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

North American Electric Reliability )  
Corporation )

Docket No. \_\_\_\_\_

**JOINT PETITION OF THE  
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION AND  
WESTERN ELECTRICITY COORDINATING COUNCIL FOR APPROVAL OF  
PROPOSED REGIONAL RELIABILITY STANDARD BAL-004-WECC-3**

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Reliability Standard; (ii) the associated Violation Risk Factors (“VRFs”) and Violation Severity Levels (“VSLs”) (**Exhibits A and C**); and (iii) the retirement of existing regional Reliability Standard BAL-004-WECC-2. The NERC Board of Trustees adopted proposed regional Reliability Standard BAL-004-WECC-3 on February 8, 2018.

As required by Section 39.5(a)<sup>5</sup> of the Commission’s regulations, this petition presents the technical basis and purpose of proposed regional Reliability Standard BAL-004-WECC-3; a demonstration that the proposed regional Reliability Standard meets the criteria identified by the Commission in Order No. 672<sup>6</sup> (**Exhibit C**); and a summary of the development history (**Exhibit D**).

## **I. EXECUTIVE SUMMARY**

The purpose of proposed regional Reliability Standard BAL-004-WECC-3 is to maintain Interconnection frequency and to ensure that Time Error Corrections and PII payback are effectively conducted in a manner that does not adversely affect the reliability of the Western Interconnection. Proposed regional Reliability Standard BAL-004-WECC-3 includes requirements that address the following: limits on the maximum accumulated PII; the deadline for correcting an error in PII; keeping Automatic Time Error Correction (“ATEC”) in service with allowable exceptions; calculating hourly PII, accumulated PII, and ATEC; changing Automatic Generation Control operating modes to correspond to current operating conditions; recalculating the hourly PII and accumulated PII whenever adjustments are made to hourly Inadvertent

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<sup>5</sup> 18 C.F.R. § 39.5(a) (2017).

<sup>6</sup> The Commission specified in Order No. 672 certain general factors it would consider when assessing whether a particular Reliability Standard is just and reasonable. *See Rules Concerning Certification of the Electric Reliability Organization; and Procedures for the Establishment, Approval, and Enforcement of Electric Reliability Standards*, Order No. 672, FERC Stats. & Regs. ¶ 31,204, at P 262, 321-37, *order on reh’g*, Order No. 672-A, FERC Stats. & Regs. ¶ 31,212 (2006) (“Order No. 672”).

Interchange; adjusting accumulated PII based on any month-end meter reading adjustments to Inadvertent Interchange; and using ATEC for Inadvertent Interchange payback.

Proposed regional Reliability Standard BAL-004-WECC-3 improves upon the existing standard by referencing the WECC Interchange Tool (“WIT”) and refining language in Requirement R1, as explained further below. Requiring Balancing Authorities operating synchronously in WECC to operate to centralized calculations of accumulated PII made in the WIT or successor electronic tool provides clarity on the source data. WECC also changed the action required of Balancing Authorities from “verify” to “operate its system” in Requirement R1. In addition, WECC restructured the language of Requirement R1 to comport with the revised action. Development of the proposed standard followed Commission-approved standards development processes and included subject matter experts with experience in Balancing Authority operations in the Western Interconnection.

NERC and WECC respectfully request the Commission approve proposed regional Reliability Standard BAL-004-WECC-3, the associated VRFs and VSLs, the Implementation Plan, and the retirement of the existing regional Reliability Standard BAL-004-WECC-2. The following petition presents the justification for approval and supporting documentation.

## **II. NOTICES AND COMMUNICATIONS**

Notices and communications with respect to this filing may be addressed to the following:<sup>7</sup>

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## **III. BACKGROUND**

The following background information is provided below: (a) an explanation of the regulatory framework for NERC and regional Reliability Standards; (b) an explanation of the WECC Regional Reliability Standards development process; and (c) the history of Project WECC-0124 BAL-004-WECC-3 Automatic Time Error Correction Modification.

### **A. Regulatory Framework**

By enacting the Energy Policy Act of 2005,<sup>8</sup> Congress entrusted the Commission with the duties of approving and enforcing rules to ensure the reliability of the Nation's Bulk-Power System, and with the duties of certifying an ERO that would be charged with developing and

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<sup>7</sup> Persons to be included on the Commission's service list are identified by an asterisk. NERC respectfully requests a waiver of Rule 203 of the Commission's regulations, 18 C.F.R. § 385.203 (2017), to allow the inclusion of more than two persons on the service list in this proceeding.

<sup>8</sup> 16 U.S.C. § 824o (2012).

enforcing mandatory Reliability Standards, subject to Commission approval. Section 215(b)(1)<sup>9</sup> of the FPA states that all users, owners, and operators of the Bulk-Power System in the United States will be subject to Commission-approved Reliability Standards. Section 215(d)(5)<sup>10</sup> of the FPA authorizes the Commission to order the ERO to submit a new or modified Reliability Standard. Section 39.5(a)<sup>11</sup> of the Commission's regulations requires the ERO to file with the Commission for its approval each Reliability Standard that the ERO proposes should become mandatory and enforceable in the United States, and each modification to a Reliability Standard that the ERO proposes should be made effective.

The Commission has the regulatory responsibility to approve Reliability Standards that protect the reliability of the Bulk-Power System and to ensure that such Reliability Standards are just, reasonable, not unduly discriminatory or preferential, and in the public interest. Pursuant to Section 215(d)(2) of the FPA<sup>12</sup> and Section 39.5(c)<sup>13</sup> of the Commission's regulations, the Commission will give due weight to the technical expertise of the ERO with respect to the content of a Reliability Standard.

Similarly, the Commission approves regional Reliability Standards proposed by Regional Entities if the regional Reliability Standard is just, reasonable, not unduly discriminatory or preferential, and in the public interest.<sup>14</sup> In addition, Order No. 672 requires further criteria for regional Reliability Standards. A regional difference from a continent-wide Reliability Standard must either be: (1) more stringent than the continent-wide Reliability Standard, or (2) necessitated

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<sup>9</sup> *Id.* § 824o(b)(1).

<sup>10</sup> *Id.* § 824o(d)(5).

<sup>11</sup> 18 C.F.R. § 39.5(a) (2017).

<sup>12</sup> 16 U.S.C. § 824o(d)(2).

<sup>13</sup> 18 C.F.R. § 39.5(c)(1).

<sup>14</sup> Section 215(d)(2) of the FPA and 18 C.F.R. §39.5(a).

by a physical difference in the Bulk-Power System.<sup>15</sup> The Commission must give due weight to the technical expertise of a Regional Entity, like WECC, that is organized on an Interconnection-wide basis with respect to a regional Reliability Standard to be applicable within that Interconnection.<sup>16</sup>

## **B. WECC Regional Reliability Standards Development Process**

The proposed regional Reliability Standard was developed in an open and fair manner and in accordance with the Commission-approved WECC Reliability Standards Development Procedures.<sup>17</sup> In accepting NERC's delegation agreements with the Regional Entities, the Commission found that NERC's proposed common attributes for regional Reliability Standard development and WECC's Reliability Standards Development process provide for reasonable notice and opportunity for public comment, due process, openness, and a balance of interests in developing Reliability Standards and thus addresses certain of the criteria for approving Reliability Standards.<sup>18</sup> The development process is open to any person or entity that is an interested stakeholder. WECC considers the comments of all stakeholders, and a vote of stakeholders and the WECC Board of Directors is required to approve a WECC regional Reliability Standard. Once the standard is approved by the WECC Board of Directors, NERC posts the approved regional Reliability Standard for an additional comment period. Then the NERC Board of Trustees must adopt the regional Reliability Standard before the regional Reliability Standard is submitted to the Commission for approval.

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<sup>15</sup> *Rules Concerning Certification of the Electric Reliability Organization; and Procedures for the Establishment, Approval, and Enforcement of Electric Reliability Standards*, Order No. 672, FERC Stats. & Regs. ¶ 31,204, at P 291, *order on reh'g*, Order No. 672-A, FERC Stats. & Regs. ¶ 31,212 (2006).

<sup>16</sup> Order No. 672 at P 344.

<sup>17</sup> *N. Am. Elec. Reliability Corp.*, Docket No. RR17-5-000 (Oct. 27, 2017) (unpublished letter order) (approving revised WECC Reliability Standards Development Procedures), available at <http://www.nerc.com/FilingsOrders/us/FERCOOrdersRules/Delegated%20Order%20Approving%20WECC%20RSD%20RR17-5.pdf>. The WECC Reliability Standards Development Procedures are available at <https://www.wecc.biz/Reliability/WECC%20Reliability%20Standards%20Development%20Procedures%20-%20FERC%20Approved%20October%2027%202017.pdf>.

<sup>18</sup> *Order Accepting ERO Compliance Filing, Accepting ERO/Regional Entity Delegation Agreements, and Accepting Regional Entity 2007 Business Plans*, 119 FERC ¶ 61,060 at P 17 (2007).



### **C. Development of Proposed Regional Reliability Standard**

As further described in Exhibit D hereto, proposed regional Reliability Standard BAL-004-WECC-3 was developed as part of an effort to improve upon regional Reliability Standard BAL-004-WECC-2, through a project entitled WECC-0124 Automatic Time Error Correction Modification. On August 28, 2017, the fourth and final draft of proposed regional Reliability Standard BAL-004-WECC-3 received the requisite approval from the registered ballot body, with a weighted approval of 97.6 percent. The WECC Board of Directors approved the standard on December 6, 2017 and submitted the proposed standard to the NERC Board of Trustees for adoption. NERC posted the proposed standard for a 45-day comment period concluding on January 16, 2018. There were no additional changes after this comment period. The NERC Board of Trustees adopted the standard on February 8, 2018.

### **IV. JUSTIFICATION FOR APPROVAL**

As discussed in detail in Exhibit C, proposed regional Reliability Standard BAL-004-WECC-3 – Automatic Time Error Correction is just, reasonable, not unduly discriminatory or preferential, and in the public interest. As described more fully herein and in Exhibit C, the proposed regional Reliability Standard provides reliability benefits for the Bulk-Power System in the WECC region.

As noted in previous petitions, ATEC reduces manual Time Error Corrections, reduces accumulated Inadvertent Interchange, and better identifies the Balancing Authorities responsible for the Inadvertent Interchange.<sup>19</sup> Interconnections aim to operate at a frequency of 60 Hertz

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<sup>19</sup> *Joint Petition of the North American Electric Reliability Corporation and Western Electricity Coordinating Council for Approval of BAL-004-WECC-02 and BAL-001-1*, Docket No. RD13-11-000 (Aug. 20, 2013) at 6-7 (“BAL-004-WECC-2 Petition”); *Petition of the North American Electric Reliability Corporation for Approval of One Proposed Western Electricity Coordinating Council Regional Reliability Standard Regarding Automatic Time Error Correction and Three Definitions*, Docket No. RM08-12-000 (July 29, 2008) at 8.

("Hz"). However, over time the average frequency may be above or below 60 Hz, resulting in Time Error.<sup>20</sup> This discrepancy in frequency results from a load-interchange-generation imbalance, which also causes Inadvertent Interchange.<sup>21</sup> Time Error Correction is "the procedure Reliability Coordinators and Balancing Authorities follow to reduce Time Error and regulate the average frequency closer to 60 Hz."<sup>22</sup> Manual Time Error Correction performs this offset to the frequency schedule as requested by an Interconnection time monitor, whereas ATEC performs this offset continuously within each WECC Balancing Authority's Area Control Error equation. As a result, ATEC helps to ensure Inadvertent Interchange payback occurs closer in time to the frequency imbalance, thus helping to reduce Time Error, the need for manual Time Error Corrections, and accumulated Inadvertent Interchange.

The purpose of proposed regional Reliability Standard BAL-004-WECC-3 is to maintain Interconnection frequency and to ensure that Time Error Corrections and PII payback are effectively conducted in a manner that does not adversely affect the reliability of the Interconnection. The proposed regional Reliability Standard achieves this purpose by requiring Balancing Authorities operating synchronously in the Western Interconnection to automatically correct for time error to reduce manual Time Error Corrections and help ensure payback of the difference between the Net Actual Interchange and the Net Scheduled Interchange occurs among Balancing Authorities. The provisions of the proposed standard provide for a quicker and more

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<sup>20</sup> The *Glossary of Terms Used in NERC Reliability Standards* ("*NERC Glossary*") defines "Time Error" as "[t]he difference between the Interconnection time measured at the Balancing Authority(ies) and the time specified by the National Institute of Standards and Technology. Time error is caused by the accumulation of Frequency Error over a given period."

<sup>21</sup> The *NERC Glossary* defines "Inadvertent Interchange" as "[t]he difference between the Balancing Authority's Net Actual Interchange and Net Scheduled Interchange."

<sup>22</sup> BAL-004-WECC-2 Petition at 7; the *NERC Glossary* defines "Time Error Correction" as "[a]n offset to the Interconnection's scheduled frequency to return the Interconnection's Time Error to a predetermined value."

accurate adjustment of interchange by better identifying the Balancing Authorities responsible for the Inadvertent Interchange.

The proposed standard includes requirements for the maximum limit of accumulated PII for the end of each month (Requirement R1); the deadline for correcting an error in the calculation of the hourly PII and adjusting the accumulated PII (Requirement R2); keeping ATEC in service with allowable exceptions (Requirement R3); calculating hourly PII, accumulated PII, and ATEC using the WIT or its successor tool (Requirement R4); the ability for Balancing Authorities to change Automatic Generation Control operating modes to correspond to current operating conditions (Requirement R5); recalculating the hourly PII and accumulated PII whenever adjustments are made to hourly Inadvertent Interchange (Requirement R6); adjusting accumulated PII based on any month-end meter reading adjustments to Inadvertent Interchange (Requirement R7); and using ATEC for Inadvertent Interchange payback (Requirement R8).

This section of the petition addresses: (a) the description and technical basis of the proposed requirements; and (b) the enforceability of the proposed standard.

#### **A. Description and Technical Basis of Proposed Requirements**

Proposed regional Reliability Standard BAL-004-WECC-3 revises the existing requirements in regional Reliability Standard BAL-004-WECC-2 to reference the WIT, or its successor electronic confirmation tool, throughout the requirements. The proposed modifications are also designed to improve upon the language of BAL-004-WECC-2 by providing additional clarity and specificity.

##### **1. WECC Interchange Tool**

Proposed regional Reliability Standard BAL-004-WECC-3 references the WIT or its successor electronic confirmation tool in Requirements R1 and R4 as well as the measures. The WIT is a software system that facilitates and coordinates interchange between Balancing

Authorities in the WECC region and permits increased monitoring of interchange transactions by Reliability Coordinators. Proposed Requirement R1 clarifies that accumulated PII is calculated using WIT to ensure that it is less than or equal to 150% of either the previous calendar year's integrated hourly Peak Demand for load-serving Balancing Authorities or peak generation for generation-only Balancing Authorities. Currently-effective BAL-004-WECC-2 allows for other forms of calculating accumulated PII so the proposed change provides additional specificity. Proposed Requirement R4 requires each Balancing Authority to compute its hourly PII, accumulated PII, and ATEC using WIT no later than 50 minutes after each hour. Requiring entities to use a common tool to reconcile accumulations of PII provides consistency across the Western Interconnection and reduces invalid implementation of ATEC. WECC revised the measures language to incorporate WIT in example evidence.

## **2. Other Clarifications**

The proposed regional Reliability Standard BAL-004-WECC-3 includes clarifications that improve upon the existing standard. In Requirement R1, WECC changed the verb “verify” to “operate its system” to describe the action required of Balancing Authorities. With the verb “verify,” entities were required to check at the end of the month that the PII met Requirement R1. With “operate its system,” WECC intends that entities are required to take proactive steps to ensure their system meets Requirement R1 during operation rather than only view its performance after-the-fact. This change promotes a more precise operation of the system. In addition, WECC restructured the language of Requirement R1 based on the revised verb. WECC moved the clause “following the conclusion of each month” within Requirement R1 to indicate that the system should be operated so that the value of the Accumulated PII should be the value required by the standard following the conclusion of each month. Finally, WECC made other non-substantive changes to the standard by rewording “monthly On Peak period and the monthly Off Peak period”

to “month-end absolute value of its On-Peak and Off-Peak, Accumulated [PII].” These revisions enhance the clarity and unambiguity of proposed regional Reliability Standard BAL-004-WECC-3. Finally, WECC relocated the background section from the beginning of the Reliability Standard to the Guidelines and Technical Basis Section.

#### **B. Enforceability of Proposed Regional Reliability Standard BAL-004-WECC-3**

The proposed regional Reliability Standard includes VRFs and VSLs that are unchanged from BAL-004-WECC-2. The VSLs provide guidance on the way that NERC will enforce the requirements of the proposed regional Reliability Standard. The VRFs are one of several elements used to determine an appropriate sanction when the associated requirement is violated. The VRFs assess the impact to reliability of violating a specific requirement. The VRFs and VSLs for the proposed regional Reliability Standard comport with NERC and Commission guidelines related to their assignment.

The proposed regional Reliability Standard also includes measures that support each requirement by clearly identifying what is required and how the requirement will be enforced. These measures help ensure that the requirements will be enforced in a clear, consistent, and non-preferential manner and without prejudice to any party.<sup>23</sup>

#### **V. EFFECTIVE DATE**

NERC respectfully requests that the Commission approve the proposed regional Reliability Standard BAL-004-WECC-3 and the retirement of BAL-004-WECC-2 to become effective as set forth in the proposed Implementation Plan, provided in Exhibit B hereto. The proposed Effective

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<sup>23</sup> Order No. 672 at P 327 (“There should be a clear criterion or measure of whether an entity is in compliance with a proposed Reliability Standard. It should contain or be accompanied by an objective measure of compliance so that it can be enforced and so that enforcement can be applied in a consistent and non-preferential manner.”).

Date of the proposed regional Reliability Standard is the first day of the second quarter following applicable regulatory approval.

## VI. CONCLUSION

For the reasons set forth above, NERC respectfully requests that the Commission approve:

- the proposed regional Reliability Standard BAL-004-WECC-3 in **Exhibit A**;
- the other associated elements in the regional Reliability Standard in **Exhibit A**, including the VRFs and VSLs (**Exhibits A and C**);
- the retirement of existing regional Reliability Standard BAL-004-WECC-2; and
- the Implementation Plan, included in **Exhibit B**.

Respectfully submitted,

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**Exhibit A**

**Proposed Regional Reliability Standard BAL-004-WECC-3 – Automatic Time  
Error Correction**



**BAL-004-WECC-3**

**Clean Version**

**A. Introduction**

- 1. Title:** Automatic Time Error Correction
- 2. Number:** BAL-004-WECC-3
- 3. Purpose:** To maintain Interconnection frequency and to ensure that Time Error Corrections and Primary Inadvertent Interchange (PII) payback are effectively conducted in a manner that does not adversely affect the reliability of the Interconnection.
- 4. Applicability**
  - 4.1. Functional Entities**
    - 4.1.1** Balancing Authorities that operate synchronously in the Western Interconnection.
- 5. Effective Date:** On the first day of the second quarter, after applicable regulatory approval has been received (or the Reliability Standard otherwise becomes effective the first day of the fourth quarter following NERC Board adoption where regulatory approval is not required).

## B. Requirements and Measures

**R1.** Each Balancing Authority shall operate its system such that, following the conclusion of each month, the month-end absolute value of its On-Peak and Off-Peak, Accumulated Primary Inadvertent Interchange ( $PII_{accum}$ ), as calculated by the WECC Interchange Tool (WIT) or its successor electronic confirmation tool, are each individually less than or equal to: *[Violation Risk Factor Medium:] [Time Horizon: Operations Assessment]*

**1.1** For load-serving Balancing Authorities, 150% of the previous calendar year's integrated hourly Peak Demand,

**1.2** For generation-only Balancing Authorities, 150% of the previous calendar year's integrated hourly peak generation.

**M1.** Each Balancing Authority will have evidence that it operated its system such that, following the conclusion of each month, the month-end absolute value of its On-Peak and Off-Peak, Accumulated Primary Inadvertent Interchange ( $PII_{accum}$ ), as calculated by the WECC Interchange Tool (WIT) or its successor electronic confirmation tool, meets all criteria stated in Requirement R1.

**R2.** Each Balancing Authority shall, upon discovery of an error in the calculation of  $PII_{hourly}$ , recalculate within 90 days, the value of  $PII_{hourly}$  and adjust the  $PII_{accum}$  from the time of the error. *[Violation Risk Factor: Medium] [Time Horizon: Operations Assessment]*

**M2.** Forms of acceptable evidence of compliance with Requirement R2 include but are not limited to any one of the following:

- Data, screen shots from the WECC Interchange Tool (WIT) or its successor electronic confirmation tool,
- Data, screen shots from the internal Balancing Authority tool, or
- Production of data from any other databases, spreadsheets, displays.

**R3.** Each Balancing Authority shall keep its Automatic Time Error Correction (ATEC) in service, with an allowable exception period of less than or equal to an accumulated 24 hours per calendar quarter for ATEC to be out of service. *[Violation Risk Factor: Medium] [Time Horizon: Same-day Operations]*

**M3.** Forms of acceptable evidence of compliance with Requirement R3 may include, but are not limited to:

- Dated archived files,
- Historical data,
- Other data that demonstrates the ATEC was out of service for less than 24 hours per calendar quarter.

**R4.** Each Balancing Authority shall compute each of the following using the WECC Interchange Tool (WIT) or its successor electronic confirmation tool, no later than 50 minutes after each hour,

**4.1.**  $P_{II_{hourly}}$ ,

**4.2.**  $P_{II_{accum}}$ ,

**4.3.** Automatic Time Error Correction term ( $I_{ATEC}$ ).

*[Violation Risk Factor: Medium] [Time Horizon: Operations Assessment]*

**M4.** Forms of acceptable evidence of compliance with Requirement R4 include but are not limited to any one of the following:

- Data, screen shots from the WECC Interchange Tool (WIT) or its successor electronic confirmation tool, that demonstrate compliance;
- Data, screen shots from internal Balancing Authority tool that demonstrate compliance; or,
- Data from any other databases, spreadsheets, displays that demonstrate compliance.

**R5.** Each Balancing Authority shall be able to change its Automatic Generation Control operating mode between Flat Frequency (for blackout restoration); Flat Tie Line (for loss of frequency telemetry); Tie Line Bias; and Tie Line Bias plus Time Error Control (used in ATEC mode), to correspond to current operating conditions.

*[Violation Risk Factor: Medium] [Time Horizon: Real-Time Operations]*

**M5.** Forms of acceptable evidence of compliance with Requirement R5 include but are not limited to any one of the following:

- Screen shots from Energy Management System,
- Demonstration using an off-line system.

**R6.** Each Balancing Authority shall recalculate the  $P_{II_{hourly}}$  and  $P_{II_{accum}}$  for the On-Peak and Off-Peak periods whenever adjustments are made to hourly Inadvertent Interchange or  $\Delta TE$ . *[Violation Risk Factor: Medium] [Time Horizon: Operations Assessment]*

**M6.** Forms of acceptable evidence of compliance with Requirement R6 include but are not limited to any one of the following:

- Data, screen shots from the WECC Interchange Tool (WIT) or its successor electronic confirmation tool, that demonstrate compliance;
- Data, screen shots from an internal Balancing Authority tool that demonstrate compliance with; or,

- Data from any other databases, spreadsheets, displays that demonstrate compliance.

**R7.** Each Balancing Authority shall make the same adjustment to the PII<sub>accum</sub> as it did for any month-end meter reading adjustments to Inadvertent Interchange. [*Violation Risk Factor: Medium*] [*Time Horizon: Operations Assessment*]

**M7.** Forms of acceptable evidence of compliance with Requirement R7 include but are not limited to any one of the following:

- Data, screen shots from the WECC Interchange Tool (WIT) or its successor electronic confirmation tool, that demonstrate compliance;
- Data, screen shots from an internal Balancing Authority tool that demonstrate compliance; or,
- Production of data from any other databases, spreadsheets, displays that demonstrate compliance.

**R8.** Each Balancing Authority shall payback Inadvertent Interchange using ATEC rather than bilateral and unilateral payback. [*Violation Risk Factor: Medium*] [*Time Horizon: Operations Assessment*]

**M8.** Forms of acceptable evidence of compliance with Requirement R8 include but are not limited to historical On-Peak and Off-Peak Inadvertent Interchange data, data from the WECC Interchange Tool, and ACE data.

## **C. Compliance**

### **1. Compliance Monitoring Process**

#### **1.1 Compliance Enforcement Authority**

The Regional Entity shall serve as the Compliance Enforcement Authority.

For entities that do not work for the Regional Entity, the Regional Entity shall serve as the Compliance Enforcement Authority.

For Reliability Coordinators and other functional entities that work for their Regional Entity, the ERO or a Regional Entity approved by the ERO and FERC or other applicable governmental authorities shall serve as the Compliance Enforcement Authority.

For responsible entities that are also Regional Entities, the ERO or a Regional Entity approved by the ERO and FERC or other applicable governmental authorities shall serve as the Compliance Enforcement Authority.

**1.2 Compliance Monitoring and Assessment Processes:**

Compliance Audits

Self-Certifications

Spot Checking

Compliance Investigations

Self-Reporting

Complaints

**1.3 Evidence Retention**

The following evidence retention periods 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.

Each Balancing Authority in the Western Interconnection shall retain the values of  $PII_{hourly}$ ,  $PII_{accum}$  (On-Peak and Off-Peak),  $\Delta TE$  and any month-end adjustments for the preceding calendar year (January – December), as well as the current calendar year.

Each Balancing Authority in the Western Interconnection shall retain the amount of time the Balancing Authority operated without ATEC for the preceding calendar year (January – December), as well as the current calendar year.

**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	Operations Assessment	Medium	Following the conclusion of each month each Balancing Authority’s absolute value of PII <sub>accum</sub> for either the On-Peak period or Off-Peak period exceeded 150%, but was less than or equal to 160% of the previous calendar year’s Peak Demand or peak generation for generation-only Balancing Authorities.	Following the conclusion of each month each Balancing Authority’s absolute value of PII <sub>accum</sub> for either the On-Peak period or Off-Peak period exceeded 160%, but was less than or equal to 170% of the previous calendar year’s Peak Demand or peak generation for generation-only Balancing Authorities.	Following the conclusion of each month each Balancing Authority’s absolute value of PII <sub>accum</sub> for either the On-Peak period or Off-Peak period exceeded 170%, but was less than or equal to 180% of the previous calendar year’s Peak Demand or peak generation for generation-only Balancing Authorities.	Following the conclusion of each month each Balancing Authority’s absolute value of PII <sub>accum</sub> for either the On-Peak period or Off-Peak period exceeded 180% of the previous calendar year’s Peak Demand or peak generation for generation-only Balancing Authorities.
R2	Operations Assessment	Medium	The Balancing Authority did not recalculate PII <sub>hourly</sub> and adjust the PII <sub>accum</sub> within 90 days of the discovery of the error; but made the required recalculations and adjustments within 120 days.	The Balancing Authority did not recalculate PII <sub>hourly</sub> and adjust the PII <sub>accum</sub> within 120 days of the discovery of the error; but made the required recalculations and adjustments within 150 days.	The Balancing Authority did not recalculate PII <sub>hourly</sub> and adjust the PII <sub>accum</sub> within 150 days of the discovery of the error; but made the required recalculations and adjustments within 180 days.	The Balancing Authority did not recalculate PII <sub>hourly</sub> and adjust PII <sub>accum</sub> within 180 days of the discovery of the error.

R #	Time Horizon	VRF	Violation Severity Levels			
			Lower VSL	Moderate VSL	High VSL	Severe VSL
R3	Real-Time Operations	Medium	The Balancing Authority operated during a calendar quarter without ATEC in service for more than an accumulated 24 hours, but less than or equal to 72 hours.	The Balancing Authority operated during a calendar quarter without ATEC in service for more than an accumulated 72 hours, but less than or equal to 120 hours.	The Balancing Authority operated during a calendar quarter without ATEC in service for more than an accumulated 120 hours, but less than or equal to 168 hours	The Balancing Authority operated during a calendar quarter without ATEC in service for more than an accumulated 168 hours.
R4	Operations Assessment	Medium	The Balancing Authority did not compute $PII_{hourly}$ , $PII_{accum}$ , and $I_{ATEC}$ within 50 minutes, but made the required calculations in less than or equal to two hours.	The Balancing Authority did not compute $PII_{hourly}$ , $PII_{accum}$ , and $I_{ATEC}$ within two hours, but made the required calculations in less than or equal to four hours.	The Balancing Authority did not compute $PII_{hourly}$ , $PII_{accum}$ , and $I_{ATEC}$ within four hours, but made the required calculations in less than or equal to six hours.	The Balancing Authority did not compute $PII_{hourly}$ , $PII_{accum}$ , and $I_{ATEC}$ within six hours.
R5	Real-Time Operations	Medium	N/A	N/A	N/A	The Balancing Authority is not able to change its AGC operating mode between Flat Frequency (for blackout restoration; Flat Tie Line (for loss of frequency



R #	Time Horizon	VRF	Violation Severity Levels			
			Lower VSL	Moderate VSL	High VSL	Severe VSL
						telemetry); Tie Line Bias; or Tie Line Bias plus Time Error control (used in ATEC mode).
R6	Operations Assessment	Medium	N/A	N/A	N/A	When making adjustments to hourly Inadvertent Interchange or $\Delta TE$ , the Balancing Authority did not recalculate the $PII_{hourly}$ and the $PII_{accum}$ for the On-Peak and Off-Peak periods.
R7	Operations Assessment	Medium	N/A	N/A	N/A	When making any month-end meter reading adjustments to Inadvertent Interchange, the Balancing Authority did not make the same adjustment to the $PII_{accum}$ .

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R #	Time Horizon	VRF	Violation Severity Levels			
			Lower VSL	Moderate VSL	High VSL	Severe VSL
R8	Operations Assessment	Medium	N/A	N/A	N/A	The Balancing Authority paid back Inadvertent Interchange using bilateral and unilateral payback rather than using ATEC.

## Guidelines and Technical Basis

### Background

In February 2003, the WECC Automatic Time Error Correction (ATEC) Procedure (Procedure) became effective for all Balancing Authorities in the Western Interconnection. The original intent of the Procedure was to minimize the number of Manual Time Error Corrections in the Western Interconnection. ATEC provides the added benefit of a superior approach over NERC Reliability Standard BAL-004-0 – Time Error Correction for assigning costs and providing for the equitable payback of Inadvertent Interchange. In October 2006, the Procedure became a WECC Criterion. In May 2009, FERC issued Order No.723 that approved Regional Reliability Standard BAL-004-WECC-1 - Automatic Time Error Correction, as submitted by NERC. In addition, the Commission directed WECC to develop several clarifying modifications to BAL-004-WECC-1 using the FERC-approved Process for Developing and Approving WECC Standards. The Effective Date of the BAL-004-WECC-1 standard was July 1, 2009. BAL-004-WECC-1 required Balancing Authorities within the Western Interconnection to maintain Interconnection frequency within a predefined frequency profile and to ensure that Time Error Corrections were effectively conducted in a manner that did not adversely affect the reliability of the Interconnection. In September 2009, WECC received WECC Standards/Regional Criterion Request Form (Request) WECC-0068, which was a request for modification of BAL-004-WECC-1. In July 2010, the chair of the WECC Operating Committee assigned the Request to the Performance Work Group (PWG) for development.

### Requirement R1:

**Premise:** Each Balancing Authority should ensure that the absolute value of its  $PII_{accum}$  for both the On-Peak period and the Off-Peak period each individually does not exceed 150% of the previous year's Peak Demand for load-serving Balancing Authorities and 150% of the previous year's peak generation for generation-only Balancing Authorities. The Balancing Authority is required to keep each  $PII_{accum}$  period within the limit. For example, the Balancing Authorities actions may include:

- Identifying and correcting the source of any metering or accounting error(s) and recalculating the hourly Primary Inadvertent Interchange ( $PII_{hourly}$ ) and the  $PII_{accum}$  from the time of the error;
- Validating the implementation of ATEC; or
- Setting  $L_{max}$  equal to  $L_{10}$ , until the  $PII_{accum}$  is below the limit in Requirement R1.

**Justification:**  $PII_{accum}$  may grow from month-end adjustments and metering errors, even with the inclusion of  $I_{ATEC}$  in the ACE equation.

**Goal:** To limit the amount of  $PII_{accum}$  that a Balancing Authority can have at the end of each month.

### Requirement R2:

**Premise:** When a Balancing Authority finds an error in the calculation of its PII, the Balancing Authority needs time to correct the error and recalculate PII and  $PII_{accum}$ .

**Justification:** The drafting team selected 90 days as a reasonable amount of time to correct an error and recalculate PII and  $PII_{accum}$ , since recalculation of PII and  $PII_{accum}$  is not a real-time operations

reliability issue.

**Goal:** To promote the timely correction of errors in the calculation of PII and PII<sub>accum</sub>.

**Requirement R3:**

**Premise:** When a Balancing Authority is not participating in ATEC, payback of PII<sub>accum</sub> is delayed.

**Justification:** The limit of 24 hours per quarter discourages a Balancing Authority from withdrawing ATEC participation, for example, for economic gain during selected hours. If the limits were increased to 60 hours, a Balancing Authority could technically withdraw ATEC participation for one hour from Monday to Friday.

**Goal:** To promote fair and timely payback of PII<sub>accum</sub> balances.

**Requirement R4:**

**Premise:** PII<sub>hourly</sub>, PII<sub>accum</sub>, and  $I_{ATEC}$  should be determined before the next scheduling hour begins.

**Justification:** To promote timely calculations 50 minutes was selected because it is before the next hour ramp begins and permits time to collect the data and resolve interchange metering values.

**Goal:** To promote the timely calculation of PII<sub>hourly</sub>, PII<sub>accum</sub>, and  $I_{ATEC}$ .

**Requirement R5:**

**Premise:** The ACE equation, and hence the AGC mode, will contain any number of parameters based on system operating conditions. Various AGC modes are identified corresponding to those operating conditions, as well as the specific sets of parameters included in the ACE equation.

**Justification:** Changing to the proper operating mode, corresponding to current operating conditions, affords proper movement of generating units in response to those conditions. The addition of the ATEC term results in an additional AGC mode and a different set of parameters. The inability to correctly calculate the ATEC term would dictate that AGC not be operated in the ATEC mode.

**Goal:** To set the AGC mode and calculate ACE in a manner that corresponds to the system operating conditions and to accommodate changes in those conditions.

**Requirement R6:**

**Premise:** Hourly adjustments to hourly Inadvertent Interchange (II) require a recalculation of the corresponding hourly PII value, the corresponding PII<sub>accum</sub>, and all subsequent PII<sub>accum</sub> for every hour up to the current hour.

**Justification:** As PII<sub>hourly</sub> is corrected, then PII<sub>accum</sub> should be recalculated.

**Goal:** To promote accurate, fair and timely payback of accumulated PII balances.

**Requirement R7:**

**Premise:** Month-end meter-reading adjustments are made, for example, when a Balancing Authority performs monthly comparisons of recorded month-end Net Actual Interchange ( $NI_A$ ) values derived from hourly Actual Interchange Telemetered Values against month-end Actual Interchange Register Meter readings.

**Justification:** Month-end adjustments to  $I_{accum}$  are applied as 100%  $PII_{accum}$ . 100% was chosen for simplicity to bilaterally assign  $PII_{accum}$  to both Balancing Authorities, since the effect of this metering error on system frequency is not easily determined over the course of a month.

WECC Standard BAL-004-WECC-3 – Automatic Time Error Correction

**Goal:** To provide a mechanism by which corresponding month-end II adjustments can be applied to  $PII_{accum}$ , when such adjustments cannot be attributed to any one hour or series of hours.

**Requirement R8:**

**Premise:** ATEC includes automatic unilateral payback of Primary Inadvertent Interchange and Secondary Inadvertent Interchange.

**Justification:** Additional unilateral and bilateral exchanges disturb the balance and distribution between Primary Inadvertent Interchange and Secondary Inadvertent Interchange throughout the Interconnection; thereby stranding Secondary Inadvertent Interchange.

**Goal:** To not strand Secondary Inadvertent Interchange.

**Version History**

Version	Date	Action	Change Tracking
1	February 4, 2003	Effective Date.	New
1	October 17, 2006	Created Standard from Procedure.	Errata
1	February 6, 2007	Changed the Standard Version from 0 to 1 in the Version History Table.	Errata
1	February 6, 2007	The upper limit bounds to the amount of Automatic Time Error Correction term was inadvertently omitted during the Standard Translation. The bound was added to the requirement R1.4.	Errata
1	February 6, 2007	The statement “The Time Monitor may declare offsets in 0.001-second increments” was moved from TEoffset to TDadj and offsets was corrected to adjustments.	Errata
1	February 6, 2007	The reference to seconds was deleted from the TE offset term.	Errata
1	June 19, 2007	The standard number BAL-STD-004-1 was changed to BAL-004-WECC-01 to be consistent with the NERC Regional Reliability Standard Numbering Convention.	Errata
2	December 19, 2012	Adopted by NERC Board of Trustees	
2	October 16, 2013	A FERC Letter Order was issued on October 16, 2013, approving BAL-004-WECC-02. This standard will become enforceable on April 1, 2014.	

