NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

Periodic Review of BAL-005-0.2b – Automatic Generation Control and BAL-006-2 – Inadvertent Interchange (Recommendation to Revise both Standards)

May 22, 2014

Introduction

The North American Electric Reliability Corporation (NERC) is required to conduct a periodic review of each NERC Reliability Standard at least once every ten years, or once every five years for Reliability Standards approved by the American National Standards Institute as an American National Standard.[1] Project 2010-14.2 - Phase 2 of Balancing Authority Reliability-based Controls (BARC 2) was included in the current cycle of periodic reviews.

The NERC Standards Committee appointed ten industry subject matter experts to serve on the BARC 2 periodic review team (BARC 2 PRT) on September 19, 2013.[2] The BARC 2 PRT used background information on the standards and the questions set forth in the Periodic Review Template developed by NERC and approved by the Standards Committee, along with associated worksheets and reference documents, to determine whether BAL-005-0_2b and BAL-006-2 should be: (1) affirmed as is (i.e., no changes needed); (2) revised (which may include revising or retiring one or more requirements); or (3) withdrawn.

As a result of that examination, the BARC 2 PRT recommends to **REVISE** BAL-005-0_2b and BAL-006-2, and has therefore developed a draft Standard Authorization Request (SAR) outlining the proposed scope and technical justification for the revisions. **The purpose of all documents contained in this posting is to elicit feedback from industry on the BARC 2 PRT's recommendations.**

Applicable Reliability Standards: BAL-005-0.2b and BAL-006-2

Note: BAL-005-0 was filed for FERC approval on April 4, 2006 in Docket No. RM06-16-000 and was approved on March 16, 2007 in Order No. 693.6. Also, FERC accepted an errata filing to BAL-005-0.1b on September 13, 2012, which replaced Appendix 1 with a corrected version of a FERC-approved interpretation, and made an internal reference

[1] NERC Standard Processes Manual 45 (2013), posted at http://www.nerc.com/pa/Stand/Documents/Appendix_3A_StandardsProcessesManual.pdf.
[2] The Standards Committee subsequently appointed Scott Brooks of Manitoba Hydro to the BARC 2 PRT.

correction in the interpretation, thus resulting in BAL-005-0.2b. On March 16, 2007 FERC issued Order Number 693 approving Reliability Standard BAL-006-1. BAL-006-2, which removed the MISO waivers found in BAL-006-1, was approved by FERC on January 6, 2011 in Docket No. RD10-04-000.
Team Members (include name and organization): 1. Doug Hils, Duke Energy (Chair) 2. Thomas W. (Tom) Siegrist, Brickfield Burchette Ritts and Stone, PC (Vice Chair) 3. Scott Brooks, Manitoba Hydro 4. Ron Carlsen, Southern Company 5. Howard F. Illian, Energy Mark, Inc. 6. Mike Potishnak, Representing NPCC 7. Jerry Rust, Northwest Power Pool 8. Robert Staton, Xcel Energy 9. Glenn Stephens, Santee Cooper 10. Stephen Swan, MISO 11. Mark Trumble, Omaha Public Power District
Date Review Completed: February 14, 2014

Background Information ***(initially completed by NERC staff)***

1. Are there any outstanding Federal Energy Regulatory Commission (FERC) directives associated with the Reliability Standards? (If so, NERC staff will attach a list of the directives with citations to associated FERC orders for inclusion in a SAR.)

   ☒ Yes

   ☐ No

   Please see the attached *Consideration of Issues and Directives*.

2. Have stakeholders requested clarity on the Reliability Standards in the form of an Interpretation (outstanding, in progress, or approved), Compliance Application Notice (CAN) (outstanding, in progress, or approved), or an outstanding submission to NERC's Issues Database? (If there are, NERC staff will include a list of the Interpretation(s), CAN(s), or stakeholder-identified issue(s) contained in the NERC Issues Database that apply to the Reliability Standard.)

   ☒ Yes (See BAL-005-0.2b, Appendix 1 - Interpretation of Requirement R17)

   ☐ No

3. Are the Reliability Standards one of the most violated Reliability Standards? If so, does the root cause of the frequent violation appear to be a lack of clarity in the language?

   ☐ Yes

   ☒ No

   Please explain:

4. Do the Reliability Standards need to be modified or converted to the results-based standard (RBS) format as outlined in *Attachment 1: Results-Based Standards*? Note that this analysis is twofold and requires collaboration among NERC staff and the Review Team. First, determine whether the *substance* of the Reliability Standard comports to the RBS principles described in Attachment 1. Second, ensure that, as Reliability Standards are reviewed, the *formatting* is changed as necessary to comply with the current format of a Reliability Standard. If the answer to either part of this question is "Yes," the standard should be revised.

   ☒ Yes

☐ No

Note: The BARC 2 PRT reviewed BAL-005-0.2b and BAL-006-2 and determined that many of the requirements were similar in nature and could be simplified to provide a clear and measurable expected outcome, such as: (1) a stated level of reliability performance; (2) a reduction in a specified reliability risk; or (3) a necessary competency.

Additional Questions Considered by the BARC 2 PRT

If NERC staff answered "Yes" to any of the questions above, the Reliability Standard probably requires revision. The questions below are intended to further guide your review. Some of the questions reference documents provided by NERC staff as indicated in the Background questions above.

1. **Paragraph 81**: Does one or more of the requirements in the Reliability Standard meet criteria for retirement or modification based on Paragraph 81 concepts? Use *Attachment 2: Paragraph 81 Criteria* to make this determination.

   ☒ Yes

   ☐ No

   Please summarize your application of Paragraph 81 Criteria, if any: The BARC 2 PRT applied the criteria specified in *Attachment 2: Paragraph 81 Criteria* in reviewing BAL-005 and BAL-006. As that document more fully explains, for a Reliability Standard requirement to be proposed for retirement or modification based on Paragraph 81 concepts, it must satisfy both an overarching criterion, specifically, whether the requirement does little, if anything, to benefit or protect the reliable operation of the Bulk Electric System (BES), and at least one other criterion specified therein. The PRT concluded that eight requirements should be retired under Paragraph 81 concepts as detailed in Table 1:

Table 1 - PRT Recommended Paragraph 81 Retirements

Requirement	Rationale
BAL-005, Requirement R4	The basis for coordination of common values between adjacent BAs is covered in Requirement R3, and correction of information not available has also been addressed. Therefore, this requirement is redundant and does little, if anything, to benefit or protect the reliable operation of the BES.
BAL-005, Requirement R5	The requirements placed upon the implementation of Dynamic Transfers are covered within Requirement R3. Therefore, this requirement is redundant and does little, if anything, to benefit or protect the reliable operation of the BES.
BAL-005, Requirement R7	The first sentence covers having a functional EMS or other system capable of calculating Reporting ACE and controlling resources, which can be done manually without any detriment to reliability. EOP-008-1 Requirement R1 recognizes that such automated capability may not be available for up to two hours for loss of control center functionality. In addition, the second sentence is not needed, as such actions would be covered under EOP-008. The PRT believes that the term "Operating AGC" in Requirement R7 refers to the

