

# Implementation Plan

## Project 2010-14.1 Balancing Authority Reliability-based Controls - Reserves

### Implementation Plan for BAL-001-2 – Real Power Balancing Control Performance

#### **Approvals Required**

BAL-001-2 – Real Power Balancing Control Performance

#### **Prerequisite Approvals**

None

#### **Revisions to Glossary Terms**

The following definitions shall become effective when BAL-001-2 becomes effective:

**Regulation Reserve Sharing Group:** A group whose members consist of two or more Balancing Authorities that collectively maintain, allocate, and supply the regulating reserve required for all member Balancing Authorities to use in meeting applicable regulating standards.

**Regulation Reserve Sharing Group Reporting ACE:** At any given time of measurement for the applicable Regulation Reserve Sharing Group, the algebraic sum of the Reporting ACEs (as calculated at such time of measurement) of the Balancing Authorities participating in the Regulation Reserve Sharing Group at the time of measurement.

**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 net actual Interchange and its scheduled Interchange, plus its Frequency Bias obligation, plus any known meter error.

Reporting ACE is calculated as follows:

$$\text{Reporting ACE} = (NI_A - NI_S) - 10B (F_A - F_S) - I_{ME}$$

Where:

**NI<sub>A</sub> (Actual Net Interchange)** is the algebraic sum of actual megawatt transfers across all Tie Lines and includes Pseudo-Ties. Balancing Authorities directly connected via asynchronous ties to another Interconnection may include or exclude megawatt transfers on those tie lines in their actual interchange, provided they are implemented in the same manner for Net Interchange Schedule.

**NI<sub>S</sub> (Scheduled Net Interchange)** is the algebraic sum of all scheduled megawatt transfers, including Dynamic Schedules, with adjacent 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 megawatt transfers on those tie lines in their scheduled Interchange, provided they are implemented in the same manner for Net Interchange Actual.

**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<sub>A</sub> (Actual Frequency)** is the measured frequency in Hz.

**F<sub>S</sub> (Scheduled Frequency)** is 60.0 Hz, except during a time correction.

**I<sub>ME</sub> (Interchange Meter Error)** is the meter error correction factor and represents the difference between the integrated hourly average of the net interchange actual (NIA) and the cumulative hourly net Interchange energy measurement (in megawatt-hours).

All NERC Interconnections with multiple Balancing Authorities operate using the principles of Tie-line Bias (TLB) Control and require the use of an ACE equation similar to the Reporting ACE defined above. Any modification(s) to this specified Reporting ACE equation that is(are) implemented for all BAs on an interconnection and is(are) consistent with the following four principles will provide a valid alternative Reporting ACE equation consistent with the measures included in this standard.

1. All portions of the interconnection are included in one area or another so that the sum of all area generation, loads and losses is the same as total system generation, load and losses.
2. The algebraic sum of all area net interchange schedules and all net interchange actual values is equal to zero at all times.
3. The use of a common scheduled frequency FS for all areas at all times.
4. The absence of metering or computational errors. (The inclusion and use of the IME term to account for known metering or computational errors.)

**Interconnection:** When capitalized, any one of the four major electric system networks in North America: Eastern, Western, ERCOT and Quebec.

The existing definition of Interconnection should be retired at midnight of the day immediately prior to the effective date of BAL-001-2, in the jurisdiction in which the new standard is becoming effective.

The proposed revised definition for “Interconnection” is incorporated in the NERC approved standards, detailed in Attachment 1 of this document.

***Applicable Entities***

Balancing Authority

Regulation Reserve Sharing Group

***Applicable Facilities***

N/A

***Conforming Changes to Other Standards***

None

***Effective Dates***

BAL-001-2 shall become effective as follows:

First day of the first calendar quarter that is six months beyond the date that this standard is approved by applicable regulatory authorities, or in those jurisdictions where regulatory approval is not required, the standard becomes effective the first day of the first calendar quarter that is six months beyond the date this standard is approved by the NERC Board of Trustees, or as otherwise made effective pursuant to the laws applicable to such ERO governmental authorities.

***Justification***

The six-month period for implementation of BAL-001-2 will provide ample time for Balancing Authorities to make necessary modifications to existing software programs to perform the BAAL calculations for compliance.