WECC Standard BAL-004-WECC-3 – Automatic Time Error Correction

Version	Date	Action	Change Tracking
3	December 6, 2017	Approved by the WECC Board of Directors.	Five-year review. The project: 1) relocates the Background section to the preamble of the Guidance section, 2) adds On-Peak and Off-Peak parameters in Requirement R1/M1, 3) addresses WECC Interchange Tool software successors throughout, 4) conforms the document to current drafting conventions (R1/M1, R4/M4), and, 5) addresses non-substantive syntax and template concerns.
3	February 8, 2018	Approved by the NERC Board of Trustees.	

**BAL-004-WECC-3**

**Redlined Against Currently-Effective BAL-004-WECC-2**



## A. Introduction

1. **Title:** Automatic Time Error Correction
2. **Number:** BAL-004-WECC-023
3. **Purpose:** To maintain Interconnection frequency and to ensure that Time Error Corrections and Primary Inadvertent Interchange (PII) payback are effectively conducted in a manner that does not adversely affect the reliability of the Interconnection.
4. **Applicability**
  - 4.1. **Functional Entities**
    - 4.1.1 Balancing Authorities that operate synchronously in the Western Interconnection.
5. **Effective Date:** On the first day of the second quarter, after applicable regulatory approval has been received (or the Reliability Standard otherwise becomes effective the first day of the fourth quarter following NERC Board adoption where regulatory approval is not required).

### ~~6. Background:~~

~~In February 2003, the WECC Automatic Time Error Correction (ATEC) Procedure (Procedure) became effective for all Balancing Authorities in the Western Interconnection. The original intent of the Procedure was to minimize the number of Manual Time Error Corrections in the Western Interconnection. ATEC provides the added benefit of a superior approach over the current NERC Reliability Standard BAL 004-0 Time Error Correction for assigning costs and providing for the equitable payback of Inadvertent Interchange. In October 2006, the Procedure became a WECC Criterion. In May 2009, FERC issued Order No. 723 that approved Regional Reliability Standard BAL 004 WECC 1 Automatic Time Error Correction, as submitted by NERC. In addition, the Commission directed WECC to develop several clarifying modifications to BAL 004 WECC 1 using the FERC approved Process for Developing and Approving WECC Standards. The Effective Date of the BAL 004 WECC 1 standard was July 1, 2009. BAL 004 WECC 1 required Balancing Authorities within the Western Interconnection to maintain Interconnection frequency within a predefined frequency profile and to ensure that Time Error Corrections were effectively conducted in a manner that did not adversely affect the reliability of the Interconnection. In September 2009, WECC received WECC Standards/Regional Criterion Request Form (Request) WECC 0068, which was a request for modification of BAL 004 WECC 1. In July 2010, the chair of the WECC Operating Committee assigned the Request to the Performance Work Group (PWG) for development.~~

## B. Requirements and Measures

~~Following the conclusion of each month each~~**R1.** Each Balancing Authority shall ~~verify~~operate its system such that, following the conclusion of each month, the month-end absolute value of its On-Peak and Off-Peak, Accumulated Primary Inadvertent Interchange (PII<sub>accum</sub>) ~~for both, as calculated by the monthly On-Peak period and the monthly Off-Peak period~~WECC Interchange Tool (WIT) or its successor electronic confirmation tool, are each individually less than or equal to: [Violation Risk Factor Medium:] [Time Horizon: Operations Assessment]

**1.1** For load-serving Balancing Authorities, 150% of the previous calendar year's integrated hourly Peak Demand,-

**1.2** For generation-only Balancing Authorities, 150% of the previous calendar year's integrated hourly peak generation.

~~[Violation Risk Factor Medium:] [Time Horizon: Operations Assessment]~~

~~**M1.** Forms of acceptable evidence of compliance with Requirement R1 include but are not limited to any one of the following:~~

- ~~• Data, screen shots from the WECC Interchange Tool (WIT),-~~
- ~~• Data, screen shots from the internal Balancing Authority tool, or~~
- ~~• Production of data from any other databases, spreadsheets, displays.~~

**M1.** Each Balancing Authority will have evidence that it operated its system such that, following the conclusion of each month, the month-end absolute value of its On-Peak and Off-Peak, Accumulated Primary Inadvertent Interchange (PII<sub>accum</sub>), as calculated by the WECC Interchange Tool (WIT) or its successor electronic confirmation tool, meets all criteria stated in Requirement R1.

**R2.** Each Balancing Authority shall, upon discovery of an error in the calculation of PII<sub>hourly</sub>, recalculate within 90 days, the value of PII<sub>hourly</sub> and adjust the PII<sub>accum</sub> from the time of the error. [Violation Risk Factor: Medium] [Time Horizon: Operations Assessment]

**M2.** Forms of acceptable evidence of compliance with Requirement R2 include but are not limited to any one of the following:

- Data, screen shots from the WECC Interchange Tool (WIT) or its successor electronic confirmation tool,
- Data, screen shots from the internal Balancing Authority tool, or
- Production of data from any other databases, spreadsheets, displays.

**R3.** Each Balancing Authority shall keep its Automatic Time Error Correction (ATEC) in service, with an allowable exception period of less than or equal to an accumulated 24 hours per calendar quarter for ATEC to be out of service. *[Violation Risk Factor: Medium] [Time Horizon: Same-day Operations]-*

**M3.-** Forms of acceptable evidence of compliance with Requirement R3 may include, but are not limited to:-

- Dated archived files,-
- Historical data,-
- Other data that demonstrates the ATEC was out of service for less than 24 hours per calendar quarter.-

**-R4.** Each Balancing Authority shall compute each of the following by using the WECC Interchange Tool (WIT) or its successor electronic confirmation tool, no later than 50 minutes after each hour:-

- 4.1.** PII<sub>hourly</sub>,
- 4.2.** PII<sub>accum</sub>,
- 4.3.** Automatic Time Error Correction term ( $I_{ATEC}$ ).

*[Violation Risk Factor: Medium] [Time Horizon: Operations Assessment]*

**M4.-** Forms of acceptable evidence of compliance with Requirement R4 include but are not limited to any one of the following:

- Data, screen shots from the WECC Interchange Tool (WIT) or its successor electronic confirmation tool, that demonstrate compliance,-  
;
- Data, screen shots from internal Balancing Authority tool that demonstrate compliance;-; or
- Data from any other databases, spreadsheets, displays that demonstrate compliance.-

**R5.** Each Balancing Authority shall be able to change its Automatic Generation Control operating mode between Flat Frequency (for blackout restoration); Flat Tie Line (for loss of frequency telemetry); Tie Line Bias; and Tie Line Bias plus Time Error Control (used in ATEC mode), to correspond to current operating conditions. *[Violation Risk Factor: Medium] [Time Horizon: Real-Time Operations]-*

**M5.** Forms of acceptable evidence of compliance with Requirement R5 include but

are not limited to any one of the following:

- Screen shots from Energy Management System,-
- Demonstration using an off-line system.

**R6.** Each Balancing Authority shall recalculate the PIIhourly and PIIaccum for the On-Peak and Off-Peak periods whenever adjustments are made to hourly Inadvertent Interchange or  $\Delta$ TE. *[Violation Risk Factor: Medium] [Time Horizon: Operations Assessment]*

**M6.** Forms of acceptable evidence of compliance with Requirement R6 include but are not limited to any one of the following:

- Data, screen shots from the WECC Interchange Tool (WIT) or its successor electronic confirmation tool, that demonstrate compliance;<sub>i</sub>
- Data, screen shots from an internal Balancing Authority tool that demonstrate compliance with<sub>i</sub> or<sub>i</sub>
- Data from any other databases, spreadsheets, displays that demonstrate compliance.-

**R7.** Each Balancing Authority shall make the same adjustment to the PIIaccum as it did for any month-end meter reading adjustments to Inadvertent Interchange. *[Violation Risk Factor: Medium] [Time Horizon: Operations Assessment]*

**M7.—**Forms of acceptable evidence of compliance with Requirement R7 include but are not limited to any one of the following:

- Data, screen shots from the WECC Interchange Tool (WIT) or its successor electronic confirmation tool, that demonstrate compliance;<sub>i</sub>
- Data, screen shots from an internal Balancing Authority tool that demonstrate compliance;<sub>i</sub> or<sub>i</sub>
- Production of data from any other databases, spreadsheets, displays that demonstrate compliance.

**R8.** Each Balancing Authority shall payback Inadvertent Interchange using ATEC rather than bilateral and unilateral payback. *[Violation Risk Factor: Medium] [Time Horizon: Operations Assessment]*

**M8.** Forms of acceptable evidence of compliance with Requirement R8 include but are not limited to historical On-Peak and Off-Peak Inadvertent Interchange data, data from the WECC Interchange Tool, and ACE data.-

**C. Compliance**

~~1.~~

**1. Compliance Monitoring Process**

~~1.1~~

**1.1 Compliance Enforcement Authority**

The Regional Entity shall serve as the Compliance Enforcement Authority.

For entities that do not work for the Regional Entity, the Regional Entity shall serve as the Compliance Enforcement Authority.-

For Reliability Coordinators and other functional entities that work for their Regional Entity, the ERO or a Regional Entity approved by the ERO and FERC or other applicable governmental authorities shall serve as the Compliance Enforcement Authority.-

For responsible entities that are also Regional Entities, the ERO or a Regional Entity approved by the ERO and FERC or other applicable governmental authorities shall serve as the Compliance Enforcement Authority.

**1.2 ~~1.2~~—Compliance Monitoring and Assessment Processes:-**

~~—~~ **Compliance Audits**

~~—~~ **Self-Certifications**

~~—~~ Spot

Checking

~~—~~ **Compliance Investigations**

~~—~~ Self-Reporting

~~—~~ Complaints-

**1.3 ~~1.3~~—Evidence Retention-**

The following evidence retention periods 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.-

Each Balancing Authority in the Western Interconnection shall retain the values of  $PII_{hourly}$ ,  $PII_{accum}$  (On-Peak and Off-Peak),  $\Delta TE$  and any month-end adjustments for the preceding calendar year (January – December), as well as the current calendar year.

Each Balancing Authority in the Western Interconnection shall retain the amount of time the Balancing Authority -operated without ATEC for the preceding calendar year (January – December), as well as the current calendar year.

**1.4 ~~1.4~~—Additional Compliance Information**

None

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Table of Compliance Elements

R #	Time Horizon	VRF	Violation Severity Levels			
			Lower VSL	Moderate VSL	High VSL	Severe VSL
R1	Operations Assessment	Medium	Following the conclusion of each month each Balancing Authority’s absolute value of $PII_{accum}$ for either the On-Peak period or Off-Peak period exceeded 150%, but was less than or equal to 160% of the previous calendar year’s Peak Demand or peak generation for generation-only Balancing Authorities.	Following the conclusion of each month each Balancing Authority’s absolute value of $PII_{accum}$ for either the On-Peak period or Off-Peak period exceeded 160%, but was less than or equal to 170% of the previous calendar year’s Peak Demand or peak generation for generation-only Balancing Authorities.	Following the conclusion of each month each Balancing Authority’s absolute value of $PII_{accum}$ for either the On-Peak period or Off-Peak period exceeded 170%, but was less than or equal to 180% of the previous calendar year’s Peak Demand or peak generation for generation-only Balancing Authorities.	Following the conclusion of each month each Balancing Authority’s absolute value of $PII_{accum}$ for either the On-Peak period or Off-Peak period exceeded 180% of the previous calendar year’s Peak Demand or peak generation for generation-only Balancing Authorities.
R2	Operations Assessment	Medium	The Balancing Authority did not recalculate $PII_{hourly}$ and adjust the $PII_{accum}$ within 90 days of the discovery of the error; but made the required recalculations and adjustments within 120 days.	The Balancing Authority did not recalculate $PII_{hourly}$ and adjust the $PII_{accum}$ within 120 days of the discovery of the error; but made the required recalculations and adjustments within 150 days.	The Balancing Authority did not recalculate $PII_{hourly}$ and adjust the $PII_{accum}$ within 150 days of the discovery of the error; but made the required recalculations and adjustments within 180 days.	The Balancing Authority did not recalculate $PII_{hourly}$ and adjust $PII_{accum}$ within 180 days of the discovery of the error.

R #	Time Horizon	VRF	Violation Severity Levels			
			Lower VSL	Moderate VSL	High VSL	Severe VSL
R3	Real-Time Operations	Medium	The Balancing Authority operated during a calendar quarter without ATEC in service for more than an accumulated 24 hours, but less than or equal to 72 hours.	The Balancing Authority operated during a calendar quarter without ATEC in service for more than an accumulated 72 hours, but less than or equal to 120 hours.	The Balancing Authority operated during a calendar quarter without ATEC in service for more than an accumulated 120 hours, but less than or equal to 168 hours-	The Balancing Authority operated during a calendar quarter without ATEC in service for more than an accumulated 168 hours.
R4	Operations Assessment	Medium	The Balancing Authority did not compute $PII_{hourly}$ , $PII_{accum}$ , and $I_{ATEC}$ within 50 minutes, but made the required calculations in less than or equal to two hours.	The Balancing Authority did not compute $PII_{hourly}$ , $PII_{accum}$ , and $I_{ATEC}$ within two hours, but made the required calculations in less than or equal to four hours.	The Balancing Authority did not compute $PII_{hourly}$ , $PII_{accum}$ , and $I_{ATEC}$ within four hours, but made the required calculations in less than or equal to six hours.	The Balancing Authority did not compute $PII_{hourly}$ , $PII_{accum}$ , and $I_{ATEC}$ within six hours.
R5	Real-Time Operations	Medium	N/A	N/A	N/A	The Balancing Authority is not able to change its AGC operating mode between Flat Frequency (for blackout restoration; Flat Tie Line (for loss of frequency-



R #	Time Horizon	VRF	Violation Severity Levels			
			Lower VSL	Moderate VSL	High VSL	Severe VSL
						telemetry); Tie Line Bias; or Tie Line Bias plus Time Error control (used in ATEC mode).
R6	Operations Assessment	Medium	N/A	N/A	N/A	When making adjustments to hourly Inadvertent Interchange or $\Delta TE$ , the Balancing Authority did not recalculate the $PII_{hourly}$ and the $PII_{accum}$ for the On-Peak and Off-Peak periods.
R7	Operations Assessment	Medium	N/A	N/A	N/A	When making any month-end meter reading adjustments to Inadvertent Interchange, the Balancing Authority did not make the same adjustment to the $PII_{accum}$ .

R #	Time Horizon	VRF	Violation Severity Levels			
			Lower VSL	Moderate VSL	High VSL	Severe VSL
R8	Operations Assessment	Medium	N/A	N/A	N/A	The Balancing Authority paid back Inadvertent Interchange using bilateral and unilateral payback rather than using ATEC.

## Guidelines and Technical Basis

### Background

In February 2003, the WECC Automatic Time Error Correction (ATEC) Procedure (Procedure) became effective for all Balancing Authorities in the Western Interconnection. The original intent of the Procedure was to minimize the number of Manual Time Error Corrections in the Western Interconnection. ATEC provides the added benefit of a superior approach over NERC Reliability Standard BAL-004-0 – Time Error Correction for assigning costs and providing for the equitable payback of Inadvertent Interchange. In October 2006, the Procedure became a WECC Criterion. In May 2009, FERC issued Order No.723 that approved Regional Reliability Standard BAL-004-WECC-1 - Automatic Time Error Correction, as submitted by NERC. In addition, the Commission directed WECC to develop several clarifying modifications to BAL-004-WECC-1 using the FERC-approved Process for Developing and Approving WECC Standards. The Effective Date of the BAL-004-WECC-1 standard was July 1, 2009. BAL-004-WECC-1 required Balancing Authorities within the Western Interconnection to maintain Interconnection frequency within a predefined frequency profile and to ensure that Time Error Corrections were effectively conducted in a manner that did not adversely affect the reliability of the Interconnection. In September 2009, WECC received WECC Standards/Regional Criterion Request Form (Request) WECC-0068, which was a request for modification of BAL-004-WECC-1. In July 2010, the chair of the WECC Operating Committee assigned the Request to the Performance Work Group (PWG) for development.

~~During development of this standard, text boxes were embedded within the standard to explain the rationale for various parts of the standard. Upon BOT approval, the text from the rationale text boxes was moved to this section.~~

### **Requirement R1:-**

**Premise:** Each Balancing Authority should ensure that the absolute value of its  $PII_{accum}$  for both the On-Peak period and the Off-Peak period each individually does not exceed 150% of the previous year's Peak Demand for load-serving Balancing Authorities and 150% of the previous year's peak generation for generation-only Balancing Authorities. The Balancing Authority is required to ~~take action to~~ keep each  $PII_{accum}$  period within the limit. For example, the Balancing Authorities actions may include:

- Identifying and correcting the source of any metering or accounting error(s) and recalculating the hourly Primary Inadvertent Interchange ( $PII_{hourly}$ ) and the  $PII_{accum}$  from the time of the error;
- Validating the implementation of ATEC; or
- Setting  $L_{max}$  equal to  $L_{10}$  until the  $PII_{accum}$  is below the limit in Requirement R1.

**Justification:**  $PII_{accum}$  may grow from month-end adjustments and metering errors, even with the inclusion of  $I_{ATEC}$  in the ACE equation.-

**Goal:** To limit the amount of  $PII_{accum}$  that a Balancing Authority can have at the end of each month.-

### **Requirement R2:-**

**Premise:** When a Balancing Authority finds an error in the calculation of its PII, the Balancing Authority

needs time to correct the error and recalculate PII and PII<sub>accum</sub>.

**Justification:** The drafting team selected 90 days as a reasonable amount of time to correct an error and recalculate PII and PII<sub>accum</sub>, since recalculation of PII and PII<sub>accum</sub> is not a real-time operations reliability issue.—

**Goal:** To promote the timely correction of errors in the calculation of PII and PII<sub>accum</sub>.

**Requirement R3:**

**Premise:** When a Balancing Authority is not participating in ATEC, payback of PII<sub>accum</sub> is delayed.-

**Justification:** The limit of 24 hours per quarter discourages a Balancing Authority from withdrawing ATEC participation, for example, for economic gain during selected hours. If the limits were increased to 60 hours, a Balancing Authority could technically withdraw ATEC participation for one hour from Monday to Friday.

**Goal:** To promote fair and timely payback of PII<sub>accum</sub> balances.-

**Requirement R4:**

**Premise:** PII<sub>hourly</sub>, PII<sub>accum</sub>, and  $I_{ATEC}$  should be determined before the next scheduling hour begins.

**Justification:** To promote timely calculations 50 minutes was selected because it is before the next hour ramp begins and permits time to collect the data and resolve interchange metering values.

**Goal:** To promote the timely calculation of PII<sub>hourly</sub>, PII<sub>accum</sub>, and  $I_{ATEC}$ .

**Requirement R5:**

**Premise:** The ACE equation, and hence the AGC mode, will contain any number of parameters based on system operating conditions. Various AGC modes are identified corresponding to those operating conditions, as well as the specific sets of parameters included in the ACE equation.

**Justification:** Changing to the proper operating mode, corresponding to current operating conditions, affords proper movement of generating units in response to those conditions. The addition of the ATEC term results in an additional AGC mode and a different set of parameters. The inability to correctly calculate the ATEC term would dictate that AGC not be operated in the ATEC mode.

**Goal:** To set the AGC mode and calculate ACE in a manner that corresponds to the system operating conditions and to accommodate changes in those conditions.

**Requirement R6:**

**Premise:-** Hourly adjustments to hourly Inadvertent Interchange (II) require a recalculation of the corresponding hourly PII value, the corresponding PII<sub>accum</sub>, and all subsequent PII<sub>accum</sub> for every hour up to the current hour.

**Justification:** As PII<sub>hourly</sub> is corrected, then PII<sub>accum</sub> should be recalculated.

**Goal:** To promote accurate, fair and timely payback of accumulated PII balances.

**Requirement R7:**

**Premise:-** Month-end meter-reading adjustments are made, for example, when a Balancing Authority performs monthly comparisons of recorded month-end Net Actual Interchange (NIA) values derived from hourly Actual Interchange Telemetered Values against month-end Actual Interchange Register Meter readings.

**Justification:-** Month-end adjustments to  $I_{accum}$  are applied as 100%  $PII_{accum}$ . 100% was chosen for simplicity to bilaterally assign  $PII_{accum}$  to both Balancing Authorities, since the effect of this metering error on system frequency is not easily determined over the course of a month.

**Goal:-** To provide a mechanism by which corresponding month-end II adjustments can be applied to  $PII_{accum}$ , when such adjustments cannot be attributed to any one ~~particular~~ hour or series of hours.

**Requirement R8:**

**Premise:-** ATEC includes automatic unilateral payback of Primary Inadvertent Interchange and Secondary Inadvertent Interchange.

**Justification:-** Additional unilateral and bilateral exchanges disturb the balance and distribution between Primary Inadvertent Interchange and Secondary Inadvertent Interchange throughout the Interconnection; thereby stranding Secondary Inadvertent Interchange.-

**Goal:** To not strand Secondary Inadvertent Interchange.

**Version History**

Version	Date	Action	Change Tracking
1	February 4, 2003	Effective Date.	New
1	October 17, 2006	Created Standard from Procedure.	Errata
1	February 6, 2007	Changed the Standard Version from 0 to 1 in the Version History Table.	Errata
1	February 6, 2007	The upper limit bounds to the amount of Automatic Time Error Correction term was inadvertently omitted during the Standard Translation. -The bound was added to the requirement R1.4.	Errata
1	February 6, 2007	The statement “The Time Monitor may declare offsets in 0.001-second increments” was moved from TEoffset to TDadj and offsets was corrected to adjustments.	Errata
1	February 6, 2007	The reference to seconds was deleted from the TE offset term.	Errata
1	June 19, 2007	The standard number BAL-STD-004-1 was changed to BAL-004-WECC-01 to be consistent with the NERC Regional Reliability Standard Numbering Convention.-	Errata
2	December 19, 2012	Adopted by NERC Board of Trustees	

Version	Date	Action	Change Tracking
2	October 16, 2013	A FERC Letter Order was issued on October 16, 2013, approving BAL-004-WECC-02. This standard will become enforceable on April 1, 2014.	
<u>3</u>	<del>TBD</del> <u>December 6, 2017</u>	<del>TBD</del> <u>Approved by the WECC Board of Directors.</u>	Five-year review. The project: 1) relocates the Background section to the preamble of the Guidance section, 2) adds On-Peak and Off-Peak parameters in Requirement R1/M1, 3) addresses WECC Interchange Tool software successors throughout, 4) conforms the document to current drafting conventions (R1/M1, R4/M4), and, 5) addresses non-substantive syntax and template concerns.
<u>3</u>	<u>February 8, 2018</u>	<u>Approved by the NERC Board of Trustees.</u>	

**Exhibit B**

**Implementation Plan for Proposed Regional Reliability Standard BAL-004-  
WECC-3**



## Standards Authorization Request

[WECC-0124 BAL-004-WECC-3 ATEC SAR](#)

## Approvals Required

- WECC Board of Directors December 6, 2017
- NERC Board of Trustees Pending
- FERC Pending

## Applicable Entities

### 4. Applicability

4.1.1 Balancing Authorities that operate synchronously in the Western Interconnection.

## Conforming Changes to Other Standards

There are no conforming changes to other standards required to implement the proposed document.

## Proposed Effective Date

The Effective Date is proposed to be the first day of the second quarter following applicable regulatory approval.

## Justification

Because most entities will already be complying with the standard as proposed, implementation is requested to be the first day of the second quarter following applicable regulatory approval.

## Consideration of Early Compliance

The drafting team foresees no concerns with early compliance.

## Required Retirements

The currently approved standard (BAL-004-WECC-2) should be retired immediately prior to the Effective Date of this version, BAL-004-WECC-3. No other retirements or modifications are needed.

**Exhibit C**

**Order No. 672 Criteria for Proposed Regional Reliability Standard BAL-004-  
WECC-3**

# Order 672 Criteria WECC-0124 BAL-004-WECC-3 Automatic Time Error Correction

NERC is responsible for ensuring that the Reliability Standards, Violation Risk Factors (VRF), Violation Severity Levels (VSL), definitions, Variances, and Interpretations developed by drafting teams are developed in accordance with NERC processes. They must also meet NERC's benchmarks for Reliability Standards, as well as criteria for governmental approval.

In FERC Order No. 672,<sup>1</sup> the Federal Energy Regulatory Commission (FERC) identified criteria that it will use to analyze proposed Reliability Standards for approval to ensure they are just, reasonable, not unduly discriminatory or preferential, and in the public interest. The discussion below identifies these factors, and explains how the proposed regional reliability standard meets or exceeds the criteria:

## **1. Proposed Reliability Standards must be designed to achieve a specified reliability goal.**

The proposed Reliability Standard must address a reliability concern that falls within the requirements of section 215 of the Federal Power Act. That is, it must provide for the reliable operation of Bulk-Power System facilities. It may not extend beyond reliable operation of such facilities or apply to other facilities. Such facilities include all those necessary for operating an interconnected electric energy transmission network, or any portion of that network, including control systems. The proposed Reliability Standard may apply to any design of planned additions or modifications of such facilities that is necessary to provide for reliable operation. It may also apply to Cybersecurity protection. Order No. 672 at P 321.

Further, 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. NERC Reliability Principles<sup>2</sup>

The Purpose of WECC-0124 BAL-004-WECC-3, Automatic Time Error Correction (ATEC) is "To maintain Interconnection frequency and to ensure that Time Error Corrections and Primary Inadvertent (PII) payback are effectively conducted in a manner that does not adversely affect the reliability of the Interconnection."

Of the eight NERC Reliability Principles, ATEC addresses two.

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<sup>1</sup> [FERC Order 672](#)

<sup>2</sup> [NERC Reliability Principles](#)

*Reliability Principle 2 states:*

“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.”

As proposed, BAL-004-WECC-3 changes the standard’s focus from verification to operation. Each Balancing Authority (BA) operating synchronously in the Western Interconnection would be required to *operate* its system such that following the conclusion of each month, specific Primary Inadvertent Interchange values fall within a specified range. One way this is achieved is by maintaining a consistent frequency within the system.

*Reliability Principle 3 states:*

“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.”

As proposed, BAL-004-WECC-3 specifies a specific software tool from which all true-up values will be derived. The proposed standard does not limit an entity’s ability to use alternative internal means of calculation; however, for purposes of true-up with external entities (other BAs) only the WECC Interchange Tool (WIT), or its successor can be used. This approach standardizes the information necessary for true-up and promotes a uniform operation of the system within parameters specified in Requirement R1, Sub Parts 1.1 and 1.2.

**2. Proposed Reliability Standards must contain a technically sound method to achieve the goal.**

The proposed Reliability Standard must be designed to achieve a specified reliability goal and must contain a technically sound means to achieve this goal. Although any person may propose a topic for a Reliability Standard to the ERO, in the ERO’s process, the specific proposed Reliability Standard should be developed initially by persons within the electric power industry and community with a high level of technical expertise and be based on sound technical and engineering criteria. It should be based on actual data and lessons learned from past operating incidents, where appropriate. The process for ERO approval of a proposed Reliability Standard should be fair and open to all interested persons. Order No. 672 at P 324.

*Standard Development*

This proposed Reliability Standard was developed using the NERC and WECC Standards development processes approved by FERC and in effect at each point in the process. Among other things, these processes include drafting of the standard by a drafting team composed of subject matter experts (SME); biographies of those SMEs are provided with this filing.

These processes also include repeated public iterative comment/response cycles whereby comments are received from the industry, and responses to those comments are provided by the drafting team.

Technically Sound

The underlying standard was found technically sound in previous filings. See WECC-0124 BAL-004-WECC-3, ATEC Attachment G – Technical Justification Historic from Version 1, provided with this filing.

BAL-004-WECC-2, ATEC implemented conforming changes required by FERC in Order No. 723, wherein FERC directed NERC and WECC: 1) to develop revisions to currently effective Regional Reliability Standard BAL-004-WECC-1, Requirement R1.2, to specify what circumstances trigger the actions required by that Requirement; and 2) to develop a modification to Regional Reliability Standard BAL-004-WECC-1 consistent with WECC and NERC’s explanation that the limit set forth in Requirement R2, regarding “24 hours per calendar quarter,” is an accumulated total for the period. The petition states that WECC modified Regional Reliability Standard BAL-004-WECC-01 in compliance with these directives. Docket No. RD13-11-000 2; See also Order No. 723, 127 FERC ¶ 61,176 at P 30 and P34.

**3. Proposed Reliability Standards must be applicable to users, owners, and operators of the bulk power system, and not others.**

The proposed Reliability Standard may impose a requirement on any user, owner, or operator of such facilities, but not on others. Order No. 672 at P 322.

The Applicability section of the proposed Reliability Standard is as follows:

4. Applicability
  - 4.1. Functional Entities
    - 4.1.1 Balancing Authorities that operate synchronously in the Western Interconnection.

**4. Proposed Reliability Standards must be clear and unambiguous as to what is required and who is required to comply.**

The proposed Reliability Standard should be clear and unambiguous regarding what is required and who is required to comply. Users, owners, and operators of the Bulk-Power System must know what they are required to do to maintain reliability. Order No. 672 at P 325.

The proposed Reliability Standard was developed using the WECC Reliability Standards Development Procedures (Procedures) as approved by WECC/NERC and FERC. Per the Procedures, the proposed Reliability Standard was posted for comment on four occasions.

During the four postings, no concerns were raised regarding clarity or ambiguity. Each proposed Requirement contains a specified applicable entity, a clearly stated task, and an associated object Measure.

**5. Proposed Reliability Standards must include clear and understandable consequences and a range of penalties (monetary and/or non-monetary) for a violation.**

The possible consequences, including range of possible penalties, for violating a proposed Reliability Standard should be clear and understandable by those who must comply. Order No. 672 at P 326.

This project does not add to, modify, or change the FERC-approved VRF's or VSLs assigned to the existing Reliability Standard.

**6. Proposed Reliability Standards must identify a clear and objective criterion or measure for compliance, so that it can be enforced in a consistent and non-preferential manner.**

There should be a clear criterion or measure of whether an entity is in compliance with a proposed Reliability Standard. It should contain or be accompanied by an objective measure of compliance so that it can be enforced and so that enforcement can be applied in a consistent and non-preferential manner. Order No. 672 at P 327.

The Measure for Requirement R1 reads as follows:

- M1.** Each Balancing Authority will have evidence that it operated its system such that, following the conclusion of each month, the month-end absolute value of its On-Peak and Off-peak, Accumulated Primary Inadvertent Interchange (PII<sub>accum</sub>), as

calculated by the WIT or its successor electronic confirmation tool, meets all criteria stated in Requirement R1.

The Measure is objective in that it is predicated on the specified task of the supporting Requirement, examines specific calculated values, and is designed for a single specified software tool.

Measures for Requirement 2, 4, 6, and 7 were also changed to add the specification for measurement as derived from the WIT. Measures for Requirements 3, 5, and 8 are unchanged from the existing FERC-approved Reliability Standard.

- 7. Proposed Reliability Standards should achieve a reliability goal effectively and efficiently - but does not necessarily have to reflect “best practices” without regard to implementation cost.**

The proposed Reliability Standard does not necessarily have to reflect the optimal method, or “best practice,” for achieving its reliability goal without regard to implementation cost or historical regional infrastructure design. It should however achieve its reliability goal effectively and efficiently. Order No. 672 at P 328.

The goals of the proposed Reliability Standard are to encourage tighter operation of the grid, and to streamline and refine the post-operational true up of recorded operational values. As to operations, the proposed Reliability Standard does not impose any new requirements. It only encourages a more succinct implementation of existing practices. As to true up, by using a single specified software tool for numeric reconciliation, true up is standardized, streamlined, and becomes more transparent without adding undue burden.

- 8. Proposed Reliability Standards cannot be “lowest common denominator,” i.e., cannot reflect a compromise that does not adequately protect bulk power system reliability.**

The proposed Reliability Standard must not simply reflect a compromise in the ERO’s Reliability Standard development process based on the least effective North American practice — the so-called “lowest common denominator” — if such practice does not adequately protect Bulk-Power System reliability. Although the Commission will give due weight to the technical expertise of the ERO, we will not hesitate to remand a proposed Reliability Standard if we are convinced it is not adequate to protect reliability. Order No. 672 at P 329.

As mentioned in item 8 above, the proposed Reliability Standard is designed to enhance implementation of existing operational practices while standardizing and streamlining post-operational true up.

**9. Proposed Reliability Standards may consider costs to implement for smaller entities but not at consequence of less than excellence in operating system reliability.**

A proposed Reliability Standard may take into account the size of the entity that must comply with the Reliability Standard and the cost to those entities of implementing the proposed Reliability Standard. However, the ERO should not propose a “lowest common denominator” Reliability Standard that would achieve less than excellence in operating system reliability solely to protect against reasonable expenses for supporting this vital national infrastructure. For example, a small owner or operator of the Bulk-Power System must bear the cost of complying with each Reliability Standard that applies to it. Order No. 672 at P 330.

During the four postings of this project the industry raised no cost concerns.

**10. Proposed Reliability Standards must be designed to apply throughout North America to the maximum extent achievable with a single reliability standard while not favoring one area or approach.**

A proposed Reliability Standard should be designed to apply throughout the interconnected North American Bulk-Power System, to the maximum extent this is achievable with a single Reliability Standard. The proposed Reliability Standard should not be based on a single geographic or regional model but should take into account geographic variations in grid characteristics, terrain, weather, and other such factors; it should also take into account regional variations in the organizational and corporate structures of transmission owners and operators, variations in generation fuel type and ownership patterns, and regional variations in market design if these affect the proposed Reliability Standard. Order No. 672 at P 331.

In the Order 740 Remand at P4, the Commission states that:

“Reliability Standards that the ERO proposes to the Commission may include Reliability Standards that are proposed to the ERO by a Regional Entity... When the ERO reviews a regional Reliability Standard that would be applicable on an interconnection-wide basis and that has been proposed by a Regional Entity organized on an interconnection-wide basis, the ERO must rebuttably presume that the regional Reliability Standard is just, reasonable, not unduly discriminatory or preferential, and in the public interest. In turn, the Commission must give “due weight” to the technical expertise of the ERO and of a Regional Entity organized on an interconnection-wide basis.”

As identified in the NERC Rules of Procedure, Section 312, “regional entities may propose Regional Reliability Standards that set more stringent reliability requirements than the NERC Reliability Standard or cover matters not covered by an existing NERC Reliability Standard.”



In accordance with FERC Orders 672 and 740, the proposed Reliability Standard would be applicable solely within the Western Interconnection.

In accordance with the NERC Rules of Procedure, the proposed Reliability Standard addresses two areas not otherwise addressed in NERC Standards. Specifically, Time Error Correction in the Western Interconnection is “automatic” and the proposed Reliability Standard would glean its true-up values from a WECC-specific software tool.

**11. Proposed reliability standards should cause no undue negative effect on competition or restriction of the grid.**

As directed by section 215 of the FPA, the Commission itself will give special attention to the effect of a proposed Reliability Standard on competition. The ERO should attempt to develop a proposed Reliability Standard that has no undue negative effect on competition. Among other possible considerations, a proposed Reliability Standard should not unreasonably restrict available transmission capability on the Bulk-Power System beyond any restriction necessary for reliability and should not limit use of the Bulk-Power System in an unduly preferential manner. It should not create an undue advantage for one competitor over another. Order No. 672 at P 332

The BAL-004-WECC-3 drafting team does not foresee any negative impacts on competition resulting from implementation of the proposed Reliability Standard.

In the four postings of the project, the industry raised no concerns regarding competition or restrictive use of the grid.

**12. The implementation time for the proposed Reliability Standards must be reasonable.**

In considering whether a proposed Reliability Standard is just and reasonable, the Commission will consider also the timetable for implementation of the new requirements, including how the proposal balances any urgency in the need to implement it against the reasonableness of the time allowed for those who must comply to develop the necessary procedures, software, facilities, staffing or other relevant capability. Order No. 672 at P 333

Implementation of the proposed Reliability Standard imposes no new operational requirements; rather, it only encourages a tighter administration of existing operational practices. Further, use of the WIT for true up is an existing common practice throughout the Western Interconnection; albeit, the tool is not currently used by all entities.

Per the posted Implementation Plan, the proposed Effective Date is proposed to be the first day of the second quarter following applicable regulatory approval.

**13. The Reliability Standard development process must be open and fair.**

Further, in considering whether a proposed Reliability Standard meets the legal standard of review, we will entertain comments about whether the ERO implemented its Commission-approved Reliability Standard development process for the development of the particular proposed Reliability Standard in a proper manner, especially whether the process was open and fair. However, we caution that we will not be sympathetic to arguments by interested parties that choose, for whatever reason, not to participate in the ERO's Reliability Standard development process if it is conducted in good faith in accordance with the procedures approved by the Commission. Order No. 672 at P 334

WECC followed the WECC Reliability Standards Development Procedures (Procedures) approved by FERC in effect at the time of each step in the process.

