

A. Introduction

1. **Title:** Balancing Authority Control
2. **Number:** BAL-005-1
3. **Purpose:** This standard establishes requirements for acquiring data necessary to calculate Reporting Area Control Error (Reporting ACE). The standard also specifies a minimum periodicity, accuracy, and availability requirement for acquisition of the data and for providing the information to the System Operator.
4. **Applicability:**
 - 4.1. **Functional Entities:**
 - 4.1.1. Balancing Authority

Effective Date: See Implementation Plan for BAL-005-1

B. Requirements and Measures

- R1. The Balancing Authority shall use a design scan rate of no more than six seconds in acquiring data necessary to calculate Reporting ACE. [*Violation Risk Factor: Medium*] [*Time Horizon: Real-time Operations*]
- M1. Each Balancing Authority will have dated documentation demonstrating that the data necessary to calculate Reporting ACE was designed to be scanned at a rate of no more than six seconds. Acceptable evidence may include historical data, dated archive files; or data from other databases, spreadsheets, or displays that demonstrate compliance.
- R2. A Balancing Authority that is unable to calculate Reporting ACE for more than 30-consecutive minutes shall notify its Reliability Coordinator within 45 minutes of the beginning of the inability to calculate Reporting ACE. [*Violation Risk Factor: Medium*] [*Time Horizon: Real-time Operations*]
- M2. Each Balancing Authority will have dated records to show when it was unable to calculate Reporting ACE for more than 30 consecutive minutes and that it notified its Reliability Coordinator within 45 minutes of the beginning of the inability to calculate Reporting ACE. Such evidence may include, but is not limited to, dated voice recordings, operating logs, or other communication documentation.
- R3. Each Balancing Authority shall use frequency metering equipment for the calculation of Reporting ACE: [*Violation Risk Factor: Medium*] [*Time Horizon: Real-time Operations*]
 - 3.1. that is available a minimum of 99.95% for each calendar year; and,
 - 3.2. with a minimum accuracy of 0.001 Hz.

- M3.** The Balancing Authority shall have evidence such as dated documents or other evidence in hard copy or electronic format showing the frequency metering equipment used for the calculation of Reporting ACE had a minimum availability of 99.95% for each calendar year and had a minimum accuracy of 0.001 Hz to demonstrate compliance with Requirement R3.
- R4.** The Balancing Authority shall make available to the operator information associated with Reporting ACE including, but not limited to, quality flags indicating missing or invalid data. *[Violation Risk Factor: Medium] [Time Horizon: Real-time Operations]*
- M4.** Each Balancing Authority Area shall have evidence such as a graphical display or dated alarm log that provides indication of data validity for the real-time Reporting ACE based on both the calculated result and all of the associated inputs therein.
- R5.** Each Balancing Authority's system used to calculate Reporting ACE shall be available a minimum of 99.5% of each calendar year. *[Violation Risk Factor: Medium] [Time Horizon: Operations Assessment]*
- M5.** Each Balancing Authority will have dated documentation demonstrating that the system necessary to calculate Reporting ACE has a minimum availability of 99.5% for each calendar year. Acceptable evidence may include historical data, dated archive files; or data from other databases, spreadsheets, or displays that demonstrate compliance.
- R6.** Each Balancing Authority that is within a multiple Balancing Authority Interconnection shall implement an Operating Process to identify and mitigate errors affecting the accuracy of scan rate data used in the calculation of Reporting ACE for each Balancing Authority Area. *[Violation Risk Factor: Medium] [Time Horizon: Same-day Operations]*
- M6.** Each Balancing Authority shall have a current Operating Process meeting the provisions of Requirement R6 and evidence to show that the process was implemented, such as dated communications or incorporation in System Operator task verification.
- R7.** Each Balancing Authority shall ensure that each Tie-Line, Pseudo-Tie, and Dynamic Schedule with an Adjacent Balancing Authority is equipped with: *[Violation Risk Factor: Medium] [Time Horizon: Operations Planning]*
- 7.1.** a common source to provide information to both Balancing Authorities for the scan rate values used in the calculation of Reporting ACE; and,
- 7.2.** a time synchronized common source to determine hourly megawatt-hour values agreed-upon to aid in the identification and mitigation of errors.
- M7.** The Balancing Authority shall have dated evidence such as voice recordings or transcripts, operator logs, electronic communications, or other equivalent evidence that will be used to demonstrate a common source for the components used in the calculation of Reporting ACE with its Adjacent Balancing Authority.

