

## WECC Standard BAL-STD-002-0 - Operating Reserves

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### A. Introduction

1. **Title:** Operating Reserves
2. **Number:** BAL-STD-002-0
3. **Purpose:** Regional Reliability Standard to address the Operating Reserve requirements of the Western Interconnection.
4. **Applicability**

4.1.1 This criterion applies to each Responsible Entity that is (i) a Balancing Authority or a member of a Reserve Sharing Group that does not designate its Reserve Sharing Group as its agent, or (ii) a Reserve Sharing Group. A Responsible Entity that is a Balancing Authority and a member of a Reserve Sharing Group is subject to this criterion only as described in Section A.4.1.2. A Responsible Entity that is a member of a Reserve Sharing Group is not subject to this criterion on an individual basis.

4.1.2 Responsible Entities that are members of a Reserve Sharing Group may designate in writing to WECC a Responsible Entity to act as agent for purposes of this criterion for each such Reserve Sharing Group. Such Reserve Sharing Group agents shall be responsible for all data submission requirements under Section D of this Reliability Agreement. Unless a Reserve Sharing Group agent identifies individual Responsible Entities responsible for noncompliance at the time of data submission, sanctions for noncompliance shall be assessed against the agent on behalf of the Reserve Sharing Group, and it shall be the responsibility of the members of the Reserve Sharing Group to allocate responsibility for such noncompliance. If a Responsible Entity that is a member of a Reserve Sharing Group does not designate in writing to WECC a Responsible Entity to act as agent for purposes of this criterion for each such Reserve Sharing Group, such Responsible Entity shall be subject to this criterion on an individual basis.

5. **Effective Date:** This Western Electricity Coordinating Council Regional Reliability Standard will be effective when approved by the Federal Energy Regulatory Commission under Section 215 of the Federal Power Act. This Regional Reliability Standard shall be in effect for one year from the date of Commission approval or until a North American Standard or a revised Western Electricity Coordinating Council Regional Reliability Standard goes into place, whichever occurs first. At no time shall this regional Standard be enforced in addition to a similar North American Standard.

### B. Requirements

WR1.

The reliable operation of the interconnected power system requires that adequate generating capacity be available at all times to maintain scheduled frequency and avoid loss of firm load following transmission or generation contingencies. This generating capacity is necessary to:

- supply requirements for load variations.
- replace generating capacity and energy lost due to forced outages of generation or transmission equipment.
- meet on-demand obligations.

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- replace energy lost due to curtailment of interruptible imports.

- a. Minimum Operating Reserve. Each Balancing Authority shall maintain minimum Operating Reserve which is the sum of the following:
  - (i) Regulating reserve. Sufficient Spinning Reserve, immediately responsive to Automatic Generation Control (AGC) to provide sufficient regulating margin to allow the Balancing Authority to meet NERC's Control Performance Criteria (see BAL-001-0).
  - (ii) Contingency reserve. An amount of Spinning Reserve and Nonspinning Reserve (at least half of which must be Spinning Reserve), sufficient to meet the NERC Disturbance Control Standard BAL-002-0, equal to the greater of:
    - (a) The loss of generating capacity due to forced outages of generation or transmission equipment that would result from the most severe single contingency; or
    - (b) The sum of five percent of the load responsibility served by hydro generation and seven percent of the load responsibility served by thermal generation.

The combined unit ramp rate of each Balancing Authority's on-line, unloaded generating capacity must be capable of responding to the Spinning Reserve requirement of that Balancing Authority within ten minutes

Additional reserve for interruptible imports. An amount of reserve, which can be made effective within ten minutes, equal to interruptible imports.
  - (iv) Additional reserve for on-demand obligations. An amount of reserve, which can be made effective within ten minutes, equal to on-demand obligations to other entities or Balancing Authorities.
- b. Acceptable types of Nonspinning Reserve. The Nonspinning Reserve obligations identified in subsections a(ii), a(iii), and a(iv), if any, can be met by use of the following:
  - (i) interruptible load;
  - (ii) interruptible exports;
  - (iii) on-demand rights from other entities or Balancing Authorities;
  - (iv) Spinning Reserve in excess of requirements in subsections a(i) and a(ii); or
  - (v) off-line generation which qualifies as Nonspinning Reserve.
- c. Knowledge of Operating Reserve. Operating Reserves shall be calculated such that the amount available which can be fully activated in the next ten minutes will be known at all times.