In accordance with the Procedures, all drafting team meetings are open to the public.

All drafting team meetings were announced via the WECC Standards Email List, at least 15 days in advance of the meeting. Notice of the meetings was provided to NERC and posted on the WECC Calendar along with meeting minutes.

All meetings were supported by a telephone conference bridge associated with an on-line internet visual capability allowing all participants to see the document(s) as they were being developed. Further, this team held an open-mic Standards Briefing prior to balloting affording the industry an additional opportunity to have its questions addressed.

The proposed Reliability Standard was posted four times for comment by WECC and provided to NERC for additional posting.

Comments and their responses are currently posted on the WECC Web Site at the WECC-0124 Project Page on the Submitted and Review Comments accordion. Response to Comments forms were provided with this filing.

**14. Proposed Reliability Standards must balance with other vital public interests.**

Finally, we understand that at times development of a proposed Reliability Standard may require that a particular reliability goal must be balanced against other vital public interests, such as environmental, social and other goals. We expect the ERO to explain any such

balancing in its application for approval of a proposed Reliability Standard. Order No. 672 at P 335

WECC is not aware of any other vital public interests. No such balancing concerns were raised or noted.

**15. Proposed Reliability Standards must consider any other relevant factors.**

In considering whether a proposed Reliability Standard is just and reasonable, we will consider the following general factors, as well as other factors that are appropriate for the particular Reliability Standard proposed. Order No. 672 at P 323

WECC is not aware of any other general factors in need of consideration.

## **Exhibit D**

### **Summary of Development History and Complete Record of Development**

## **Summary of Development History**

## **Summary of Development History**

The development record for proposed regional Reliability Standard BAL-004-WECC-3 is summarized below.

### **I. Overview of the Standard Drafting Team**

When evaluating a proposed Reliability Standard, the Commission is expected to give “due weight” to the technical expertise of the ERO.<sup>1</sup> The technical expertise of the ERO is derived from the standard drafting team selected by the WECC Standards Committee to lead each project in accordance with Step 3 of the WECC Reliability Standards Development Procedures.<sup>2</sup> For this project, the standard drafting team consisted of industry experts, all with a diverse set of experiences. A roster of the standard drafting team members is included in Exhibit E.

### **II. Standard Development History**

#### **A. Standard Authorization Request Development**

Project WECC-0124 BAL-004-WECC-3 Automatic Time Error Correction Modification was initiated on September 1, 2016 with the receipt of a proposed Standard Authorization Request (“SAR”). The WECC Standards Committee created a standard drafting team on September 6, 2016 and formally approved the SAR on December 6, 2016.

#### **B. First Posting – Comment Period**

On September 27, 2016, the standard drafting team agreed by majority vote to post proposed regional Reliability Standard BAL-004-WECC-3 for a 45-day public comment period.<sup>3</sup> Proposed regional Reliability Standard BAL-004-WECC-3 was posted for a 45-day public

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<sup>1</sup> Section 215(d)(2) of the Federal Power Act; 16 U.S.C. §824(d) (2) (2012).

<sup>2</sup> The WECC Reliability Standards Development Procedures are available at <https://www.wecc.biz/Reliability/WECC%20Reliability%20Standards%20Development%20Procedures%20-%20FERC%20Approved%20October%2027%202017.pdf>.

<sup>3</sup> Notice of BAL-004-WECC-3 Posting 1 is available at [https://www.wecc.biz/Administrative/WECC-0124 Posting 1 BAL-004-WECC-3 ATEC Modification 45-Day Comment Period.pdf](https://www.wecc.biz/Administrative/WECC-0124%20Posting%201%20BAL-004-WECC-3%20ATEC%20Modification%2045-Day%20Comment%20Period.pdf).

comment period from October 3, 2016 through November 17, 2016. WECC received comments from five companies representing five of the eight WECC Standards Voting Sectors. Based on the comments received, the standard drafting team determined to make substantive changes to the proposed standard. Therefore, the standard was posted for an additional comment period.<sup>4</sup>

### **C. Second Posting – Comment Period**

Proposed regional Reliability Standard BAL-004-WECC-3 was posted for another public comment period for 30 days from January 16, 2017 to February 15, 2017.<sup>5</sup> WECC received comments from six companies representing five of the eight WECC Standards Voting Sectors. Based on the comments received, the standard drafting team determined to make substantive changes to the proposed standard.<sup>6</sup>

### **D. Third Posting – Comment Period**

Proposed regional Reliability Standard BAL-004-WECC-3 was posted for another public comment period for 30 days from March 27, 2017 to April 27, 2017.<sup>7</sup> WECC received comments from three companies representing five of the eight WECC Standards Voting Sectors. Based on the comments received, the standard drafting team determined to make substantive changes to the proposed standard.<sup>8</sup>

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<sup>4</sup> Project WECC-0124 BAL-004-WECC-3 Automatic Time Error Correction Modification Consideration of Comments for Posting 1 (modified March 16, 2017) is available at <https://www.wecc.biz/Reliability/WECC-0124%20Posting%201%20BAL-004-WECC-3%20ATEC%20Modification%20Response%20to%20Comments.pdf>.

<sup>5</sup> Notice of BAL-004-WECC-3 Posting 2 is available at <https://www.wecc.biz/Administrative/WECC-0124Posting2BAL-004-WECC-3ATECModification30-DayCommentPeriod.pdf>.

<sup>6</sup> Project WECC-0124 BAL-004-WECC-3 Automatic Time Error Correction Modification Consideration of Comments for Posting 2 (modified April 19, 2017) is available at <https://www.wecc.biz/Reliability/WECC-0124%20Posting%202%20BAL-004-WECC-3%20ATEC%20Modification%20Response%20to%20Comments.pdf>.

<sup>7</sup> Notice of BAL-004-WECC-3 Posting 3 is available at <https://www.wecc.biz/Administrative/WECC-0124Posting3BAL-004-WECC-3ATECModification30-DayCommentPeriod.pdf>.

<sup>8</sup> Project WECC-0124 BAL-004-WECC-3 Automatic Time Error Correction Modification Consideration of Comments for Posting 3 (modified June 14, 2017) is available at <https://www.wecc.biz/Reliability/WECC-0124%20Posting%203%20BAL-004-WECC-3%20ATEC%20Modification%20Response%20to%20Comments.docx>.

### **E. Fourth Posting – Comment Period**

Proposed Regional Reliability Standard BAL-004-WECC-3 was posted for another public comment period for 30 days from May 11, 2017 to June 12, 2017.<sup>9</sup> WECC received comments from one company representing five of the eight WECC Standards Voting Sectors.<sup>10</sup>

### **F. Fifth Posting – Final Standard for WECC Standards Committee**

Because only non-substantive changes were made between the fourth and fifth postings, the standard drafting team did not solicit public comments on the fifth posting of the standard. On June 13, 2017, the standard drafting team agreed to send the standard to the WECC Standards Committee with a request for ballot.

### **G. Ballot Period and Results**

On June 21, 2017, the WECC Standards Committee approved proposed regional Reliability Standard BAL-004-WECC-3 to be posted for ballot. The ballot pool opened on July 11, 2017 and closed on July 26, 2017. WECC held a standards briefing on April 7, 2016. Ninety-two individuals joined the ballot pool. Eighty-four individuals cast votes, reaching quorum at 91.3 percent. The standard obtained 66 affirmative votes, which was 97.6 percent of the weighted segment vote. As a result, the standard passed ballot on August 28, 2017.<sup>11</sup>

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<sup>9</sup> Notice of BAL-004-WECC-3 Posting 4 is available at [https://www.wecc.biz/Administrative/WECC-0124 Posting 4 BAL-004-WECC-3 ATEC Modification 30-Day Comment Period.pdf](https://www.wecc.biz/Administrative/WECC-0124%20Posting%204%20BAL-004-WECC-3%20ATEC%20Modification%20Response%20to%20Comments.docx).

<sup>10</sup> Project WECC-0124 BAL-004-WECC-3 Automatic Time Error Correction Modification Consideration of Comments for Posting 4 (modified June 13, 2017) is available at <https://www.wecc.biz/Reliability/WECC-0124%20Posting%204%20BAL-004-WECC-3%20ATEC%20Modification%20Response%20to%20Comments.docx>.

<sup>11</sup> The BAL-004-WECC-3 ballot results are available at [https://www.wecc.biz/Reliability/170830\\_WECC-0124\\_Ballot\\_Results.pdf](https://www.wecc.biz/Reliability/170830_WECC-0124_Ballot_Results.pdf).



## **H. WECC Board of Directors Approval**

On December 6, 2017, the WECC Board of Directors approved proposed regional Reliability Standard BAL-004-WECC-3 and the retirement of regional Reliability Standard BAL-004-WECC-2.

## **I. NERC Comment Period and Board of Trustees Adoption**

NERC received the regional Reliability Standard Submittal Request for BAL-004-WECC-3 on September 6, 2017. NERC posted proposed regional Reliability Standard BAL-004-WECC-3 for a 45-day public comment period from December 1, 2017 to January 16, 2018.<sup>12</sup> The NERC Board of Trustees adopted proposed regional Reliability Standard BAL-004-WECC-3 on February 8, 2018.<sup>13</sup>

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<sup>12</sup> The NERC web page for Regional Reliability Standards Under Development is available at <http://www.nerc.com/pa/Stand/Pages/RegionalReliabilityStandardsUnderDevelopment.aspx>.

<sup>13</sup> NERC, *Board of Trustees Agenda Package*, Agenda Item 6c (BAL-004-WECC-3 – Automatic Time Error Correction), available at [http://www.nerc.com/gov/bot/Agenda%20highlights%20and%20Mintues%202013/Board\\_of\\_Trustees\\_Open\\_Agenda\\_Package\\_February\\_8\\_2018.pdf](http://www.nerc.com/gov/bot/Agenda%20highlights%20and%20Mintues%202013/Board_of_Trustees_Open_Agenda_Package_February_8_2018.pdf).

# **Complete Record of Development**

**Steven Rueckert**  
Director of Standards  
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January 4, 2018

Mat Bunch  
North American Electric Reliability Corporation  
3353 Peachtree Rd. NE, North Tower – Suite 600  
Atlanta, GA 30326

Regarding: Notification of Completion  
WECC-0124 BAL-004-WECC-3  
Automatic Time Error Correction (ATEC)

Dear Mat,

In accordance with the WECC Reliability Standards Development Procedures, the WECC-0124 BAL-004-WECC-3 ATEC Drafting Team has completed its assigned project. The proposed ATEC standard has been approved by the WECC Ballot Pool and the WECC Board of Directors.

WECC is seeking adoption by the NERC Board of Trustees, with subsequent disposition by the Federal Energy Regulatory Commission, to retire Version 2 of the ATEC Standard and replace it with the proposed Version 3.

#### **Overview**

The project: 1) relocates the Background section to the preamble of the Guidance section, 2) specifies the WECC Interchange Tool (WIT) software or its successor as the specific software package to produce required calculations, 3) conforms the document to current drafting conventions (R1/M1, R4/M4), and 4) addresses non-substantive syntax and template changes.

Thank you for your assistance.

**Steven Rueckert**  
WECC Director of Standards



WESTERN ELECTRICITY COORDINATING COUNCIL  
155 North 400 West, Suite 200  
Salt Lake City, Utah 84103-1114

For documentation support please contact Mr. W. Shannon Black, [sblack@wecc.biz](mailto:sblack@wecc.biz), (503) 307-5782.

<b>WECC-0124 BAL-004-WECC-3</b>
<b>Automatic Time Error Correction (ATEC)</b>
<b>Regional Reliability Standard</b>
<b>SAR – Standard Authorization Request Attachment A (1)</b>
<b>Regional Reliability Standard(s) (Clean Existing) Attachment B (2)</b>
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# Attachment A

## Standard Authorization Request (SAR)

### WECC-0124 BAL-004-WECC-3

### Automatic Time Error Correction

## Introduction

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This SAR was received on September 1, 2016. It was deemed complete on September 1, 2016. The SAR was vetted and approved during the September 6, 2016 WECC Standards Committee (WSC) meeting.<sup>1</sup>

## Requester Information

### 1. Provide your contact information and your alternate's contact information:

- Your First Name: Craig N.
- Your Last Name: Figart
- Your Email Address: [craig.figart@avistacorp.com](mailto:craig.figart@avistacorp.com)
- Your Phone Number: (509) 495-2260
- Organization Name: Avista
- Alternate's First Name: Tim
- Alternate's Last Name: Reynolds

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<sup>1</sup> Although the SAR was discussed at the September 6, 2016 WSC meeting, a formal motion to accept the SAR did not take place. The SAR was subsequently placed on the December 6, 2016, WSC Calendar for formal approval. What follows is an excerpt from the December 6, 2016 WSC Minutes:

#### *WECC-0124 ATEC Modification Standard Authorization Request Approval*

On September 6, 2016, the WSC approved the drafting team for the WECC-0124 project; however, the WSC overlooked approval of the underlying Standard Authorization Request (SAR). The goal of the SAR is to further refine system operations to lessen Automatic Time Error Correction (ATEC). Since the onset of the project the drafting team concluded that references to the term "WIT" should be changed to state, e.g., "Western Interchange Tool (WIT) or its successor electronic confirmation tool." This would align the standard's language with its parallel WECC Criterion language. Finally, as a matter of administrative maintenance, the drafting team is also suggesting relocation of the Background preamble to the Guidance Section for readability.

After soliciting discussion on the SAR, on a motion by Ms. Caitlin seconded by Mr. Tarantino the WSC approved SAR WECC-0124. The motion carried by consensus.



- Alternate's Email Address: [treynolds@wecc.biz](mailto:treynolds@wecc.biz)
- Alternate's Phone Number: (801)-883-6883

#### Type of Request

2. Specify the type of request: (select one)

- Request to Modify BAL-004-WECC-2

Provide the requested information for your request to create, modify, or retire the document.

3. Requested Action: (select one)

- Revise/Modify an Existing Document
- This SAR proposes to delete the existing Requirement R1 and substitute a new Requirement R1. There are no further changes requested.

4. Document Type: (select one)

- WECC Regional Reliability Standard

5. Issue: Specify what industry problem this request is trying to resolve.

#### **Modifications will Eliminate “Leaning on the System”**

According to the I<sub>ATEC</sub> definition of H as the number of hours to payback PII energy, ATEC was originally implemented with the intent for BAs to payback PII energy balances over the subsequent three hours (H=3). Without tightened PII<sub>accum</sub> thresholds, ATEC cannot effectively manage PII accumulations in a timely manner, nor can it discourage persistent BA-induced system frequency deviations, nor can it automatically manage Time Error Corrections. Moreover, it is FERC's view, that “[l]arge accumulations of primary inadvertent [energy] point to an invalid implementation of ATEC, loose control, metering or accounting errors.” (18 CFR Part 40, Docket No. RM08-12-000; Order No.723, Western Electricity Coordinating Council Regional Reliability Standard Regarding Automatic Time Error Correction, Issued May 21, 2009, p. 27.)

When this occurs, BAs can then “lean on the system” indefinitely producing large accumulations of Primary II energy forcing correspondingly sustained Secondary II energy accumulations onto other BAs. Moreover, it is FERCs view that “A BA that is operating out-of-balance for an extended period of time is ‘leaning on the system’ by relying on external resources to meet its obligations and could affect other entities within an Interconnection, particularly if another entity is reacting to a grid event while

unaware that the first entity has not restored its ACE.” (18 CFR Part 40, Docket No. RM16-7-000, Disturbance Control Standard—Contingency Reserve for Recovery from a Balancing Contingency Event Reliability Standard, (May 19, 2016), p.22)

### **Modifications will Ensure Correct Accumulated PII Calculations**

If BAs do not use correct values of  $PII_{accum}$ , Automatic Time Error Correction (ATEC) cannot properly assign Primary II accumulations to the appropriate BAs that caused the Inadvertent Interchange (II).

Further, some BAs internal  $PII_{accum}$  calculations do not match the Reliability Coordinator approved tool for centralized calculations of  $PII_{accum}$  (i.e. WIT), since there is no requirement for a BA to ensure that their own calculations of  $PII_{accum}$  match those centralized  $PII_{accum}$  calculations for all WECC BAs.

### **150% Threshold**

The accumulated Primary Inadvertent Interchange ( $PII_{accum}$ ) limit is currently expressed in terms of the previous year’s peak load or generation. This presents a problem for new Balancing Authorities (BAs) joining the interconnection who do not have that historical reference on which to establish a  $PII_{accum}$  limit. There is no defined source data for BA peak demand/generation data on which to base the 150% threshold of the current Requirement.

In the current Requirement R1, the 150% peak demand/generation threshold for  $PII_{accum}$  is too large, especially since most BA’s  $PII_{accum}$  does not exceed 15% of peak demand/generation on average. Outside of former CPS2 boundaries for Area Control Error (ACE), Automatic Time Error Correction (ATEC) cannot effectively manage the after effects of recently implemented BAL-001-2 frequency-based controls that allow BAs to more aggressively extract and push energy onto neighboring BAs. With such large  $PII_{accum}$  thresholds and more relaxed form of control, BAs extract and push energy onto other BAs adversely affecting system frequency and thereby forcing all other BAs to adjust their controls in support of system frequency (via Frequency Bias components of BA ACEs).

Lastly, for BAs that make month-end meter reading adjustments (per Requirement R7), these corresponding adjustments to  $PII_{accum}$  can easily push them over the  $PII_{accum}$  limit currently defined by Requirement R1. This was a primary reason that the  $PII_{accum}$  limit was defined at such a high value of 150% Peak Load/Generation in order to allow for

substantial month-end corrections (i.e. 5,000 MWh) that are reportedly being made by larger BAs.

### **Proposed Remedy**

This SAR proposes to delete the existing Requirement R1 and replace it with a newly proposed Requirement R1. The change would establish a new basis for the  $PII_{accum}$  limit in terms of the Minimum Frequency Bias settings that are published annually. For new BAs, this could easily be estimated. The proposed language would help mitigate the potential to exceed the maximum allowable Accumulated Primary Inadvertent Interchange by, among other things, creating a standard interchange target by which the inadvertent would be measured (i.e. values would be compared to interchange software values used by the Reliability Coordinator).

By adopting the proposed Requirement R1, the industry is ensured of a more accurate implementation of Automatic Time Error Correction (ATEC) by lowering the accumulated Primary Inadvertent Interchange ( $PII_{accum}$ ) “large accumulation” threshold. This will allow ATEC to more effectively manage the after effects of recently implemented BAL-001-2 frequency-based controls by minimizing the extent and duration to which BAs can aggressively extract and push energy onto neighboring BAs.

### **Requirement R1 – Proposed**

The following language is proposed as the first draft for this project:

- R1.** Each Balancing Authority shall verify that the month-end absolute value of its on and off peak Accumulated Primary Inadvertent Interchange ( $PII_{accum}$ ), occurring after hour ending 23 (HE23) and prior to any month-end corrections, meets each of the following criteria:
- 1.1** Is less than or equal to the greater of either 200 MWh or  $20 * \text{Frequency Bias Setting}$  for the Balancing Authority Area;
  - 1.2** Is less than or equal to the lesser of either 6000 MWh or  $20 * \text{Frequency Bias Setting}$  for the Balancing Authority.
  - 1.3** If the BA does not use the Interchange values available from the Interchange software used by its Reliability Coordinator, the BA’s final values shall be within 1 MWh of the values that would otherwise be provided by the Reliability Coordinator’s Interchange software.



The drafting team should also consider changes references to the “WIT” to (e.g.) “Western Interchange Tool (WIT) or its successor electronic confirmation tool.”<sup>2</sup> This would align the standard’s language with its parallel WECC Criterion language. Finally, as a matter of administrative maintenance, the drafting team should also consider relocation of the Background preamble to the Guidance Section for readability.

5. Functions (select all that apply)

- Balancing Authorities that operate synchronously in the Western Interconnection

6. Affected Reliability Principles: Which of the following reliability principles is MOST affected by this request? (select one)

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

#### Document Information

Specify the documents title, document number, and affected section regarding the request.

7. Document Title: Automatic Time Error Correction
8. Document Number: BAL-004-WECC-2
9. Affected Requirement: Requirement R1,
10. Reference Uploads: NA

Please reference or upload any affected Standards, Regional Business Practices, Criterion, Policies, White Papers, Technical Reports or other relevant documents. If this request is based on a conflict of law, please include a copy of, or accessible reference to, the specific law or regulatory mandate in conflict.

11. NA

12. This SAR requests that the WECC Standards Committee (WSC) assign the following individuals to the drafting team. These individuals represent the constituency of the Performance Work Group that, in turn, is the body of subject matter experts that are best suited for the development of this project.

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<sup>2</sup> During technical writing, it was determined that the proper designation is the WECC Interchange Tool and not the Western Interchange Tool. In November 2017, the WSC discussed and agreed to make the erratum correction throughout.

- Craig N. Figart, P.E. – Sr. II Energy Mgmt. System/SCADA Engineer (Avista Corp)
- Rick Lowther – Transmission and Generation Operations (Salt River Project)
- James Wells, P.E. – Grid Operations – Grid Reliability Assessment Group (LAPWD)
- Don Badley – System Operations Manager (Northwest Power Pool)
- John Tolo – Sr. Director System Control & Planning (Tucson Electric Power)
- Dave Kirsch – Electrical Engineer (Bonneville Power Administration)
- Paul Morland – Operations Engineer (Colorado Springs Utilities)

## A. Introduction

1. **Title:** Automatic Time Error Correction
2. **Number:** BAL-004-WECC-02
3. **Purpose:** To maintain Interconnection frequency and to ensure that Time Error Corrections and Primary Inadvertent Interchange (PII) payback are effectively conducted in a manner that does not adversely affect the reliability of the Interconnection.
4. **Applicability**
  - 4.1. **Functional Entities**
    - 4.1.1 Balancing Authorities that operate synchronously in the Western Interconnection.
5. **Effective Date:** On the first day of the second quarter, after applicable regulatory approval has been received (or the Reliability Standard otherwise becomes effective the first day of the fourth quarter following NERC Board adoption where regulatory approval is not required).
6. **Background:**

In February 2003, the WECC Automatic Time Error Correction (ATEC) Procedure (Procedure) became effective for all Balancing Authorities in the Western Interconnection. The original intent of the Procedure was to minimize the number of Manual Time Error Corrections in the Western Interconnection. ATEC provides the added benefit of a superior approach over the current NERC Reliability Standard BAL-004-0 – Time Error Correction for assigning costs and providing for the equitable payback of Inadvertent Interchange. In October 2006, the Procedure became a WECC Criterion. In May 2009, FERC issued Order No.723 that approved Regional Reliability Standard BAL-004-WECC-1 - Automatic Time Error Correction, as submitted by NERC. In addition, the Commission directed WECC to develop several clarifying modifications to BAL-004-WECC-1 using the FERC-approved Process for Developing and Approving WECC Standards. The Effective Date of the BAL-004-WECC-1 standard was July 1, 2009. BAL-004-WECC-1 required Balancing Authorities within the Western Interconnection to maintain Interconnection frequency within a predefined frequency profile and to ensure that Time Error Corrections were effectively conducted in a manner that did not adversely affect the reliability of the Interconnection. In September 2009, WECC received WECC Standards/Regional Criterion Request Form (Request) WECC-0068, which was a request for modification of BAL-004-WECC-1. In July 2010, the chair of the WECC Operating Committee assigned the Request to the Performance Work Group (PWG) for development.

## B. Requirements and Measures

**R1.** Following the conclusion of each month each Balancing Authority shall verify that the absolute value of its Accumulated Primary Inadvertent Interchange ( $PII_{accum}$ ) for both the monthly On-Peak period and the monthly Off-Peak period are each individually less than or equal to:

- 1.1.** For load-serving Balancing Authorities, 150% of the previous calendar year's integrated hourly Peak Demand,
- 1.2.** For generation-only Balancing Authorities, 150% of the previous calendar year's integrated hourly peak generation.

*[Violation Risk Factor Medium:] [Time Horizon: Operations Assessment]*

**M1.** Forms of acceptable evidence of compliance with Requirement R1 include but are not limited to any one of the following:

- Data, screen shots from the WECC Interchange Tool (WIT),
- Data, screen shots from the internal Balancing Authority tool, or
- Production of data from any other databases, spreadsheets, displays.

**R2.** Each Balancing Authority shall, upon discovery of an error in the calculation of  $PII_{hourly}$ , recalculate within 90 days, the value of  $PII_{hourly}$  and adjust the  $PII_{accum}$  from the time of the error. *[Violation Risk Factor: Medium] [Time Horizon: Operations Assessment]*

**M2.** Forms of acceptable evidence of compliance with Requirement R2 include but are not limited to any one of the following:

- Data, screen shots from the WIT,
- Data, screen shots from the internal Balancing Authority tool, or
- Production of data from any other databases, spreadsheets, displays.

**R3.** Each Balancing Authority shall keep its Automatic Time Error Correction (ATEC) in service, with an allowable exception period of less than or equal to an accumulated 24 hours per calendar quarter for ATEC to be out of service. *[Violation Risk Factor: Medium] [Time Horizon: Same-day Operations]*

**M3.** Forms of acceptable evidence of compliance with Requirement R3 may include, but are not limited to:

- Dated archived files,
- Historical data,

- Other data that demonstrates the ATEC was out of service for less than 24 hours per calendar quarter.

**R4.** Each Balancing Authority shall compute the following by 50 minutes after each hour:

- 4.1.**  $PII_{hourly}$ ,
- 4.2.**  $PII_{accum}$ ,
- 4.3.** Automatic Time Error Correction term ( $I_{ATEC}$ ).

*[Violation Risk Factor: Medium] [Time Horizon: Operations Assessment]*

**M4.** Forms of acceptable evidence of compliance with Requirement R4 include but are not limited to any one of the following:

- Data, screen shots from the WECC Interchange Tool that demonstrate compliance,
- Data, screen shots from internal Balancing Authority tool that demonstrate compliance, or
- Data from any other databases, spreadsheets, displays that demonstrate compliance.

**R5.** Each Balancing Authority shall be able to change its Automatic Generation Control operating mode between Flat Frequency (for blackout restoration); Flat Tie Line (for loss of frequency telemetry); Tie Line Bias; and Tie Line Bias plus Time Error Control (used in ATEC mode), to correspond to current operating conditions. *[Violation Risk Factor: Medium] [Time Horizon: Real-Time Operations]*

**M5.** Forms of acceptable evidence of compliance with Requirement R5 include but are not limited to any one of the following:

- Screen shots from Energy Management System,
- Demonstration using an off-line system.

**R6.** Each Balancing Authority shall recalculate the  $PII_{hourly}$  and  $PII_{accum}$  for the On-Peak and Off-Peak periods whenever adjustments are made to hourly Inadvertent Interchange or  $\Delta TE$ . *[Violation Risk Factor: Medium] [Time Horizon: Operations Assessment]*

**M6.** Forms of acceptable evidence of compliance with Requirement R6 include but are not limited to any one of the following:

- Data, screen shots from the WECC Interchange Tool that demonstrate compliance,

- Data, screen shots from an internal Balancing Authority tool that demonstrate compliance with, or
- Data from any other databases, spreadsheets, displays that demonstrate compliance.

**R7.** Each Balancing Authority shall make the same adjustment to the  $PII_{accum}$  as it did for any month-end meter reading adjustments to Inadvertent Interchange. [*Violation Risk Factor: Medium*] [*Time Horizon: Operations Assessment*]

**M7.** Forms of acceptable evidence of compliance with Requirement R7 include but are not limited to any one of the following:

- Data, screen shots from the WECC Interchange Tool that demonstrate compliance,
- Data, screen shots from an internal Balancing Authority tool that demonstrate compliance,
- Production of data from any other databases, spreadsheets, displays that demonstrate compliance.

**R8.** Each Balancing Authority shall payback Inadvertent Interchange using ATEC rather than bilateral and unilateral payback. [*Violation Risk Factor: Medium*] [*Time Horizon: Operations Assessment*]

**M8.** Forms of acceptable evidence of compliance with Requirement R8 include but are not limited to historical On-Peak and Off-Peak Inadvertent Interchange data, data from the WECC Interchange Tool, and ACE data.

## C. Compliance

### 1. Compliance Monitoring Process

#### 1.1 Compliance Enforcement Authority

The Regional Entity shall serve as the Compliance Enforcement Authority.

For entities that do not work for the Regional Entity, the Regional Entity shall serve as the Compliance Enforcement Authority.

For Reliability Coordinators and other functional entities that work for their Regional Entity, the ERO or a Regional Entity approved by the ERO and FERC or other applicable governmental authorities shall serve as the Compliance Enforcement Authority.

For responsible entities that are also Regional Entities, the ERO or a Regional Entity approved by the ERO and FERC or other applicable governmental authorities shall serve as the Compliance Enforcement Authority.

**1.2 Compliance Monitoring and Assessment Processes:**

Compliance Audits

Self-Certifications

Spot Checking

Compliance Investigations

Self-Reporting

Complaints

**1.3 Evidence Retention**

The following evidence retention periods 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.

Each Balancing Authority in the Western Interconnection shall retain the values of  $PII_{hourly}$ ,  $PII_{accum}$  (On-Peak and Off-Peak),  $\Delta TE$  and any month-end adjustments for the preceding calendar year (January – December), as well as the current calendar year.

Each Balancing Authority in the Western Interconnection shall retain the amount of time the Balancing Authority operated without ATEC for the preceding calendar year (January – December), as well as the current calendar year.

**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	Operations Assessment	Medium	Following the conclusion of each month each Balancing Authority’s absolute value of PII <sub>accum</sub> for either the On-Peak period or Off-Peak period exceeded 150%, but was less than or equal to 160% of the previous calendar year’s Peak Demand or peak generation for generation-only Balancing Authorities.	Following the conclusion of each month each Balancing Authority’s absolute value of PII <sub>accum</sub> for either the On-Peak period or Off-Peak period exceeded 160%, but was less than or equal to 170% of the previous calendar year’s Peak Demand or peak generation for generation-only Balancing Authorities.	Following the conclusion of each month each Balancing Authority’s absolute value of PII <sub>accum</sub> for either the On-Peak period or Off-Peak period exceeded 170%, but was less than or equal to 180% of the previous calendar year’s Peak Demand or peak generation for generation-only Balancing Authorities.	Following the conclusion of each month each Balancing Authority’s absolute value of PII <sub>accum</sub> for either the On-Peak period or Off-Peak period exceeded 180% of the previous calendar year’s Peak Demand or peak generation for generation-only Balancing Authorities.
R2	Operations Assessment	Medium	The Balancing Authority did not recalculate PII <sub>hourly</sub> and adjust the PII <sub>accum</sub> within 90 days of the discovery of the error; but made the required recalculations and adjustments within 120 days.	The Balancing Authority did not recalculate PII <sub>hourly</sub> and adjust the PII <sub>accum</sub> within 120 days of the discovery of the error; but made the required recalculations and adjustments within 150 days.	The Balancing Authority did not recalculate PII <sub>hourly</sub> and adjust the PII <sub>accum</sub> within 150 days of the discovery of the error; but made the required recalculations and adjustments within 180 days.	The Balancing Authority did not recalculate PII <sub>hourly</sub> and adjust PII <sub>accum</sub> within 180 days of the discovery of the error.



R #	Time Horizon	VRF	Violation Severity Levels			
			Lower VSL	Moderate VSL	High VSL	Severe VSL
R3	Real-Time Operations	Medium	The Balancing Authority operated during a calendar quarter without ATEC in service for more than an accumulated 24 hours, but less than or equal to 72 hours.	The Balancing Authority operated during a calendar quarter without ATEC in service for more than an accumulated 72 hours, but less than or equal to 120 hours.	The Balancing Authority operated during a calendar quarter without ATEC in service for more than an accumulated 120 hours, but less than or equal to 168 hours	The Balancing Authority operated during a calendar quarter without ATEC in service for more than an accumulated 168 hours.
R4	Operations Assessment	Medium	The Balancing Authority did not compute $P_{II}^{hourly}$ , $P_{II}^{accum}$ , and $I_{ATEC}$ within 50 minutes, but made the required calculations in less than or equal to two hours.	The Balancing Authority did not compute $P_{II}^{hourly}$ , $P_{II}^{accum}$ , and $I_{ATEC}$ within two hours, but made the required calculations in less than or equal to four hours.	The Balancing Authority did not compute $P_{II}^{hourly}$ , $P_{II}^{accum}$ , and $I_{ATEC}$ within four hours, but made the required calculations in less than or equal to six hours.	The Balancing Authority did not compute $P_{II}^{hourly}$ , $P_{II}^{accum}$ , and $I_{ATEC}$ within six hours.
R5	Real-Time Operations	Medium	N/A	N/A	N/A	The Balancing Authority is not able to change its AGC operating mode between Flat Frequency (for blackout restoration; Flat Tie Line (for loss of frequency

R #	Time Horizon	VRF	Violation Severity Levels			
			Lower VSL	Moderate VSL	High VSL	Severe VSL
						telemetry); Tie Line Bias; or Tie Line Bias plus Time Error control (used in ATEC mode).
R6	Operations Assessment	Medium	N/A	N/A	N/A	When making adjustments to hourly Inadvertent Interchange or $\Delta TE$ , the Balancing Authority did not recalculate the $PII_{hourly}$ and the $PII_{accum}$ for the On-Peak and Off-Peak periods.
R7	Operations Assessment	Medium	N/A	N/A	N/A	When making any month-end meter reading adjustments to Inadvertent Interchange, the Balancing Authority did not make the same adjustment to the $PII_{accum}$ .
R8	Operations Assessment	Medium	N/A	N/A	N/A	The Balancing Authority paid back Inadvertent

R #	Time Horizon	VRF	Violation Severity Levels			
			Lower VSL	Moderate VSL	High VSL	Severe VSL
						Interchange using bilateral and unilateral payback rather than using ATEC.

## Guidelines and Technical Basis

During development of this standard, text boxes were embedded within the standard to explain the rationale for various parts of the standard. Upon BOT approval, the text from the rationale text boxes was moved to this section.

### Requirement R1:

**Premise:** Each Balancing Authority should ensure that the absolute value of its  $PII_{accum}$  for both the On-Peak period and the Off-Peak period each individually does not exceed 150% of the previous year's Peak Demand for load-serving Balancing Authorities and 150% of the previous year's peak generation for generation-only Balancing Authorities. The Balancing Authority is required to take action to keep each  $PII_{accum}$  period within the limit. For example, the Balancing Authorities actions may include:

- Identifying and correcting the source of any metering or accounting error(s) and recalculating the hourly Primary Inadvertent Interchange ( $PII_{hourly}$ ) and the  $PII_{accum}$  from the time of the error;
- Validating the implementation of ATEC; or
- Setting  $L_{max}$  equal to  $L_{10}$  until the  $PII_{accum}$  is below the limit in Requirement R1.

**Justification:**  $PII_{accum}$  may grow from month-end adjustments and metering errors, even with the inclusion of  $I_{ATEC}$  in the ACE equation.

**Goal:** To limit the amount of  $PII_{accum}$  that a Balancing Authority can have at the end of each month.

### Requirement R2:

**Premise:** When a Balancing Authority finds an error in the calculation of its PII, the Balancing Authority needs time to correct the error and recalculate PII and  $PII_{accum}$ .

**Justification:** The drafting team selected 90 days as a reasonable amount of time to correct an error and recalculate PII and  $PII_{accum}$ , since recalculation of PII and  $PII_{accum}$  is not a real-time operations reliability issue.

**Goal:** To promote the timely correction of errors in the calculation of PII and  $PII_{accum}$ .

### Requirement R3:

**Premise:** When a Balancing Authority is not participating in ATEC, payback of  $PII_{accum}$  is delayed.

**Justification:** The limit of 24 hours per quarter discourages a Balancing Authority from withdrawing ATEC participation, for example, for economic gain during selected hours. If the limits were increased to 60 hours, a Balancing Authority could technically withdraw ATEC participation for one hour from Monday to Friday.

**Goal:** To promote fair and timely payback of  $P_{II_{accum}}$  balances.

**Requirement R4:**

**Premise:**  $P_{II_{hourly}}$ ,  $P_{II_{accum}}$ , and  $I_{ATEC}$  should be determined before the next scheduling hour begins.

**Justification:** To promote timely calculations 50 minutes was selected because it is before the next hour ramp begins and permits time to collect the data and resolve interchange metering values.

**Goal:** To promote the timely calculation of  $P_{II_{hourly}}$ ,  $P_{II_{accum}}$ , and  $I_{ATEC}$ .

**Requirement R5:**

**Premise:** The ACE equation, and hence the AGC mode, will contain any number of parameters based on system operating conditions. Various AGC modes are identified corresponding to those operating conditions, as well as the specific sets of parameters included in the ACE equation.