	capability to continuously calculate ACE (not automatic control of resources), which should be considered one of the BAs functional obligations with regard to the reliable operations and situational awareness of the BES. Though redundancy and other provisions may be in place to maintain EMS functionality, there are times when the information may not be available where the provisions under EOP-008-1 would apply. In light of these unnecessary redundancies, this requirement does little, if anything, to benefit or protect the reliable operation of the BES.
BAL-005, Requirement R9, Part 9.1	The Actual Net Interchange and Scheduled Net Interchange values in the Reporting ACE calculation include provisions for the Balancing Authority to include its high voltage direct (HVDC) link to another asynchronous interconnection. By assuring the values are handled consistently in the actual and scheduled Interchange terms included in the real-time Reporting ACE by definition, the Balancing Authority is not being instructed "how" to implement the HVDC link, but allowed to decide the method it will use. By focusing on real-time Reporting ACE, we are assuring reliability is addressed and maintained at all times. Because the Reporting ACE addresses the reliability concerns originally contemplated in this requirement, the requirement is needlessly redundant and does little, if anything, to benefit or protect the reliable operation of the BES.
BAL-005, Requirement R10	The definition of Reporting ACE includes the provision that Scheduled Net Interchange (NIs) used in the Reporting ACE calculation include Dynamic Schedules. Therefore, this requirement is redundant and does little, if anything, to benefit or protect the reliable operation of the BES.
BAL-005, Requirement R11	The definition of Reporting ACE includes the provision that the effect of schedule ramps be included in the value Scheduled Net Interchange (NIs) used in the Reporting ACE calculation. Therefore, this requirement is redundant and does little, if anything, to benefit or protect the reliable operation of the BES.
BAL-006, Requirement R1	Requirement R1 is written only as an energy accounting requirement. The Requirement is administrative in nature and does little, if anything to benefit or protect the reliable operation of the BES. However, the SDT should determine if there is merit in developing a reliability metric specific to this standard including the calculation of Inadvertent Interchange in a reliability metric to measure performance to certain requirements under BAL-0065, where the SDT may consider including the calculation of Inadvertent Interchange.
BAL-006, Requirement R2	Requirement R2 is written only as an energy accounting requirement. The Requirement is administrative in nature and does little, if anything to benefit or protect the reliable operation of the BES. However, the PRT recommends that the SDT incorporate Requirement R2 into a revised definition of Inadvertent Interchange.

The BARC 2 PRT carefully considered each recommendation made in the Independent Expert Review Report (IERR) as detailed in Table 2 below. Based on the BARC 2 PRT's discussions and expertise on the matter, including some having been involved in the development and revisions to NERC Policy 1 used as the basis for the NERC BAL Standards, the BARC 2 PRT determined that the balance of the requirements recommended for retirement by the Independent Expert Review Report are necessary to retain in some form for reliability:

Table 2 - PRT Consideration of IERR Recommendations

Requirement	IERR Recommendation	PRT Response
BAL-005, Requirement R2	Retire, P81. Phase 1	Requirement removed under Paragraph 81 Phase 1.
BAL-005, Requirement R3	Retire, P81. Duplicative of R1.	The PRT **disagreed** with the IERR, as the intent of Requirement R1 is to ensure that all load, resources and transmission facilities are accounted for within the BAs in an Interconnection, whereas Requirement R3 was intended to cover the metering communications, etc., when load or resources may be Dynamically Transferred. The PRT recommendations include treating the implementation of Tie-Lines, Pseudo-Ties, and Dynamic Schedules in a similar manner, as all require agreement on the common information that will be used between the Adjacent BAs and the implementation of dynamically changing data in the Reporting ACE. The PRT recommends that the SDT not use the term "Regulation Service," as in general this statement could apply to implementation of Dynamic Schedules or Pseudo-Ties, and the desire to have a common point for the data shared between the BAs implementing the Dynamic Transfer. Entities must have a process in place to always have common and agreed-upon information even when primary facilities are not available. The PRT recommends removing "adequate" and "Burden" from the requirement.

BAL-005, Requirement R8	Retire, P81. Outdated due to technology.	The PRT **disagreed** with the IERR, as Requirement R8 establishes the minimum expectation of how often ACE must be calculated by all Balancing Authorities. However, as written, Requirement R8 provides no provisions for abnormal or emergency operations when the automated calculation of ACE may not be available. The PRT recommendations include that the SDT revise the Requirement with the proper context of a minimum normal scan rate and clarify how frequently all components must be factored into the Reporting ACE equation under normal operation. With respect to the sub-requirements, the SDT should ensure that any proposed revisions accommodate abnormal and emergency operations, including the possibility that the EMS or supporting telemetry may not be available, such as during an evacuation to a backup site. The PRT notes that the SDT should consider a requirement focused on a minimum scan-rate expectation under normal operations, rather than a requirement that could be interpreted as if systems have 100% availability.
BAL-005, Requirement R9	Retire, P81. This is a definition not a requirement.	The PRT **agreed** with the IERR to retire Requirement R9, as the Interchange values are included the definition of Reporting ACE.
BAL-005, Requirement R10	Retire, P81. This is a definition not a requirement.	The PRT **agreed** with the IERR as the definition of Reporting ACE includes the provision that Scheduled Net Interchange (NIs) used in the Reporting ACE calculation include Dynamic Schedules.
BAL-005, Requirement R11	Retire, P81. This is a business practice and is automated in most EMS software.	The PRT **agreed** with the IERR, as the definition of Reporting ACE includes the provision that the effect of schedule ramps be included in the value Scheduled Net Interchange (NIs) used in the Reporting ACE calculation.
BAL-005, Requirement R12	Retire, P81. This in the ACE equation so does not need to be repeated.	The PRT **agreed** with the IERR to retire Requirement R12 as written. However, the intent of certain sub requirements still needs to be captured and written as applicable to Tie-Line, Pseudo-Ties and Dynamic Schedules. The PRT recommends a new requirement where each respective Adjacent BAalancing Authority has agreed to common

		measuring points that produce an agreed-to common value to be included in the calculation of Reporting ACE. Accuracy and review of the agreed-to common value is reflected in the new requirement requiring comparison of hourly megawatt-hour values against the integrated data operated to for Tie-Lines, Dynamic Schedules, and Pseudo-Ties. The SDT should review the requirement as it relates to current practices to ensure the reliability needs are met.
BAL-005, Requirement R13	Retire, P81. This is after the fact and is automated in most EMS software.	The PRT **disagreed** with the IERR on some aspects of R13. The PRT suggests deleting the first sentence of R13, and suggests that the SDT include in a guideline document the practice of performing hourly error checks of the NIA operated to for the hour against an end-of-the-hour reference. The PRT also recommends a separate requirement specific to adjustments as needed to the Reporting ACE to reflect the meter error adjustment. However, the PRT is concerned that requiring correction of a component of ACE when in error (no matter how negligible) would be problematic in that not all errors require correction. The PRT recommends that the SDT consider stating the requirement in such a manner that I_{ME} is required to be zero except during times needed to compensate for any data or equipment error affecting a component of the Reporting ACE calculation (Interchange or frequency). The SDT should also allow in this requirement for other means of addressing metering corrections, which may include possible revision to real-time metering data. Uses of the I_{ME} term in the Reporting ACE may also be an appropriate subject for the guideline document the PRT is recommending that the SDT develop to accompany BAL-005 covering some of the suggested best practices.

