERO Enterprise to monitor all compliance issues to the same degree or to treat all noncompliance in the same manner. Compliance monitoring and enforcement must be “right-sized” based on a number of considerations, including risk factors and registered entity management practices related to the detection, assessment, mitigation, and reporting of noncompliance.”¹² Given the low risks, levels of backup already in place, current industry practices and the performance of these facilities, the Trade Associations do not believe this presents a risk to BES reliability that justifies the Commission to issue any new directives to NERC.

IV. The Trade Associations’ responses to specific NOPR questions contained in Paragraph 33 and not otherwise addressed above

The Trade Associations appreciate the opportunity to provide meaningful input to the questions that the Commission has on backup power supplies and its impact on the reliable operation of RC, BA and TOP Control Centers.

1a) The Commission asks if Requirement R15 of Reliability Standard BAL-005-0.2b is retired, can BAs comply with Reliability Standard EOP-008-1 by having a primary control

¹² NERC Report; Overview of the ERO Enterprise’s Risk-Based Compliance and Enforcement Program; Date: September, 2014, Introduction, P2, page iv.

center and “backup functionality” without a backup power supply at the primary control center or without a backup power supply at the location providing backup functionality?

EOP-008-1 is not designed to define power requirements of primary Control Centers. The purpose of EOP-008-1 is to “[e]nsure continued reliable operation of Bulk Electric System (BES) in the event that a control center becomes inoperable.”¹³ This is accomplished through requirements that require RCs, BAs and TOPs to have an operating plan that defines how they will continue to meet their “functional obligations.” The specific method of how an entity is to meet the compliance obligations is not specified, nor should they be in a results based standard. As with all results based standards, the measure is the reliability outcome not the specifics of how an entity must comply. This is a fundamental premise of performance based requirements.

1b) Are reliability coordinators and transmission operators compliant with Reliability Standard EOP-008-1 by having a primary control center and “backup functionality” without a backup power supply at the primary control center or without a backup power supply at the location providing backup functionality?

Although EOP-008-1 does not define how a RC, BA or TOP must design their backup solutions within their operating plans, the Trade Associations believe that such capability is routinely provided and necessary to achieve the reliability outcomes as defined in this Reliability Standard. While this reflects some lack of specificity in the Reliability Standard, the Trade Associations believe that there is no basis for concern of undue risk to BES reliability. The historical reliability of BES Control Centers and their backups is without question. Moreover, NERC and the EMS Working Group continuously monitor the performance of these facilities

¹³ EOP-008-1 (Loss of Control Center Functionality), Purpose Statement.

and tracks performance issues. In those assessments, backup power has never been identified as an area of concern.

2a) Explain the benefits and potential burdens for the reliable operation of the bulk electric system in having a backup power supply at the primary control center. Is it more appropriate to have backup power supply sited at a location providing backup functionality?

It is very important to ensuring BES reliability that results based standards do not specify how entities are to achieve compliance. Any directive from the Commission requiring such a change would be in contradiction to the results based standards program which has been shown to be very effective in driving the industry toward continuous improvement. The Trade Associations strongly urge the Commission to not begin directing how entities must comply but rather to accept the defense-in-depth strategy developed by the ERO. Moreover, BES Control Centers have proven reliability and there is no indication that backup power supplies at either primary or backup Control Centers are a problem or concern.

2b) Does the potential impact to reliability change if the entity is a reliability coordinator or transmission operator?

The reliability of the BES is not a single functional entity's responsibility, but is instead shared across the entire industry by all. As stated previously, a negative impact to reliability has not been demonstrated by the lack of specificity for backup power supplies in RC and TOP control centers.

3) Describe current practices with respect to the availability of backup power supplies at primary Control Centers and other critical locations. In particular, do any reliability

coordinators, transmission operators, or balancing authorities currently have a primary control center without a backup power supply?

The Trade Associations understand that companies broadly have multiple layers of backup for the purpose of ensuring continued control center functionality. This may include backup power supplies at both their primary and backup Control Centers, engine generators and uninterruptable power supplies.