**Justification:** Changing to the proper operating mode, corresponding to current operating conditions, affords proper movement of generating units in response to those conditions. The addition of the ATEC term results in an additional AGC mode and a different set of parameters. The inability to correctly calculate the ATEC term would dictate that AGC not be operated in the ATEC mode.

**Goal:** To set the AGC mode and calculate ACE in a manner that corresponds to the system operating conditions and to accommodate changes in those conditions.

**Requirement R6:**

**Premise:** Hourly adjustments to hourly Inadvertent Interchange (II) require a recalculation of the corresponding hourly  $P_{II}$  value, the corresponding  $P_{II_{accum}}$ , and all subsequent  $P_{II_{accum}}$  for every hour up to the current hour.

**Justification:** As  $P_{II_{hourly}}$  is corrected, then  $P_{II_{accum}}$  should be recalculated.

**Goal:** To promote accurate, fair and timely payback of accumulated  $P_{II}$  balances.

**Requirement R7:**

**Premise:** Month-end meter-reading adjustments are made, for example, when a Balancing Authority performs monthly comparisons of recorded month-end Net Actual Interchange ( $NI_A$ ) values derived from hourly Actual Interchange Telemetered Values against month-end Actual Interchange Register Meter readings.

**Justification:** Month-end adjustments to  $I_{accum}$  are applied as 100%  $P_{II_{accum}}$ . 100% was chosen for simplicity to bilaterally assign  $P_{II_{accum}}$  to both Balancing Authorities, since the effect of this metering error on system frequency is not easily determined over the course of a month.

**Goal:** To provide a mechanism by which corresponding month-end II adjustments can be applied to  $P_{II_{accum}}$ , when such adjustments cannot be attributed to any one particular hour or series of hours.

**Requirement R8:**

**Premise:** ATEC includes automatic unilateral payback of Primary Inadvertent Interchange and Secondary Inadvertent Interchange.

**Justification:** Additional unilateral and bilateral exchanges disturb the balance and distribution between Primary Inadvertent Interchange and Secondary Inadvertent Interchange throughout the Interconnection; thereby stranding Secondary Inadvertent Interchange.

**Goal:** To not strand Secondary Inadvertent Interchange.

**Version History**

Version	Date	Action	Change Tracking
1	February 4, 2003	Effective Date.	New
1	October 17, 2006	Created Standard from Procedure.	Errata
1	February 6, 2007	Changed the Standard Version from 0 to 1 in the Version History Table.	Errata
1	February 6, 2007	The upper limit bounds to the amount of Automatic Time Error Correction term was inadvertently omitted during the Standard Translation. The bound was added to the requirement R1.4.	Errata
1	February 6, 2007	The statement “The Time Monitor may declare offsets in 0.001-second increments” was moved from TEoffset to TDadj and offsets was corrected to adjustments.	Errata
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1	June 19, 2007	The standard number BAL-STD-004-1 was changed to BAL-004-WECC-01 to be consistent with the NERC Regional Reliability Standard Numbering Convention.	Errata
2	December 19, 2012	Adopted by NERC Board of Trustees	
2	October 16, 2013	A FERC Letter Order was issued on October 16, 2013, approving BAL-004-WECC-02. This standard will become enforceable on April 1, 2014.	

**A. Introduction**

- 1. Title:** Automatic Time Error Correction
- 2. Number:** BAL-004-WECC-3
- 3. Purpose:** To maintain Interconnection frequency and to ensure that Time Error Corrections and Primary Inadvertent Interchange (PII) payback are effectively conducted in a manner that does not adversely affect the reliability of the Interconnection.
- 4. Applicability**
  - 4.1. Functional Entities**
    - 4.1.1** Balancing Authorities that operate synchronously in the Western Interconnection.
- 5. Effective Date:** On the first day of the second quarter, after applicable regulatory approval has been received (or the Reliability Standard otherwise becomes effective the first day of the fourth quarter following NERC Board adoption where regulatory approval is not required).

## B. Requirements and Measures

**R1.** Each Balancing Authority shall operate its system such that, following the conclusion of each month, the month-end absolute value of its On-Peak and Off-Peak, Accumulated Primary Inadvertent Interchange ( $PII_{accum}$ ), as calculated by the WECC Interchange Tool (WIT) or its successor electronic confirmation tool, are each individually less than or equal to: *[Violation Risk Factor Medium:] [Time Horizon: Operations Assessment]*

**1.1** For load-serving Balancing Authorities, 150% of the previous calendar year's integrated hourly Peak Demand,

**1.2** For generation-only Balancing Authorities, 150% of the previous calendar year's integrated hourly peak generation.

**M1.** Each Balancing Authority will have evidence that it operated its system such that, following the conclusion of each month, the month-end absolute value of its On-Peak and Off-Peak, Accumulated Primary Inadvertent Interchange ( $PII_{accum}$ ), as calculated by the WECC Interchange Tool (WIT) or its successor electronic confirmation tool, meets all criteria stated in Requirement R1.

**R2.** Each Balancing Authority shall, upon discovery of an error in the calculation of  $PII_{hourly}$ , recalculate within 90 days, the value of  $PII_{hourly}$  and adjust the  $PII_{accum}$  from the time of the error. *[Violation Risk Factor: Medium] [Time Horizon: Operations Assessment]*

**M2.** Forms of acceptable evidence of compliance with Requirement R2 include but are not limited to any one of the following:

- Data, screen shots from the WECC Interchange Tool (WIT) or its successor electronic confirmation tool,
- Data, screen shots from the internal Balancing Authority tool, or
- Production of data from any other databases, spreadsheets, displays.

**R3.** Each Balancing Authority shall keep its Automatic Time Error Correction (ATEC) in service, with an allowable exception period of less than or equal to an accumulated 24 hours per calendar quarter for ATEC to be out of service. *[Violation Risk Factor: Medium] [Time Horizon: Same-day Operations]*

**M3.** Forms of acceptable evidence of compliance with Requirement R3 may include, but are not limited to:

- Dated archived files,
- Historical data,
- Other data that demonstrates the ATEC was out of service for less than 24 hours per calendar quarter.



**R4.** Each Balancing Authority shall compute each of the following using the WECC Interchange Tool (WIT) or its successor electronic confirmation tool, no later than 50 minutes after each hour,

**4.1.**  $P_{II\text{hourly}}$ ,

**4.2.**  $P_{II\text{accum}}$ ,

**4.3.** Automatic Time Error Correction term ( $I_{ATEC}$ ).

*[Violation Risk Factor: Medium] [Time Horizon: Operations Assessment]*

**M4.** Forms of acceptable evidence of compliance with Requirement R4 include but are not limited to any one of the following:

- Data, screen shots from the WECC Interchange Tool (WIT) or its successor electronic confirmation tool, that demonstrate compliance;
- Data, screen shots from internal Balancing Authority tool that demonstrate compliance; or,
- Data from any other databases, spreadsheets, displays that demonstrate compliance.

**R5.** Each Balancing Authority shall be able to change its Automatic Generation Control operating mode between Flat Frequency (for blackout restoration); Flat Tie Line (for loss of frequency telemetry); Tie Line Bias; and Tie Line Bias plus Time Error Control (used in ATEC mode), to correspond to current operating conditions.

*[Violation Risk Factor: Medium] [Time Horizon: Real-Time Operations]*

**M5.** Forms of acceptable evidence of compliance with Requirement R5 include but are not limited to any one of the following:

- Screen shots from Energy Management System,
- Demonstration using an off-line system.

**R6.** Each Balancing Authority shall recalculate the  $P_{II\text{hourly}}$  and  $P_{II\text{accum}}$  for the On-Peak and Off-Peak periods whenever adjustments are made to hourly Inadvertent Interchange or  $\Delta TE$ . *[Violation Risk Factor: Medium] [Time Horizon: Operations Assessment]*

**M6.** Forms of acceptable evidence of compliance with Requirement R6 include but are not limited to any one of the following:

- Data, screen shots from the WECC Interchange Tool (WIT) or its successor electronic confirmation tool, that demonstrate compliance;
- Data, screen shots from an internal Balancing Authority tool that demonstrate compliance with; or,

- Data from any other databases, spreadsheets, displays that demonstrate compliance.
- R7.** Each Balancing Authority shall make the same adjustment to the PII<sub>accum</sub> as it did for any month-end meter reading adjustments to Inadvertent Interchange. *[Violation Risk Factor: Medium] [Time Horizon: Operations Assessment]*
- M7.** Forms of acceptable evidence of compliance with Requirement R7 include but are not limited to any one of the following:
- Data, screen shots from the WECC Interchange Tool (WIT) or its successor electronic confirmation tool, that demonstrate compliance;
  - Data, screen shots from an internal Balancing Authority tool that demonstrate compliance; or,
  - Production of data from any other databases, spreadsheets, displays that demonstrate compliance.
- R8.** Each Balancing Authority shall payback Inadvertent Interchange using ATEC rather than bilateral and unilateral payback. *[Violation Risk Factor: Medium] [Time Horizon: Operations Assessment]*
- M8.** Forms of acceptable evidence of compliance with Requirement R8 include but are not limited to historical On-Peak and Off-Peak Inadvertent Interchange data, data from the WECC Interchange Tool, and ACE data.

## **C. Compliance**

### **1. Compliance Monitoring Process**

#### **1.1 Compliance Enforcement Authority**

The Regional Entity shall serve as the Compliance Enforcement Authority.

For entities that do not work for the Regional Entity, the Regional Entity shall serve as the Compliance Enforcement Authority.

For Reliability Coordinators and other functional entities that work for their Regional Entity, the ERO or a Regional Entity approved by the ERO and FERC or other applicable governmental authorities shall serve as the Compliance Enforcement Authority.

For responsible entities that are also Regional Entities, the ERO or a Regional Entity approved by the ERO and FERC or other applicable governmental authorities shall serve as the Compliance Enforcement Authority.

**1.2 Compliance Monitoring and Assessment Processes:**

Compliance Audits

Self-Certifications

Spot Checking

Compliance Investigations

Self-Reporting

Complaints

**1.3 Evidence Retention**

The following evidence retention periods 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.

Each Balancing Authority in the Western Interconnection shall retain the values of  $PII_{hourly}$ ,  $PII_{accum}$  (On-Peak and Off-Peak),  $\Delta TE$  and any month-end adjustments for the preceding calendar year (January – December), as well as the current calendar year.

Each Balancing Authority in the Western Interconnection shall retain the amount of time the Balancing Authority operated without ATEC for the preceding calendar year (January – December), as well as the current calendar year.

**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	Operations Assessment	Medium	Following the conclusion of each month each Balancing Authority’s absolute value of PII <sub>accum</sub> for either the On-Peak period or Off-Peak period exceeded 150%, but was less than or equal to 160% of the previous calendar year’s Peak Demand or peak generation for generation-only Balancing Authorities.	Following the conclusion of each month each Balancing Authority’s absolute value of PII <sub>accum</sub> for either the On-Peak period or Off-Peak period exceeded 160%, but was less than or equal to 170% of the previous calendar year’s Peak Demand or peak generation for generation-only Balancing Authorities.	Following the conclusion of each month each Balancing Authority’s absolute value of PII <sub>accum</sub> for either the On-Peak period or Off-Peak period exceeded 170%, but was less than or equal to 180% of the previous calendar year’s Peak Demand or peak generation for generation-only Balancing Authorities.	Following the conclusion of each month each Balancing Authority’s absolute value of PII <sub>accum</sub> for either the On-Peak period or Off-Peak period exceeded 180% of the previous calendar year’s Peak Demand or peak generation for generation-only Balancing Authorities.
R2	Operations Assessment	Medium	The Balancing Authority did not recalculate PII <sub>hourly</sub> and adjust the PII <sub>accum</sub> within 90 days of the discovery of the error; but made the required recalculations and adjustments within 120 days.	The Balancing Authority did not recalculate PII <sub>hourly</sub> and adjust the PII <sub>accum</sub> within 120 days of the discovery of the error; but made the required recalculations and adjustments within 150 days.	The Balancing Authority did not recalculate PII <sub>hourly</sub> and adjust the PII <sub>accum</sub> within 150 days of the discovery of the error; but made the required recalculations and adjustments within 180 days.	The Balancing Authority did not recalculate PII <sub>hourly</sub> and adjust PII <sub>accum</sub> within 180 days of the discovery of the error.

R #	Time Horizon	VRF	Violation Severity Levels			
			Lower VSL	Moderate VSL	High VSL	Severe VSL
R3	Real-Time Operations	Medium	The Balancing Authority operated during a calendar quarter without ATEC in service for more than an accumulated 24 hours, but less than or equal to 72 hours.	The Balancing Authority operated during a calendar quarter without ATEC in service for more than an accumulated 72 hours, but less than or equal to 120 hours.	The Balancing Authority operated during a calendar quarter without ATEC in service for more than an accumulated 120 hours, but less than or equal to 168 hours	The Balancing Authority operated during a calendar quarter without ATEC in service for more than an accumulated 168 hours.
R4	Operations Assessment	Medium	The Balancing Authority did not compute $PII_{hourly}$ , $PII_{accum}$ , and $I_{ATEC}$ within 50 minutes, but made the required calculations in less than or equal to two hours.	The Balancing Authority did not compute $PII_{hourly}$ , $PII_{accum}$ , and $I_{ATEC}$ within two hours, but made the required calculations in less than or equal to four hours.	The Balancing Authority did not compute $PII_{hourly}$ , $PII_{accum}$ , and $I_{ATEC}$ within four hours, but made the required calculations in less than or equal to six hours.	The Balancing Authority did not compute $PII_{hourly}$ , $PII_{accum}$ , and $I_{ATEC}$ within six hours.
R5	Real-Time Operations	Medium	N/A	N/A	N/A	The Balancing Authority is not able to change its AGC operating mode between Flat Frequency (for blackout restoration; Flat Tie Line (for loss of frequency

R #	Time Horizon	VRF	Violation Severity Levels			
			Lower VSL	Moderate VSL	High VSL	Severe VSL
						telemetry); Tie Line Bias; or Tie Line Bias plus Time Error control (used in ATEC mode).
R6	Operations Assessment	Medium	N/A	N/A	N/A	When making adjustments to hourly Inadvertent Interchange or $\Delta TE$ , the Balancing Authority did not recalculate the $PII_{hourly}$ and the $PII_{accum}$ for the On-Peak and Off-Peak periods.
R7	Operations Assessment	Medium	N/A	N/A	N/A	When making any month-end meter reading adjustments to Inadvertent Interchange, the Balancing Authority did not make the same adjustment to the $PII_{accum}$ .

R #	Time Horizon	VRF	Violation Severity Levels			
			Lower VSL	Moderate VSL	High VSL	Severe VSL
R8	Operations Assessment	Medium	N/A	N/A	N/A	The Balancing Authority paid back Inadvertent Interchange using bilateral and unilateral payback rather than using ATEC.

## Guidelines and Technical Basis

### Background

In February 2003, the WECC Automatic Time Error Correction (ATEC) Procedure (Procedure) became effective for all Balancing Authorities in the Western Interconnection. The original intent of the Procedure was to minimize the number of Manual Time Error Corrections in the Western Interconnection. ATEC provides the added benefit of a superior approach over NERC Reliability Standard BAL-004-0 – Time Error Correction for assigning costs and providing for the equitable payback of Inadvertent Interchange. In October 2006, the Procedure became a WECC Criterion. In May 2009, FERC issued Order No.723 that approved Regional Reliability Standard BAL-004-WECC-1 - Automatic Time Error Correction, as submitted by NERC. In addition, the Commission directed WECC to develop several clarifying modifications to BAL-004-WECC-1 using the FERC-approved Process for Developing and Approving WECC Standards. The Effective Date of the BAL-004-WECC-1 standard was July 1, 2009. BAL-004-WECC-1 required Balancing Authorities within the Western Interconnection to maintain Interconnection frequency within a predefined frequency profile and to ensure that Time Error Corrections were effectively conducted in a manner that did not adversely affect the reliability of the Interconnection. In September 2009, WECC received WECC Standards/Regional Criterion Request Form (Request) WECC-0068, which was a request for modification of BAL-004-WECC-1. In July 2010, the chair of the WECC Operating Committee assigned the Request to the Performance Work Group (PWG) for development.

### Requirement R1:

**Premise:** Each Balancing Authority should ensure that the absolute value of its  $PII_{accum}$  for both the On-Peak period and the Off-Peak period each individually does not exceed 150% of the previous year's Peak Demand for load-serving Balancing Authorities and 150% of the previous year's peak generation for generation-only Balancing Authorities. The Balancing Authority is required to keep each  $PII_{accum}$  period within the limit. For example, the Balancing Authorities actions may include:

- Identifying and correcting the source of any metering or accounting error(s) and recalculating the hourly Primary Inadvertent Interchange ( $PII_{hourly}$ ) and the  $PII_{accum}$  from the time of the error;
- Validating the implementation of ATEC; or
- Setting  $L_{max}$  equal to  $L_{10}$ , until the  $PII_{accum}$  is below the limit in Requirement R1.

**Justification:**  $PII_{accum}$  may grow from month-end adjustments and metering errors, even with the inclusion of  $I_{ATEC}$  in the ACE equation.

**Goal:** To limit the amount of  $PII_{accum}$  that a Balancing Authority can have at the end of each month.

### Requirement R2:

**Premise:** When a Balancing Authority finds an error in the calculation of its PII, the Balancing Authority needs time to correct the error and recalculate PII and  $PII_{accum}$ .

**Justification:** The drafting team selected 90 days as a reasonable amount of time to correct an error and recalculate PII and  $PII_{accum}$ , since recalculation of PII and  $PII_{accum}$  is not a real-time operations



reliability issue.

**Goal:** To promote the timely correction of errors in the calculation of PII and PII<sub>accum</sub>.

**Requirement R3:**

**Premise:** When a Balancing Authority is not participating in ATEC, payback of PII<sub>accum</sub> is delayed.

**Justification:** The limit of 24 hours per quarter discourages a Balancing Authority from withdrawing ATEC participation, for example, for economic gain during selected hours. If the limits were increased to 60 hours, a Balancing Authority could technically withdraw ATEC participation for one hour from Monday to Friday.

**Goal:** To promote fair and timely payback of PII<sub>accum</sub> balances.

**Requirement R4:**

**Premise:** PII<sub>hourly</sub>, PII<sub>accum</sub>, and  $I_{ATEC}$  should be determined before the next scheduling hour begins.

**Justification:** To promote timely calculations 50 minutes was selected because it is before the next hour ramp begins and permits time to collect the data and resolve interchange metering values.

**Goal:** To promote the timely calculation of PII<sub>hourly</sub>, PII<sub>accum</sub>, and  $I_{ATEC}$ .

**Requirement R5:**

**Premise:** The ACE equation, and hence the AGC mode, will contain any number of parameters based on system operating conditions. Various AGC modes are identified corresponding to those operating conditions, as well as the specific sets of parameters included in the ACE equation.

**Justification:** Changing to the proper operating mode, corresponding to current operating conditions, affords proper movement of generating units in response to those conditions. The addition of the ATEC term results in an additional AGC mode and a different set of parameters. The inability to correctly calculate the ATEC term would dictate that AGC not be operated in the ATEC mode.

**Goal:** To set the AGC mode and calculate ACE in a manner that corresponds to the system operating conditions and to accommodate changes in those conditions.

**Requirement R6:**

**Premise:** Hourly adjustments to hourly Inadvertent Interchange (II) require a recalculation of the corresponding hourly PII value, the corresponding PII<sub>accum</sub>, and all subsequent PII<sub>accum</sub> for every hour up to the current hour.

**Justification:** As PII<sub>hourly</sub> is corrected, then PII<sub>accum</sub> should be recalculated.

**Goal:** To promote accurate, fair and timely payback of accumulated PII balances.

**Requirement R7:**

**Premise:** Month-end meter-reading adjustments are made, for example, when a Balancing Authority performs monthly comparisons of recorded month-end Net Actual Interchange ( $NI_A$ ) values derived from hourly Actual Interchange Telemetered Values against month-end Actual Interchange Register Meter readings.

**Justification:** Month-end adjustments to  $I_{accum}$  are applied as 100%  $PII_{accum}$ . 100% was chosen for simplicity to bilaterally assign  $PII_{accum}$  to both Balancing Authorities, since the effect of this metering error on system frequency is not easily determined over the course of a month.

WECC Standard BAL-004-WECC-3 – Automatic Time Error Correction

**Goal:** To provide a mechanism by which corresponding month-end II adjustments can be applied to  $PII_{accum}$ , when such adjustments cannot be attributed to any one hour or series of hours.

**Requirement R8:**

**Premise:** ATEC includes automatic unilateral payback of Primary Inadvertent Interchange and Secondary Inadvertent Interchange.

**Justification:** Additional unilateral and bilateral exchanges disturb the balance and distribution between Primary Inadvertent Interchange and Secondary Inadvertent Interchange throughout the Interconnection; thereby stranding Secondary Inadvertent Interchange.

**Goal:** To not strand Secondary Inadvertent Interchange.

**Version History**

Version	Date	Action	Change Tracking
1	February 4, 2003	Effective Date.	New
1	October 17, 2006	Created Standard from Procedure.	Errata
1	February 6, 2007	Changed the Standard Version from 0 to 1 in the Version History Table.	Errata
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WECC Standard BAL-004-WECC-3 – Automatic Time Error Correction

Version	Date	Action	Change Tracking
3	TBD	TBD	Five-year review. The project: 1) relocates the Background section to the preamble of the Guidance section, 2) adds On-Peak and Off-Peak parameters in Requirement R1/M1, 3) addresses WECC Interchange Tool software successors throughout, 4) conforms the document to current drafting conventions (R1/M1, R4/M4), and, 5) addresses non-substantive syntax and template concerns.

## A. Introduction

1. **Title:** Automatic Time Error Correction
2. **Number:** BAL-004-WECC-023
3. **Purpose:** To maintain Interconnection frequency and to ensure that Time Error Corrections and Primary Inadvertent Interchange (PII) payback are effectively conducted in a manner that does not adversely affect the reliability of the Interconnection.
4. **Applicability**
  - 4.1. **Functional Entities**
    - 4.1.1 Balancing Authorities that operate synchronously in the Western Interconnection.
5. **Effective Date:** On the first day of the second quarter, after applicable regulatory approval has been received (or the Reliability Standard otherwise becomes effective the first day of the fourth quarter following NERC Board adoption where regulatory approval is not required).

### ~~6. Background:~~

~~In February 2003, the WECC Automatic Time Error Correction (ATEC) Procedure (Procedure) became effective for all Balancing Authorities in the Western Interconnection. The original intent of the Procedure was to minimize the number of Manual Time Error Corrections in the Western Interconnection. ATEC provides the added benefit of a superior approach over the current NERC Reliability Standard BAL 004-0 Time Error Correction for assigning costs and providing for the equitable payback of Inadvertent Interchange. In October 2006, the Procedure became a WECC Criterion. In May 2009, FERC issued Order No. 723 that approved Regional Reliability Standard BAL 004 WECC 1 Automatic Time Error Correction, as submitted by NERC. In addition, the Commission directed WECC to develop several clarifying modifications to BAL 004 WECC 1 using the FERC approved Process for Developing and Approving WECC Standards. The Effective Date of the BAL 004 WECC 1 standard was July 1, 2009. BAL 004 WECC 1 required Balancing Authorities within the Western Interconnection to maintain Interconnection frequency within a predefined frequency profile and to ensure that Time Error Corrections were effectively conducted in a manner that did not adversely affect the reliability of the Interconnection. In September 2009, WECC received WECC Standards/Regional Criterion Request Form (Request) WECC 0068, which was a request for modification of BAL 004 WECC 1. In July 2010, the chair of the WECC Operating Committee assigned the Request to the Performance Work Group (PWG) for development.~~

## B. Requirements and Measures

~~Following the conclusion of each month each~~ **R1.** Each Balancing Authority shall ~~verify~~ operate its system such that, following the conclusion of each month, the month-end absolute value of its On-Peak and Off-Peak, Accumulated Primary Inadvertent Interchange (PII<sub>accum</sub>) for both, as calculated by the monthly On-Peak period and the monthly Off-Peak period WECC Interchange Tool (WIT) or its successor electronic confirmation tool, are each individually less than or equal to: *[Violation Risk Factor Medium:] [Time Horizon: Operations Assessment]*

**1.1** For load-serving Balancing Authorities, 150% of the previous calendar year's integrated hourly Peak Demand,-

**1.2** For generation-only Balancing Authorities, 150% of the previous calendar year's integrated hourly peak generation.

*[Violation Risk Factor Medium:] [Time Horizon: Operations Assessment]*

~~**M1.** Forms of acceptable evidence of compliance with Requirement R1 include but are not limited to any one of the following:~~

- ~~• Data, screen shots from the WECC Interchange Tool (WIT),-~~
- ~~• Data, screen shots from the internal Balancing Authority tool, or~~
- ~~• Production of data from any other databases, spreadsheets, displays.~~

**M1.** Each Balancing Authority will have evidence that it operated its system such that, following the conclusion of each month, the month-end absolute value of its On-Peak and Off-Peak, Accumulated Primary Inadvertent Interchange (PII<sub>accum</sub>), as calculated by the WECC Interchange Tool (WIT) or its successor electronic confirmation tool, meets all criteria stated in Requirement R1.

**R2.** Each Balancing Authority shall, upon discovery of an error in the calculation of PII<sub>hourly</sub>, recalculate within 90 days, the value of PII<sub>hourly</sub> and adjust the PII<sub>accum</sub> from the time of the error. *[Violation Risk Factor: Medium] [Time Horizon: Operations Assessment]*

**M2.** Forms of acceptable evidence of compliance with Requirement R2 include but are not limited to any one of the following:

- Data, screen shots from the WECC Interchange Tool (WIT) or its successor electronic confirmation tool,
- Data, screen shots from the internal Balancing Authority tool, or
- Production of data from any other databases, spreadsheets, displays.

**R3.** Each Balancing Authority shall keep its Automatic Time Error Correction (ATEC) in

service, with an allowable exception period of less than or equal to an accumulated 24 hours per calendar quarter for ATEC to be out of service. *[Violation Risk Factor: Medium] [Time Horizon: Same-day Operations]*-

**M3.** Forms of acceptable evidence of compliance with Requirement R3 may include, but are not limited to:-

- Dated archived files,-
- Historical data,-
- Other data that demonstrates the ATEC was out of service for less than 24 hours per calendar quarter.-

**-R4.** Each Balancing Authority shall compute each of the following by using the WECC Interchange Tool (WIT) or its successor electronic confirmation tool, no later than 50 minutes after each hour:-

- 4.1.** PII<sub>hourly</sub>,
- 4.2.** PII<sub>accum</sub>,
- 4.3.** Automatic Time Error Correction term ( $I_{ATEC}$ ).

*[Violation Risk Factor: Medium] [Time Horizon: Operations Assessment]*

**M4.** Forms of acceptable evidence of compliance with Requirement R4 include but are not limited to any one of the following:

- Data, screen shots from the WECC Interchange Tool (WIT) or its successor electronic confirmation tool, that demonstrate compliance,-
- Data, screen shots from internal Balancing Authority tool that demonstrate compliance;- or
- Data from any other databases, spreadsheets, displays that demonstrate compliance.-

**R5.** Each Balancing Authority shall be able to change its Automatic Generation Control operating mode between Flat Frequency (for blackout restoration); Flat Tie Line (for loss of frequency telemetry); Tie Line Bias; and Tie Line Bias plus Time Error Control (used in ATEC mode), to correspond to current operating conditions. *[Violation Risk Factor: Medium] [Time Horizon: Real-Time Operations]*-

**M5.** Forms of acceptable evidence of compliance with Requirement R5 include but are not limited to any one of the following:

- Screen shots from Energy Management System,-
- Demonstration using an off-line system.

**R6.** Each Balancing Authority shall recalculate the PIIhourly and PIIaccum for the On-Peak and Off-Peak periods whenever adjustments are made to hourly Inadvertent Interchange or  $\Delta$ TE. *[Violation Risk Factor: Medium] [Time Horizon: Operations Assessment]*

**M6.** Forms of acceptable evidence of compliance with Requirement R6 include but are not limited to any one of the following:

- Data, screen shots from the WECC Interchange Tool (WIT) or its successor electronic confirmation tool, that demonstrate compliance;<sub>i</sub>
- Data, screen shots from an internal Balancing Authority tool that demonstrate compliance with<sub>i</sub> or<sub>i</sub>
- Data from any other databases, spreadsheets, displays that demonstrate compliance.-

**R7.** Each Balancing Authority shall make the same adjustment to the PIIaccum as it did for any month-end meter reading adjustments to Inadvertent Interchange. *[Violation Risk Factor: Medium] [Time Horizon: Operations Assessment]*

**M7.—**Forms of acceptable evidence of compliance with Requirement R7 include but are not limited to any one of the following:

- Data, screen shots from the WECC Interchange Tool (WIT) or its successor electronic confirmation tool, that demonstrate compliance;<sub>i</sub>
- Data, screen shots from an internal Balancing Authority tool that demonstrate compliance;<sub>i</sub> or<sub>i</sub>
- Production of data from any other databases, spreadsheets, displays that demonstrate compliance.

**R8.** Each Balancing Authority shall payback Inadvertent Interchange using ATEC rather than bilateral and unilateral payback. *[Violation Risk Factor: Medium] [Time Horizon: Operations Assessment]*

**M8.** Forms of acceptable evidence of compliance with Requirement R8 include but are not limited to historical On-Peak and Off-Peak Inadvertent Interchange data, data from the WECC Interchange Tool, and ACE data.-

### C. Compliance

~~1.~~



**1. Compliance Monitoring Process**

~~1.1~~

**1.1 Compliance Enforcement Authority**

The Regional Entity shall serve as the Compliance Enforcement Authority.

For entities that do not work for the Regional Entity, the Regional Entity shall serve as the Compliance Enforcement Authority.-

For Reliability Coordinators and other functional entities that work for their Regional Entity, the ERO or a Regional Entity approved by the ERO and FERC or other applicable governmental authorities shall serve as the Compliance Enforcement Authority.-

For responsible entities that are also Regional Entities, the ERO or a Regional Entity approved by the ERO and FERC or other applicable governmental authorities shall serve as the Compliance Enforcement Authority.

**1.2 ~~1.2~~—Compliance Monitoring and Assessment Processes:-**

~~————~~ **Compliance Audits**

~~————~~ **Self-Certifications**

~~————~~ Spot

Checking

~~————~~ **Compliance Investigations**

~~————~~ Self-Reporting

~~————~~ Complaints-

**1.3 ~~1.3~~—Evidence Retention-**

The following evidence retention periods 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.-

Each Balancing Authority in the Western Interconnection shall retain the values of  $PII_{hourly}$ ,  $PII_{accum}$  (On-Peak and Off-Peak),  $\Delta TE$  and any month-end adjustments for the preceding calendar year (January – December), as well as the current calendar year.

Each Balancing Authority in the Western Interconnection shall retain the amount of time the Balancing Authority -operated without ATEC for the preceding calendar year (January – December), as well as the current calendar year.

**1.4 ~~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	Operations Assessment	Medium	Following the conclusion of each month each Balancing Authority’s absolute value of PII <sub>accum</sub> for either the On-Peak period or Off-Peak period exceeded 150%, but was less than or equal to 160% of the previous calendar year’s Peak Demand or peak generation for generation-only Balancing Authorities.	Following the conclusion of each month each Balancing Authority’s absolute value of PII <sub>accum</sub> for either the On-Peak period or Off-Peak period exceeded 160%, but was less than or equal to 170% of the previous calendar year’s Peak Demand or peak generation for generation-only Balancing Authorities.	Following the conclusion of each month each Balancing Authority’s absolute value of PII <sub>accum</sub> for either the On-Peak period or Off-Peak period exceeded 170%, but was less than or equal to 180% of the previous calendar year’s Peak Demand or peak generation for generation-only Balancing Authorities.	Following the conclusion of each month each Balancing Authority’s absolute value of PII <sub>accum</sub> for either the On-Peak period or Off-Peak period exceeded 180% of the previous calendar year’s Peak Demand or peak generation for generation-only Balancing Authorities.
R2	Operations Assessment	Medium	The Balancing Authority did not recalculate PII <sub>hourly</sub> and adjust the PII <sub>accum</sub> within 90 days of the discovery of the error; but made the required recalculations and adjustments within 120 days.	The Balancing Authority did not recalculate PII <sub>hourly</sub> and adjust the PII <sub>accum</sub> within 120 days of the discovery of the error; but made the required recalculations and adjustments within 150 days.	The Balancing Authority did not recalculate PII <sub>hourly</sub> and adjust the PII <sub>accum</sub> within 150 days of the discovery of the error; but made the required recalculations and adjustments within 180 days.	The Balancing Authority did not recalculate PII <sub>hourly</sub> and adjust PII <sub>accum</sub> within 180 days of the discovery of the error.

R #	Time Horizon	VRF	Violation Severity Levels			
			Lower VSL	Moderate VSL	High VSL	Severe VSL
R3	Real-Time Operations	Medium	The Balancing Authority operated during a calendar quarter without ATEC in service for more than an accumulated 24 hours, but less than or equal to 72 hours.	The Balancing Authority operated during a calendar quarter without ATEC in service for more than an accumulated 72 hours, but less than or equal to 120 hours.	The Balancing Authority operated during a calendar quarter without ATEC in service for more than an accumulated 120 hours, but less than or equal to 168 hours-	The Balancing Authority operated during a calendar quarter without ATEC in service for more than an accumulated 168 hours.
R4	Operations Assessment	Medium	The Balancing Authority did not compute $PII_{hourly}$ , $PII_{accum}$ , and $I_{ATEC}$ within 50 minutes, but made the required calculations in less than or equal to two hours.	The Balancing Authority did not compute $PII_{hourly}$ , $PII_{accum}$ , and $I_{ATEC}$ within two hours, but made the required calculations in less than or equal to four hours.	The Balancing Authority did not compute $PII_{hourly}$ , $PII_{accum}$ , and $I_{ATEC}$ within four hours, but made the required calculations in less than or equal to six hours.	The Balancing Authority did not compute $PII_{hourly}$ , $PII_{accum}$ , and $I_{ATEC}$ within six hours.
R5	Real-Time Operations	Medium	N/A	N/A	N/A	The Balancing Authority is not able to change its AGC operating mode between Flat Frequency (for blackout restoration; Flat Tie Line (for loss of frequency-

R #	Time Horizon	VRF	Violation Severity Levels			
			Lower VSL	Moderate VSL	High VSL	Severe VSL
						telemetry); Tie Line Bias; or Tie Line Bias plus Time Error control (used in ATEC mode).
R6	Operations Assessment	Medium	N/A	N/A	N/A	When making adjustments to hourly Inadvertent Interchange or $\Delta TE$ , the Balancing Authority did not recalculate the $PII_{hourly}$ and the $PII_{accum}$ for the On-Peak and Off-Peak periods.
R7	Operations Assessment	Medium	N/A	N/A	N/A	When making any month-end meter reading adjustments to Inadvertent Interchange, the Balancing Authority did not make the same adjustment to the $PII_{accum}$ .

WECC Standard BAL-004-WECC-3 – Automatic Time Error Correction

R #	Time Horizon	VRF	Violation Severity Levels			
			Lower VSL	Moderate VSL	High VSL	Severe VSL
R8	Operations Assessment	Medium	N/A	N/A	N/A	The Balancing Authority paid back Inadvertent Interchange using bilateral and unilateral payback rather than using ATEC.

## Guidelines and Technical Basis

### Background

In February 2003, the WECC Automatic Time Error Correction (ATEC) Procedure (Procedure) became effective for all Balancing Authorities in the Western Interconnection. The original intent of the Procedure was to minimize the number of Manual Time Error Corrections in the Western Interconnection. ATEC provides the added benefit of a superior approach over NERC Reliability Standard BAL-004-0 – Time Error Correction for assigning costs and providing for the equitable payback of Inadvertent Interchange. In October 2006, the Procedure became a WECC Criterion. In May 2009, FERC issued Order No.723 that approved Regional Reliability Standard BAL-004-WECC-1 - Automatic Time Error Correction, as submitted by NERC. In addition, the Commission directed WECC to develop several clarifying modifications to BAL-004-WECC-1 using the FERC-approved Process for Developing and Approving WECC Standards. The Effective Date of the BAL-004-WECC-1 standard was July 1, 2009. BAL-004-WECC-1 required Balancing Authorities within the Western Interconnection to maintain Interconnection frequency within a predefined frequency profile and to ensure that Time Error Corrections were effectively conducted in a manner that did not adversely affect the reliability of the Interconnection. In September 2009, WECC received WECC Standards/Regional Criterion Request Form (Request) WECC-0068, which was a request for modification of BAL-004-WECC-1. In July 2010, the chair of the WECC Operating Committee assigned the Request to the Performance Work Group (PWG) for development.