BAL-005, Requirement R16	Retire, This is a guide for the quality of the EMS system. Provide to the 2009-02 team for consideration.	The PRT **agreed** with the IERR to retire Requirement R16 contingent upon addressing one provision. The PRT recommends moving the requirement for flagging bad data to revisions made in Requirement R14.
BAL-006, Requirement R1	Retire. This is only for energy accounting. Covered by tagging requirements	The PRT **agreed** with the IERR that R1 is an energy accounting requirement and should be retired; however, the PRT recommends that the SDT determine if there is merit in developing a reliability metric specific to this standard to measure performance to certain requirements under BAL-006, where the SDT may consider including the calculation of Inadvertent Interchange. In development of any metric, the PRT recommends that the SDT determine the appropriate time-frame for reliability (as close to real-time as possible). Similar to how BAL-001-2 has CPS1 and BAAL measures dependent upon the BA calculating its Reporting ACE without a stated requirement that "Each BA shall calculate its Reporting ACE", the PRT felt that if the industry supports a measure being developed that uses Inadvertent Interchange in the measure of performance, that the BA would calculate Inadvertent Interchange as needed to comply. Also, similar to the approach taken for defining Reporting ACE in the Glossary with all of the components necessary for the calculation, the PRT is recommending in Requirement R2 below that the definition of Inadvertent Interchange also be updated so that all components necessary for the calculation are identified.
BAL-006, Requirement R2	Retire. This is only for energy accounting. Covered by tagging requirements.	The PRT **agreed** with the IERR that R2 is an energy accounting requirement and recommends retirement contingent upon the SDT incorporating Requirement R2 into a revised definition of Inadvertent Interchange. The PRT recommends that this definition be modified to capture that the calculation is on an hourly basis and includes the megawatt-hour values for Tie-Lines, Pseudo-Ties, and Dynamic Schedules, along with other scheduled

		interchange implemented under block scheduling, which does not include the effect of the ramps. The PRT recommends that the definition also include the NERC definitions of On-Peak Accounting and Off-Peak Accounting, which reference the NAESB business practice for inadvertent interchange accounting. The PRT also recommends that the definition clarify the treatment of scheduled and actual interchange associated with asynchronous ties between Interconnections.
BAL-006, Requirement R3	Retire. This is only for energy accounting. Covered by tagging requirements (automated).	The PRT **disagreed** with the IERR but recommends incorporating Requirement R3 into BAL-005, as the requirement relates to the agreement on common values used in Real-time and also recommends developing a guideline to cover the practice of comparing the hourly megawatt-hour values gathered at the end of the hour against the hourly integrated values of the scan-rate data operated to, in order to determine if significant error exists.
BAL-006, Requirement R4	Retire. This is only for energy accounting. Covered by tagging requirements (automated).	The PRT **disagreed** with the IERR, as it is important to reliability that Adjacent Balancing Authorities agree on the scheduled and actual Interchange between them on a timely basis as a means to detect when errors may exist so that they can be corrected in operations. The PRT recommends that the SDT review current practices for confirmation for interchange after-the-fact to determine and justify a shorter duration for agreement on such values for reliability purposes. The PRT also recommends that Requirement R4 be restated to require that the agreement is based upon the aggregate net schedules and net actuals by adjacent BAs as further defined in the new definition of Inadvertent Interchange. In concept, every Tie-Line, Pseudo-Tie, and Interchange Schedule (including Dynamic Schedules), implemented in the Reporting ACE calculation should have an accompanying after-the-fact megawatt-hour value accounted for in the calculation of Inadvertent Interchange. Requirement R4 Part 4.2 might be addressed in the

		new definition of Inadvertent Interchange by the proposed reference to On-Peak Accounting and Off-Peak Accounting. The SDT should review this requirement to determine what elements of the requirement are necessary to support reliability. The SDT also should consider including in a guideline document a practice to support providing operations personnel with information on the comparison of monthly revenue class meters to meters used for real-time operation.
BAL-006, Requirement R5	Retire. This is only for energy accounting. Covered by tagging requirements (automated).	The PRT **could not agree** with the IERR without investigation by the SDT. The SDT should review whether the practice that requires BAs to mutually agree by the 15th calendar day is needed for reliability. The PRT believes there may be merit in requiring BAs to identify the cause of the dispute, and to either correct it within a prescribed number of days, or follow a dispute resolution process. The SDT should ensure that the requirement is clear and distinct, which may require modifying or striking the language regarding dispute resolution.

2. **Clarity:** If the Reliability Standard has an Interpretation, CAN, or issue associated with it, or is frequently violated because of ambiguity, it probably needs to be revised for clarity. Beyond these indicators, is there any reason to believe that the Reliability Standard should be modified to address a lack of clarity? Consider:

   a. Is this a Version 0 Reliability Standard?
   b. Does the Reliability Standard have obviously ambiguous language or language that requires performance that is not measurable?
   c. Are the requirements consistent with the purpose of the Reliability Standard?

   ☒ Yes

   ☐ No

Please summarize your assessment: The BARC 2 PRT recommends the development of a reference document to clarify the requirements in BAL-005 and BAL-006, and recommends revising the following sections of BAL-005 and BAL-006 to improve clarity of the standards:

BAL-005

The BARC2 PRT has completed its review of BAL-005, and among other recommendations, proposes certain revisions below which would remove references to the types of resources and reserves utilized by the Balancing Authority to balance resources and demand. The PRT recommendations focus on the components that make up the Reporting ACE, and not on the ancillary service aspects of resource control that drew criticism from the industry for being specific to generation when BAL-005 was originally filed with the FERC. Among other recommendations, for the implementation of Tie-Lines, Pseudo-Ties, and Dynamic Schedules (all similar in that they utilize real-time data from an agreed-upon common source between Adjacent BAs), the PRT recommends requirements focused on the real-time values operated to. The PRT recommendations for BAL-005 are:

1) **Title**: The PRT recommends changing the title of BAL-005 to "Balancing Authority Control" to remove the implication that BAL-005 pertains exclusively to generation, and better reflect the focus on the BA acquiring necessary data to calculate Reporting ACE so that balancing of resources and demand can be achieved under Tie-Line Bias Control. Based upon the input from the industry, the PRT recommends that the SDT consider whether the term AGC should be retained within any requirements. The PRT also recommends that the SDT pursue revisions to the definition of AGC as proposed below to be resource-neutral.

   AGC: Equipment that automatically adjusts ~~generation~~ resources utilized in a Balancing Authority Area from a central location to maintain the Balancing Authority's Reporting ACE within the bounds required under the NERC Reliability Standards. Resources utilized under AGC may include conventional generation, variable energy resources, storage devices and loads acting as resources, such as Demand Response. ~~may interchange schedule plus Frequency Bias. AGC may also accommodate automatic inadvertent payback and time error correction.~~

2) **Purpose**: The Standards Drafting Team (SDT) tasked with implementing the SAR developed by the PRT should consider revising the "Purpose" statement to focus on acquiring the information necessary for calculating Reporting ACE, while remaining neutral on the types of reserves or resources utilized. The PRT recommends the following for SDT consideration:

   > This standard establishes requirements for acquiring necessary data for the Balancing Authority so that balancing of resources and demand can be achieved under Tie-Line Bias Control

The PRT also recommends that the SDT consider addressing the Hydro Quebec exception for tie line bias control in some form, or a single-BA exception.