C. Compliance

1. Compliance Monitoring Process

1.1. Compliance Enforcement Authority

As defined in the NERC Rules of Procedure, “Compliance Enforcement Authority” means NERC or the Regional Entity in their respective roles of monitoring and enforcing compliance with the NERC Reliability Standards.

1.2. Evidence Retention

The following evidence retention period(s) identify the period of time an entity is required to retain specific evidence to demonstrate compliance. For instances where the evidence retention period specified below is shorter than the time since the last audit, the Compliance Enforcement Authority may ask an entity to provide other evidence to show that it was compliant for the full-time period since the last audit.

The applicable entity shall keep data or evidence to show compliance as identified below unless directed by its Compliance Enforcement Authority to retain specific evidence for a longer period of time as part of an investigation.

- The applicable entity shall keep data or evidence to show compliance for the current year, plus three previous calendar years.

1.3. Compliance Monitoring and Assessment Processes:

As defined in the NERC Rules of Procedure, “Compliance Monitoring and Assessment Processes” refers to the identification of the processes that will be used to evaluate data or information for the purpose of assessing performance or outcomes with the associated Reliability Standard.

1.4. Additional Compliance Information

None

Table of Compliance Elements

| R # | Time Horizon | VRF | Violation Severity Levels | | | |
|-----|----------------------|--------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|
| | | | Lower VSL | Moderate VSL | High VSL | Severe VSL |
| R1. | Real-time Operations | Medium | N/A | N/A | N/A | Balancing Authority was using a design scan rate of greater than six seconds to acquire the data necessary to calculate Reporting ACE. |
| R2. | Real-time Operations | Medium | The Balancing Authority failed to notify its Reliability Coordinator within 45 minutes of the beginning of the inability to calculate Reporting ACE but notified its Reliability Coordinator in less than or equal to 50 minutes from the beginning of the | The Balancing Authority failed to notify its Reliability Coordinator within 50 minutes of the beginning of an inability to calculate Reporting ACE but notified its Reliability Coordinator in less than or equal to 55 minutes from the beginning of an | The Balancing Authority failed to notify its Reliability Coordinator within 55 minutes of the beginning of an inability to calculate Reporting ACE but notified its Reliability Coordinator in less than or equal to 60 minutes from the beginning of an | The Balancing Authority failed to notify its Reliability Coordinator within 60 minutes of the beginning of an inability to calculate Reporting ACE. |

| | | | inability to calculate Reporting ACE. | inability to calculate Reporting ACE. | inability to calculate Reporting ACE. | |
|-----|----------------------|--------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| R3. | Real-time Operations | Medium | The Balancing Authority's frequency metering equipment used for the calculation of Reporting ACE was available less than 99.95% of the calendar year but was available greater than or equal to 99.94 % of the calendar year. | The Balancing Authority's frequency metering equipment used for the calculation of Reporting ACE was available less than 99.94% of the calendar year but was available greater than or equal to 99.93 % of the calendar year. | The Balancing Authority's frequency metering equipment used for the calculation of Reporting ACE was available less than 99.93% of the calendar year but was available greater than or equal to 99.92 % of the calendar year. | The Balancing Authority's frequency metering equipment used for the calculation of Reporting ACE was available less than 99.92% of the calendar year Or The Balancing Authority's frequency metering equipment used for the calculation of Reporting ACE failed to have a minimum accuracy of 0.001 Hz. |
| R4. | Real-time Operations | Medium | N/A | N/A | N/A | The Balancing Authority failed to make available information indicating missing or invalid data associated with |