~~During development of this standard, text boxes were embedded within the standard to explain the rationale for various parts of the standard. Upon BOT approval, the text from the rationale text boxes was moved to this section.~~

### **Requirement R1:-**

**Premise:** Each Balancing Authority should ensure that the absolute value of its  $PII_{accum}$  for both the On-Peak period and the Off-Peak period each individually does not exceed 150% of the previous year's Peak Demand for load-serving Balancing Authorities and 150% of the previous year's peak generation for generation-only Balancing Authorities. The Balancing Authority is required to ~~take action to~~ keep each  $PII_{accum}$  period within the limit. For example, the Balancing Authorities actions may include:

- Identifying and correcting the source of any metering or accounting error(s) and recalculating the hourly Primary Inadvertent Interchange ( $PII_{hourly}$ ) and the  $PII_{accum}$  from the time of the error;
- Validating the implementation of ATEC; or
- Setting  $L_{max}$  equal to  $L_{10}$ , until the  $PII_{accum}$  is below the limit in Requirement R1.

**Justification:**  $PII_{accum}$  may grow from month-end adjustments and metering errors, even with the inclusion of  $I_{ATEC}$  in the ACE equation.-

**Goal:** To limit the amount of  $PII_{accum}$  that a Balancing Authority can have at the end of each month.-

### **Requirement R2:-**

**Premise:** When a Balancing Authority finds an error in the calculation of its PII, the Balancing Authority needs time to correct the error and recalculate PII and  $PII_{accum}$ .

**Justification:** The drafting team selected 90 days as a reasonable amount of time to correct an error and recalculate PII and PII<sub>accum</sub>, since recalculation of PII and PII<sub>accum</sub> is not a real-time operations reliability issue.—

**Goal:** To promote the timely correction of errors in the calculation of PII and PII<sub>accum</sub>.

**Requirement R3:**

**Premise:** When a Balancing Authority is not participating in ATEC, payback of PII<sub>accum</sub> is delayed.—

**Justification:** The limit of 24 hours per quarter discourages a Balancing Authority from withdrawing ATEC participation, for example, for economic gain during selected hours. If the limits were increased to 60 hours, a Balancing Authority could technically withdraw ATEC participation for one hour from Monday to Friday.

**Goal:** To promote fair and timely payback of PII<sub>accum</sub> balances.—

**Requirement R4:**

**Premise:** PII<sub>hourly</sub>, PII<sub>accum</sub>, and I<sub>ATEC</sub> should be determined before the next scheduling hour begins.

**Justification:** To promote timely calculations 50 minutes was selected because it is before the next hour ramp begins and permits time to collect the data and resolve interchange metering values.

**Goal:** To promote the timely calculation of PII<sub>hourly</sub>, PII<sub>accum</sub>, and I<sub>ATEC</sub>.

**Requirement R5:**

**Premise:** The ACE equation, and hence the AGC mode, will contain any number of parameters based on system operating conditions. Various AGC modes are identified corresponding to those operating conditions, as well as the specific sets of parameters included in the ACE equation.

**Justification:** Changing to the proper operating mode, corresponding to current operating conditions, affords proper movement of generating units in response to those conditions. The addition of the ATEC term results in an additional AGC mode and a different set of parameters. The inability to correctly calculate the ATEC term would dictate that AGC not be operated in the ATEC mode.

**Goal:** To set the AGC mode and calculate ACE in a manner that corresponds to the system operating conditions and to accommodate changes in those conditions.

**Requirement R6:**

**Premise:-** Hourly adjustments to hourly Inadvertent Interchange (II) require a recalculation of the corresponding hourly PII value, the corresponding PII<sub>accum</sub>, and all subsequent PII<sub>accum</sub> for every hour up to the current hour.

**Justification:** As PII<sub>hourly</sub> is corrected, then PII<sub>accum</sub> should be recalculated.



**Goal:** To promote accurate, fair and timely payback of accumulated PII balances.

**Requirement R7:**

**Premise:-** Month-end meter-reading adjustments are made, for example, when a Balancing Authority performs monthly comparisons of recorded month-end Net Actual Interchange (NIA) values derived from hourly Actual Interchange Telemetered Values against month-end Actual Interchange Register Meter readings.

**Justification:-** Month-end adjustments to  $I_{accum}$  are applied as 100%  $PII_{accum}$ . 100% was chosen for simplicity to bilaterally assign  $PII_{accum}$  to both Balancing Authorities, since the effect of this metering error on system frequency is not easily determined over the course of a month.

**Goal:-** To provide a mechanism by which corresponding month-end II adjustments can be applied to  $PII_{accum}$ , when such adjustments cannot be attributed to any one ~~particular~~ hour or series of hours.

**Requirement R8:**

**Premise:-** ATEC includes automatic unilateral payback of Primary Inadvertent Interchange and Secondary Inadvertent Interchange.

**Justification:-** Additional unilateral and bilateral exchanges disturb the balance and distribution between Primary Inadvertent Interchange and Secondary Inadvertent Interchange throughout the Interconnection; thereby stranding Secondary Inadvertent Interchange.-

**Goal:** To not strand Secondary Inadvertent Interchange.

**Version History**

Version	Date	Action	Change Tracking
1	February 4, 2003	Effective Date.	New
1	October 17, 2006	Created Standard from Procedure.	Errata
1	February 6, 2007	Changed the Standard Version from 0 to 1 in the Version History Table.	Errata
1	February 6, 2007	The upper limit bounds to the amount of Automatic Time Error Correction term was inadvertently omitted during the Standard Translation. -The bound was added to the requirement R1.4.	Errata
1	February 6, 2007	The statement “The Time Monitor may declare offsets in 0.001-second increments” was moved from TEoffset to TDadj and offsets was corrected to adjustments.	Errata
1	February 6, 2007	The reference to seconds was deleted from the TE offset term.	Errata
1	June 19, 2007	The standard number BAL-STD-004-1 was changed to BAL-004-WECC-01 to be consistent with the NERC Regional Reliability Standard Numbering Convention.-	Errata
2	December 19, 2012	Adopted by NERC Board of Trustees	
2	October 16, 2013	A FERC Letter Order was issued on October 16, 2013, approving BAL-004-WECC-02. This standard will become enforceable on April 1, 2014.	

WECC Standard BAL-004-WECC-3 – Automatic Time Error Correction

Version	Date	Action	Change Tracking
<u>3</u>	<u>TBD</u>	<u>TBD</u>	<p><u>Five-year review. The project: 1) relocates the Background section to the preamble of the Guidance section, 2) adds On-Peak and Off-Peak parameters in Requirement R1/M1, 3) addresses WECC Interchange Tool software successors throughout, 4) conforms the document to current drafting conventions (R1/M1, R4/M4), and, 5) addresses non-substantive syntax and template concerns.</u></p>

**Attachment E**  
**Project Roadmap**  
**WECC-0124 BAL-004-WECC-3**  
**Automatic Time Error Correction**

**Project Roadmap**

Actions	Proposed Date
1. SAR Filed	September 1, 2016
2. WSC approved the SAR	December 6, 2016 <sup>1</sup>
3. WSC assigned original BAL Drafting Team (DT), as available	September 6, 2016
4. First DT meeting	September 27, 2016
5. Posting 1 Comments Open	October 3, 2016
6. Posting 1 Comments Closed (45-day)	November 17, 2016
7. DT Meets to answer Comments	November 22, 2016
8. Posting 2 Comments Open	January 16, 2017
9. Posting 2 Comments Closed (Extended 30-day)	February 15, 2017
10. DT Meets to answer Comments	March 21, 2017
11. Posting 3 Comments Open	March 27, 2017
12. Posting 3 Comments Closed	April 27, 2017
13. DT Meets to answer Comments	May 9, 2017
14. Posting 4 Comments Open	May 11, 2017
15. Posting 4 Comments Closed	June 12, 2017
16. DT Meets to answer Comments	June 13, 2017
17. WSC approves for Ballot	July 6, 2017
18. Notice of Ballot Pool Forming	July 10, 2017
19. Ballot Pool Open	July 11, 2017
20. Notice of Standards Briefing	July 17, 2017
21. Ballot Pool Closed	July 26, 2017
22. Standards Briefing	August 1, 2017
23. Ballot Open	August 8, 2017
24. Ballot Closed	August 28, 2017
25. WSC approves forwarding document to the WECC Board of Directors / Standards Documents to Admin	November 15, 2017

<sup>1</sup> Although the WECC Standards Committee (WSC) approved the drafting team for the project on September 6, 2016, approval of the Standard Authorization Request (SAR) was overlooked until December 6, 2016.



Anticipated Actions	Proposed Date
26. NERC Posting for 45 days Opens	Pending
27. NERC Posting for 45 days Closes	Pending
28. WECC Board of Directors approval	Pending
29. NERC Board of Trustees approval	Pending
30. FERC approval	Pending

## Standards Authorization Request

### [WECC-0124 BAL-004-WECC-3 ATEC SAR](#)

#### Approvals Required

- WECC Board of Directors December 6, 2017
- NERC Board of Trustees Pending
- FERC Pending

#### Applicable Entities

##### 4. Applicability

- 4.1.1 Balancing Authorities that operate synchronously in the Western Interconnection.

#### Conforming Changes to Other Standards

There are no conforming changes to other standards required to implement the proposed document.

#### Proposed Effective Date

The Effective Date is proposed to be the first day of the second quarter following applicable regulatory approval.

#### Justification

Because most entities will already be complying with the standard as proposed, implementation is requested to be the first day of the second quarter following applicable regulatory approval.

#### Consideration of Early Compliance

The drafting team foresees no concerns with early compliance.

#### Required Retirements

The currently approved standard (BAL-004-WECC-2) should be retired immediately prior to the Effective Date of this version, BAL-004-WECC-3. No other retirements or modifications are needed.

**Attachment G**  
**Technical Justification**  
**WECC-0124 BAL-004-WECC-3**  
**Automatic Time Error Correction**

**Technical Justification and Rational**  
**WECC-0068 Modification of BAL-004-WECC-1**  
**Automatic Time Error Correction**  
**Attachment G<sup>1</sup>**

This filing is designed to meet the specific requirements of Order 723<sup>2</sup>, clarify certain ambiguities, and meet the specific criteria for a Regional Variance as established by the Federal Energy Regulatory Commission (FERC).

This filing was developed in accordance with the Process for Developing and Approving WECC Standards, as superseded by the Reliability Standards Development Procedures.

In order to obtain a Regional Variance to a NERC Reliability Standard, the proposed documents must: 1) be an alternative methodology with the same reliability objective, 2) not be inconsistent with or less stringent than the NERC reliability standard, or 3) be necessitated by a physical difference.

As illustrated below, the proposed documents meet criteria one and criteria two above. Although the proposed methodology is not necessitated by a physical difference, its implementation should enhance reliability within the Western Interconnection by lessening the need for manual calculations.

**Alternative Methodology with the Same Reliability Objective**

This filing represents a proposed alternative methodology for calculating Area Control Error (ACE). Specifically, it would replace the NERC raw ACE equation with the Automated Time Error Correction (ATEC) ACE equation thereby requiring WECC Balancing Authorities to use the ATEC ACE for control and Control Performance Standard (CPS) reporting. This approach has the same reliability objective as BAL-001-0.1a with the enhanced benefit of ensuring that Time Error Corrections and Primary Inadvertent Interchange (PII) payback are effectively conducted in a manner that does not adversely affect the reliability of the Interconnection.

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<sup>1</sup> With the original filing this was Attachment I.

<sup>2</sup> *Western Electricity Coordinating Council Regional Reliability Standard Regarding Automatic Time Error Correction*, Order No. 723, 127 FERC Stats. & Regs. ¶ 61,176, 74 Fed. Reg. ¶ 25,422 (2009) (hereafter Order 723).

# Attachment G

## Technical Justification

### WECC-0124 BAL-004-WECC-3

#### Automatic Time Error Correction

Using the ATEC ACE equation for CPS reporting is more appropriate because it is a more accurate measure of how well a Balancing Authority is controlling to its control performance target.

Under the current NERC ACE equation a Balancing Authority controls its frequency and Interchange to a target point of zero. By contrast, the proposed ATEC ACE allows the control to stay within a predefined range called  $L_{max}$  (which is between  $0.20 * |B|$  and  $\pm L_{10}$ ) adjusted by the ATEC.

The ATEC component defines a new control point and is equivalent to making an interchange schedule that would automatically payback PII – a feature not present when only the ACE equation is used. This modification to the ACE equation is equivalent to making an adjustment because of a metering error. Since the amount of the adjustment during any one hour is limited by  $L_{max}$ , Balancing Authorities automatically limit the risk to the interconnection and the amount of the transaction.

#### **Consistent with or more Stringent**

The proposed WECC Variance to BAL-001-0.1a is consistent with — or more stringent than — the NERC BAL-001-0.1a Reliability Standard because:

1. The addition of  $I_{ATEC}$  to the ACE equation and adjustment to the control performance target used for controlling frequency and interchange does not place any additional risk to reliability because limits are set in the magnitude of the  $I_{ATEC}$  adjustment.
2. The Regional Variance allows the use of the same control performance target for control and reporting providing a better methodology for measuring performance.

BAL-004-WECC-1 requires Balancing Authorities in the Western Interconnection to use ATEC ACE for control. As proposed in the WECC Variance, Balancing Authorities in the Western Interconnection that are operating synchronously to the Interconnection would use the ATEC ACE resulting in automatically correcting time error.

Use of the ATEC component in the ACE equation has been effective in mitigating two main issues in the Western Interconnection:

1. It has been used to reduce the number of hours of Manual Time Error Corrections, or the amount of manual adjustments of timing errors that accumulate on clocks, which make certain interconnection scheduled frequency deviations.
2. Since time error is directly related to Inadvertent Interchange, the procedure has been



# Attachment G

## Technical Justification

### WECC-0124 BAL-004-WECC-3

#### Automatic Time Error Correction

used to reduce accumulated Inadvertent Interchange, or the difference between the actual and scheduled interchange.

The ATEC procedure requires Balancing Authorities in the Western Interconnection to determine their contribution to the Interconnection time error. The Balancing Authority does this by calculating its PII. BAL-001-0.1a Requirement E.B.1 requires that each Balancing Authority calculate its  $PII_{accum}$  and  $I_{ATEC}$  from its hourly Inadvertent Interchange. When the resulting  $I_{ATEC}$  is entered into Balancing Authority's ACE equation,  $I_{ATEC}$  continuously corrects for its portion of the time error automatically, as opposed to manually, as specified in the continent-wide standard on Time Error Correction BAL-004-1 Requirement R2. Although the maximum payback is bounded between limits, the continuous correction enables equitable payback of Primary Inadvertent Interchange.

#### Supporting Documentation

##### **Attachment I Mod to BAL-004-WECC-1 Technical Justification Consolidation of ACE Equations**

The aforementioned document is provided to detail the issues related to use of two different Area Control Error (ACE) equations. It provides background and a discussion of the key technical issues involved in developing the requested changes. The document also provides historical data showing the historical number of manual time error corrections and it shows comparative frequency error profiles.

##### **Attachment J Mod to BAL-004-WECC-1 Technical Justification Frequency Bias Posting**

The aforementioned document is provided to calculate values for ACE limits to the value L10 as a function of each area's Frequency Bias. The spreadsheet illustrates the frequencies that would be necessary for an area to exceed its L10, as well as providing a tool to illustrate for each area their Frequency Component of ACE as a function of system frequency.

**Regional Reliability Standard Submittal Request  
Attachment H**

<b>Region:</b>	<b>Western Electricity Coordinating Council</b>
<b>Regional Standard Number:</b>	<b>BAL-004-WECC-3</b>
<b>Regional Standard Title:</b>	<b>Automatic Time Error Correction</b>
<b>Date Submitted:</b>	<b>January 4, 2018</b>
<b>Regional Contact Name:</b>	<b>Steven Rueckert</b>
<b>Regional Contact Title:</b>	<b>Director of Standards</b>
<b>Regional Contact Telephone Number:</b>	<b>(801) 883-6878</b>

**Request (check all that apply):**

- Retirement of WECC Regional Variance FAC-010/FAC-011
- Interpret an Existing Standard
- Approval of a new standard
- Revision of an existing standard
- Withdrawal of an existing standard
- Urgent Action

**Has this action been approved by your Board of Directors:**

- Yes
- No

**(If no please indicate date standard action is expected along with the current status (e.g., third comment period with anticipated board approval on mm/dd/year)):**

**December 6, 2017, Board of Directors / Board Resolution**

*Resolved, that the Western Electricity Coordinating Council Board of Directors (Board), acting upon the recommendation of the WECC Standards Committee at the meeting of the Board on December 6, 2017, hereby approves the following Regional Reliability Standards and Regional Criteria as presented to the Board on December 6, 2017.*

- *BAL-004-WECC-3, Automatic Time Error Correction*

- *FAC-501-WECC-2, Transmission Maintenance*
- *INT-007-WECC-CRT-3, Processing of Emergency Requests for Interchange*
- *INT-016-WECC-CRT-3, Data Submittal*
- *PRC-001-WECC-CRT-2, Governor Droop Setting*

**[Note: The purpose of the remaining questions is to provide NERC with the information needed to file the regional standard(s) with FERC. The information provided may to a large degree be used verbatim. It is extremely important for the entity submitting this form to provide sufficient detail that clearly delineates the scope and justification of the request.]**

**Concise statement of the basis and purpose (scope) of request:**

See below.

**Concise statement of the justification of the request:**

**As proposed, BAL-004-WECC-3, Automatic Time Error Correction (ATEC) mitigates a Balancing Authority’s tendency to “Lean on the System”.**

In Order 723, FERC noted that “[l]arge accumulations of primary inadvertent [energy] point to an invalid implementation of [Automatic Time Error Correction], loose control, metering or accounting errors.”<sup>1</sup> Moreover, it is FERCs view that a Balancing Authority (BA) “that is operating out-of-balance for an extended period of time is ‘leaning on the system’ by relying on external resources to meet its obligations and could affect other entities within an Interconnection, particularly if another entity is reacting to a grid event while unaware that the first entity has not restored its ACE.”<sup>2</sup>

Automatic Time Error Correction (ATEC) was originally implemented with the intent that BAs pay back Primary Inadvertent Interchange (PII) energy balances over the subsequent three hours (H=3). Without tightened PII<sub>accum</sub> thresholds, ATEC cannot effectively

<sup>1</sup> Order No. 723, Western Electricity Coordinating Council Regional Reliability Standard Regarding Automatic Time Error Correction, 18 CFR Part 40, Docket No. RM08-12-000; Order No.723, Issued May 21, 2009, p. 27.

<sup>2</sup> Disturbance Control Standard—Contingency Reserve for Recovery from a Balancing Contingency Event Reliability Standard, 18 CFR Part 40, Docket No. RM16-7-000, Issued May 19, 2016, P 22.

manage  $PII_{accum}$  in a timely manner, nor can it discourage persistent BA-induced system frequency deviations or automatically manage Time Error Corrections. When this occurs, BAs can then “lean on the system” indefinitely producing large accumulations of  $PII_{accum}$  energy forcing correspondingly sustained Secondary II energy accumulations onto other BAs.

As proposed, BAL-004-WECC-3, Automatic Time Error Correction is designed to address these concerns by mitigating the potential to exceed the maximum allowable Accumulated  $PII_{accum}$  by, among other things, creating a standard interchange target by which the inadvertent would be measured (i.e., values would be compared to interchange software values used by the Reliability Coordinator). The proposed change establishes a new basis for the  $PII_{accum}$  limit in terms of the Minimum Frequency Bias settings that are published annually. By adopting the proposed Requirement R1,  $PII_{accum}$  is lowered thereby decreasing large accumulations. Peripherally, the proposed change also allows ATEC to more effectively manage the after effects of recently implemented BAL-001-2, Real Power Balancing Control Performance. It does so by minimizing the extent and duration to which BAs can aggressively extract and push energy onto neighboring BAs.

**As proposed, BAL-004-WECC-3, Automatic Time Error Correction (ATEC) specifies a single software tool from which true-up values would be generated.**

There is currently no requirement for a BA to ensure that its internal calculations of  $PII_{accum}$  match those of any other BA. If BAs do not use correct values of  $PII_{accum}$ , ATEC cannot properly assign  $PII_{accum}$  to the appropriate BAs that caused the Inadvertent Interchange (II). Finally, some BAs internal  $PII_{accum}$  calculations do not match the Reliability Coordinator-approved tool for centralized calculations of  $PII_{accum}$ . As proposed, BAL-004-WECC-3, Automatic Time Error Correction addresses these concerns by specifying a single software tool from which definitive values will be generated. That tool proposed is the WECC Interchange (software) Tool (WIT).<sup>3</sup> Use of the WIT does not prohibit an entity from performing internal calculations via other valid means; however, as to true-up of values, only those values generated by the WIT would be acceptable.

<sup>3</sup> Or its successor.

# Attachment I

## Order 672 Criteria

### WECC-0124 BAL-004-WECC-3

#### Automatic Time Error Correction

NERC is responsible for ensuring that the Reliability Standards, Violation Risk Factors (VRF), Violation Severity Levels (VSL), definitions, Variances, and Interpretations developed by drafting teams are developed in accordance with NERC processes. They must also meet NERC's benchmarks for Reliability Standards, as well as criteria for governmental approval.

In FERC Order No. 672,<sup>1</sup> the Federal Energy Regulatory Commission (FERC) identified criteria that it will use to analyze proposed Reliability Standards for approval to ensure they are just, reasonable, not unduly discriminatory or preferential, and in the public interest. The discussion below identifies these factors, and explains how the proposed regional reliability standard meets or exceeds the criteria:

#### **1. Proposed Reliability Standards must be designed to achieve a specified reliability goal.**

The proposed Reliability Standard must address a reliability concern that falls within the requirements of section 215 of the Federal Power Act. That is, it must provide for the reliable operation of Bulk-Power System facilities. It may not extend beyond reliable operation of such facilities or apply to other facilities. Such facilities include all those necessary for operating an interconnected electric energy transmission network, or any portion of that network, including control systems. The proposed Reliability Standard may apply to any design of planned additions or modifications of such facilities that is necessary to provide for reliable operation. It may also apply to Cybersecurity protection. Order No. 672 at P 321.

Further, 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. NERC Reliability Principles<sup>2</sup>

The Purpose of WECC-0124 BAL-004-WECC-3, Automatic Time Error Correction (ATEC) is "To maintain Interconnection frequency and to ensure that Time Error Corrections and Primary Inadvertent (PII) payback are effectively conducted in a manner that does not adversely affect the reliability of the Interconnection."

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<sup>1</sup> [FERC Order 672](#)

<sup>2</sup> [NERC Reliability Principles](#)

Of the eight NERC Reliability Principles, ATEC addresses two.

*Reliability Principle 2 states:*

“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.”

As proposed, BAL-004-WECC-3 changes the standard’s focus from verification to operation. Each Balancing Authority (BA) operating synchronously in the Western Interconnection would be required to *operate* its system such that following the conclusion of each month, specific Primary Inadvertent Interchange values fall within a specified range. One way this is achieved is by maintaining a consistent frequency within the system.

*Reliability Principle 3 states:*

“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.”

As proposed, BAL-004-WECC-3 specifies a specific software tool from which all true-up values will be derived. The proposed standard does not limit an entity’s ability to use alternative internal means of calculation; however, for purposes of true-up with external entities (other BAs) only the WECC Interchange Tool (WIT), or its successor can be used. This approach standardizes the information necessary for true-up and promotes a uniform operation of the system within parameters specified in Requirement R1, Sub Parts 1.1 and 1.2.

**2. Proposed Reliability Standards must contain a technically sound method to achieve the goal.**

The proposed Reliability Standard must be designed to achieve a specified reliability goal and must contain a technically sound means to achieve this goal. Although any person may propose a topic for a Reliability Standard to the ERO, in the ERO’s process, the specific proposed Reliability Standard should be developed initially by persons within the electric power industry and community with a high level of technical expertise and be based on sound technical and engineering criteria. It should be based on actual data and lessons learned from past operating incidents, where appropriate. The process for ERO approval of a proposed Reliability Standard should be fair and open to all interested persons. Order No. 672 at P 324.

*Standard Development*

This proposed Reliability Standard was developed using the NERC and WECC Standards development processes approved by FERC and in effect at each point in the process. Among other things, these processes include drafting of the standard by a drafting team composed of subject matter experts (SME); biographies of those SMEs are provided with this filing.

These processes also include repeated public iterative comment/response cycles whereby comments are received from the industry, and responses to those comments are provided by the drafting team.

*Technically Sound*

The underlying standard was found technically sound in previous filings. See WECC-0124 BAL-004-WECC-3, ATEC Attachment G – Technical Justification Historic from Version 1, provided with this filing.

BAL-004-WECC-2, ATEC implemented conforming changes required by FERC in Order No. 723, wherein FERC directed NERC and WECC: 1) to develop revisions to currently effective Regional Reliability Standard BAL-004-WECC-1, Requirement R1.2, to specify what circumstances trigger the actions required by that Requirement; and 2) to develop a modification to Regional Reliability Standard BAL-004-WECC-1 consistent with WECC and NERC's explanation that the limit set forth in Requirement R2, regarding "24 hours per calendar quarter," is an accumulated total for the period. The petition states that WECC modified Regional Reliability Standard BAL-004-WECC-01 in compliance with these directives. Docket No. RD13-11-000 2; See also Order No. 723, 127 FERC ¶ 61,176 at P 30 and P34.

**3. Proposed Reliability Standards must be applicable to users, owners, and operators of the bulk power system, and not others.**

The proposed Reliability Standard may impose a requirement on any user, owner, or operator of such facilities, but not on others. Order No. 672 at P 322.

The Applicability section of the proposed Reliability Standard is as follows:

- 4. Applicability
  - 4.1. Functional Entities
    - 4.1.1 Balancing Authorities that operate synchronously in the Western Interconnection.

**4. Proposed Reliability Standards must be clear and unambiguous as to what is required and who is required to comply.**

The proposed Reliability Standard should be clear and unambiguous regarding what is required and who is required to comply. Users, owners, and operators of the Bulk-Power System must know what they are required to do to maintain reliability. Order No. 672 at P 325.

The proposed Reliability Standard was developed using the WECC Reliability Standards Development Procedures (Procedures) as approved by WECC/NERC and FERC. Per the Procedures, the proposed Reliability Standard was posted for comment on four occasions.

During the four postings, no concerns were raised regarding clarity or ambiguity. Each proposed Requirement contains a specified applicable entity, a clearly stated task, and an associated object Measure.

**5. Proposed Reliability Standards must include clear and understandable consequences and a range of penalties (monetary and/or non-monetary) for a violation.**

The possible consequences, including range of possible penalties, for violating a proposed Reliability Standard should be clear and understandable by those who must comply. Order No. 672 at P 326.

This project does not add to, modify, or change the FERC-approved VRF's or VSLs assigned to the existing Reliability Standard.

**6. Proposed Reliability Standards must identify a clear and objective criterion or measure for compliance, so that it can be enforced in a consistent and non-preferential manner.**

There should be a clear criterion or measure of whether an entity is in compliance with a proposed Reliability Standard. It should contain or be accompanied by an objective measure of



compliance so that it can be enforced and so that enforcement can be applied in a consistent and non-preferential manner. Order No. 672 at P 327.

The Measure for Requirement R1 reads as follows:

- M1.** Each Balancing Authority will have evidence that it operated its system such that, following the conclusion of each month, the month-end absolute value of its On-Peak and Off-peak, Accumulated Primary Inadvertent Interchange ( $PII_{accum}$ ), as calculated by the WIT or its successor electronic confirmation tool, meets all criteria stated in Requirement R1.

The Measure is objective in that it is predicated on the specified task of the supporting Requirement, examines specific calculated values, and is designed for a single specified software tool.

Measures for Requirement 2, 4, 6, and 7 were also changed to add the specification for measurement as derived from the WIT. Measures for Requirements 3, 5, and 8 are unchanged from the existing FERC-approved Reliability Standard.

- 7. Proposed Reliability Standards should achieve a reliability goal effectively and efficiently - but does not necessarily have to reflect “best practices” without regard to implementation cost.**

The proposed Reliability Standard does not necessarily have to reflect the optimal method, or “best practice,” for achieving its reliability goal without regard to implementation cost or historical regional infrastructure design. It should however achieve its reliability goal effectively and efficiently. Order No. 672 at P 328.

The goals of the proposed Reliability Standard are to encourage tighter operation of the grid, and to streamline and refine the post-operational true up of recorded operational values. As to operations, the proposed Reliability Standard does not impose any new requirements. It only encourages a more succinct implementation of existing practices. As to true up, by using a single specified software tool for numeric reconciliation, true up is standardized, streamlined, and becomes more transparent without adding undue burden.

- 8. Proposed Reliability Standards cannot be “lowest common denominator,” i.e., cannot reflect a compromise that does not adequately protect bulk power system reliability.**

**Attachment I**  
**Order 672 Criteria**  
**WECC-0124 BAL-004-WECC-3**  
**Automatic Time Error Correction**

The proposed Reliability Standard must not simply reflect a compromise in the ERO's Reliability Standard development process based on the least effective North American practice — the so-called “lowest common denominator” — if such practice does not adequately protect Bulk-Power System reliability. Although the Commission will give due weight to the technical expertise of the ERO, we will not hesitate to remand a proposed Reliability Standard if we are convinced it is not adequate to protect reliability. Order No. 672 at P 329.

As mentioned in item 8 above, the proposed Reliability Standard is designed to enhance implementation of existing operational practices while standardizing and streamlining post-operational true up.

**9. Proposed Reliability Standards may consider costs to implement for smaller entities but not at consequence of less than excellence in operating system reliability.**

A proposed Reliability Standard may take into account the size of the entity that must comply with the Reliability Standard and the cost to those entities of implementing the proposed Reliability Standard. However, the ERO should not propose a “lowest common denominator” Reliability Standard that would achieve less than excellence in operating system reliability solely to protect against reasonable expenses for supporting this vital national infrastructure. For example, a small owner or operator of the Bulk-Power System must bear the cost of complying with each Reliability Standard that applies to it. Order No. 672 at P 330.

During the four postings of this project the industry raised no cost concerns.

**10. Proposed Reliability Standards must be designed to apply throughout North America to the maximum extent achievable with a single reliability standard while not favoring one area or approach.**

A proposed Reliability Standard should be designed to apply throughout the interconnected North American Bulk-Power System, to the maximum extent this is achievable with a single Reliability Standard. The proposed Reliability Standard should not be based on a single geographic or regional model but should take into account geographic variations in grid characteristics, terrain, weather, and other such factors; it should also take into account regional variations in the organizational and corporate structures of transmission owners and operators, variations in generation fuel type and ownership patterns, and regional variations in market design if these affect the proposed Reliability Standard. Order No. 672 at P 331.

In the Order 740 Remand at P4, the Commission states that:

“Reliability Standards that the ERO proposes to the Commission may include Reliability Standards that are proposed to the ERO by a Regional Entity... When the ERO reviews a regional Reliability Standard that would be applicable on an interconnection-wide basis and that has been proposed by a Regional Entity organized on an interconnection-wide basis, the ERO must rebuttably presume that the regional Reliability Standard is just, reasonable, not unduly discriminatory or preferential, and in the public interest. In turn, the Commission must give “due weight” to the technical expertise of the ERO and of a Regional Entity organized on an interconnection-wide basis.”

As identified in the NERC Rules of Procedure, Section 312, “regional entities may propose Regional Reliability Standards that set more stringent reliability requirements than the NERC Reliability Standard or cover matters not covered by an existing NERC Reliability Standard.”

In accordance with FERC Orders 672 and 740, the proposed Reliability Standard would be applicable solely within the Western Interconnection.

In accordance with the NERC Rules of Procedure, the proposed Reliability Standard addresses two areas not otherwise addressed in NERC Standards. Specifically, Time Error Correction in the Western Interconnection is “automatic” and the proposed Reliability Standard would glean its true-up values from a WECC-specific software tool.

**11. Proposed reliability standards should cause no undue negative effect on competition or restriction of the grid.**

As directed by section 215 of the FPA, the Commission itself will give special attention to the effect of a proposed Reliability Standard on competition. The ERO should attempt to develop a proposed Reliability Standard that has no undue negative effect on competition. Among other possible considerations, a proposed Reliability Standard should not unreasonably restrict available transmission capability on the Bulk-Power System beyond any restriction necessary for reliability and should not limit use of the Bulk-Power System in an unduly preferential manner. It should not create an undue advantage for one competitor over another. Order No. 672 at P 332

The BAL-004-WECC-3 drafting team does not foresee any negative impacts on competition resulting from implementation of the proposed Reliability Standard.

In the four postings of the project, the industry raised no concerns regarding competition or restrictive use of the grid.

**12. The implementation time for the proposed Reliability Standards must be reasonable.**

In considering whether a proposed Reliability Standard is just and reasonable, the Commission will consider also the timetable for implementation of the new requirements, including how the proposal balances any urgency in the need to implement it against the reasonableness of the time allowed for those who must comply to develop the necessary procedures, software, facilities, staffing or other relevant capability. Order No. 672 at P 333

Implementation of the proposed Reliability Standard imposes no new operational requirements; rather, it only encourages a tighter administration of existing operational practices. Further, use of the WIT for true up is an existing common practice throughout the Western Interconnection; albeit, the tool is not currently used by all entities.

Per the posted Implementation Plan, the proposed Effective Date is proposed to be the first day of the second quarter following applicable regulatory approval.

**13. The Reliability Standard development process must be open and fair.**

Further, in considering whether a proposed Reliability Standard meets the legal standard of review, we will entertain comments about whether the ERO implemented its Commission-approved Reliability Standard development process for the development of the particular proposed Reliability Standard in a proper manner, especially whether the process was open and fair. However, we caution that we will not be sympathetic to arguments by interested parties that choose, for whatever reason, not to participate in the ERO's Reliability Standard development process if it is conducted in good faith in accordance with the procedures approved by the Commission. Order No. 672 at P 334

WECC followed the WECC Reliability Standards Development Procedures (Procedures) approved by FERC in effect at the time of each step in the process.

In accordance with the Procedures, all drafting team meetings are open to the public.

All drafting team meetings were announced via the WECC Standards Email List, at least 15 days in advance of the meeting. Notice of the meetings was provided to NERC and posted on the WECC Calendar along with meeting minutes.

All meetings were supported by a telephone conference bridge associated with an on-line internet visual capability allowing all participants to see the document(s) as they were being developed. Further, this team held an open-mic Standards Briefing prior to balloting affording the industry an additional opportunity to have its questions addressed.

The proposed Reliability Standard was posted four times for comment by WECC and provided to NERC for additional posting.

Comments and their responses are currently posted on the WECC Web Site at the WECC-0124 Project Page on the Submitted and Review Comments accordion. Response to Comments forms were provided with this filing.

**14. Proposed Reliability Standards must balance with other vital public interests.**

Finally, we understand that at times development of a proposed Reliability Standard may require that a particular reliability goal must be balanced against other vital public interests, such as environmental, social and other goals. We expect the ERO to explain any such balancing in its application for approval of a proposed Reliability Standard. Order No. 672 at P 335

WECC is not aware of any other vital public interests. No such balancing concerns were raised or noted.

**15. Proposed Reliability Standards must consider any other relevant factors.**

In considering whether a proposed Reliability Standard is just and reasonable, we will consider the following general factors, as well as other factors that are appropriate for the particular Reliability Standard proposed. Order No. 672 at P 323

WECC is not aware of any other general factors in need of consideration.

## Attachment J Drafting Team Roster

### WECC-0124 BAL-004-WECC-3—Automatic Time Error Correction

Below please find a biographical snapshot for the members of the WECC-0124 BAL-004-WECC-3, Automatic Time Error Correction (ATEC) Modification Drafting Team.