3) **Applicability**: The SDT should remove "Generator Operators", "Transmission Operators", and "Load Serving Entities" as applicable entities unless used in the SDT's suggested revisions of this standard. For example, the SDT discussed that the ownership of metering and other factors may drive why the LSE is included in this standard, along with other entities, however consideration should be given to moving requirements for facilities to be within a BA Area to a FAC standard. The PRT is concerned that removing any requirements of the LSE, TOP, and GOP and not reflecting them within another standard may inadvertently transfer certain obligations to the BA to ensure that such loads, resources, and facilities are within their metered boundaries. The SDT should ensure that any suggested revisions address this concern and should also consider placing a comparable requirement in a FAC Standard.

4) **Requirement R1**: The PRT recommends that the content of Requirement R1 be split between what is needed for ensuring facilities are within a BA Area prior to MW being generated or consumed, and what is needed for ensuring balanced operation within an Interconnection. First, the PRT recommends that the SDT consider continuing discussions with the FAC SDT on moving and restating or clarifying the TOP, LSE, and GOP requirements in a FAC Standard to ensure facilities are within the metered boundaries of a BA prior to transmission operation, resource operation, or load being served. The SDT should explore whether the role of the TOP would appropriately cover the loads interconnected to that TOP such that the LSE requirement may not be necessary. Second, the PRT recommends that the SDT revise Requirements R1 and R2 to be BA requirements that all Actual Net Interchange and Scheduled Net Interchange used by the BA in its Reporting ACE calculation, have an Adjacent BA, as proposed in the redlined Requirements R1 and R2. Note that the PRT does not intend the proposed language to impose any additional requirements on the BA that currently apply to the LSE, GOP, and TOP, but believes that the requirements to identify the applicable BA should perhaps be in the interconnection agreements or a FAC requirement. With respect to proposed Requirement R2, the SDT should ensure that the requirement cannot be misinterpreted to imply that Dynamic Schedules can only be with physically adjacent BAs. The intent is to address adjacency in a manner consistent with the scheduling path no differently than used for interchange schedules.

5) **Requirement R2**: Retirement approved by FERC effective January 21, 2014.

6) **Requirement R3**: The PRT recommends that the SDT not use the term "Regulation Service," as in general this statement could apply to implementation of Dynamic Schedules or Pseudo-Ties, and the desire to have a common point for the data shared between the BAs implementing the Dynamic Transfer. The PRT recommends removing "adequate" and "Burden" from the

requirement. The PRT recommends expanding Requirement R3 to be applicable to the implementation of tie lines, Pseudo-Ties, and Dynamic Schedules, as all require agreement between adjacent BAs on the agreed-upon points to be implemented. The PRT recommends that the SDT review the other standards such as TOP-005 to assure there is no duplication or redundancy. Specific to the concern on swapping hourly values in BAL-005, the PRT recommends deleting the proposed R3.2 and the first sentence of the proposed R3.5.2, the PRT also recommends the SDT develop a guideline document to accompany BAL-005 covering some of the suggested best practices.

7) **Requirement R4**: The PRT reviewed Requirement R4 with respect to what notification or coordination is necessary that could be considered with the other requirements around Interchange. Initially the PRT was considering a recommendation that the SDT consider the requirement as it applies to Dynamic Transfer implementation as discussed in the Dynamic Transfer reliability guideline, and as it applies to the practice of implementing multiple-BA Dynamic Transfers under a process referred to as ACE Diversity Interchange. The PRT also considered recommendations to delete or modify Requirement R4 so that it requires communication with not only the BAs but any other affected entities, and to strike "providing Regulation Service." However, after further review, the PRT recommends retiring Requirement R4, as the basis for coordination of common values between adjacent BAs is covered in Requirement R3, and correction of information not available has also been addressed. These requirements should ensure that any failure to perform would be reflected in the BA performance under BAL-001-2.

8) **Requirement R5**: The PRT recommends retiring Requirement R5, as the requirements placed upon the implementation of Dynamic Transfers are covered within Requirement R3. With respect to having a backup plan to the extent that a service may no longer be provided, the PRT believes this would be in the terms of the business arrangement. As proposed by the PRT, the requirements remaining in BAL-005 would ensure that any failure to perform would be reflected in the BA performance under BAL-001-2.

9) **Requirement R6**: The PRT recommends that the sentence "Single Balancing Authorities operating asynchronously may employ alternative ACE calculations such as (but not limited to) flat frequency control" be captured in the definition of "Reporting ACE.". The terms used in the Requirement R6 need to be consistent with those used in Reporting ACE if the Requirement is retained. The SDT should consider whether the 30-minute requirement for RC notification is sufficient or excessive. The PRT recommends that if a timing requirement remains in the standard that it be structured in a manner to not require communication with the RC if the capability to calculate Reporting ACE is restored within the defined notification period.

10) **Requirement R7**: The PRT recommends retiring this Requirement under Paragraph 81. The first sentence covers having a functional EMS or other system capable of calculating Reporting ACE and controlling resources, which can be done manually without any detriment to reliability. EOP-008-1 Requirement R1 recognizes that such automated capability may not be available for up to two hours for loss of control center functionality. In addition, the second sentence is not needed, as such actions would be covered under EOP-008. The PRT believes that the term "Operating AGC" in Requirement R7 refers to the capability to continuously calculate ACE (not automatic control of resources), which should be considered one of the BAs functional obligations with regard to the reliable operations and situational awareness of the BES. Though redundancy and other provisions may be in place to maintain EMS functionality, there are times when the information may not be available where the provisions under EOP-008-1 would apply.

11) **Requirement R8**: The PRT recommends that the SDT revise the Requirement with the proper context of a minimum normal scan rate and clarify how frequently all components must be factored into the Reporting ACE equation under normal operation. With respect to the sub-requirements, the SDT should ensure that any proposed revisions accommodate abnormal and emergency operations, including the possibility that the EMS or supporting telemetry may not be available, such as during an evacuation to a backup site. The PRT notes that the SDT should consider a requirement focused on a minimum scan-rate expectation under normal operations, rather than a requirement that could be interpreted as if systems have 100% availability.

12) **Requirement R8, Part 8.1**: The BA should have visibility of system frequency within parameters consistent with EOP-008, however the PRT recommends that the requirement not be prescriptive. The SDT should review EOP-008 to ensure the intent of this requirement is covered there, and to ensure consistency among the standards. In addition, the SDT should also consider remote and redundant frequency resources to the extent that the information otherwise available to the BA may not be available upon loss of control center functionality. Such capability may already be anticipated under EOP-008. The SDT should consider the following questions in the development of the revised requirement:

    a) How much time is allowed to pass if the redundancy is lost before it must be restored?

    b) Does the PRT believe it is acceptable for the second and independent frequency device to be one used by another Balancing Authority?

13) **Requirement R9, Part 9.1**: The PRT recommends retiring this Requirement. The Actual Net Interchange and Scheduled Net Interchange values in the Reporting ACE calculation include provisions for the Balancing Authority to include its high voltage direct (HVDC) link to another asynchronous interconnection. By assuring the values are handled consistently in the actual and scheduled Interchange terms included in the real-time Reporting ACE by definition, the

Balancing Authority is not being instructed "how" to implement the HVDC link, but allowed to decide the method it will use. By focusing on real-time Reporting ACE, we are assuring reliability is addressed and maintained at all times. The PRT suggests that the Balancing Authority during an audit may be asked to provide evidence that its HVDC link was included or was not included in Reporting ACE under the provisions allowed by definition.