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|-----|-----------------------|--------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | | | | | | Reporting ACE to its operators. |
| R5. | Operations Assessment | Medium | The Balancing Authority’s system used for the calculation of Reporting ACE was available less than 99.5% of the calendar year but was available greater than or equal to 99.4 % of the calendar year. | The Balancing Authority’s system used for the calculation of Reporting ACE was available less than 99.4% of the calendar year but was available greater than or equal to 99.3 % of the calendar year. | The Balancing Authority’s system used for the calculation of Reporting ACE was available less than 99.3% of the calendar year but was available greater than or equal to 99.2 % of the calendar year. | The Balancing Authority’s system used for the calculation of Reporting ACE was available less than 99.2% of the calendar year. |
| R6. | Same-day Operations | Medium | N/A | N/A | N/A | The Balancing Authority failed to implement an Operating Process to identify and mitigate errors affecting the scan-rate accuracy of data used in the calculation of Reporting ACE. |
| R7. | Operations Planning | Medium | N/A | N/A | N/A | The Balancing Authority failed to use a common source for Tie-Lines, Pseudo-ties and Dynamic |

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|--|--|--|--|--|--|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | | | | | | <p>Schedules with its Adjacent Balancing Authorities</p> <p>Or</p> <p>The Balancing Authority failed to use a time synchronized common source for hourly megawatt hour values that are agreed-upon to aid in the identification and mitigation of errors.</p> |
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D. Regional Variances

None.

E. Interpretations

None.

F. Associated Documents

None.

Version History

| Version | Date | Action | Change Tracking |
|---------|--------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|
| 0 | February 8, 2005 | Adopted by NERC Board of Trustees | New |
| 0 | April 1, 2005 | Effective Date | New |
| 0 | August 8, 2005 | Removed “Proposed” from Effective Date | Errata |
| 0a | December 19, 2007 | Added Appendix 1 – Interpretation of R17 approved by BOT on May 2, 2007 | Addition |
| 0a | January 16, 2008 | Section F: added “1.”; changed hyphen to “en dash.” Changed font style for “Appendix 1” to Arial | Errata |
| 0b | February 12, 2008 | Replaced Appendix 1 – Interpretation of R17 approved by BOT on February 12, 2008 (BOT approved retirement of Interpretation included in BAL-005-0a) | Replacement |
| 0.1b | October 29, 2008 | BOT approved errata changes; updated version number to “0.1b” | Errata |
| 0.1b | May 13, 2009 | FERC approved – Updated Effective Date | Addition |
| 0.2b | March 8, 2012 | Errata adopted by Standards Committee; (replaced Appendix 1 with the FERC-approved revised interpretation of R17 and corrected standard version referenced in Interpretation by changing from “BAL-005-1” to “BAL-005-0) | Errata |
| 0.2b | September 13, 2012 | FERC approved – Updated Effective Date | Addition |

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| 0.2b | February 7, 2013 | R2 and associated elements approved by NERC Board of Trustees for retirement as part of the Paragraph 81 project (Project 2013-02) pending applicable regulatory approval. | |
| 0.2b | November 21, 2013 | R2 and associated elements approved by FERC for retirement as part of the Paragraph 81 project (Project 2013-02) effective January 21, 2014. | |
| 1 | February 11, 2016 | Adopted by NERC Board of Trustees | Complete re-write of standard |
| 1 | September 20, 2017 | FERC Order No. 836 approved BAL-005-1. | |
| 1 | April 20, 2020 | The Guidelines and Technical Basis (including the Technical Rationale) section of the standard was removed and placed into a separate document. Because no changes were made to the mandatory and enforceable elements of the standard, the version number remains unchanged. | Technical Rationale Initiative |