Name	Organization
<p>Craig Figart - Chair</p>	<p>Mr. Figart has a Bachelor of Science Degree in Electrical Engineering from the University of Idaho and is also a licensed Professional Electrical Engineer in the State of Washington.</p> <p>Mr. Figart has over 23 years of utility work experience, the first six years as a Distribution System Engineer at Kootenai Electric Cooperative, a couple years in System Protection at Washington Water Power (now Avista), and the last 17 years at Avista as a SCADA Engineer, including several months more recently managing the SCADA Engineering and Generation Controls Engineering groups.</p> <p>In addition to regular SCADA engineering and compliance duties, Mr. Figart has provided engineering support to Avista’s System Operations group including various projects such as designing interchange metering replacement systems and associated energy accounting systems, facilitating the UPS/Gen upgrade for critical power feeds, implementing various new BAL standards including BAL-001-2, BAL-004-WECC-2, INT-009, etc.</p> <p>Mr. Figart joined the NERC EMS Work Group in early 2015, served for the past seven years as a WECC Performance Work Group member, participated on the WECC-0068 Standards Drafting Team, and submitted his first SAR for the BAL-004-WECC-2 Automatic Time Error Correction Standard.</p>
<p>David Kirsch</p>	<p>Mr. Kirsch has worked in the electric utility industry since 1988, starting at PacifiCorp. He worked for PacifiCorp for ten years dividing his time in the Major Equipment Specifications group, the Substation Design group followed up by work as a Distribution Engineer in the Portland District. He joined the Bonneville Power Administration (BPA) in 2001 as a Field Engineer in the Substation Protection and Control Group (SPCG) in the Longview District and eventually served as the District Engineer in the Longview SPCG until 2009. Mr. Kirsch transitioned to Technical Operations (TOT) in the Automatic Generation Control (AGC) workgroup. Since that time, he has been working on various projects implementing changes in AGC.</p> <p>Mr. Kirsch has been a part of the Generic Data Acquisition and Control System (GDACS) Maintenance Committee with the Corps of Engineers and United States Bureau of reclamation (USBR). As of 2014, he was the Chair of the Technical Operations and Implementation Subcommittee (TOIS), which was put together to coordinate controls and signals between BPA and the Federal Columbia River Power System (FCRPS) hydro projects.</p> <p>Mr. Kirsch is the BPA Subject Matter Expert for several standards, including NERC BAL-001, NERC BAL-002, NERC BAL-004, WECC BAL-004 and has provided input and comments regarding NERC BAL-005, NERC BAL-006 and BAL-002-WECC-2. He has served on the WECC Performance Work Group for three years and is on the WECC-0115, BAL-002-WECC-2 drafting team to request retirement of Requirement R2.</p>

<p>Don Badley</p>	<p>Since January 1975, Don has served as chair, vice chair, or member of many NAPSIC, NERC and WECC subcommittees, work groups, and task forces. Among NERC’s groups are: The Performance Subcommittee, Resources Subcommittee, Control Criteria Task Force, Inadvertent Interchange Task Force, Organization Certification Working Group and Functional Model Working Group. Among WECC’s groups are: Operating Practices Subcommittee, Performance Work Group, Control Work Group and Reserve Issues Task Force.</p> <p>As a member of the Institute of Electrical and Electronic Engineers (IEEE), Don served as the Oregon Section Chair and the Northwest Area Chair (Alaska, Oregon and Washington) for Region 6. Nationally, Don participated as a member of the Power System Engineering Committee, System Controls Subcommittee, and VAr Management Joint Working Group. Don has participated in writing three papers that were published in IEEE Transactions.</p>
<p>John Tolo</p>	<p>Mr. Tolo is currently employed by Tucson Electric Power as Sr. Director, System Control and Reliability and Planning, and has been in the utility business for 30 years. Mr. Tolo has held positions in power production and distribution, transmission, and generation operations. He has memberships in the NERC Resources Subcommittee, the WECC Performance Work Group, served as chair of the WECC Operating Committee, chair of the WECC Joint Guidance Committee, and was a member of the BAL-004-WECC-01 and WECC-0068 drafting teams.</p>
<p>Paul Morland</p>	<p>Mr. Morland is currently employed by Colorado Springs Utilities as an Operations Engineer in Transmission Operations, and has been in the utility business for 30 years. Mr. Morland has held positions in substation design, system protection and system operations. He has memberships in WECC Performance Work Group, WECC Operating Practices and Event Analysis Subcommittee and WECC Operating Issues Work Group. Has also served on several WECC TOP/RC certification teams.</p>
<p>Rick Lowther</p>	<p>Mr. Lowther has been in the electric utility business for 35 years and is currently employed by Salt River Project (SRP) as a Principal Engineer in Transmission and Generation Operations where he supports Balancing Authority operations including EMS setup, dispatcher training and compliance. In the Computer Applications department at SRP, Mr. Lowther directed the development of the Southwest Reserve Sharing system, the Southwest OASIS system and the replacement and customization of the SRP EMS. Previously, with ABB (formerly Baily Controls), he developed EMS applications, specializing in automatic generation control, economic dispatch and unit commitment. Prior to that he spent several years planning the CenterPoint Energy (formerly Houston Lighting &amp; Power) transmission system. He has held memberships in the WECC Interchange Scheduling and Accounting Subcommittee, Electronic Scheduling Work Group, EMS Work Group, Data Exchange Work Group and is currently the chair of the WECC Performance Work Group.</p>

<p>James Wells Los Angeles Department of Water and Power</p>	<p>Mr. Wells has a Bachelor of Science and a Master of Science in Electrical Engineering from the University of Southern California, and is also a licensed Professional Electrical Engineer in the State of California.</p> <p>Mr. Wells has 10 years of utility work experience at LADWP, the first 3 years in Energy Reconciliation/After-the-Fact supporting developing and maintaining custom reporting tools and database applications for energy scheduling, marketing transactions, interchange control, transmission utilization, and loss accounting.</p> <p>For the past 7 years Mr. Wells has been working in Operating Engineering/Grid Operations Support providing outage coordination support by facilitating and studying complex outages and providing real-time power system analysis in support of unplanned or abnormal system conditions. Mr. Wells serves as a technical engineering operations expert providing guidance and direction to multiple internal and external stakeholders on power system operation issues. Mr. Wells is the LADWP representative on multiple regional study groups including the Operating Study Subcommittee and the Pacific Southwest IROL Study group. Mr. Wells is a 3-year member of the WECC Performance Work group, is on the WECC-0115 Drafting Team, and was the WECC-0115 Standards Authorization author.</p>
<p>Antonio Franco GridForce Energy Management</p>	<p>Mr. Franco has his Bachelor of Science degree in Industrial Engineering. He has 10 years of industry compliance experience in the generation, transmission operation, and Balancing Authority (BA) functions.</p> <p>He is a member of the compliance and reliability group within Gridforce Energy Management (GEM) managing five (5) registered generation-only BAs in the Western Interconnection.</p> <p>Mr. Franco is a member of the NERC Frequency Working Group and a regular participant in the NERC Resources Subcommittee meetings.</p> <p>He represents GEM with the Northwest Power Pool Operating Committee and Frequency Response Sharing Group.</p> <p>He has 10+ years of experience in process design engineering, electrical product design engineering, business practice management, and development of quality management systems.</p>



<p>Todd Komaromy</p>	<p>Mr. Todd Komaromy co-authored the WECC-0127 Standard Authorization Request (SAR). Having spent time as a Senior Associate, with 8 years of law firm experience in the large law firms of Squire Patton Boggs and Snell &amp; Wilmer, the practice of administrative law and statutory interpretation before Federal Agencies was core to his work. Development of precise technical language and associated explanations was part and parcel to these efforts.</p> <p>Mr. Komaromy also holds an electrical engineering degree with 14 years’ experience, in the Technical Writing, Fossil Generation, Lobbying, Contracts, Intellectual Property, Transmission/Distribution, and Compliance arenas. Mr. Komaromy currently serves in a corporate capacity as the AZPS Regulatory Advisor responsible for leading the planning, development, implementation and maintenance of the compliance framework for reliability standards. Included in these duties, is providing expertise, guidance and management of AZPS’s VAR-002 reporting for both the continental and regional standards.</p> <p>Mr. Komaromy has a Bachelor of Science degree in Electrical Engineering from The Ohio State University, MBA from the University of the Pacific and a Juris Doctor degree from the Sandra Day O’Conner College of Law - Arizona State University.</p>
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**Attachment K**  
**Ballot Pool Members**  
**WECC-0124 BAL-004-WECC-3**  
**Automatic Time Error Correction**

**WECC-0124 BAL-004-WECC-3 Ballot Pool**

Title	Company	Sector	Vote	Comments	Created By
WECC-0124	Arizona Public Service Company	System Coordination	Yes		Vivian Vo
WECC-0124	Arizona Public Service Company	Marketers and Brokers	Yes		Linda Henrickson
WECC-0124	Arizona Public Service Company	Transmission	Yes		Gary Nolan
WECC-0124	Arizona Public Service Company	Generation	Yes		Kasey Bohannon
WECC-0124	Arizona Public Service Company	Distribution	Yes		Michelle Amarantos
WECC-0124	Avista Corporation	Marketers and Brokers	Yes		Scott Kinney
WECC-0124	Balancing Authority of Northern California	System Coordination	Yes		Joe Tarantino
WECC-0124	Black Hills Corporation	Transmission			Eric Scherr
WECC-0124	Black Hills Corporation	Distribution			Eric Scherr
WECC-0124	Black Hills Corporation	Generation			Eric Scherr
WECC-0124	Black Hills Corporation	System Coordination			Eric Scherr
WECC-0124	Bonneville Power Administration	Distribution	Yes		Rebecca Berdahl

**Attachment K**  
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**WECC-0124 BAL-004-WECC-3**  
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WECC-0124	Bonneville Power Administration	Transmission	Yes		Kammy Rogers-Holliday
WECC-0124	Bonneville Power Administration	Marketers and Brokers	Yes		Andrew Meyers
WECC-0124	Bonneville Power Administration	System Coordination	Yes		Francis Halpin
WECC-0124	British Columbia Hydro & Power Authority	Distribution	Abstain	No Comments	Hootan Jarollahi
WECC-0124	British Columbia Hydro & Power Authority	System Coordination	Abstain	No Comment	Patricia Robertson
WECC-0124	British Columbia Hydro & Power Authority	Transmission	Abstain	No Comment	Patricia Robertson
WECC-0124	California Independent System Operator	System Coordination	Yes		Richard Vine
WECC-0124	California Independent System Operator	Transmission	Yes		Richard Vine
WECC-0124	Dominion Resources Services, Inc.	Generation			Sean Bodkin
WECC-0124	El Paso Electric Company	Generation			Victor Garzon
WECC-0124	Idaho Power Company	Generation	Yes		Laura Nelson

**Attachment K**  
**Ballot Pool Members**  
**WECC-0124 BAL-004-WECC-3**  
**Automatic Time Error Correction**

WECC-0124	Idaho Power Company	Distribution	Yes		Laura Nelson
WECC-0124	Idaho Power Company	Transmission	Yes		Laura Nelson
WECC-0124	Idaho Power Company	System Coordination	Yes		Laura Nelson
WECC-0124	Nevada Power Company	Transmission	Yes		Eric Schwarzrock
WECC-0124	Northern California Power Agency	Marketers and Brokers	Abstain	NCPA is not registered as a BA and is therefore casting an Abstain vote. Thank you.	Dennis Sismaet
WECC-0124	Northern California Power Agency	Generation	Abstain	No Preference.	Marty Hostler
WECC-0124	Open Access Technology International	End User Representative	Yes		Mark Hackney
WECC-0124	PacifiCorp	Generation	Yes		Sandra Shaffer
WECC-0124	PacifiCorp	Distribution	Yes		Sandra Shaffer
WECC-0124	PacifiCorp	Transmission	Yes		Sandra Shaffer
WECC-0124	PacifiCorp	Marketers and Brokers	Yes		Sandra Shaffer
WECC-0124	PacifiCorp	System Coordination	Yes		Sandra Shaffer
WECC-0124	Platte River Power Authority	System Coordination	Abstain	PRPA is not a BA.	Matthew Thompson
WECC-0124	Platte River Power Authority	Marketers and Brokers	Abstain	'Platte River is not registered as a BA	Sabrina Martz
WECC-0124	Platte River Power Authority	Transmission	Abstain	PRPA is not a registered Balancing Authority	Jeff Landis

**Attachment K**  
**Ballot Pool Members**  
**WECC-0124 BAL-004-WECC-3**  
**Automatic Time Error Correction**

WECC-0124	Platte River Power Authority	Generation	Abstain	Not applicable to our registered functions	Tyson Archie
WECC-0124	Public Service Company of New Mexico	Generation	Abstain	PNM has not formulated comments on the ballot.	Laurie Williams
WECC-0124	Public Service Company of New Mexico	Distribution	Abstain	PNM has not formulated comments on the ballot.	Laurie Williams
WECC-0124	Public Service Company of New Mexico	Transmission	Abstain	PNM has not formulated comments on the ballot.	Laurie Williams
WECC-0124	Public Service Company of New Mexico	Marketers and Brokers	Abstain	PNM has not formulated comments on the ballot.	Laurie Williams
WECC-0124	Public Service Company of New Mexico	System Coordination	Abstain	PNM has not formulated comments on the ballot.	Laurie Williams
WECC-0124	Public Utility District No. 1 of Clark County	Transmission	Yes		Jack Stamper
WECC-0124	Public Utility District No. 1 of Snohomish County	Generation	Yes		Franklin Lu
WECC-0124	Public Utility District No. 1 of Snohomish County	Distribution	Yes		Franklin Lu
WECC-0124	Public Utility District No. 1 of Snohomish County	Transmission	Yes		Franklin Lu

**Attachment K**  
**Ballot Pool Members**  
**WECC-0124 BAL-004-WECC-3**  
**Automatic Time Error Correction**

WECC-0124	Public Utility District No. 1 of Snohomish County	Marketers and Brokers	Yes	Franklin Lu
WECC-0124	Public Utility District No. 2 of Grant County	System Coordination	Yes	LeRoy Patterson
WECC-0124	Public Utility District No. 2 of Grant County	Generation	Yes	LeRoy Patterson
WECC-0124	Public Utility District No. 2 of Grant County	Distribution	Yes	LeRoy Patterson
WECC-0124	Public Utility District No. 2 of Grant County	Transmission	Yes	LeRoy Patterson
WECC-0124	Public Utility District No. 2 of Grant County	Marketers and Brokers	Yes	LeRoy Patterson
WECC-0124	Puget Sound Energy, Inc.	Marketers and Brokers	Yes	Lynda Kupfer
WECC-0124	Puget Sound Energy, Inc.	Generation	Yes	Eleanor Ewry
WECC-0124	Puget Sound Energy, Inc.	Distribution	Yes	Theresa Rakowsky
WECC-0124	Puget Sound Energy, Inc.	Transmission	Yes	Theresa Rakowsky
WECC-0124	Puget Sound Energy, Inc.	System Coordination	Yes	Theresa Rakowsky
WECC-0124	Sacramento Municipal Utility District	System Coordination	Yes	Joe Tarantino

**Attachment K**  
**Ballot Pool Members**  
**WECC-0124 BAL-004-WECC-3**  
**Automatic Time Error Correction**

WECC-0124	Sacramento Municipal Utility District	Generation	Yes	Joe Tarantino
WECC-0124	Sacramento Municipal Utility District	Distribution	Yes	Joe Tarantino
WECC-0124	Sacramento Municipal Utility District	Transmission	Yes	Joe Tarantino
WECC-0124	Sacramento Municipal Utility District	Marketers and Brokers	Yes	Joe Tarantino
WECC-0124	Salt River Project	Generation	Yes	Kevin Nielsen
WECC-0124	Salt River Project	Distribution	Yes	Rudy Navarro
WECC-0124	Seattle City Light	Transmission	Yes	Hao Li
WECC-0124	Seattle City Light	Distribution	Yes	Tuan Tran
WECC-0124	Seattle City Light	System Coordination	Yes	Pawel Krupa
WECC-0124	Seattle City Light	Marketers and Brokers	Yes	Charles Freeman
WECC-0124	Seattle City Light	Generation		Mike Haynes
WECC-0124	Southern California Edison Company	Generation	Yes	Thomas Rafferty
WECC-0124	Southern California Edison Company	Distribution	Yes	Steven Mavis

**Attachment K**  
**Ballot Pool Members**  
**WECC-0124 BAL-004-WECC-3**  
**Automatic Time Error Correction**

WECC-0124	Southern California Edison Company	Transmission	Yes		Steven Mavis
WECC-0124	Southern California Edison Company	System Coordination	Yes		Romel Aquino
WECC-0124	Tacoma Power	Transmission	Yes		Joseph Wilson
WECC-0124	Tacoma Power	Marketers and Brokers	Yes		Todd Lloyd
WECC-0124	Tacoma Power	Distribution	Yes		Chad Edinger
WECC-0124	Tacoma Power	System Coordination	Yes		Chad Edinger
WECC-0124	Tri-State Generation & Transmission - Reliability	Distribution	Yes		Janelle Gill
WECC-0124	Tri-State Generation & Transmission - Reliability	System Coordination	Abstain	Abstain	Tracy Sliman
WECC-0124	Tri-State Generation & Transmission - Reliability	Transmission	Abstain	Abstain	Tracy Sliman
WECC-0124	Tri-State Generation & Transmission - Reliability	Generation			Mark Stein
WECC-0124	Tucson Electric Power	System Coordination	Yes		John Tolo
WECC-0124	Tucson Electric Power	Generation	Yes		John Tolo



**Attachment K**  
**Ballot Pool Members**  
**WECC-0124 BAL-004-WECC-3**  
**Automatic Time Error Correction**

WECC-0124	Tucson Electric Power	Distribution	Yes		John Tolo
WECC-0124	Tucson Electric Power	Transmission	Yes		John Tolo
WECC-0124	Western Area Power Administration	System Coordination	Yes		Patrick Harwood
WECC-0124	Western Area Power Administration	Transmission	Yes		Patrick Harwood
WECC-0124	Western Area Power Administration - Rocky Mountain Region	Transmission	Yes		James Hirning
WECC-0124	Western Area Power Administration - Upper Great Plains Region	System Coordination	No	NERC Standards should suffice.	Lloyd Linke
WECC-0124	Western Area Power Administration - Upper Great Plains Region	Transmission	No	NERC Standards should suffice.	Lloyd Linke

# Attachment L

## Final Ballot Results

### WECC-0124 BAL-004-WECC-3

#### Automatic Time Error Correction

Ballot Name: WECC-0124 BAL-004-WECC-3, Automatic Time Error Correction

The project: 1) relocates the Background section to the preamble of the Guidance section, 2) adds On-Peak and Off-Peak parameters in Requirement R1/M1, 3) addresses WECC Interchange Tool software references throughout, 4) conforms the document to current drafting conventions (R1/M1, R4/M4), and 5) addresses non-substantive syntax.

Ballot Pool Open: 07/11/2017  
 Ballot Pool Closed: 07/26/2017  
 Ballot Opened: 08/09/2017  
 Ballot Closed: 08/28/2017  
 Total Ballot Pool: 92  
 Total Votes: 84  
 Quorum: 91.3%  
 Weighted Votes: 97.6%  
 Ballot Results: This standard was approved by the WECC-0124 Ballot Pool.

Voting Sectors	Total In Ballot Pool	Votes Non-Abstain	Sector Weight	Yes Votes	Weighted Segment Vote	No Votes	Abstain	Total Votes for Quorum	Didn't Vote
Distribution	17	14	1	14	100.0%	0	2	16	1
End User Representative	1	1	0.1	1	10.0%	0	0	1	0
Generation	18	10	1	10	100.0%	0	3	13	5
Marketers and Brokers	13	10	1	10	100.0%	0	3	13	0
Other Non-Registered WECC Members and Participating Stakeholders	0	0	0	0	0.0%	0	0	0	0
State and Provincial Representatives	0	0	0	0	0.0%	0	0	0	0
System Coordination	20	15	1	14	93.3%	1	4	19	1
Transmission	23	18	1	17	94.4%	1	4	22	1
<b>Totals</b>	<b>92</b>	<b>68</b>	<b>5.1</b>	<b>66</b>	<b>97.6%</b>	<b>2</b>	<b>16</b>	<b>84</b>	<b>8</b>

**Attachment M**  
**Minority Issues**  
**WECC-0124 BAL-004-WECC-3**  
**Automatic Time Error Correction**

Following a ballot period from August 9 through August 28, 2017, the WECC Ballot Pool approved WECC-0124 BAL-004-WECC-3, Automatic Time Error Correction (ATEC).

**Development Phase Comments – Minority View**

Comment Response forms and comments received during the development phase of this project are included in attachments R1 through R4.

The project was posted for comment on four separate occasions. The drafting team reviewed and considered all comments received. The following minority opinions were expressed by the industry during the development phase but were not accepted by the drafting team.

- *A minority of entities opined that no changes should be made to the standard.*

In response, the WECC-0124 BAL-004-WECC-3, Automatic Time Error Correction (ATEC) Drafting Team (DT) referred to FERC's position that large accumulations of primary inadvertent energy point to an invalid implementation of ATEC, loose control, metering or accounting errors. Further, the DT noted that a Balancing Authority operating out-of-balance for an extended time is "leaning on the system" by relying on external resources to meet its obligations and could affect other entities within an Interconnection, particularly if another entity is reacting to a grid event while unaware that the first entity has not restored its ACE. Left unchecked, this operational practice produces large accumulations of Primary II energy forcing correspondingly sustained Secondary II energy accumulations in other BAs. The proposed BAL-004-WECC-3 contributes to remediation of these concerns.

- *Settlement differences are a matter of equity better settled outside of the standards arena.*

The question of equity vs. reliability is outside the scope of this project.

- *An alternative methodology of calculation should be allowed.*

The DT disagreed noting the value in standardization. That said, the DT acknowledged that an entity is free to calculate its values using any internal means it chooses; however, as to true-up with external entities, a single specified methodology fosters transparency and standardization.

- *An alternative software package should be provided for in the event the WECC Interchange Tool, or its successor, fails.*

The DT responded noting that multiple WECC Regional Criteria are in place to address that eventuality. The DT opted not to incorporate those documents by reference noting due process concerns.



**Ballot Phase Comments - Minority View**

The WECC Reliability Standards Development Procedures (Procedures) do not require a drafting team to respond to comments provided during the balloting phase of a project. Comments provided during the balloting phase can be found in Attachment M.

During the balloting phase, the following minority view(s) was provided in support of a negative vote cast:

- *A Regional Reliability Standard is not needed because existing NERC Reliability Standards are sufficient.*

In accordance with the NERC Rules of Procedure, the proposed Reliability Standard addresses two areas not otherwise addressed in NERC Standards. Specifically, Time Error Correction in the Western Interconnection is “automatic” and the proposed Reliability Standard would glean its true up values from a WECC-specific software tool.

**Attachment N**  
**WECC Standards Committee Roster**  
**WECC-0124 BAL-004-WECC-3**  
**Automatic Time Error Correction**

The following individuals are those assigned to the WECC Standards Committee as of September 1, 2017.

<b>Sector</b>	<b>Name</b>	<b>Organization</b>
1 Transmission	Dana Cabbell	Southern California Edison Company
2 Generation	Gary Nolan	Arizona Public Service Company
3 Marketers and Brokers	Tanner Brier	Bonneville Power Administration
4 Distribution	Warren Rust	Colorado Springs Utilities
5 System Coordination	Joseph Tarantino	Sacramento Muni. Utility District
6 End User Representative	Caitlin Liotiris	Utah Assoc. of Energy Users
7 State and Provincial	Vacant	Vacant
8 Other Non-Registered Entities	Crystal Musselman	Proven Compliance Solutions
Board of Directors	Joe McArthur	Non-Affiliate Director / WSC Chair

## Posting 1

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The WECC-0124 ATEC Modification Drafting Team (DT) thanks those who submitted comments on the proposed document.

### Posting

This document was posted for a 45-day public comment period from October 3 through November 17, 2016.

The notice of the posting was distributed on September 27, 2016. The DT requested that stakeholders provide feedback on the proposed document through a standardized electronic template. WECC received five comments in response to Posting 1.

### Location of Comments

All comments received on the document can be viewed in their original format on the WECC-0124 project page under the “Submit and Review Comments” accordion.

### Changes in Response to Comments

In response to Avista, the drafting team is adding the following phrase to Requirement R1, M1, M2, M4, M6 and M7 to make the entire document consistent: “WECC Interchange Tool (WIT) or its successor electronic confirmation tool.”

In response to the Los Angeles Department of Water and Power (LADWP), the following question is proposed for Posting 2 to achieve consensus.

“As the industry moves increasingly towards use of renewable resources is the proposed threshold too stringent (60 L10 prior to month-end adjustment)? If so, please explain why and submit supporting empirical data to support any alternative threshold. Specific proposed language changes would be greatly appreciated.”

In response to Arizona Public Service (APS), the drafting team concluded it was not adverse to expanding the measurement window to a rolling six-to-twelve months to allow entities to ensure that activities target real-time, reliability benefits. The drafting team requested that APS provide suggested language.

## Comment Report Form for WECC-0124 BAL-004-WECC-3 ATEC Modification

### Minority View

In response to PacifiCorp's request to explain why any changes were needed, the drafting team concluded, inter alia:

“Changes are necessary to BAL-004-WECC-2 because there is no clear requirement for BAs to make sure that they operate to centralized calculations of PII<sub>accum</sub> made in the WIT or successor electronic tool. Additionally, the existing Accumulated Primary Inadvertent Interchange (PII<sub>accum</sub>) threshold is based on Peak Load or Peak Generation for which there is no commonly known, readily available, annually published source for existing or new BAs. The source data is open for interpretation.”

### Effective Date

The proposed Effective Date is the first day of the second quarter following applicable regulatory approval.

### Action Plan

On November 11, 2016, the DT agreed by majority vote to post Posting 2 of the project for a 30-day comment period. The posting would open January 16, 2017 and close February 15, 2017. The DT will reconvene on March 21, 2017, from 10:00 a.m. to 12:00 p.m. (MT) to address comment received.

### Contacts and Appeals

If you feel your comment has been omitted or overlooked, please contact [W. Shannon Black](#), WECC Consultant. In addition, there is a WECC Reliability Standards Appeals Process.

The WECC Standards Voting Sectors are:

- 1 — Transmission Sector
- 2 — Generation Sector
- 3 — Marketers and Brokers Sector
- 4 — Distribution Sector
- 5 — System Coordination Sector
- 6 — End Use Representative Sector
- 7 — State and Provincial Representatives Sector
- 8 — Other Non-Registered WECC Members and Participating Stakeholders Sector

Comment Report Form for WECC-0124 BAL-004-WECC-3 ATEC Modification

Commenter	Organization	WECC Standards Voting Sectors							
		1	2	3	4	5	6	7	8
Craig Figart	Avista Corp	X	X	X	X				
James Wells	LADWP	X	X	X	X	X			
Gary Nolan	AZPS	X	X	X	X	X			
Tom Daufel	PacifiCorp	X	X	X	X	X			
Johnny Anderson	Idaho Power Company	X	X						



## Index to Questions, Comments, and Responses

### Question

#### 1. The drafting team invites comments on all aspects of the proposed document.

Summary Consideration:		See summary in the preamble of this document.	
Commenter	Yes	No	Comment
Avista Corp			<p>I agree with proposed R1 PIIaccum cap and reconciliation with "WIT or successor electronic confirmation tool". For Avista, this cap STILL provides MORE than enough room. Let's reference the centrally managed tool per INT-021-WECC-CRT-2.1 as the "WIT or successor electronic confirmation tool" per recent PWG discussions.</p> <p>The Drafting Team welcomes comments on all aspects of the document.</p> <p>I would also recommend making a similar change in Requirement R4 to compute PII hourly, PII accum, and IATEC in "WIT or successor electronic confirmation tool". So then, trim the R4 measures for acceptable compliance to ONLY allow data as calculated by the "WIT or successor electronic confirmation tool".</p> <p>I would also recommend making similar Measures data reconciliation to "WIT or successor electronic confirmation tool" changes to other Requirements: M1, M2, M4, M6, M7.</p>
<p>The DT adopted Avista's suggestion adding the following phrase to Requirement R1, M1, M2, M4, M6 and M7 to make the entire document consistent: "WECC Interchange Tool (WIT) or its successor electronic confirmation tool."</p>			
LADWP			<p>LADWP agrees that BA should reconcile PII with "WIT or successor electronic confirmation tool" and believe that a common tool provides uniformity and consistency and eliminates invalid implementations of ATEC.</p> <p>LADWP has concerns with the proposed 60*L10 limit:</p> <p>1) RBC (BAL-001-2) went into effect 7/1/16 allowing loser BA controls. With more renewable coming on system in coming years, could tightening PII working against RBC and an entity's ability to integrate renewables on system? It is much harder to loosen requirements than to tighten them, thus if a limit that is unnecessarily restrictive is imposed it will be harder to regain that</p>

Comment Report Form for WECC-0124 BAL-004-WECC-3 ATEC Modification

Summary Consideration:		See summary in the preamble of this document.	
Committer	Yes	No	Comment
			<p>flexibility in the future. LADWP thinks something on the order of magnitude of 100% peak load PII accumulation as a new PII Limit would be acceptable.</p> <p>2) Primary Inadvertent is associated with Automatic Time Error Correction, and a mechanism to reduce manual time error corrections. With NERC recently voting to retire BAL-004-0, the industry appears to be signaling a reduced importance &amp; reliability concern regarding time error. Given these circumstances, is modifying PII limits to help manage/reduce TE worth the potential of adversely impacting a BAs needed flexibility moving forward.</p> <p>3) If many entities are already operating well below the current 150% limit, how will tightening the limits near what BA currently operate to improve reliability.</p>
<p>Automatically correcting Time Error is not the goal of the Automatic Time Error Correction (ATEC) standard. Time Error is merely an indication of system frequency performance over time and used in the calculation of PII as a benchmark to assess each Balancing Authority's (BA) hourly contribution to that system frequency error. With BAL-004-0 facing retirement, the DT is not as concerned about the benefit that ATEC theoretically provides in automatically managing Time Error.</p> <p>For the first three quarters of 2016, on average, BAs are managing their PII accumulations under 10% of Peak Load/Generation. There are some BAs with excessive accumulations of PII. (This conclusion is based on data received from WECC covered by non-disclosure rules and therefore not included in these responses.)</p> <p>The DT understands LADWP's concerns noting that moving forward the benefit of any changes must beneficially counterbalance against the imposed burden. The DT concluded that seeking additional industry input on the proposed thresholds would be in order.</p> <p>The following question is proposed for Posting 2 to achieve consensus.                      "As the industry moves increasingly towards use of renewable resources is the proposed threshold too stringent (60 L10 prior to month-end adjustment)? If so, please explain why and submit supporting empirical data to support any alternative threshold. Specific proposed language changes would be greatly appreciated."</p>			
AZPS			<p>AZPS supports the strengthened controls for minimizing the excessive accumulation of inadvertent interchange, but is concerned that the one-month measurement window is unnecessarily restrictive. As an example, CPS1 compliance, a critical indicator of real-time control limits, is maintained with a rolling 12-calendar month measurement. It would be overly restrictive to require inadvertent interchange accumulations, which have no impact on real-time operations, to be maintained at a fraction of the time with no additional reliability benefit.</p>

Comment Report Form for WECC-0124 BAL-004-WECC-3 ATEC Modification

Summary Consideration:		See summary in the preamble of this document.	
Committer	Yes	No	Comment
			<p>Additionally, this modification would result in the entities expending significant effort to update and correct inadvertent interchange at a periodicity that is greater than the monthly interval to ensure that compliance is maintained where meter data or other corrections may have affected calculations and must be identified and corrected no less than monthly. Further, there is a potential that Reliability-Based Controls could drive large amounts of inadvertent interchange upon a Balancing Authority in short order. When this is coupled with the short measurement window, this could require a Balancing Authority to be constantly assessing and correcting inadvertent at a rate far exceeding the benefit. For the above reasons, AZPS would support an expanded measurement window of a rolling six to twelve months, which would allow entities to ensure that activities target real-time, reliability benefits.</p>
<p>As to AZPS' initial concern, please see the above response to LADWP regarding proposed changes to the thresholds. The DT would request that AZPS provide specific language for inclusion in the document.</p>			
PacifiCorp			<p>PacifiCorp questions whether there is a rationale for the changes that are being proposed. Please provide the need that is driving these changes.</p> <p>PacifiCorp understands the intent of not allowing excessive inadvertent values but feels the proposed changes under R1.1 has the potential to affect BA's negatively by pushing the accumulated inadvertent outside of this new limit for regular interchange meter error adjustments and similar events.</p> <p>Also, has the task force considered that even with the current version of the standard, BA's are encouraged to delay making updates until the beginning of the next month for previous months' errors identified to avoid non-compliance with this standard. For example, if a meter error correction is identified near the end of the month there may be insufficient time for the BA to pay back that inadvertent through ATEC by the end of the month. This incentivizes the BA to put off updating data until after the monthly assessment has run, rather than updating in a timely manner.</p> <p>In general, while the limits provide for regular management of inadvertent accumulation, they do not allow for after the fact schedule and meter error corrections that can push the BAA out of tolerance close to the compliance measurement date, without sufficient time to pay off the balance.</p>

**Comment Report Form for WECC-0124 BAL-004-WECC-3 ATEC Modification**

Summary Consideration:		See summary in the preamble of this document.	
Commenter	Yes	No	Comment
<p>Please see response to LADWP.</p> <p>According to the ATEC (I<sub>ATEC</sub>) definition of Hour (H) as the number of hours to payback Primary Inadvertent Interchange (PII) energy, ATEC was originally implemented with the intent that Balancing Authorities (BA) would payback PII energy balances over the subsequent three hours (H=3). Without tightened accumulated PII (PII<sub>accum</sub>) thresholds, ATEC cannot effectively manage PII accumulations in a timely manner, nor discourage persistent BA-induced system frequency deviations.</p> <p>FERC acknowledged that “[l]arge accumulations of primary inadvertent [energy] point to an invalid implementation of ATEC, loose control, metering or accounting errors.”<sup>1</sup> Further, FERC noted that a “BA that is operating out-of-balance for an extended period of time is ‘leaning on the system’ by relying on external resources to meet its obligations and could affect other entities within an Interconnection, particularly if another entity is reacting to a grid event while unaware that the first entity has not restored its ACE.” Unchecked, this operational practice produces large accumulations of Primary II energy forcing correspondingly sustained Secondary II energy accumulations in other BAs.</p> <p>Changes are necessary to BAL-004-WECC-2 because there is no clear requirement for BAs to make sure that they operate to centralized calculations of PII<sub>accum</sub> made in the WIT or successor electronic tool. Additionally, the existing Accumulated Primary Inadvertent Interchange (PII<sub>accum</sub>) threshold is based on Peak Load or Peak Generation for which there is no commonly known, readily available, annually published source for existing or new BAs. The source data is open for interpretation.</p> <p>Furthermore, the existing PII<sub>accum</sub> threshold had to be over-inflated as part of the initial WECC-0068 drafting team effort to accommodate substantial Month-End Corrections (per the existing Requirement R7) made by some large BAs. This over-inflation can be eliminated by excluding Month-End Corrections per R7 from the PII<sub>accum</sub> threshold Month-End totals used for monthly assessment.</p> <p>Based on BA PII accumulation data trends, it appears to be the case that BAs can effectively manage to whatever limits are imposed. Initial data reviews show that Month-End meter error corrections for large BAs are typically no more than 12% of Peak Load (based on one sampling so far).</p>			
Idaho Power Company			Idaho Power believes the calculation for R1 would be easier to calculate.
The drafting team appreciates Idaho’s continued involvement in the standards development process.			

## Posting 2

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The WECC-0124 ATEC Modification Drafting Team (DT) thanks those who submitted comments on the proposed document.

### Posting

This document was posted for a 30-day public comment period from January 16 through February 22, 2017.

The notice of the posting was distributed on January 12, 2017. The DT requested that stakeholders provide feedback on the proposed document through a standardized electronic template. WECC received six comments in response to Posting 2.

### Location of Comments

All comments received on the document can be viewed in their original format on the WECC-0124 project page under the “Submit and Review Comments” accordion.

### Changes in Response to Comments

The industry was asked whether proposed Requirement R1 was too stringent. Of the six respondents, two did not answer the yes/no question, three stated they did not believe the proposed requirement was too stringent, and one stated that the proposed requirement was too stringent.

After considering the comments received via the comments portal as well as comments received by the drafting team during its consideration of comments, the drafting team concluded that adding the more stringent operational mandate was not needed. The proposed operational change has been withdrawn. A technical paper in support of the position is no longer contemplated by the drafting team.

### Minority View

The drafting team opted not to accept Peak Reliability’s (Peak) request for incorporation-by-reference or to add an additional requirement mandating specific action in the event the WECC Interchange Tool (WIT) or its successor is not available. WECC drafting teams have previously considered the approach concluding that it may be overly prescriptive, resulting in a default to compliance rather than using the best tools of the moment based on the existing fact pattern.

## Comment Report Form for WECC-0124 BAL-004-WECC-3 ATEC Modification

The drafting team suggests that Peak's requests might already be met via the Reliability Coordinator's authority under the NERC Interconnection Reliability Operations and Coordination (IRO) Suite or via existing or proposed WECC Regional Criterion.

Finally, the drafting team concluded there was no need to address entities that might create data via any means other than the WIT as the final true up is as calculated by the WIT or its successor electronic confirmation tool.

### Effective Date

The proposed Effective Date is the first day of the second quarter following applicable regulatory approval.

### Action Plan

On March 21, 2017, the WECC-0124 BAL-004-WEC-2 Automatic Time Error Correction (ATEC) drafting team (DT) agreed to post Posting 3 of the project for a 30-day comment period.

The posting period will open March 27, 2017 and close April 27, 2017. The drafting team will meet on May 9, 2017 and again on May 16, 2017, as needed, from 10:00 a.m. to 12:00 p.m. (MT) to respond to comments received.

Comments can be submitted using the green survey buttons located on the Submit and Review Comments accordion of each individual page.

If you have questions regarding the posting, please feel free to contact W. Shannon Black, [sblack@wecc.biz](mailto:sblack@wecc.biz), (503) 307-5782.

### Contacts and Appeals

If you feel your comment has been omitted or overlooked, please contact [W. Shannon Black](#), WECC Consultant. In addition, there is a WECC Reliability Standards Appeals Process.