14) **Requirements R10 and R11**: The PRT recommends the retirement of these requirements, as the basics of both requirements are factored into the definition of Scheduled Net Interchange (NIs) used in the Reporting ACE calculation as defined in the NERC Glossary.

The PRT noted that Requirement R10 is written as if "Net Scheduled Interchange" is the value used in the ACE equation; however, Net Scheduled Interchange has two meanings – the algebraic sum of all Interchange Schedules across a given path, or between Balancing Authorities for a given period or instant in time. Aside from the concern of having a definition with two different meanings, the PRT believes that neither choice in the definition accurately depicts the value inserted into the ACE or Reporting ACE, which would be the algebraic sum of all Net Scheduled Interchange with all Adjacent Balancing Authorities, including Dynamic Schedules. In addition, the PRT could not find a definition of Scheduled Interchange as used in Requirement R11. Under Section 3 below, the PRT recommends changes to certain NERC definitions.

15) **Requirement R12**: The PRT took a holistic approach to Requirement R12 and other requirements related to the implementation of Tie-Lines, Pseudo-Ties, and Dynamic Schedules, as all relate to the information exchanged between adjacent BAs.

The PRT recommends a new Requirement R3 related to the implementation of Tie-Lines, Pseudo-Ties, and Dynamic Schedules, where each respective Adjacent BA has agreed to common measuring points that produce an agreed-to value to be included in the calculation of Reporting ACE. The SDT should review the requirement as it relates to current practices to ensure the reliability needs are met.

The PRT suggests that the holistic approach shall only be achieved if there is a comprehensive definition of ACE. Therefore the PRT recommends the ACE and Reporting ACE definitions be reviewed (understanding and identifying as well why there is a difference) to assure that they are comprehensive (including items such as all AC Tie-Lines, Pseudo-ties, and all other necessary Adjacent BA information). As the comprehensive details of the ACE calculation in BAL-001-1 will be retired upon implementation of BAL-001-2, where ACE will only be defined in the NERC Glossary, the PRT suggests that a complete review of all the NERC Standards is necessary to assure where ACE is utilized in a Standard, that any update to the ACE definition would not impact any other Standard.

16) **Requirement R13**: The PRT suggests deleting the first sentence of R13, and suggests that the SDT include in a guideline document the practice of performing hourly error checks of the NI_A operated to for the hour against an end-of-the-hour reference.

    The PRT also recommends a separate requirement specific to adjustments as needed to the Reporting ACE to reflect the meter error adjustment. However, the PRT is concerned that requiring correction of a component of ACE when in error (no matter how negligible) would be problematic in that not all errors require correction. The PRT recommends that the SDT consider stating the requirement in such a manner that I_{ME} is required to be zero except during times needed to compensate for any data or equipment error affecting a component of the Reporting ACE calculation (Interchange or frequency). The SDT should also allow in this requirement for other means of addressing metering corrections, which may include possible revision to real-time metering data. Uses of the I_{ME} term in the Reporting ACE may also be an appropriate subject for the guideline document the PRT is recommending that the SDT develop to accompany BAL-005 covering some of the suggested best practices.

17) **Requirement R14**: The PRT recommends that the SDT delete the first sentence in R14 and revise the second sentence to cover the minimum amount of information expected for the BA to provide in real-time to its operatormade the recommendation reflected in the proposed redline to define minimum expectations for situational awareness of the BES. The PRT also recommends that the individual components of actual and scheduled interchange with each Adjacent Balancing Authority also be captured (Tie-Lines, Pseudo-Ties, Dynamic Schedules, block schedules as needed for coordination, and real-time schedules). Based on industry comments, the SDT should consider whether this requirement is needed in the BAL standards, whether it is adequately covered elsewhere in the standards, or whether it should be moved to the NERC Rules of Procedure for certification of the Functional Entity.

18) **Requirement R15**: The SDT should consider continued coordination with the Project 2010-02 FAC SDT on potentially placing a requirement in FAC with respect to supporting infrastructure or functionality, or review EOP-008 to determine if existing requirements adequately address primary control center functionality.

19) **Requirement R16**: The PRT recommends moving the requirement for flagging bad data to revisions made in Requirement R14.

20) **Requirement R17**: The PRT recommends that this requirement be written to be specific to the equipment used to determine the frequency component required for Reporting ACE. The PRT also recommends that the SDT recommend moving any accuracy requirements applicable to the needs of the Transmission Operator, which may include MW, MVAR, voltage, potential

transformer, current transformer, and remote terminal unit or equivalent to a TOP or FAC standard. Further study would be needed on the ".25% of full scale" and the "appropriate accuracy" language.

BAL-006

The BARC2 PRT has completed its review of BAL-006 and recommends that it be revised. The recommendations below include moving any requirements with implications to real-time operations into BAL-005.

Among other work, the review team considered a FERC directive that recommended the development of a metric to bound the magnitude of inadvertent accumulations, as those accumulations may be indicative of a Balancing Authority excessively leaning on the resources of others in its Interconnection. The review team consensus was that an Inadvertent Interchange accumulation value alone cannot yield useful information concerning whether a Balancing Authority is operating reliably. The PRT document on the consideration of issues and directives more fully covers the PRT recommendations related to the FERC directives. The PRT recommendations for BAL-006 are:

1) **Purpose**: As the revisions proposed for BAL-006 focus on the minimum requirements for Adjacent Balancing Authorities to agree upon the hourly MW amounts of scheduled and actual Interchange between them, which reinforces that errors in coordination or process will be identified, the PRT recommends that the SDT revise the Purpose statement to be consistent with the Requirements as further developed under the SAR posted with this recommendation.

2) **Requirement R1**: The PRT recommends removing Requirement R1 as written and recommends that the SDT determine if there is merit in developing a reliability metric specific to this standard including the calculation of Inadvertent Interchange in a reliability metric to measure performance to certain requirements under BAL-0065, where the SDT may consider including the calculation of Inadvertent Interchange. In development of any metric, the PRT recommends that the SDT determine the appropriate time-frame for reliability (as close to real-time as possible). Similar to how BAL-001-2 has CPS1 and BAAL measures dependent upon the BA calculating its Reporting ACE without a stated requirement that "Each BA shall calculate its Reporting ACE", the PRT felt that if the industry supports a measure being developed that uses Inadvertent Interchange in the measure of performance, that the BA would calculate Inadvertent Interchange as needed to comply. Also, similar to the approach taken for defining Reporting ACE in the Glossary with all of the components necessary for the calculation, the PRT is recommending in Requirement R2 below that the definition of Inadvertent Interchange also be updated so that all components necessary for the calculation are identified.

3) **Requirement R2**: The PRT recommends incorporating R2 into a revised definition of Inadvertent Interchange: The PRT recommends that this definition be modified to capture that the calculation is on an hourly basis and includes the megawatt-hour values for Tie-Lines, Pseudo-Ties, and Dynamic Schedules, along with other scheduled interchange implemented under block scheduling, which does not include the effect of the ramps. The PRT recommends

that the definition also include the NERC definitions of On-Peak Accounting and Off-Peak Accounting, which reference the NAESB business practice for inadvertent interchange accounting. The PRT also recommends that the definition clarify the treatment of scheduled and actual interchange associated with asynchronous ties between Interconnections.