4) What does the reference in Reliability Standard BAL-005-0.2b Requirement R15 to “other critical locations” include? Does it include facilities beyond primary Control Centers and locations providing backup functionality?

The Trade Associations interpret this reference in the Reliability Standard to mean any location that might contain equipment necessary for a responsible BA to calculate Reporting ACE. This could also include frequency metering equipment used for the calculation of Reporting ACE. The Trade Associations understand that not all of the equipment necessary to perform this function is always contained in its entirety within the BA’s control center. Moreover, while power supplies are not specifically identified in BAL-005-1, the performance requirements for those systems are provided in Requirements R3 and R5 of this standard. The Trade Associations also believe that “other critical locations” could also include ancillary computer rooms containing EMS or EMS backups, critical data systems supporting the continued calculation of ACE and supporting communications, etc.

5a) Does the use of frequency metering equipment to calculate Reporting ACE that is available a minimum of 99.95% of each calendar year, as proposed in Reliability Standard BAL-005-1, Requirement R3, ensure “continuous operation of AGC and vital data recording

equipment during loss of the normal power supply,” per Reliability Standard BAL-005-0.2b, Requirement R15?

No. The Trade Associations do not believe requirement R3 on its own would have been sufficient to ensure the “continuous operation of AGC and vital data recording equipment during loss of the normal power supply,” per Reliability Standard BAL-005-0.2b, Requirement R15.” However, Requirements R3 and R5 do provide the complete and full protections the Commission seeks. While Requirement R3 provides effective performance requirements for frequency metering equipment, Requirement R5 provides broad assurances that BA systems “used to calculate Reporting Ace” remain available. Furthermore, each requirement independently would not achieve the desired objective but the combination of both Requirements R3 and R5 do provide the necessary levels of protection consistent with the more prescriptive requirement that are contained in BAL-005-0.2b, Requirement R15.

5b) What other functions would be included as part of the metering equipment and data collection of Reliability Standard BAL-005-1, Requirement R3?

The Trade Associations do not believe it is necessary to identify each and every component of the metering equipment and data collection equipment because these functional parts would vary by age and design and would point out that this is. Moreover, the Trade Associations believe that the performance requirements, as contained in BAL-005-1, are far superior and provide better protections to the language contained in the currently effective BAL-005-0.2b Reliability Standard.

5c) What functions currently part of Reliability Standard BAL-005-0.2b, Requirement R15 would be omitted?

The Trade Associations do not believe that any of the critical equipment or systems necessary to calculate Reporting ACE would be omitted. The Trade Associations believe that the performance requirements now contained in BAL-005-1 to be superior to those contained in BAL-005-0.2b.

6) Do the requirements in Reliability Standard EOP-008-1 for backup functionality ensure the “continuous operation of AGC and vital data recording equipment,” and the ability to collect data to calculate Reporting ACE, in the case of the unavailability of such equipment for a period within the bounds of proposed Reliability Standard BAL-005-1, Requirement R3?

No. EOP-008-1 was never developed for the purpose of ensuring the “continuous operation of AGC and vital data recording equipment,” or to ensure the reliable collection of data to calculate Reporting ACE. More accurately, EOP-008-1 was developed to ensure that RCs, TOPs and BAs can continue to reliably operate their portion of the BES should their primary control center becomes inoperative. BAL-005-1 Requirements R3 and R5 provides the performance requirements necessary to ensure the continuous operation of AGC and vital data recording equipment necessary to reliably and effectively calculate Reporting ACE.

CONCLUSION

WHEREFORE, for the foregoing reasons, the Trade Associations respectfully request that the Commission ensure that any future action ordered as a result of this proceeding is consistent as discussed above.

Respectfully submitted,

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CERTIFICATE OF SERVICE

I hereby certify that I have this day served the foregoing document upon each person designated on the official service list compiled by the Secretary in this proceeding.

Dated at Washington, D.C. this 28th day of November.

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