The WECC Standards Voting Sectors are:

- 1 — Transmission Sector
- 2 — Generation Sector
- 3 — Marketers and Brokers Sector
- 4 — Distribution Sector
- 5 — System Coordination Sector
- 6 — End Use Representative Sector
- 7 — State and Provincial Representatives Sector
- 8 — Other Non-Registered WECC Members and Participating Stakeholders Sector

Comment Report Form for WECC-0124 BAL-004-WECC-3 ATEC Modification

Commenter	Organization	WECC Standards Voting Sectors							
		1	2	3	4	5	6	7	8
David Lemmons	Public Service Company of Colorado	X	X	X	X	X			
Teresa Rakowsky	Puget Sound Energy	X	X	X	X	X			
Aaron Cavanaugh	Bonneville Power Administration	X		X	X	X			
Jeri Freimuth	Arizona Public Service	X	X	X	X	X			
Laura Nelson	Idaho Power Company	X	X						
Scott Downey	Peak Reliability					X			

**Index to Questions, Comments, and Responses**

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**Question**

1. **As the industry moves increasingly toward use of renewable resources, is the proposed threshold too stringent (60 L10 prior to month-end adjustment)? If so, please explain why and submit supporting empirical data to support any alternative threshold. Specific proposed language changes would be greatly appreciated.**

<b>Summary Consideration:</b>	<p>See summary in the preamble of this document.                  Of the six respondents, two did not answer the yes/no questions, three stated they did not believe the proposed requirement was too stringent, and one stated that the proposed requirement was too stringent.</p>
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**Comment Report Form for WECC-0124 BAL-004-WECC-3 ATEC Modification**

Commenter	Yes	No	Comment
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Comment Report Form for WECC-0124 BAL-004-WECC-3 ATEC Modification

<p>Public Service Company of Colorado</p>	<p>NA</p>	<p>NA</p>	<p>The issue being addressed by the proposed standard is not a reliability issue, it is an issue of equity. Therefore, this should not be addressed by a reliability standard. It is Public Service Company of Colorado's (PSCo) position that this effort should be stopped and another means be used to address any equity concerns. Please refer to PSCo's response to the next question for further detail. The Drafting Team welcomes comments on all aspects of the document.</p> <p>Summary:</p> <p>We recognize the Drafting team is attempting to address questions to WECC that were raised by the FERC back in 2009. However, the proposal does not address any specific reliability issues but rather seeks to require a tight limit to force entities to control within a very narrow bandwidth to ensure inadvertent balances remain within these limits. The proposed limit does not have any technical basis and as such seems arbitrary and is not defensible. Seeking to reduce inadvertent accumulations, an equity and non-reliability question, through a Reliability Standard revision is not warranted nor appropriate and creates more opportunity for conflicting actions.</p> <p>Discussion:</p> <p>As proposed, Requirement R1 provides no support for reliable operation of the Bulk Electric System. Instead, it is only dealing with the issue of equity between Balancing Authorities. At the extreme, it could conflict with reliable operation of the system if frequency and inadvertent balances are such that it would cause an entity to operate in opposition to the system frequency. At any given time, the proposed tight requirement could potentially cause conflicts with the need to support frequency under BAL—001-2. The much tighter limit could significantly increase the likelihood that a BA with a positive accumulation would be wanting to reduce interchange to meet BAL-004, but this could put the BA at odds with BAL-001-2 if at the same time system frequency is low. While this level of operation would be unlikely, it would cause operators to take action that is related to events in the past instead of the current state of the system, much like CPS2 was more concerned with a fixed limit instead of real time current frequency.</p> <p>We also believe that the proposed limit with measurement based on a single number each month further removes the goal of a standard, reliable operation of the BES, from the requirement. As proposed, an entity that has a large balance would have an incentive to reduce the amount of inadvertent energy despite any impact to the Bulk Electric System. Additionally, the proposed limit</p>
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Comment Report Form for WECC-0124 BAL-004-WECC-3 ATEC Modification

Commenter	Yes	No	Comment
			<p>is an extreme reduction, in the range of 80 percent, from the current limits and unsupported by any technical reasons. Unless the drafting team can provide a technically sound basis for this reduction related to reliable operation of the system and not concerned with equity, there would not be any support for the change. The drafters of the Standards Authorization Request appear to justify the proposed reduction of the limit of the accumulated amount based on the recent change from the Control Performance Standard 2 (CP2) methodology to the Balancing Authority ACE Limit (BAAL) in BAL-001 and the perceived relaxation of the control limits under the BAAL.</p> <p>BAL-001-2 R2 appropriately sets the limits for a Balancing Authority Area Control Error based on near real-time operations (within the last 30 minutes at most) and system frequency. So long as an entity is operating within these bounds, there should not be a risk of violating another standard based only on a perceived equity issue and a single point in time.</p> <p>A review of the proposed technical document shows a lack of any supporting data and instead appears to be based on opinion and assumptions. At no point in the document is there any actual data or technical basis for the proposal. The drafting team needs to first build support for their position that there is a reliability issue being addressed instead of issues related to costs or equity. We note that the document discusses loose control by entities that are operating within the limits of the technically justified and industry approved BAL-001-2 BAAL requirement. The drafting team needs to first justify the position that an entity that is operating within the limits of the approved reliability standard is causing a reliability issue that needs to be addressed. Otherwise, it appears that this effort is addressing equity and not reliability.</p> <p>Until the drafting team develops a clear case that there is a reliability issue being addressed, Public Service Company of Colorado asks that the drafting team stop trying to put artificial limits on the technically justified BAAL and instead look to address this equity issue in a way that does not raise potential conflicts between compliance and reliability. If the drafting team believes that the inadvertent interchange accumulation needs to be addressed, the drafting team should look to develop a means to equitably do so rather than creating the potential for a Reliability Standard violation. The WECC membership needs to ensure that the Reliability Standards they propose are truly addressing reliability issues and not issue of equity.</p>

**Comment Report Form for WECC-0124 BAL-004-WECC-3 ATEC Modification**

Commenter	Yes	No	Comment
<p>The drafting team (DT) considered PSCo’s comment as well as those provided during the drafting team call at which the comments were discussed. The DT agreed that additional technical support would be warranted if the more stringent operating limits were to be pursued. The DT agreed that creating a requirement to address that minority outlying performance could be overly burdensome on those already acting in compliance. Further tightening the performance threshold to address the operations of minority actors could result in an overreach. Thus, the DT agreed to withdraw its proposal for the more stringent limits. A technical paper justifying the proposal is no longer being considered.</p> <p>The DT further concluded that although ATEC corrections occur after-the-fact to ensure equity, ATEC corrections by their nature impact the reliable operation of the grid. As such, ATEC has a dual component of equity and reliability. In some cases, equity can be addressed outside of the standards via bilateral contract; however, when the error impacts multiple parties a contractual remedy is not always viable. In such cases, a standard that governs operations becomes the most effective tool to address equity.</p>			
Puget Sound Energy		No	<p>Puget Sound Energy supports the changes and does not foresee a problem with maintaining the 60 * L10, but agrees with AZPS that a monthly requirement is too restrictive. A rolling six or twelve-month period is preferred.</p> <p>Thank you for the opportunity to comment and thank you for your efforts.</p>
<p>See response to PSCo and AZPS.</p>			
Bonneville Power Administration		No	<p>BPA agrees with the proposed language in Requirement R1 and R1.1. BPA does not feel the proposed thresholds in Requirement R1 are too stringent.</p> <p>BPA agrees with using the WECC Interchange Tool (WIT) or its successor, electronic confirmation tool, as the official source to calculate BA's accumulated PII.</p>
<p>The drafting team appreciates BPA’s continued involvement in the standards development process.</p>			
AZPS	Yes		<p>With the industry moving towards integration of renewable resources through means such as RBC and EIM, these proposed limits and timelines are unnecessarily stringent. RBC seeks to not have Balancing Authorities control contrary to real-time frequency conditions. These proposed limits could require Balancing Authorities to manually control contrary to frequency conditions by raising generation to reduce PII while frequency is already high or lower generation when frequency is low.</p> <p>As currently designed, this requirement would have a Balancing Authority expending much time every month, particularly the last few days, working to confirm their PII balances remain within compliant bounds regardless of the amount of inadvertent Reliability Based Control (RBC) may impose on their system. All of this to keep accumulated PII below these values, when failure to</p>

Comment Report Form for WECC-0124 BAL-004-WECC-3 ATEC Modification

Commenter	Yes	No	Comment
			<p>do so would have no reliability impact. And the monthly periodicity is twelve times stricter than the NERC Control Performance Standard CPSI requirement, which provides for a rolling 12-month adherence.</p> <p>AZPS does not provide any empirical data to support an alternative threshold as WECC had not provided any empirical data to support their proposed limits. Without evidence that the existing limits are inadequate and have caused a reliability problem to be solved and the lack of data to demonstrate that the new limits would solve this perceived problem, AZPS believes this modification lacks justification to proceed. If WECC believes that this amount of primary inadvertent interchange is a detriment to reliability, the solution of having the entity intentionally create an equal amount of inadvertent interchange in the opposite direction would contradict that argument. AZPS believes this equity issue is better solved through commercial business practices under NAESB. AZPS supports requiring one source for the calculated values such as the WIT.</p>
<p>Please see the above response to PSCo.</p>			
Idaho Power		No	Idaho Power agrees with Posting 2. Idaho Power does not foresee any major impacts to Operations.
<p>The drafting team appreciates Idaho Power’s continued involvement in the standards development process.</p>			
Peak Reliability	NA	NA	<p>Peak suggests:</p> <ol style="list-style-type: none"> <li>1) A requirement to ensure the data necessary for ATEC is provided to WIT (or its successor) and any alternative mechanisms if allowed.</li> <li>2) Consideration be given to account for instances when WIT (or its successor) may be unavailable by incorporating a reference to WECC regional criterion INT-020.</li> <li>3) WIT (or its successor) is deemed as one of the tools used for the ATEC calculation but that an alternative mechanism be allowed. If an alternate mechanism is used by a BA, the standard should request submission of the same data as used in the alternate mechanism so that the WIT calculation results match the ATEC and inadvertent values of the BA's alternate process.</li> </ol>
<p>As a general drafting convention, incorporation by reference is to be avoided. If a WECC Criterion is incorporated by reference into a NERC Standard, each time the WECC Criterion is changed it could change</p>			

**Comment Report Form for WECC-0124 BAL-004-WECC-3 ATEC Modification**

Commenter	Yes	No	Comment
<p>the implementation of the standard. At a minimum, this creates due process concerns in that applicable entities could be surprised that a standard’s implementation had changed “without notice.”</p> <p>In the NERC Rules of Procedure, Rule 313 establishes the definition for a Regional Criteria that states, in summary, that such a document (Regional Criterion) can be used to “implement, to augment, or to comply with NERC Reliability Standards.”</p> <p>WECC has several Regional Criteria in place that inform the applicable entities as to how data is to be submitted within the Western Interconnection. Unlike a Standard that should be designed to reach a performance outcome, Regional Criteria are better suited for “how to”-type of requirements such as how-to submit data.</p> <p>If there is not a WECC Criterion specifically on point, the DT suggests that using the Regional Criteria approach might better suit Peak’s concerns.</p> <p>For example:</p> <p>INT-016-WECC-CRT-2.1, Data Submittal, (WR1) requires entities meeting specific criteria to submit information via a Request-for-Information (RFI); and (WR2) transactions are required to be submitted via the WECC Interchange Tool (WIT).</p> <p>INT-021-WECC-CRT-2.1, WECC Interchange Tool (WIT) Checkout Confirmation, (WR1) requires the entities to use the WIT or its successor, except when the tool is not available.</p> <p>In the latter case, the original drafting team discussed creating a requirement stating what must be done if the WIT were not available. That team concluded that adding additional layering of communication mandates could over-prescribe to the point of omitting the best possible choice based on the fact pattern. As such, that team opted not to include the type of mandate requested by Peak.</p> <p>The DT suggests that Peak, as the Reliability Coordinator, can mandate certain data collection and methodology via its powers contained in the NERC IRO suite. To the extent that is correct, an additional requirement is not needed.</p> <p>Finally, an entity is free to use whatever means it chooses to create its own data; however, the true-up is “as calculated by the [WECC] Interchange Tool (WIT) or its successor electronic confirmation tool.” It is the WIT that dictates the authoritative source of the data.</p>			

**Question**

**2. The drafting team welcomes comments on all aspects of the document.**

<b>Summary Consideration:</b>	<p>See summary in the preamble of this document. All comments were included and considered as part of Question 1.</p>		
Commenter	Yes	No	Comment

## Posting 3

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The WECC-0124 ATEC Modification Drafting Team (DT) thanks those who submitted comments on the proposed document.

### Posting

This document was posted for a 30-day public comment period from March 27 through April 27, 2017.

The notice of the posting was distributed on March 21, 2017. The DT requested that stakeholders provide feedback on the proposed document through a standardized electronic template. WECC received three comments in response to Posting 3.

### Location of Comments

All comments received on the document can be viewed in their original format on the WECC-0124 project page under the “Submit and Review Comments” accordion.

### Changes in Response to Comments

The drafting team adopted Arizona Public Service Company’s (AZPS) suggestion. Requirement R1 will be reworded as follows. Changes are underlined.

**R1.** Each Balancing Authority shall operate its system such that, following the conclusion of each month, the month-end absolute value of its On-Peak and Off-Peak, Accumulated Primary Inadvertent Interchange ( $PII_{accum}$ ), as calculated by the WECC Interchange Tool (WIT) or its successor electronic confirmation tool, are each individually less than or equal to: [Violation Risk Factor Medium:] [Time Horizon: Operations Assessment]

- 1.1** For load-serving Balancing Authorities, 150% of the previous calendar year’s integrated hourly Peak Demand,
- 1.2** For generation-only Balancing Authorities, 150% of the previous calendar year’s integrated hourly peak generation.

### Minority View

There was no minority view.

## Comment Report Form for WECC-0124 BAL-004-WECC-3 ATEC Modification

### Effective Date

The proposed Effective Date is the first day of the second quarter following applicable regulatory approval.

### Action Plan

On May 9, 2017, the WECC-0124 BAL-004-WEC-2 Automatic Time Error Correction (ATEC) Drafting Team (DT) agreed to post Posting 4 of the project for a 30-day comment period.

The posting period will open May 11, 2017 and close June 12, 2017. The drafting team will meet on June 13, 2017, from 10:00 a.m. to 12:00 p.m. (MT) to respond to comments.

Comments can be submitted using the green survey buttons located on the Submit and Review Comments accordion of this project's home page.

If you have questions regarding the posting, please feel free to contact [W. Shannon Black](#) at (503) 307-5782.

### Contacts and Appeals

If you feel your comment has been omitted or overlooked, please contact [W. Shannon Black](#), WECC Consultant. In addition, there is a WECC Reliability Standards Appeals Process.

The WECC Standards Voting Sectors are:

- 1 — Transmission Sector
- 2 — Generation Sector
- 3 — Marketers and Brokers Sector
- 4 — Distribution Sector
- 5 — System Coordination Sector
- 6 — End Use Representative Sector
- 7 — State and Provincial Representatives Sector
- 8 — Other Non-Registered WECC Members and Participating Stakeholders Sector

Comment Report Form for WECC-0124 BAL-004-WECC-3 ATEC Modification

Commenter	Organization	WECC Standards Voting Sectors							
		1	2	3	4	5	6	7	8
Kristi Cocco	Arizona Public Service	X	X	X	X	X			
Laura Nelson	Idaho Power Company	X	X						
Pjoy Chua	Los Angeles Department of Water and Power	X	X	X	X	X			



Index to Questions, Comments, and Responses

Question

1. The Drafting Team welcomes comments on all aspects of the document.

Summary Consideration:		See summary in the preamble of this document.	
Commenter	Yes	No	Comment
AZPS			AZPS observes that too many words may have been inadvertently struck in this draft of the modified standard. More specifically, the words "is less than or equal to" have now been deleted. By doing so, the standard now requires that, at the end of each month, Balancing Authorities must have month-end absolute values of On-Peak and Off-Peak Accumulated PII equaling 150% of the previous calendar year's integrated hourly Peak Demand or integrated hourly peak generation. AZPS concurs with the proposed changes with the exception of the striking of "is less than or equal to" and will support the draft if this deletion is corrected.
<p>The drafting team agrees and thanks AZPS for their continued involvement in the standards development process. The following language was added to the end of Requirement R1:</p> <p>“are each individually less than or equal to:”</p>			
Idaho Power			Idaho Power agrees with the changes outlined in Posting 3.
<p>The drafting team thanks Idaho for their continued involvement in the standards development process.</p>			
LADWP			Please reconsider the month end Primary Inadvertent limits as these are large reductions. Perhaps a smaller or more gradual reduction would be best.
<p>The drafting team is no longer considering reducing the Primary Inadvertent limits from the current limits. The drafting team is leaving the 150% threshold as-is.</p>			

**Attachment R4  
Posting 4  
May 11 through June 12, 2017  
WECC-0124 BAL-004-WECC-3  
Automatic Time Error Correction**

## **Posting 4**

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The WECC-0124 ATEC Modification Drafting Team (DT) thanks those who submitted comments on the proposed document.

### **Posting**

This document was posted for a 30-day public comment period from May 11 through June 12, 2017.

The notice of the posting was distributed on May 9, 2017. The DT requested that stakeholders provide feedback on the proposed document through a standardized electronic template. WECC received one comment in response to Posting 4.

### **Location of Comments**

All comments received on the document can be viewed in their original format on the WECC-0124 project page under the “Submit and Review Comments” accordion.

### **Changes in Response to Comments**

The drafting team considered all comments received in Posting 4 and opted to make no further substantive changes to the project. The drafting team reviewed the Violation Severity Level table and the Guidance section opting to make no changes except for one non-substantive change. In the Background section, third sentence, the phrase “the current” was deleted to correct the tense of the sentence as it applies to “NERC Reliability Standard BAL-004-0.”

### **Minority View**

There was no minority view.

### **Effective Date**

The proposed Effective Date is the first day of the second quarter following applicable regulatory approval.

## Comment Report Form for WECC-0124 BAL-004-WECC-3 ATEC Modification

### Action Plan

On June 13, 2017, the WECC-0124 BAL-004-WEC-2 Automatic Time Error Correction (ATEC) Drafting Team (DT) agreed to forward the project to the WECC Standards Committee (WSC) with a request for ballot. The WSC meets on June 21, 2017.

If you have questions regarding the posting, please feel free to contact [W. Shannon Black](#) at (503) 307-5782.

### Contacts and Appeals

If you feel your comment has been omitted or overlooked, please contact [W. Shannon Black](#), WECC Consultant. In addition, there is a WECC Reliability Standards Appeals Process.

The WECC Standards Voting Sectors are:

- 1 — Transmission Sector
- 2 — Generation Sector
- 3 — Marketers and Brokers Sector
- 4 — Distribution Sector
- 5 — System Coordination Sector
- 6 — End Use Representative Sector
- 7 — State and Provincial Representatives Sector
- 8 — Other Non-Registered WECC Members and Participating Stakeholders Sector

Comment Report Form for WECC-0124 BAL-004-WECC-3 ATEC Modification

Commenter	Organization	WECC Standards Voting Sectors							
		1	2	3	4	5	6	7	8
Sandra Shaffer	PacifiCorp	X	X	X	X	X			

## Index to Questions, Comments, and Responses

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### Question

1. The Drafting Team welcomes comments on all aspects of the document.

<b>Summary Consideration:</b>	See summary in the preamble of this document.		
<b>Commenter</b>	<b>Yes</b>	<b>No</b>	<b>Comment</b>
PacifiCorp			PacifiCorp supports the proposed changes.
The drafting team appreciates PacifiCorp’s continued involvement in the standards development process.			

## Regional Reliability Standards Under Development

Regional Reliability Standards - Under Development				
Standard No.	Title	Regional Status	Dates	NERC Status
<b>Western Electricity Coordinating Council (WECC)</b>				
BAL-004-WECC-3	Automatic Time Error Correction	Standard Under Development	12/1/17 – 1/16/18	<p style="text-align: right;">Info (16)</p> <p style="text-align: right;">BAL-004-WECC-3 Clean (17)   Redline (18)</p> <p style="text-align: right;">Submit Comments</p> <p style="text-align: right;">Unofficial Comment Form (Word) (19)</p> <p style="text-align: right;">Comments Received (20)</p>

# Regional Reliability Standards Announcement

## Western Electricity Coordinating Council BAL-004-WECC-3

Comment period open through January 16, 2018

### [Now Available](#)

The Western Electricity Coordinating Council has requested NERC to post Regional Reliability Standard **BAL-004-WECC-3 - Automatic Time Error Correction** for industry review and comment as permitted by the NERC Rules of Procedure.

### Commenting

Use the [Standards Balloting and Commenting System \(SBS\)](#) to submit comments. If you experience any difficulties in using the electronic form, contact [Nasheema Santos](#). The form must be submitted by **8 p.m. Eastern, Tuesday, January 16, 2018**. An unofficial Word version of the comment form is posted on the [Regional Reliability Standards Under Development](#) page.

### Regional Reliability Standards Development Process

Section 300 of [NERC's Rules of Procedures of the Electric Reliability Organization](#) governs the regional reliability standards development process. Although the technical aspects of this Regional Reliability Standard have been vetted through WECC's Regional Standards development process, the final approval process for a Regional Reliability Standard requires NERC publicly to notice and request comment on the criteria outlined in the unofficial comment forms.

### Background

In its BAL-004-WECC-3 project, the WECC drafting team reviewed and addressed the following:

- Relocation of the Background section to the preamble of the Guidance section;
- Adding On-Peak and Off-Peak parameters in Requirement R1/M1;
- Including Western Interchange Tool software successors throughout; and
- Conforming and non-substantive changes.

Although the technical aspects of this Regional Reliability Standard have been vetted through WECC's Regional Standards development process, the final approval process for a Regional Reliability Standard requires NERC publicly to notice and request comment on the criteria outlined in the [comment form](#).

Documents and information about this project are available on the [WECC's Standards Under Development](#) page.

For more information or assistance, contact Standards Developer, [Mat Bunch](#) (via email) or at (404) 446-9785.

North American Electric Reliability Corporation  
3353 Peachtree Rd, NE  
Suite 600, North Tower  
Atlanta, GA 30326  
404-446-2560 | [www.nerc.com](http://www.nerc.com)



**A. Introduction**

- 1. Title:** Automatic Time Error Correction
- 2. Number:** BAL-004-WECC-3
- 3. Purpose:** To maintain Interconnection frequency and to ensure that Time Error Corrections and Primary Inadvertent Interchange (PII) payback are effectively conducted in a manner that does not adversely affect the reliability of the Interconnection.
- 4. Applicability**
  - 4.1. Functional Entities**
    - 4.1.1** Balancing Authorities that operate synchronously in the Western Interconnection.
- 5. Effective Date:** On the first day of the second quarter, after applicable regulatory approval has been received (or the Reliability Standard otherwise becomes effective the first day of the fourth quarter following NERC Board adoption where regulatory approval is not required).

## B. Requirements and Measures

**R1.** Each Balancing Authority shall operate its system such that, following the conclusion of each month, the month-end absolute value of its On-Peak and Off-Peak, Accumulated Primary Inadvertent Interchange ( $PII_{accum}$ ), as calculated by the WECC Interchange Tool (WIT) or its successor electronic confirmation tool, are each individually less than or equal to: *[Violation Risk Factor Medium:] [Time Horizon: Operations Assessment]*

**1.1** For load-serving Balancing Authorities, 150% of the previous calendar year's integrated hourly Peak Demand,

**1.2** For generation-only Balancing Authorities, 150% of the previous calendar year's integrated hourly peak generation.

**M1.** Each Balancing Authority will have evidence that it operated its system such that, following the conclusion of each month, the month-end absolute value of its On-Peak and Off-Peak, Accumulated Primary Inadvertent Interchange ( $PII_{accum}$ ), as calculated by the WECC Interchange Tool (WIT) or its successor electronic confirmation tool, meets all criteria stated in Requirement R1.

**R2.** Each Balancing Authority shall, upon discovery of an error in the calculation of  $PII_{hourly}$ , recalculate within 90 days, the value of  $PII_{hourly}$  and adjust the  $PII_{accum}$  from the time of the error. *[Violation Risk Factor: Medium] [Time Horizon: Operations Assessment]*

**M2.** Forms of acceptable evidence of compliance with Requirement R2 include but are not limited to any one of the following:

- Data, screen shots from the WECC Interchange Tool (WIT) or its successor electronic confirmation tool,
- Data, screen shots from the internal Balancing Authority tool, or
- Production of data from any other databases, spreadsheets, displays.

**R3.** Each Balancing Authority shall keep its Automatic Time Error Correction (ATEC) in service, with an allowable exception period of less than or equal to an accumulated 24 hours per calendar quarter for ATEC to be out of service. *[Violation Risk Factor: Medium] [Time Horizon: Same-day Operations]*

**M3.** Forms of acceptable evidence of compliance with Requirement R3 may include, but are not limited to:

- Dated archived files,
- Historical data,
- Other data that demonstrates the ATEC was out of service for less than 24 hours per calendar quarter.

**R4.** Each Balancing Authority shall compute each of the following using the WECC Interchange Tool (WIT) or its successor electronic confirmation tool, no later than 50 minutes after each hour,

**4.1.**  $P_{II\text{hourly}}$ ,

**4.2.**  $P_{II\text{accum}}$ ,

**4.3.** Automatic Time Error Correction term ( $I_{ATEC}$ ).

*[Violation Risk Factor: Medium] [Time Horizon: Operations Assessment]*

**M4.** Forms of acceptable evidence of compliance with Requirement R4 include but are not limited to any one of the following:

- Data, screen shots from the WECC Interchange Tool (WIT) or its successor electronic confirmation tool, that demonstrate compliance;
- Data, screen shots from internal Balancing Authority tool that demonstrate compliance; or,
- Data from any other databases, spreadsheets, displays that demonstrate compliance.

**R5.** Each Balancing Authority shall be able to change its Automatic Generation Control operating mode between Flat Frequency (for blackout restoration); Flat Tie Line (for loss of frequency telemetry); Tie Line Bias; and Tie Line Bias plus Time Error Control (used in ATEC mode), to correspond to current operating conditions.

*[Violation Risk Factor: Medium] [Time Horizon: Real-Time Operations]*

**M5.** Forms of acceptable evidence of compliance with Requirement R5 include but are not limited to any one of the following:

- Screen shots from Energy Management System,
- Demonstration using an off-line system.

**R6.** Each Balancing Authority shall recalculate the  $P_{II\text{hourly}}$  and  $P_{II\text{accum}}$  for the On-Peak and Off-Peak periods whenever adjustments are made to hourly Inadvertent Interchange or  $\Delta TE$ . *[Violation Risk Factor: Medium] [Time Horizon: Operations Assessment]*

**M6.** Forms of acceptable evidence of compliance with Requirement R6 include but are not limited to any one of the following:

- Data, screen shots from the WECC Interchange Tool (WIT) or its successor electronic confirmation tool, that demonstrate compliance;
- Data, screen shots from an internal Balancing Authority tool that demonstrate compliance with; or,

- Data from any other databases, spreadsheets, displays that demonstrate compliance.
- R7.** Each Balancing Authority shall make the same adjustment to the PII<sub>accum</sub> as it did for any month-end meter reading adjustments to Inadvertent Interchange. *[Violation Risk Factor: Medium] [Time Horizon: Operations Assessment]*
- M7.** Forms of acceptable evidence of compliance with Requirement R7 include but are not limited to any one of the following:
- Data, screen shots from the WECC Interchange Tool (WIT) or its successor electronic confirmation tool, that demonstrate compliance;
  - Data, screen shots from an internal Balancing Authority tool that demonstrate compliance; or,
  - Production of data from any other databases, spreadsheets, displays that demonstrate compliance.
- R8.** Each Balancing Authority shall payback Inadvertent Interchange using ATEC rather than bilateral and unilateral payback. *[Violation Risk Factor: Medium] [Time Horizon: Operations Assessment]*
- M8.** Forms of acceptable evidence of compliance with Requirement R8 include but are not limited to historical On-Peak and Off-Peak Inadvertent Interchange data, data from the WECC Interchange Tool, and ACE data.

## **C. Compliance**

### **1. Compliance Monitoring Process**

#### **1.1 Compliance Enforcement Authority**

The Regional Entity shall serve as the Compliance Enforcement Authority.

For entities that do not work for the Regional Entity, the Regional Entity shall serve as the Compliance Enforcement Authority.

For Reliability Coordinators and other functional entities that work for their Regional Entity, the ERO or a Regional Entity approved by the ERO and FERC or other applicable governmental authorities shall serve as the Compliance Enforcement Authority.

For responsible entities that are also Regional Entities, the ERO or a Regional Entity approved by the ERO and FERC or other applicable governmental authorities shall serve as the Compliance Enforcement Authority.

**1.2 Compliance Monitoring and Assessment Processes:**

Compliance Audits

Self-Certifications

Spot Checking

Compliance Investigations

Self-Reporting

Complaints

**1.3 Evidence Retention**

The following evidence retention periods 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.

Each Balancing Authority in the Western Interconnection shall retain the values of  $PII_{hourly}$ ,  $PII_{accum}$  (On-Peak and Off-Peak),  $\Delta TE$  and any month-end adjustments for the preceding calendar year (January – December), as well as the current calendar year.

Each Balancing Authority in the Western Interconnection shall retain the amount of time the Balancing Authority operated without ATEC for the preceding calendar year (January – December), as well as the current calendar year.

**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	Operations Assessment	Medium	Following the conclusion of each month each Balancing Authority’s absolute value of PII <sub>accum</sub> for either the On-Peak period or Off-Peak period exceeded 150%, but was less than or equal to 160% of the previous calendar year’s Peak Demand or peak generation for generation-only Balancing Authorities.	Following the conclusion of each month each Balancing Authority’s absolute value of PII <sub>accum</sub> for either the On-Peak period or Off-Peak period exceeded 160%, but was less than or equal to 170% of the previous calendar year’s Peak Demand or peak generation for generation-only Balancing Authorities.	Following the conclusion of each month each Balancing Authority’s absolute value of PII <sub>accum</sub> for either the On-Peak period or Off-Peak period exceeded 170%, but was less than or equal to 180% of the previous calendar year’s Peak Demand or peak generation for generation-only Balancing Authorities.	Following the conclusion of each month each Balancing Authority’s absolute value of PII <sub>accum</sub> for either the On-Peak period or Off-Peak period exceeded 180% of the previous calendar year’s Peak Demand or peak generation for generation-only Balancing Authorities.
R2	Operations Assessment	Medium	The Balancing Authority did not recalculate PII <sub>hourly</sub> and adjust the PII <sub>accum</sub> within 90 days of the discovery of the error; but made the required recalculations and adjustments within 120 days.	The Balancing Authority did not recalculate PII <sub>hourly</sub> and adjust the PII <sub>accum</sub> within 120 days of the discovery of the error; but made the required recalculations and adjustments within 150 days.	The Balancing Authority did not recalculate PII <sub>hourly</sub> and adjust the PII <sub>accum</sub> within 150 days of the discovery of the error; but made the required recalculations and adjustments within 180 days.	The Balancing Authority did not recalculate PII <sub>hourly</sub> and adjust PII <sub>accum</sub> within 180 days of the discovery of the error.

R #	Time Horizon	VRF	Violation Severity Levels			
			Lower VSL	Moderate VSL	High VSL	Severe VSL
R3	Real-Time Operations	Medium	The Balancing Authority operated during a calendar quarter without ATEC in service for more than an accumulated 24 hours, but less than or equal to 72 hours.	The Balancing Authority operated during a calendar quarter without ATEC in service for more than an accumulated 72 hours, but less than or equal to 120 hours.	The Balancing Authority operated during a calendar quarter without ATEC in service for more than an accumulated 120 hours, but less than or equal to 168 hours	The Balancing Authority operated during a calendar quarter without ATEC in service for more than an accumulated 168 hours.
R4	Operations Assessment	Medium	The Balancing Authority did not compute $PII_{hourly}$ , $PII_{accum}$ , and $I_{ATEC}$ within 50 minutes, but made the required calculations in less than or equal to two hours.	The Balancing Authority did not compute $PII_{hourly}$ , $PII_{accum}$ , and $I_{ATEC}$ within two hours, but made the required calculations in less than or equal to four hours.	The Balancing Authority did not compute $PII_{hourly}$ , $PII_{accum}$ , and $I_{ATEC}$ within four hours, but made the required calculations in less than or equal to six hours.	The Balancing Authority did not compute $PII_{hourly}$ , $PII_{accum}$ , and $I_{ATEC}$ within six hours.
R5	Real-Time Operations	Medium	N/A	N/A	N/A	The Balancing Authority is not able to change its AGC operating mode between Flat Frequency (for blackout restoration; Flat Tie Line (for loss of frequency

R #	Time Horizon	VRF	Violation Severity Levels			
			Lower VSL	Moderate VSL	High VSL	Severe VSL
						telemetry); Tie Line Bias; or Tie Line Bias plus Time Error control (used in ATEC mode).
R6	Operations Assessment	Medium	N/A	N/A	N/A	When making adjustments to hourly Inadvertent Interchange or $\Delta TE$ , the Balancing Authority did not recalculate the $PII_{hourly}$ and the $PII_{accum}$ for the On-Peak and Off-Peak periods.
R7	Operations Assessment	Medium	N/A	N/A	N/A	When making any month-end meter reading adjustments to Inadvertent Interchange, the Balancing Authority did not make the same adjustment to the $PII_{accum}$ .



WECC Standard BAL-004-WECC-3 – Automatic Time Error Correction

R #	Time Horizon	VRF	Violation Severity Levels			
			Lower VSL	Moderate VSL	High VSL	Severe VSL
R8	Operations Assessment	Medium	N/A	N/A	N/A	The Balancing Authority paid back Inadvertent Interchange using bilateral and unilateral payback rather than using ATEC.

## Guidelines and Technical Basis

### Background

In February 2003, the WECC Automatic Time Error Correction (ATEC) Procedure (Procedure) became effective for all Balancing Authorities in the Western Interconnection. The original intent of the Procedure was to minimize the number of Manual Time Error Corrections in the Western Interconnection. ATEC provides the added benefit of a superior approach over NERC Reliability Standard BAL-004-0 – Time Error Correction for assigning costs and providing for the equitable payback of Inadvertent Interchange. In October 2006, the Procedure became a WECC Criterion. In May 2009, FERC issued Order No.723 that approved Regional Reliability Standard BAL-004-WECC-1 - Automatic Time Error Correction, as submitted by NERC. In addition, the Commission directed WECC to develop several clarifying modifications to BAL-004-WECC-1 using the FERC-approved Process for Developing and Approving WECC Standards. The Effective Date of the BAL-004-WECC-1 standard was July 1, 2009. BAL-004-WECC-1 required Balancing Authorities within the Western Interconnection to maintain Interconnection frequency within a predefined frequency profile and to ensure that Time Error Corrections were effectively conducted in a manner that did not adversely affect the reliability of the Interconnection. In September 2009, WECC received WECC Standards/Regional Criterion Request Form (Request) WECC-0068, which was a request for modification of BAL-004-WECC-1. In July 2010, the chair of the WECC Operating Committee assigned the Request to the Performance Work Group (PWG) for development.

### Requirement R1:

**Premise:** Each Balancing Authority should ensure that the absolute value of its  $PII_{accum}$  for both the On-Peak period and the Off-Peak period each individually does not exceed 150% of the previous year's Peak Demand for load-serving Balancing Authorities and 150% of the previous year's peak generation for generation-only Balancing Authorities. The Balancing Authority is required to keep each  $PII_{accum}$  period within the limit. For example, the Balancing Authorities actions may include:

- Identifying and correcting the source of any metering or accounting error(s) and recalculating the hourly Primary Inadvertent Interchange ( $PII_{hourly}$ ) and the  $PII_{accum}$  from the time of the error;
- Validating the implementation of ATEC; or
- Setting  $L_{max}$  equal to  $L_{10}$ , until the  $PII_{accum}$  is below the limit in Requirement R1.

**Justification:**  $PII_{accum}$  may grow from month-end adjustments and metering errors, even with the inclusion of  $I_{ATEC}$  in the ACE equation.

**Goal:** To limit the amount of  $PII_{accum}$  that a Balancing Authority can have at the end of each month.

### Requirement R2:

**Premise:** When a Balancing Authority finds an error in the calculation of its PII, the Balancing Authority needs time to correct the error and recalculate PII and  $PII_{accum}$ .

**Justification:** The drafting team selected 90 days as a reasonable amount of time to correct an error and recalculate PII and  $PII_{accum}$ , since recalculation of PII and  $PII_{accum}$  is not a real-time operations

reliability issue.