4) **Requirement R3**: The PRT recommends incorporating Requirement R3 into BAL-005, as the requirement relates to the agreement on common values used in Real-time and also recommends developing a guideline to cover the practice of comparing the hourly megawatt-hour values gathered at the end of the hour against the hourly integrated values of the scan-rate data operated to, in order to determine if significant error exists.

5) **Requirement R4**: With respect to Requirement R4, the SDT should review current practices for confirmation for interchange after-the-fact to determine and justify a shorter duration for agreement on such values for reliability purposes. The PRT also recommends that Requirement R4 be restated to require that the agreement is based upon the aggregate net schedules and net actuals by adjacent BAs as further defined in the new definition of Inadvertent Interchange. In concept, every Tie-Line, Pseudo-Tie, and Interchange Schedule (including Dynamic Schedules), implemented in the Reporting ACE calculation should have an accompanying after-the-fact megawatt-hour value accounted for in the calculation of Inadvertent Interchange.

6) **Requirement R4, Part 4.2:** The SDT should evaluate whether this requirement is addressed in the new definition of Inadvertent Interchange by the proposed reference to On-Peak Accounting and Off-Peak Accounting.

7) **Requirement R4, Part 4.3**: The SDT should review this requirement to determine what elements of the requirement are necessary to support reliability. The SDT also should consider including in a guideline document a practice to support providing operations personnel with information on the comparison of monthly revenue class meters to meters used for real-time operation.

8) **Requirement R5**: The SDT should review whether the practice that requires BAs to mutually agree by the 15th calendar day is needed for reliability. The PRT believes there may be merit in requiring BAs to identify the cause of the dispute, and to either correct it within a prescribed number of days, or follow a dispute resolution process. The SDT should ensure that the requirement is clear and distinct, which may require modifying or striking the language regarding dispute resolution.

3. **Definitions**: Do any of the defined terms used within the Reliability Standard need to be refined?

   ☒ Yes

☐ No

Please explain: The SDT should review definitions for consistency on Scheduled Interchange and clarification of Pseudo-Tie to indicate that it is treated no differently than tie line metering for a common point between two BAs, communication requirements, etc., and included in the calculation of Actual Net Interchange and the Reporting ACE equation. The SDT should also review proposed changes to the INT standards as part of this examination.

The use of multiple Interchange terms within the Standards prompted the PRT to reference the Glossary of Terms Used in NERC Reliability Standards. The PRT reviewed the definitions of Actual Net Interchange and Scheduled Net Interchange used within the definition of Reporting ACE, along with the definitions of Interchange Schedule, Net Interchange Schedule, Net Scheduled Interchange, and Net Actual Interchange. The PRT found it confusing to have multiple interchange definitions with similar titles, and some with similar meanings, and recommends the SDT consider the following:

a) Scan all of the NERC Standards, all terms in BAL-005 and -006, and the NERC Glossary to determine if the terms associated with the subject standards are used or defined appropriately (e.g., NI_S, NI_A, I_S, I_A, ACE, and Reporting ACE).
b) Ensure that any suggested revisions to scheduled interchange definitions retain the overall concepts that:
   - the schedule ramps must be reflected in the Reporting ACE;
   - the static schedules (any that are not Dynamic Schedules) coordinated between Adjacent BAs prior to implementation use block accounting ignoring the schedule ramps;
   - the estimated MW values of the Dynamic Schedules prior to implementation are typically not included in the scheduled interchange values coordinated and agreed to between Adjacent BAs; and
   - the megawatt-hour values of scheduled interchange agreed-to after the fact reflect the static schedules (any that are not Dynamic Schedules) operated to using block accounting integrated over the hour but ignoring the ramps, plus the hourly integrated values for any Dynamic Schedules.

Suggested Revisions to NERC Glossary Definitions:

Automatic Generation Control ("AGC")
Equipment that automatically adjusts ~~generation~~ **resources** utilized in a Balancing Authority Area from a central location to maintain the Balancing Authority's ACE within the bounds required under the NERC Reliability Standards**. Resources utilized under AGC may include conventional generation, variable energy resources, storage devices and loads acting as resources, such as Demand Response**. ~~may interchange schedule plus~~

~~Frequency Bias.~~ ~~ACC may also accommodate automatic inadvertent payback and time error correction.~~

Reporting ACE
The scan rate values of a Balancing Authority's Area Control Error (ACE) measured in MW, which includes the difference between the Balancing Authority's **Actual Net Interchange** and its **Scheduled Net Interchange**, plus its Frequency Bias obligation, plus any known meter error. In the Western Interconnection, Reporting ACE includes Automatic Time Error Correction (ATEC).

Reporting ACE is calculated as follows:
Reporting ACE = $(NI_A - NI_S) - 10B(F_A - F_S) - I_{ME}$
Reporting ACE is calculated in the Western Interconnection as follows:
Reporting ACE = $(NI_A - NI_S) - 10B(F_A - F_S) - I_{ME} + I_{ATEC}$

Where:
NI_A (Actual Net Interchange) is the algebraic sum of actual megawatt transfers across all Tie Lines and Pseudo-Ties ***with all Adjacent Balancing Authorities, which may use anti-aliasing filters as needed to more accurately represent the actual interchange as determined by the Adjacent Balancing Authorities.*** Balancing Authorities directly connected via asynchronous ties to another Interconnection may include or exclude ***the actual*** megawatt transfers on those Tie lines in ***the calculation of NI_A***, provided they are implemented in the same manner for ***Scheduled Net Interchange***.

NI_S (Scheduled Net Interchange) is the algebraic sum of all scheduled megawatt transfers, including Dynamic Schedules, with ***all A***djacent Balancing Authorities, and taking into account the effects of schedule ramps. Balancing Authorities directly connected via asynchronous ties to another Interconnection may include or exclude ***the scheduled*** megawatt transfers on those Tie Lines in the ***calculation of NI_S***, provided they are implemented in the same manner for ***Actual Net Interchange***.

B (Frequency Bias Setting) is the Frequency Bias Setting (in negative MW/0.1 Hz) for the Balancing Authority. **10** is the constant factor that converts the frequency bias setting units to MW/Hz.
F_A (Actual Frequency) is the measured frequency in Hz.
F_S (Scheduled Frequency) is 60.0 Hz, except during a time***-error*** correction.
I_{ME} (Interchange Meter Error) is the meter error correction factor and represents the difference between the integrated hourly average of the ~~net interchange actual~~ ***Actual Net Interchange*** (NI_A) and the cumulative hourly net Interchange energy measurement (in megawatt-hours).

4. **Compliance Elements:** Are the compliance elements associated with the requirements (Measures, Data Retention, Violation Risk Factors (VRF), and Violation Severity Levels (VSL)) consistent with the

direction of the Reliability Assurance Initiative and FERC and NERC guidelines? If you answered "No," please identify which elements require revision, and why:

☐ Yes

☒ No

The standard drafting team will address compliance elements.

5. **Consistency with Other Reliability Standards:** Does the Reliability Standard need to be revised for formatting and language consistency among requirements within the Reliability Standard or consistency with other Reliability Standards? If you answered "Yes," please describe the changes needed to achieve formatting and language consistency:

   ☒ Yes

   ☐ No

   As noted above, the PRT recommends a thorough review of all of the NERC Standards, all terms in BAL-005 and -006, and the NERC Glossary to determine if the Interchange-related terms associated with the subject standards are used or defined appropriately. For example, the PRT noted that BAL-005 R10 is written as if "Net Scheduled Interchange" is the value used in the ACE equation; however, Net Scheduled Interchange has two meanings – the algebraic sum of all Interchange Schedules across a given path, or between Balancing Authorities for a given period or instant in time. Also, the PRT could not find a definition of Scheduled Interchange as used in BAL-005 R11.