***Retirements***

BAL-001-0.1a – Real Power Balancing Control Performance should be retired at midnight of the day immediately prior to the effective date of BAL-001-2 in the particular jurisdiction in which the new standard is becoming effective.

**Attachment 1**  
**Approved Standards Incorporating the Term “Interconnection”**

BAL-001-0.1a — Real Power Balancing Control Performance  
 BAL-002-0 — Disturbance Control Performance  
 BAL-002-1 — Disturbance Control Performance  
 BAL-003-0.1b — Frequency Response and Bias  
 BAL-004-0 — Time Error Correction  
 BAL-004-1 — Time Error Correction  
 BAL-004-WECC-01 — Automatic Time Error Correction  
 BAL-005-0.1b — Automatic Generation Control  
 BAL-006-2 — Inadvertent Interchange  
 WECC Standard BAL-STD-002-1 - Operating Reserves  
 CIP-001-1a — Sabotage Reporting  
 CIP-001-2a — Sabotage Reporting  
 CIP-002-4 — Cyber Security — Critical Cyber Asset Identification  
 CIP-005-3a — Cyber Security — Electronic Security Perimeter(s)  
 COM-001-1.1 — Telecommunications  
 EOP-001-2b — Emergency Operations Planning  
 EOP-002-2.1 — Capacity and Energy Emergencies  
 EOP-002-3 — Capacity and Energy Emergencies  
 EOP-003-1 — Load Shedding Plans  
 EOP-003-2 — Load Shedding Plans  
 EOP-004-1 — Disturbance Reporting  
 EOP-005-1 — System Restoration Plans  
 EOP-005-2 — System Restoration from Blackstart Resources  
 EOP-006-1 — Reliability Coordination — System Restoration  
 EOP-006-2 — System Restoration Coordination  
 FAC-008-3 — Facility Ratings  
 FAC-010-2 — System Operating Limits Methodology for the Planning Horizon  
 FAC-011-2 — System Operating Limits Methodology for the Operations Horizon  
 INT-005-3 — Interchange Authority Distributes Arranged Interchange  
 INT-006-3 — Response to Interchange Authority  
 INT-008-3 — Interchange Authority Distributes Status  
 IRO-001-1.1 — Reliability Coordination — Responsibilities and Authorities  
 IRO-001-2 — Reliability Coordination — Responsibilities and Authorities  
 IRO-002-1 — Reliability Coordination — Facilities  
 IRO-002-2 — Reliability Coordination — Facilities  
 IRO-004-1 — Reliability Coordination — Operations Planning  
 IRO-005-2a — Reliability Coordination — Current Day Operations

IRO-005-3a — Reliability Coordination — Current Day Operations  
IRO-006-5 — Reliability Coordination — Transmission Loading Relief  
IRO-006-EAST-1 — TLR Procedure for the Eastern Interconnection  
IRO-014-1 — Procedures, Processes, or Plans to Support Coordination Between Reliability Coordinators  
IRO-014-2 — Coordination Among Reliability Coordinators  
IRO-015-1 — Notifications and Information Exchange Between Reliability Coordinators  
IRO-016-1 — Coordination of Real-time Activities Between Reliability Coordinators  
MOD-010-0 — Steady-State Data for Transmission System Modeling and Simulation  
MOD-011-0 — Regional Steady-State Data Requirements and Reporting Procedures  
MOD-012-0 — Dynamics Data for Transmission System Modeling and Simulation  
MOD-013-1 — RRO Dynamics Data Requirements and Reporting Procedures  
MOD-014-0 — Development of Interconnection-Specific Steady State System Models  
MOD-015-0 — Development of Interconnection-Specific Dynamics System Models  
MOD-015-0.1 — Development of Interconnection-Specific Dynamics System Models  
MOD-030-02 — Flowgate Methodology  
PRC-001-1 — System Protection Coordination  
PRC-006-1 — Automatic Underfrequency Load Shedding  
TOP-002-2a — Normal Operations Planning  
TOP-004-2 — Transmission Operations  
TOP-005-1.1a — Operational Reliability Information  
TOP-005-2a — Operational Reliability Information  
TOP-008-1 — Response to Transmission Limit Violations  
VAR-001-1 — Voltage and Reactive Control  
VAR-001-2 — Voltage and Reactive Control  
VAR-002-1.1b — Generator Operation for Maintaining Network Voltage Schedules