**Goal:** To promote the timely correction of errors in the calculation of PII and PII<sub>accum</sub>.

**Requirement R3:**

**Premise:** When a Balancing Authority is not participating in ATEC, payback of PII<sub>accum</sub> is delayed.

**Justification:** The limit of 24 hours per quarter discourages a Balancing Authority from withdrawing ATEC participation, for example, for economic gain during selected hours. If the limits were increased to 60 hours, a Balancing Authority could technically withdraw ATEC participation for one hour from Monday to Friday.

**Goal:** To promote fair and timely payback of PII<sub>accum</sub> balances.

**Requirement R4:**

**Premise:** PII<sub>hourly</sub>, PII<sub>accum</sub>, and  $I_{ATEC}$  should be determined before the next scheduling hour begins.

**Justification:** To promote timely calculations 50 minutes was selected because it is before the next hour ramp begins and permits time to collect the data and resolve interchange metering values.

**Goal:** To promote the timely calculation of PII<sub>hourly</sub>, PII<sub>accum</sub>, and  $I_{ATEC}$ .

**Requirement R5:**

**Premise:** The ACE equation, and hence the AGC mode, will contain any number of parameters based on system operating conditions. Various AGC modes are identified corresponding to those operating conditions, as well as the specific sets of parameters included in the ACE equation.

**Justification:** Changing to the proper operating mode, corresponding to current operating conditions, affords proper movement of generating units in response to those conditions. The addition of the ATEC term results in an additional AGC mode and a different set of parameters. The inability to correctly calculate the ATEC term would dictate that AGC not be operated in the ATEC mode.

**Goal:** To set the AGC mode and calculate ACE in a manner that corresponds to the system operating conditions and to accommodate changes in those conditions.

**Requirement R6:**

**Premise:** Hourly adjustments to hourly Inadvertent Interchange (II) require a recalculation of the corresponding hourly PII value, the corresponding PII<sub>accum</sub>, and all subsequent PII<sub>accum</sub> for every hour up to the current hour.

**Justification:** As PII<sub>hourly</sub> is corrected, then PII<sub>accum</sub> should be recalculated.

**Goal:** To promote accurate, fair and timely payback of accumulated PII balances.

**Requirement R7:**

**Premise:** Month-end meter-reading adjustments are made, for example, when a Balancing Authority performs monthly comparisons of recorded month-end Net Actual Interchange ( $NI_A$ ) values derived from hourly Actual Interchange Telemetered Values against month-end Actual Interchange Register Meter readings.

**Justification:** Month-end adjustments to  $II_{accum}$  are applied as 100%  $PII_{accum}$ . 100% was chosen for simplicity to bilaterally assign  $PII_{accum}$  to both Balancing Authorities, since the effect of this metering error on system frequency is not easily determined over the course of a month.

WECC Standard BAL-004-WECC-3 – Automatic Time Error Correction

**Goal:** To provide a mechanism by which corresponding month-end II adjustments can be applied to  $PII_{accum}$ , when such adjustments cannot be attributed to any one hour or series of hours.

**Requirement R8:**

**Premise:** ATEC includes automatic unilateral payback of Primary Inadvertent Interchange and Secondary Inadvertent Interchange.

**Justification:** Additional unilateral and bilateral exchanges disturb the balance and distribution between Primary Inadvertent Interchange and Secondary Inadvertent Interchange throughout the Interconnection; thereby stranding Secondary Inadvertent Interchange.

**Goal:** To not strand Secondary Inadvertent Interchange.

**Version History**

Version	Date	Action	Change Tracking
1	February 4, 2003	Effective Date.	New
1	October 17, 2006	Created Standard from Procedure.	Errata
1	February 6, 2007	Changed the Standard Version from 0 to 1 in the Version History Table.	Errata
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WECC Standard BAL-004-WECC-3 – Automatic Time Error Correction

Version	Date	Action	Change Tracking
3	TBD	TBD	Five-year review. The project: 1) relocates the Background section to the preamble of the Guidance section, 2) adds On-Peak and Off-Peak parameters in Requirement R1/M1, 3) addresses WECC Interchange Tool software successors throughout, 4) conforms the document to current drafting conventions (R1/M1, R4/M4), and, 5) addresses non-substantive syntax and template concerns.

## A. Introduction

1. **Title:** Automatic Time Error Correction
2. **Number:** BAL-004-WECC-023
3. **Purpose:** To maintain Interconnection frequency and to ensure that Time Error Corrections and Primary Inadvertent Interchange (PII) payback are effectively conducted in a manner that does not adversely affect the reliability of the Interconnection.
4. **Applicability**
  - 4.1. **Functional Entities**
    - 4.1.1 Balancing Authorities that operate synchronously in the Western Interconnection.
5. **Effective Date:** On the first day of the second quarter, after applicable regulatory approval has been received (or the Reliability Standard otherwise becomes effective the first day of the fourth quarter following NERC Board adoption where regulatory approval is not required).

### ~~6. Background:~~

~~In February 2003, the WECC Automatic Time Error Correction (ATEC) Procedure (Procedure) became effective for all Balancing Authorities in the Western Interconnection. The original intent of the Procedure was to minimize the number of Manual Time Error Corrections in the Western Interconnection. ATEC provides the added benefit of a superior approach over the current NERC Reliability Standard BAL 004-0 Time Error Correction for assigning costs and providing for the equitable payback of Inadvertent Interchange. In October 2006, the Procedure became a WECC Criterion. In May 2009, FERC issued Order No. 723 that approved Regional Reliability Standard BAL 004 WECC 1 Automatic Time Error Correction, as submitted by NERC. In addition, the Commission directed WECC to develop several clarifying modifications to BAL 004 WECC 1 using the FERC approved Process for Developing and Approving WECC Standards. The Effective Date of the BAL 004 WECC 1 standard was July 1, 2009. BAL 004 WECC 1 required Balancing Authorities within the Western Interconnection to maintain Interconnection frequency within a predefined frequency profile and to ensure that Time Error Corrections were effectively conducted in a manner that did not adversely affect the reliability of the Interconnection. In September 2009, WECC received WECC Standards/Regional Criterion Request Form (Request) WECC 0068, which was a request for modification of BAL 004 WECC 1. In July 2010, the chair of the WECC Operating Committee assigned the Request to the Performance Work Group (PWG) for development.~~

## B. Requirements and Measures

~~Following the conclusion of each month each~~ **R1.** Each Balancing Authority shall ~~verify~~ operate its system such that, following the conclusion of each month, the month-end absolute value of its On-Peak and Off-Peak, Accumulated Primary Inadvertent Interchange (PII<sub>accum</sub>) for both, as calculated by the monthly On-Peak period and the monthly Off-Peak period WECC Interchange Tool (WIT) or its successor electronic confirmation tool, are each individually less than or equal to: [Violation Risk Factor Medium:] [Time Horizon: Operations Assessment]

**1.1** For load-serving Balancing Authorities, 150% of the previous calendar year's integrated hourly Peak Demand,-

**1.2** For generation-only Balancing Authorities, 150% of the previous calendar year's integrated hourly peak generation.

~~[Violation Risk Factor Medium:] [Time Horizon: Operations Assessment]~~

~~**M1.** Forms of acceptable evidence of compliance with Requirement R1 include but are not limited to any one of the following:~~

- ~~• Data, screen shots from the WECC Interchange Tool (WIT),-~~
- ~~• Data, screen shots from the internal Balancing Authority tool, or~~
- ~~• Production of data from any other databases, spreadsheets, displays.~~

**M1.** Each Balancing Authority will have evidence that it operated its system such that, following the conclusion of each month, the month-end absolute value of its On-Peak and Off-Peak, Accumulated Primary Inadvertent Interchange (PII<sub>accum</sub>), as calculated by the WECC Interchange Tool (WIT) or its successor electronic confirmation tool, meets all criteria stated in Requirement R1.

**R2.** Each Balancing Authority shall, upon discovery of an error in the calculation of PII<sub>hourly</sub>, recalculate within 90 days, the value of PII<sub>hourly</sub> and adjust the PII<sub>accum</sub> from the time of the error. [Violation Risk Factor: Medium] [Time Horizon: Operations Assessment]

**M2.** Forms of acceptable evidence of compliance with Requirement R2 include but are not limited to any one of the following:

- Data, screen shots from the WECC Interchange Tool (WIT) or its successor electronic confirmation tool,
- Data, screen shots from the internal Balancing Authority tool, or
- Production of data from any other databases, spreadsheets, displays.

**R3.** Each Balancing Authority shall keep its Automatic Time Error Correction (ATEC) in



service, with an allowable exception period of less than or equal to an accumulated 24 hours per calendar quarter for ATEC to be out of service. *[Violation Risk Factor: Medium] [Time Horizon: Same-day Operations]-*

**M3.** Forms of acceptable evidence of compliance with Requirement R3 may include, but are not limited to:-

- Dated archived files,-
- Historical data,-
- Other data that demonstrates the ATEC was out of service for less than 24 hours per calendar quarter.-

**-R4.** Each Balancing Authority shall compute each of the following by using the WECC Interchange Tool (WIT) or its successor electronic confirmation tool, no later than 50 minutes after each hour:-

- 4.1.** PII<sub>hourly</sub>,
- 4.2.** PII<sub>accum</sub>,
- 4.3.** Automatic Time Error Correction term ( $I_{ATEC}$ ).

*[Violation Risk Factor: Medium] [Time Horizon: Operations Assessment]*

**M4.** Forms of acceptable evidence of compliance with Requirement R4 include but are not limited to any one of the following:

- Data, screen shots from the WECC Interchange Tool (WIT) or its successor electronic confirmation tool, that demonstrate compliance,-
- Data, screen shots from internal Balancing Authority tool that demonstrate compliance,- or
- Data from any other databases, spreadsheets, displays that demonstrate compliance.-

**R5.** Each Balancing Authority shall be able to change its Automatic Generation Control operating mode between Flat Frequency (for blackout restoration); Flat Tie Line (for loss of frequency telemetry); Tie Line Bias; and Tie Line Bias plus Time Error Control (used in ATEC mode), to correspond to current operating conditions. *[Violation Risk Factor: Medium] [Time Horizon: Real-Time Operations]-*

**M5.** Forms of acceptable evidence of compliance with Requirement R5 include but are not limited to any one of the following:

- Screen shots from Energy Management System,-
- Demonstration using an off-line system.

**R6.** Each Balancing Authority shall recalculate the PIIhourly and PIIaccum for the On-Peak and Off-Peak periods whenever adjustments are made to hourly Inadvertent Interchange or  $\Delta$ TE. *[Violation Risk Factor: Medium] [Time Horizon: Operations Assessment]*

**M6.** Forms of acceptable evidence of compliance with Requirement R6 include but are not limited to any one of the following:

- Data, screen shots from the WECC Interchange Tool (WIT) or its successor electronic confirmation tool, that demonstrate compliance;<sub>i</sub>
- Data, screen shots from an internal Balancing Authority tool that demonstrate compliance with<sub>i</sub> or<sub>i</sub>
- Data from any other databases, spreadsheets, displays that demonstrate compliance.-

**R7.** Each Balancing Authority shall make the same adjustment to the PIIaccum as it did for any month-end meter reading adjustments to Inadvertent Interchange. *[Violation Risk Factor: Medium] [Time Horizon: Operations Assessment]*

**M7.**— Forms of acceptable evidence of compliance with Requirement R7 include but are not limited to any one of the following:

- Data, screen shots from the WECC Interchange Tool (WIT) or its successor electronic confirmation tool, that demonstrate compliance;<sub>i</sub>
- Data, screen shots from an internal Balancing Authority tool that demonstrate compliance;<sub>i</sub> or<sub>i</sub>
- Production of data from any other databases, spreadsheets, displays that demonstrate compliance.

**R8.** Each Balancing Authority shall payback Inadvertent Interchange using ATEC rather than bilateral and unilateral payback. *[Violation Risk Factor: Medium] [Time Horizon: Operations Assessment]*

**M8.** Forms of acceptable evidence of compliance with Requirement R8 include but are not limited to historical On-Peak and Off-Peak Inadvertent Interchange data, data from the WECC Interchange Tool, and ACE data.—

## **E.C. Compliance**

**1.**

**1. Compliance Monitoring Process**

~~1.1~~

**1.1 Compliance Enforcement Authority**

The Regional Entity shall serve as the Compliance Enforcement Authority.

For entities that do not work for the Regional Entity, the Regional Entity shall serve as the Compliance Enforcement Authority.-

For Reliability Coordinators and other functional entities that work for their Regional Entity, the ERO or a Regional Entity approved by the ERO and FERC or other applicable governmental authorities shall serve as the Compliance Enforcement Authority.-

For responsible entities that are also Regional Entities, the ERO or a Regional Entity approved by the ERO and FERC or other applicable governmental authorities shall serve as the Compliance Enforcement Authority.

**1.2 ~~1.2~~—Compliance Monitoring and Assessment Processes:-**

~~—~~ **Compliance Audits**

~~—~~ **Self-Certifications**

~~—~~ Spot

Checking

~~—~~ **Compliance Investigations**

~~—~~ Self-Reporting

~~—~~ Complaints-

**1.3 ~~1.3~~—Evidence Retention-**

The following evidence retention periods 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.-

Each Balancing Authority in the Western Interconnection shall retain the values of  $PII_{hourly}$ ,  $PII_{accum}$  (On-Peak and Off-Peak),  $\Delta TE$  and any month-end adjustments for the preceding calendar year (January – December), as well as the current calendar year.

Each Balancing Authority in the Western Interconnection shall retain the amount of time the Balancing Authority -operated without ATEC for the preceding calendar year (January – December), as well as the current calendar year.

**1.4 ~~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	Operations Assessment	Medium	Following the conclusion of each month each Balancing Authority’s absolute value of PII <sub>accum</sub> for either the On-Peak period or Off-Peak period exceeded 150%, but was less than or equal to 160% of the previous calendar year’s Peak Demand or peak generation for generation-only Balancing Authorities.	Following the conclusion of each month each Balancing Authority’s absolute value of PII <sub>accum</sub> for either the On-Peak period or Off-Peak period exceeded 160%, but was less than or equal to 170% of the previous calendar year’s Peak Demand or peak generation for generation-only Balancing Authorities.	Following the conclusion of each month each Balancing Authority’s absolute value of PII <sub>accum</sub> for either the On-Peak period or Off-Peak period exceeded 170%, but was less than or equal to 180% of the previous calendar year’s Peak Demand or peak generation for generation-only Balancing Authorities.	Following the conclusion of each month each Balancing Authority’s absolute value of PII <sub>accum</sub> for either the On-Peak period or Off-Peak period exceeded 180% of the previous calendar year’s Peak Demand or peak generation for generation-only Balancing Authorities.
R2	Operations Assessment	Medium	The Balancing Authority did not recalculate PII <sub>hourly</sub> and adjust the PII <sub>accum</sub> within 90 days of the discovery of the error; but made the required recalculations and adjustments within 120 days.	The Balancing Authority did not recalculate PII <sub>hourly</sub> and adjust the PII <sub>accum</sub> within 120 days of the discovery of the error; but made the required recalculations and adjustments within 150 days.	The Balancing Authority did not recalculate PII <sub>hourly</sub> and adjust the PII <sub>accum</sub> within 150 days of the discovery of the error; but made the required recalculations and adjustments within 180 days.	The Balancing Authority did not recalculate PII <sub>hourly</sub> and adjust PII <sub>accum</sub> within 180 days of the discovery of the error.

R.#	Time Horizon	VRE	Violation Severity Levels			
			Lower VSL	Moderate VSL	High VSL	Severe VSL
R3	Real-Time Operations	Medium	The Balancing Authority operated during a calendar quarter without ATEC in service for more than an accumulated 24 hours, but less than or equal to 72 hours.	The Balancing Authority operated during a calendar quarter without ATEC in service for more than an accumulated 72 hours, but less than or equal to 120 hours.	The Balancing Authority operated during a calendar quarter without ATEC in service for more than an accumulated 120 hours, but less than or equal to 168 hours-	The Balancing Authority operated during a calendar quarter without ATEC in service for more than an accumulated 168 hours.
R4	Operations Assessment	Medium	The Balancing Authority did not compute $PII_{hourly}$ , $PII_{accum}$ , and $I_{ATEC}$ within 50 minutes, but made the required calculations in less than or equal to two hours.	The Balancing Authority did not compute $PII_{hourly}$ , $PII_{accum}$ , and $I_{ATEC}$ within two hours, but made the required calculations in less than or equal to four hours.	The Balancing Authority did not compute $PII_{hourly}$ , $PII_{accum}$ , and $I_{ATEC}$ within four hours, but made the required calculations in less than or equal to six hours.	The Balancing Authority did not compute $PII_{hourly}$ , $PII_{accum}$ , and $I_{ATEC}$ within six hours.
R5	Real-Time Operations	Medium	N/A	N/A	N/A	The Balancing Authority is not able to change its AGC operating mode between Flat Frequency (for blackout restoration; Flat Tie Line (for loss of frequency-

R.#	Time Horizon	VRE	Violation Severity Levels			
			Lower VSL	Moderate VSL	High VSL	Severe VSL
						<u>telemetry); Tie Line Bias; or Tie Line Bias plus Time Error control (used in ATEC mode).</u>
R6	Operations Assessment	Medium	N/A	N/A	N/A	When making adjustments to hourly Inadvertent Interchange or $\Delta TE$ , the Balancing Authority did not recalculate the $PII_{hourly}$ and the $PII_{accum}$ for the On-Peak and Off-Peak periods.
R7	Operations Assessment	Medium	N/A	N/A	N/A	When making any month-end meter reading adjustments to Inadvertent Interchange, the Balancing Authority did not make the same adjustment to the $PII_{accum}$ .

<u>R.#</u>	<u>Time Horizon</u>	<u>VRE</u>	<u>Violation Severity Levels</u>			
			<u>Lower VSL</u>	<u>Moderate VSL</u>	<u>High VSL</u>	<u>Severe VSL</u>
R8	Operations Assessment	Medium	N/A	N/A	N/A	The Balancing Authority paid back Inadvertent Interchange using bilateral and unilateral payback rather than using ATEC.



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~~During development of this standard, text boxes were embedded within the standard to explain the rationale for various parts of the standard. Upon BOT approval, the text from the rationale text boxes was moved to this section.~~

### **Requirement R1:-**

**Premise:** Each Balancing Authority should ensure that the absolute value of its  $PII_{accum}$  for both the On-Peak period and the Off-Peak period each individually does not exceed 150% of the previous year's Peak Demand for load-serving Balancing Authorities and 150% of the previous year's peak generation for generation-only Balancing Authorities. The Balancing Authority is required to ~~take action to~~ keep each  $PII_{accum}$  period within the limit. For example, the Balancing Authorities actions may include:

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- Setting  $L_{max}$  equal to  $L_{10}$ , until the  $PII_{accum}$  is below the limit in Requirement R1.

**Justification:**  $PII_{accum}$  may grow from month-end adjustments and metering errors, even with the inclusion of  $I_{ATEC}$  in the ACE equation.-

**Goal:** To limit the amount of  $PII_{accum}$  that a Balancing Authority can have at the end of each month.-

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**Premise:-** Hourly adjustments to hourly Inadvertent Interchange (II) require a recalculation of the corresponding hourly PII value, the corresponding PII<sub>accum</sub>, and all subsequent PII<sub>accum</sub> for every hour up to the current hour.

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**Premise:-** Month-end meter-reading adjustments are made, for example, when a Balancing Authority performs monthly comparisons of recorded month-end Net Actual Interchange (NIA) values derived from hourly Actual Interchange Telemetered Values against month-end Actual Interchange Register Meter readings.

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**Goal:-** To provide a mechanism by which corresponding month-end II adjustments can be applied to  $PII_{accum}$ , when such adjustments cannot be attributed to any one ~~particular~~ hour or series of hours.

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WECC Standard BAL-004-WECC-3 – Automatic Time Error Correction

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<u>3</u>	<u>TBD</u>	<u>TBD</u>	<p><u>Five-year review. The project: 1) relocates the Background section to the preamble of the Guidance section, 2) adds On-Peak and Off-Peak parameters in Requirement R1/M1, 3) addresses WECC Interchange Tool software successors throughout, 4) conforms the document to current drafting conventions (R1/M1, R4/M4), and, 5) addresses non-substantive syntax and template concerns.</u></p>

# Unofficial Comment Form

## Regional Reliability Standard

### BAL-004-WECC-3

**DO NOT** use this form for submitting comments. Use the [electronic form](#) to submit comments on the proposed modifications to the Regional Reliability Standard **BAL-004-WECC-3 Automatic Time Error Correction**. The electronic form must be submitted by **8 p.m. Eastern, Tuesday, January 16, 2018**.

Documents and information about this project are available on [WECC's Standards Under Development](#) page. If you have questions, contact Standards Developer, [Mat Bunch](#) (via email) or at (404) 446-9785.

#### Background Information

In its BAL-004-WECC-3 project, the WECC drafting team reviewed and addressed the following:

- Relocation of the Background section to the preamble of the Guidance section;
- Adding On-Peak and Off-Peak parameters in Requirement R1/M1;
- Including Western Interchange Tool software successors throughout; and
- Conforming and non-substantive changes.

#### NERC Criteria for Developing or Modifying a Regional Reliability Standard

Regional Reliability Standard shall be: (1) a regional reliability standard that is more stringent than the continent-wide reliability standard, including a regional standard that addresses matters that the continent-wide reliability standard does not; or (2) a regional reliability standard that is necessitated by a physical difference in the bulk power system. Regional reliability standards shall provide for as much uniformity as possible with reliability standards across the interconnected bulk power system of the North American continent. Regional reliability standards, when approved by FERC and applicable authorities in Mexico and Canada, shall be made part of the body of NERC reliability standards and shall be enforced upon all applicable bulk power system owners, operators, and users within the applicable area, regardless of membership in the region.

The approval process for a regional reliability standard requires NERC to publicly notice and request comment on the proposed standard. Comments shall be permitted only on the following criteria (technical aspects of the standard are vetted through the regional standards development process):

**Open** — Regional reliability standards shall provide that any person or entity that is directly and materially affected by the reliability of the bulk power system within the regional entity shall be able to participate in the development and approval of reliability standards. There shall be no undue financial barriers to participation. Participation shall not be conditional upon membership in the regional entity, a regional entity or any organization, and shall not be unreasonably restricted on the basis of technical qualifications or other such requirements.

**Inclusive** — Regional reliability standards shall provide that any person with a direct and material interest has a right to participate by expressing an opinion and its basis, having that position considered, and appealing through an established appeals process, if adversely affected.

**Balanced** — Regional reliability standards shall have a balance of interests and shall not be dominated by any two-interest categories and no single-interest category shall be able to defeat a matter.

**Due Process** — Regional reliability standards shall provide for reasonable notice and opportunity for public comment. At a minimum, the standard shall include public notice of the intent to develop a standard, a public comment period on the proposed standard, due consideration of those public comments, and a ballot of interested stakeholders.

**Transparent** — All actions material to the development of regional reliability standards shall be transparent. All standards development meetings shall be open and publicly noticed on the regional entity's Web site.

Review the revised BAL-004-WECC-3 regional standard and answer the following questions.

1. Do you agree the development of BAL-004-WECC-3 met the "Open" criteria as outlined above? If "No", please explain in the comment area below.

Yes  
 No

Comments:

2. Do you agree the development of BAL-004-WECC-3 met the "Inclusive" criteria as outlined above? If "No", please explain in the comment area below.

Yes  
 No

Comments:

3. Do you agree the development of BAL-004-WECC-3 met the "Balanced" criteria as outlined above? If "No", please explain in the comment area below.

Yes  
 No

Comments:

4. Do you agree the development of BAL-004-WECC-3 met the "Due Process" criteria as outlined above? If "No", please explain in the comment area below.

Yes

No

Comments:

5. Do you agree the development of BAL-004-WECC-3 met the “Transparent” criteria as outlined above? If “No”, please explain in the comment area below.

Yes

No

Comments:



## Comment Report

**Project Name:** Regional Reliability Standard (WECC) | BAL-004-WECC-3  
Comment Period Start Date: 12/1/2017  
Comment Period End Date: 1/16/2018  
Associated Ballots:

There were 3 sets of responses, including comments from approximately 3 different people from approximately 3 companies representing 4 of the Industry Segments as shown in the table on the following pages.

## Questions

1. Do you agree the development of BAL-004-WECC-3 met the “Open” criteria as outlined above? If “No”, please explain in the comment area below.
2. Do you agree the development of BAL-004-WECC-3 met the “Inclusive” criteria as outlined above? If “No”, please explain in the comment area below.
3. Do you agree the development of BAL-004-WECC-3 met the “Balanced” criteria as outlined above? If “No”, please explain in the comment area below.
4. Do you agree the development of BAL-004-WECC-3 met the “Due Process” criteria as outlined above? If “No”, please explain in the comment area below.
5. Do you agree the development of BAL-004-WECC-3 met the “Transparent” criteria as outlined above? If “No”, please explain in the comment area below.

<b>Organization Name</b>	<b>Name</b>	<b>Segment(s)</b>	<b>Region</b>	<b>Group Name</b>	<b>Group Member Name</b>	<b>Group Member Organization</b>	<b>Group Member Segment(s)</b>	<b>Group Member Region</b>
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1. Do you agree the development of BAL-004-WECC-3 met the “Open” criteria as outlined above? If “No”, please explain in the comment area below.

**Aaron Cavanaugh - Bonneville Power Administration - 1,3,5,6 - WECC**

**Answer** Yes

**Document Name**

**Comment**

None

Likes 0

Dislikes 0

**Response**

**John Tolo - Unisource - Tucson Electric Power Co. - 1**

**Answer** Yes

**Document Name**

**Comment**

Likes 0

Dislikes 0

**Response**

**Glen Farmer - Avista - Avista Corporation - 1,3,5**

**Answer** Yes

**Document Name**

**Comment**

Likes 0

Dislikes 0

**Response**

2. Do you agree the development of BAL-004-WECC-3 met the “Inclusive” criteria as outlined above? If “No”, please explain in the comment area below.

**Aaron Cavanaugh - Bonneville Power Administration - 1,3,5,6 - WECC**

**Answer** Yes

**Document Name**

**Comment**

None

Likes 0

Dislikes 0

**Response**

**Glen Farmer - Avista - Avista Corporation - 1,3,5**

**Answer** Yes

**Document Name**

**Comment**

Likes 0

Dislikes 0

**Response**

**John Tolo - Unisource - Tucson Electric Power Co. - 1**

**Answer** Yes

**Document Name**

**Comment**

Likes 0

Dislikes 0

**Response**

3. Do you agree the development of BAL-004-WECC-3 met the “Balanced” criteria as outlined above? If “No”, please explain in the comment area below.

**Aaron Cavanaugh - Bonneville Power Administration - 1,3,5,6 - WECC**

**Answer** Yes

**Document Name**

**Comment**

None

Likes 0

Dislikes 0

**Response**

**John Tolo - Unisource - Tucson Electric Power Co. - 1**

**Answer** Yes

**Document Name**

**Comment**

Likes 0

Dislikes 0

**Response**

**Glen Farmer - Avista - Avista Corporation - 1,3,5**

**Answer** Yes

**Document Name**

**Comment**

Likes 0

Dislikes 0

**Response**

4. Do you agree the development of BAL-004-WECC-3 met the “Due Process” criteria as outlined above? If “No”, please explain in the comment area below.

**Aaron Cavanaugh - Bonneville Power Administration - 1,3,5,6 - WECC**

**Answer** Yes

**Document Name**

**Comment**

None

Likes 0

Dislikes 0

**Response**

**Glen Farmer - Avista - Avista Corporation - 1,3,5**

**Answer** Yes

**Document Name**

**Comment**

Likes 0

Dislikes 0

**Response**

**John Tolo - Unisource - Tucson Electric Power Co. - 1**

**Answer** Yes

**Document Name**

**Comment**

Likes 0

Dislikes 0

**Response**

5. Do you agree the development of BAL-004-WECC-3 met the “Transparent” criteria as outlined above? If “No”, please explain in the comment area below.

**Aaron Cavanaugh - Bonneville Power Administration - 1,3,5,6 - WECC**

**Answer** Yes

**Document Name**

**Comment**

None

Likes 0

Dislikes 0

**Response**

**John Tolo - Unisource - Tucson Electric Power Co. - 1**

**Answer** Yes

**Document Name**

**Comment**

Likes 0

Dislikes 0

**Response**

**Glen Farmer - Avista - Avista Corporation - 1,3,5**

**Answer** Yes

**Document Name**

**Comment**

Likes 0

Dislikes 0

**Response**



**Exhibit E**

**Standard Drafting Team Roster for Project WECC-0124 Automatic Time  
Error Correction Modification**

## Drafting Team Roster

### WECC-0124 BAL-004-WECC-3—Automatic Time Error Correction

Below please find a biographical snapshot for the members of the WECC-0124 BAL-004-WECC-3, Automatic Time Error Correction (ATEC) Modification Drafting Team.

Name	Organization
Craig Figart - Chair	<p>Mr. Figart has a Bachelor of Science Degree in Electrical Engineering from the University of Idaho and is also a licensed Professional Electrical Engineer in the State of Washington.</p> <p>Mr. Figart has over 23 years of utility work experience, the first six years as a Distribution System Engineer at Kootenai Electric Cooperative, a couple years in System Protection at Washington Water Power (now Avista), and the last 17 years at Avista as a SCADA Engineer, including several months more recently managing the SCADA Engineering and Generation Controls Engineering groups.</p> <p>In addition to regular SCADA engineering and compliance duties, Mr. Figart has provided engineering support to Avista’s System Operations group including various projects such as designing interchange metering replacement systems and associated energy accounting systems, facilitating the UPS/Gen upgrade for critical power feeds, implementing various new BAL standards including BAL-001-2, BAL-004-WECC-2, INT-009, etc.</p> <p>Mr. Figart joined the NERC EMS Work Group in early 2015, served for the past seven years as a WECC Performance Work Group member, participated on the WECC-0068 Standards Drafting Team, and submitted his first SAR for the BAL-004-WECC-2 Automatic Time Error Correction Standard.</p>
David Kirsch	<p>Mr. Kirsch has worked in the electric utility industry since 1988, starting at PacifiCorp. He worked for PacifiCorp for ten years dividing his time in the Major Equipment Specifications group, the Substation Design group followed up by work as a Distribution Engineer in the Portland District. He joined the Bonneville Power Administration (BPA) in 2001 as a Field Engineer in the Substation Protection and Control Group (SPCG) in the Longview District and eventually served as the District Engineer in the Longview SPCG until 2009. Mr. Kirsch transitioned to Technical Operations (TOT) in the Automatic Generation Control (AGC) workgroup. Since that time, he has been working on various projects implementing changes in AGC.</p> <p>Mr. Kirsch has been a part of the Generic Data Acquisition and Control System (GDACS) Maintenance Committee with the Corps of Engineers and United States Bureau of reclamation (USBR). As of 2014, he was the Chair of the Technical Operations and Implementation Subcommittee (TOIS), which was put together to coordinate controls and signals between BPA and the Federal Columbia River Power System (FCRPS) hydro projects.</p> <p>Mr. Kirsch is the BPA Subject Matter Expert for several standards, including NERC BAL-001, NERC BAL-002, NERC BAL-004, WECC BAL-004 and has provided input and comments regarding NERC BAL-005, NERC BAL-006 and BAL-002-WECC-2. He has served on the WECC Performance Work Group for three years and is on the WECC-0115, BAL-002-WECC-2 drafting team to request retirement of Requirement R2.</p>
Don Badley	<p>Since January 1975, Don has served as chair, vice chair, or member of many NAPSIC, NERC and WECC subcommittees, work groups, and task forces. Among NERC’s groups</p>



	<p>are: The Performance Subcommittee, Resources Subcommittee, Control Criteria Task Force, Inadvertent Interchange Task Force, Organization Certification Working Group and Functional Model Working Group. Among WECC’s groups are: Operating Practices Subcommittee, Performance Work Group, Control Work Group and Reserve Issues Task Force.</p> <p>As a member of the Institute of Electrical and Electronic Engineers (IEEE), Don served as the Oregon Section Chair and the Northwest Area Chair (Alaska, Oregon and Washington) for Region 6. Nationally, Don participated as a member of the Power System Engineering Committee, System Controls Subcommittee, and VAr Management Joint Working Group. Don has participated in writing three papers that were published in IEEE Transactions.</p>
<p>John Tolo</p>	<p>Mr. Tolo is currently employed by Tucson Electric Power as Sr. Director, System Control and Reliability and Planning, and has been in the utility business for 30 years. Mr. Tolo has held positions in power production and distribution, transmission, and generation operations. He has memberships in the NERC Resources Subcommittee, the WECC Performance Work Group, served as chair of the WECC Operating Committee, chair of the WECC Joint Guidance Committee, and was a member of the BAL-004-WECC-01 and WECC-0068 drafting teams.</p>
<p>Paul Morland</p>	<p>Mr. Morland is currently employed by Colorado Springs Utilities as an Operations Engineer in Transmission Operations, and has been in the utility business for 30 years. Mr. Morland has held positions in substation design, system protection and system operations. He has memberships in WECC Performance Work Group, WECC Operating Practices and Event Analysis Subcommittee and WECC Operating Issues Work Group. Has also served on several WECC TOP/RC certification teams.</p>
<p>Rick Lowther</p>	<p>Mr. Lowther has been in the electric utility business for 35 years and is currently employed by Salt River Project (SRP) as a Principal Engineer in Transmission and Generation Operations where he supports Balancing Authority operations including EMS setup, dispatcher training and compliance. In the Computer Applications department at SRP, Mr. Lowther directed the development of the Southwest Reserve Sharing system, the Southwest OASIS system and the replacement and customization of the SRP EMS. Previously, with ABB (formerly Baily Controls), he developed EMS applications, specializing in automatic generation control, economic dispatch and unit commitment. Prior to that he spent several years planning the CenterPoint Energy (formerly Houston Lighting &amp; Power) transmission system. He has held memberships in the WECC Interchange Scheduling and Accounting Subcommittee, Electronic Scheduling Work Group, EMS Work Group, Data Exchange Work Group and is currently the chair of the WECC Performance Work Group.</p>

<p>James Wells Los Angeles Department of Water and Power</p>	<p>Mr. Wells has a Bachelor of Science and a Master of Science in Electrical Engineering from the University of Southern California, and is also a licensed Professional Electrical Engineer in the State of California.</p> <p>Mr. Wells has 10 years of utility work experience at LADWP, the first 3 years in Energy Reconciliation/After-the-Fact supporting developing and maintaining custom reporting tools and database applications for energy scheduling, marketing transactions, interchange control, transmission utilization, and loss accounting.</p> <p>For the past 7 years Mr. Wells has been working in Operating Engineering/Grid Operations Support providing outage coordination support by facilitating and studying complex outages and providing real-time power system analysis in support of unplanned or abnormal system conditions. Mr. Wells serves as a technical engineering operations expert providing guidance and direction to multiple internal and external stakeholders on power system operation issues. Mr. Wells is the LADWP representative on multiple regional study groups including the Operating Study Subcommittee and the Pacific Southwest IROL Study group. Mr. Wells is a 3-year member of the WECC Performance Work group, is on the WECC-0115 Drafting Team, and was the WECC-0115 Standards Authorization author.</p>
<p>Antonio Franco GridForce Energy Management</p>	<p>Mr. Franco has his Bachelor of Science degree in Industrial Engineering. He has 10 years of industry compliance experience in the generation, transmission operation, and Balancing Authority (BA) functions.</p> <p>He is a member of the compliance and reliability group within Gridforce Energy Management (GEM) managing five (5) registered generation-only BAs in the Western Interconnection.</p> <p>Mr. Franco is a member of the NERC Frequency Working Group and a regular participant in the NERC Resources Subcommittee meetings.</p> <p>He represents GEM with the Northwest Power Pool Operating Committee and Frequency Response Sharing Group.</p> <p>He has 10+ years of experience in process design engineering, electrical product design engineering, business practice management, and development of quality management systems.</p>

<p>Todd Komaromy</p>	<p>Mr. Todd Komaromy co-authored the WECC-0127 Standard Authorization Request (SAR). Having spent time as a Senior Associate, with 8 years of law firm experience in the large law firms of Squire Patton Boggs and Snell &amp; Wilmer, the practice of administrative law and statutory interpretation before Federal Agencies was core to his work. Development of precise technical language and associated explanations was part and parcel to these efforts.</p> <p>Mr. Komaromy also holds an electrical engineering degree with 14 years’ experience, in the Technical Writing, Fossil Generation, Lobbying, Contracts, Intellectual Property, Transmission/Distribution, and Compliance arenas. Mr. Komaromy currently serves in a corporate capacity as the AZPS Regulatory Advisor responsible for leading the planning, development, implementation and maintenance of the compliance framework for reliability standards. Included in these duties, is providing expertise, guidance and management of AZPS’s VAR-002 reporting for both the continental and regional standards.</p> <p>Mr. Komaromy has a Bachelor of Science degree in Electrical Engineering from The Ohio State University, MBA from the University of the Pacific and a Juris Doctor degree from the Sandra Day O’Conner College of Law - Arizona State University.</p>
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