6. **Changes in Technology, System Conditions, or other Factors:** Does the Reliability Standard need to be revised to account for changes in technology, system conditions, or other factors? If you answered "Yes," please describe the changes and specifically what the potential impact is to reliability if the Reliability Standard is not revised:

   ☐ Yes

   ☒ No

7. **Consideration of Generator Interconnection Facilities:** Is responsibility for generator interconnection Facilities appropriately accounted for in the Reliability Standard?

   ☒ Yes

   ☐ No

Guiding Questions:

If the Reliability Standard is applicable to GOs/GOPs, is there any ambiguity about the inclusion of generator interconnection Facilities? (If generation interconnection Facilities could be perceived to be excluded, specific language referencing the Facilities should be introduced in the Reliability Standard.)

If the Reliability Standard is not applicable to GOs/GOPs, is there a reliability-related need for treating generator interconnection Facilities as transmission lines for the purposes of this Reliability Standard? (If so, GOs and GOPs that own or operate relevant generator interconnection Facilities should be explicit in the applicability section of the Reliability Standard.)

As indicated in the detail provided for BAL-005 R1, the PRT proposes that the GOP requirement to have its resource facilities within the metered boundaries of a BA be moved to an FAC requirement as no MWs should be generated prior to such arrangements.

Recommendation

The answers to the questions above, along with a preliminary recommendation of the Review Team, will be posted for a 45-day comment period, and the comments publicly posted. The Review Team will review the comments to evaluate whether to modify its initial recommendation, and will document the final recommendation which will be presented to the Standards Committee.

Preliminary Recommendation (to be completed by the Review Team after its review and prior to posting the results of the review for industry comment):

- ☐ REAFFIRM
- ☒ REVISE
- ☐ RETIRE

Technical Justification *(If the Review Team recommends that the Reliability Standard be revised, a draft SAR may be included and the technical justification included in the SAR)*: See the attached draft SAR.

Preliminary Recommendation posted for industry comment (date): February 21, 2014

Final Recommendation (to be completed by the Review Team after it has reviewed industry comments on the preliminary recommendation):

- ☐ REAFFIRM *(This should only be checked if there are no outstanding directives, interpretations or issues identified by stakeholders.)*
- ☐ REVISE
- ☐ RETIRE

Technical Justification *(If the Review Team recommends that the Reliability Standard be revised, a draft SAR may be included and the technical justification included in the SAR)*:

Date submitted to NERC Staff:

Attachment 1: Results-Based Standards

The fourth question for NERC staff and the Review Team asks if the Reliability Standard needs to be converted to the results-based standards (RBS) format. The information below will be used by NERC staff and the Review Team in making this determination.

Transitioning the current body of standards into a clear, concise, and effective body will require a comprehensive application of the RBS concept. RBS concepts employ a defense-in-depth strategy for Reliability Standards development where each requirement has a role in preventing system failures, and the roles are complementary and reinforcing. Reliability Standards should be viewed as a portfolio of requirements designed to achieve an overall defense-in-depth strategy and comply with the quality objectives identified in the resource document titled, "Acceptance Criteria of a Reliability Standard."

Accordingly, the Review Team shall consider whether the Reliability Standard contains results-based requirements with sufficient clarity to hold entities accountable without being overly prescriptive as to how a specific reliability outcome is to be achieved. The RBS concept, properly applied, addresses the clarity and effectiveness aspects of a standard.

A Reliability Standard that adheres to the RBS format should strive to achieve a portfolio of performance-, risk-, and competency-based mandatory reliability requirements that support an effective defense-in-depth strategy. Each requirement should identify a clear and measurable expected outcome, such as: a) a stated level of reliability performance, b) a reduction in a specified reliability risk, or c) a necessary competency.

a. **Performance-Based**—defines a particular reliability objective or outcome to be achieved. In its simplest form, a results-based requirement has four components: who, under what conditions (if any), shall perform what action, to achieve what particular result or outcome?

b. **Risk-Based**—preventive requirements to reduce the risks of failure to acceptable tolerance levels. A risk-based reliability requirement should be framed as: who, under what conditions (if any), shall perform what action, to achieve what particular result or outcome that reduces a stated risk to the reliability of the bulk power system?

c. **Competency-Based**—defines a minimum set of capabilities an entity needs to have to demonstrate it is able to perform its designated reliability functions. A competency-based reliability requirement should be framed as: who, under what conditions (if any), shall have what capability, to achieve what particular result or outcome to perform an action to achieve a result or outcome or to reduce a risk to the reliability of the bulk power system?

Additionally, each RBS-adherent Reliability Standard should enable or support one or more of the eight reliability principles listed below. Each Reliability Standard should also be consistent with all of the reliability principles.

1. Interconnected bulk power systems shall be planned and operated in a coordinated manner to perform reliably under normal and abnormal conditions as defined in the NERC Standards.

2. The frequency and voltage of interconnected bulk power systems shall be controlled within defined limits through the balancing of real and reactive power supply and demand.

3. Information necessary for the planning and operation of interconnected bulk power systems shall be made available to those entities responsible for planning and operating the systems reliably.

4. Plans for emergency operation and system restoration of interconnected bulk power systems shall be developed, coordinated, maintained, and implemented.

5. Facilities for communication, monitoring, and control shall be provided, used, and maintained for the reliability of interconnected bulk power systems.

6. Personnel responsible for planning and operating interconnected bulk power systems shall be trained, qualified, and have the responsibility and authority to implement actions.

7. The reliability of the interconnected bulk power systems shall be assessed, monitored, and maintained on a wide-area basis.

8. Bulk power systems shall be protected from malicious physical or cyber attacks.

If the Reliability Standard does not provide for a portfolio of performance-, risk-, and competency-based requirements or consistency with NERC's reliability principles, NERC staff and the Review Team should recommend that the Reliability Standard be revised or reformatted in accordance with the RBS format.

Attachment 2: Paragraph 81 Criteria

The first question for the Review Team asks if one or more of the requirements in the Reliability Standard meet(s) criteria for retirement or modification based on Paragraph 81 concepts.[3] Use the Paragraph 81 criteria explained below to make this determination. Document the justification for the decisions throughout and provide them in the final assessment in the Periodic Review Template.

For a Reliability Standard requirement to be proposed for retirement or modification based on Paragraph 81 concepts, it must satisfy **both**: (i) Criterion A (the overarching criterion); and (ii) at least one of the Criteria B listed below (identifying criteria). In addition, for each Reliability Standard requirement proposed for retirement or modification, the data and reference points set forth below in Criteria C should be considered for making a more informed decision.

Criterion A (Overarching Criterion)

The Reliability Standard requirement requires responsible entities ("entities") to conduct an activity or task that does little, if anything, to benefit or protect the reliable operation of the BES.

Section 215(a) (4) of the United States Federal Power Act defines "reliable operation" as: "… operating the elements of the bulk power system within equipment and electric system thermal, voltage, and stability limits so that instability, uncontrolled separation, or cascading failures of such system will not occur as a result of a sudden disturbance, including a cybersecurity incident, or unanticipated failure of system elements."

Criteria B (Identifying Criteria)

B1. Administrative

The Reliability Standard requirement requires responsible entities to perform a function that is administrative in nature, does not support reliability and is needlessly burdensome.

This criterion is designed to identify requirements that can be retired or modified with little effect on reliability and whose retirement or modification will result in an increase in the efficiency of the ERO compliance program. Administrative functions may include a task that is related to developing procedures or plans, such as establishing communication contacts. Thus, for certain requirements, Criterion B1 is closely related to Criteria B2, B3 and B4. Strictly administrative functions do not inherently negatively impact reliability directly and, where possible, should be eliminated or modified for purposes of efficiency and to allow the ERO and entities to appropriately allocate resources.

[3] In most cases, satisfaction of the Paragraph 81 criteria will result in the retirement of a requirement. In some cases, however, there may be a way to modify a requirement so that it no longer satisfies Paragraph 81 criteria. Recognizing that, this document refers to both options.

B2. Data Collection/Data Retention
These are requirements that obligate responsible entities to produce and retain data which document prior events or activities, and should be collected via some other method under NERC's rules and processes.

This criterion is designed to identify requirements that can be retired or modified with little effect on reliability. The collection and/or retention of data do not necessarily have a reliability benefit and yet are often required to demonstrate compliance. Where data collection and/or data retention is unnecessary for reliability purposes, such requirements should be retired or modified in order to increase the efficiency of the ERO compliance program.

B3. Documentation
The Reliability Standard requirement requires responsible entities to develop a document (*e.g.,* plan, policy or procedure) which is not necessary to protect reliability of the bulk power system.

This criterion is designed to identify requirements that require the development of a document that is unrelated to reliability or has no performance or results-based function. In other words, the document is required, but no execution of a reliability activity or task is associated with or required by the document.

B4. Reporting
The Reliability Standard requirement obligates responsible entities to report to a Regional Entity, NERC or another party or entity. These are requirements that obligate responsible entities to report to a Regional Entity on activities which have no discernible impact on promoting the reliable operation of the BES and if the entity failed to meet this requirement there would be little reliability impact.

B5. Periodic Updates
The Reliability Standard requirement requires responsible entities to periodically update (*e.g.,* annually) documentation, such as a plan, procedure or policy without an operational benefit to reliability.

This criterion is designed to identify requirements that impose an updating requirement that is out of sync with the actual operations of the BES, unnecessary, or duplicative.

B6. Commercial or Business Practice
The Reliability Standard requirement is a commercial or business practice, or implicates commercial rather than reliability issues.

This criterion is designed to identify those requirements that require: (i) implementing a best or outdated business practice or (ii) implicating the exchange of or debate on commercially sensitive information while doing little, if anything, to promote the reliable operation of the BES.

B7. Redundant
The Reliability Standard requirement is redundant with: (i) another FERC-approved Reliability Standard requirement(s); (ii) the ERO compliance and monitoring program; or (iii) a governmental regulation (*e.g.,* Open Access Transmission Tariff, North American Energy Standards Board ("NAESB"), etc.).

This criterion is designed to identify requirements that are redundant with other requirements and are, therefore, unnecessary. Unlike the other criteria listed in Criterion B, in the case of redundancy, the task or activity itself may contribute to a reliable BES, but it is not necessary to have two duplicative requirements on the same or similar task or activity. Such requirements can be retired or modified with little or no effect on reliability and removal will result in an increase in efficiency of the ERO compliance program.

Criteria C (Additional data and reference points)
Use the following data and reference points to assist in the determination of (and justification for) whether to proceed with retirement or modification of a Reliability Standard requirement that satisfies both Criteria A and B:

C1. Was the Reliability Standard requirement part of a FFT filing?
The application of this criterion involves determining whether the requirement was included in a FFT filing.

C2. Is the Reliability Standard requirement being reviewed in an ongoing Standards Development Project?
The application of this criterion involves determining whether the requirement proposed for retirement or modification is part of an active Standards Development Project, with consideration for the status of the project. If the requirement has been approved by Registered Ballot Body and is scheduled to be presented to the NERC Board of Trustees, in most cases it will not need to be addressed in the periodic review. The exception would be a requirement, such as the Critical Information Protection (CIP) requirements for Version 3 and 4, that is not due to be retired for an extended period of time. Also, for informational purposes, whether the requirement is included in a future or pending Standards Development Project should be identified and discussed.

C3. What is the VRF of the Reliability Standard requirement?
The application of this criterion involves identifying the VRF of the requirement proposed for retirement or modification, with particular consideration of any requirement that has been assigned as having a Medium or High VRF. Also, the fact that a requirement has a Lower VRF is not dispositive that

it qualifies for retirement or modification. In this regard, Criterion C3 is considered in light of Criterion C5 (Reliability Principles) and C6 (Defense in Depth) to ensure that no reliability gap would be created by the retirement or modification of the Lower VRF requirement. For example, no requirement, including a Lower VRF requirement, should be retired or modified if doing so would harm the effectiveness of a larger scheme of requirements that are purposely designed to protect the reliable operation of the BES.

C4. In which tier of the most recent Actively Monitored List (AML) does the Reliability Standard requirement fall?

The application of this criterion involves identifying whether the requirement proposed for retirement or modification is on the most recent AML, with particular consideration for any requirement in the first tier of the AML.

C5. Is there a possible negative impact on NERC's published and posted reliability principles?

The application of this criterion involves consideration of the eight following reliability principles published on the NERC webpage.

Reliability Principles

NERC Reliability Standards are based on certain reliability principles that define the foundation of reliability for North American bulk power systems. Each reliability standard shall enable or support one or more of the reliability principles, thereby ensuring that each standard serves a purpose in support of reliability of the North American bulk power systems. Each reliability standard shall also be consistent with all of the reliability principles, thereby ensuring that no standard undermines reliability through an unintended consequence.

Principle 1. Interconnected bulk power systems shall be planned and operated in a coordinated manner to perform reliably under normal and abnormal conditions as defined in the NERC Standards.

Principle 2. The frequency and voltage of interconnected bulk power systems shall be controlled within defined limits through the balancing of real and reactive power supply and demand.

Principle 3. Information necessary for the planning and operation of interconnected bulk power systems shall be made available to those entities responsible for planning and operating the systems reliably.

Principle 4. Plans for emergency operation and system restoration of interconnected bulk power systems shall be developed, coordinated, maintained, and implemented.

Principle 5. Facilities for communication, monitoring, and control shall be provided, used, and maintained for the reliability of interconnected bulk power systems.

Principle 6. Personnel responsible for planning and operating interconnected bulk power systems shall be trained, qualified, and have the responsibility and authority to implement actions.

Principle 7. The reliability of the interconnected bulk power systems shall be assessed, monitored, and maintained on a wide-area basis.

Principle 8. Bulk power systems shall be protected from malicious physical or cyber attacks. (footnote omitted).

C6. Is there any negative impact on the defense in depth protection of the BES?
The application of this criterion considers whether the requirement proposed for retirement or modification is part of a defense in depth protection strategy. In order words, the assessment is to verify whether other requirements rely on the requirement proposed for retirement or modification to protect the BES.

C7. Does the retirement or modification promote results or performance based Reliability Standards?
The application of this criterion considers whether the requirement, if retired or modified, will promote the initiative to implement results- and/or performance-based Reliability Standards.