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- d. Restoration of Operating Reserve. After the occurrence of any event necessitating the use of Operating Reserve, that reserve shall be restored as promptly as practicable. The time taken to restore reserves shall not exceed 60 minutes (Source: WECC Criterion)

### **C. Measures**

#### **WM1.**

Except within the first 60 minutes following an event requiring the activation of Operating Reserves, a Responsible Entity identified in Section A.4 must maintain 100% of required Operating Reserve levels based upon data averaged over each clock hour. Following every event requiring the activation of Operating Reserves, a Responsible Entity identified in Section A.4 must re-establish the required Operating Reserve levels within 60 minutes. (Source: Compliance Standard)

### **D. Compliance**

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

##### **1.1 Compliance Monitoring Responsibility**

**Western Electricity Coordinating Council (WECC)**

##### **1.2 Compliance Monitoring Period**

At Occurrence and Quarterly

By no later than 5:00 p.m. Mountain Time on the first Business Day following the day on which an instance of non-compliance occurs (or such other date specified in Form A.1(a)), the Responsible Entities identified in Section A.4 shall submit to the WECC office Operating Reserve data in Form A.1(a) (available on the WECC web site) for each such instance of non-compliance. On or before the tenth day of each calendar quarter (or such other date specified in Form A.1(b)), the Responsible Entities identified in Section A.4 (including Responsible Entities with no reported instances of non-compliance) shall submit to the WECC office a completed Operating Reserve summary compliance Form A.1(b) (available on the WECC web site) for the immediately preceding calendar quarter.

##### **1.3 Data Retention**

Data will be retained in electronic form for at least one year. The retention period will be evaluated before expiration of one year to determine if a longer retention period is necessary. If the data is being reviewed to address a question of compliance, the data will be saved beyond the normal retention period until the question is formally resolved. (Source: NERC Language)

##### **1.4 Additional Compliance Information**

For purposes of applying the sanctions specified in [Sanction Table](#) for violations of this criterion, the "Sanction Measure" is Average Generation and the "Specified Period" is the most recent calendar month. (Source: Sanctions)

#### **2. Levels of Non-Compliance Sanction**

**Measure:** Average Generation

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2.1. Level 1: There shall be a Level 1 non-compliance if any of the following conditions exist:

2.1.1 One instance during a calendar month in which the Balancing Authority's or the Reserve Sharing Group's Operating Reserve is less than 100% but greater than or equal to 90% of the required Operating Reserve.

2.2. Level 2: There shall be a Level 2 non-compliance if any of the following conditions exist:

2.2.1 One instance during a calendar month in which the Balancing Authority's or the Reserve Sharing Group's Operating Reserve is less than 90% but greater than or equal to 80% of the required Operating Reserve.

2.3. Level 3: There shall be a Level 3 non-compliance if any of the following conditions exist:

2.3.1 One instance during a calendar month in which the Balancing Authority's or the Reserve Sharing Group's Operating Reserve is less than 80% but greater than or equal to 70% of the required Operating Reserve.

2.4. Level 4: There shall be a Level 4 non-compliance if any of the following conditions exist:

2.4.1 One instance during a calendar month in which the Balancing Authority's or the Reserve Sharing Group's Operating Reserve is less than 70% of the required Operating Reserve.

### **E. Regional Differences**

**Version History** – Shows Approval History and Summary of Changes in the Action Field

<b>Version</b>	<b>Date</b>	<b>Action</b>	<b>Change Tracking</b>
0	March 12, 2007	Adopted by Board of Trustees	New
0	June 8, 2007	FERC order issued approving BAL-STD-002-0	

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### Sanction Table

Sanctions for non-compliance with respect to each criterion in Section B Requirements shall be assessed pursuant to the following table. All monetary sanctions shall also include sending of Letter (B).

Level of Non-	Number of Occurrences at a Given Level within Specified Period			
	1	2	3	4 or more
Level 1	Letter (A)	Letter (B)	Higher of \$1,000 or \$1 per MW of Sanction Measure	Higher of \$2,000 or \$2 per MW of Sanction Measure
Level 2	Letter (B)	Higher of \$1,000 or \$1 per MW of Sanction Measure	Higher of \$2,000 or \$2 per MW of Sanction Measure	Higher of \$4,000 or \$4 per MW of Sanction Measure
Level 3	Higher of \$1,000 or \$1 per MW of Sanction Measure	Higher of \$2,000 or \$2 per MW of Sanction Measure	Higher of \$4,000 or \$4 per MW of Sanction Measure	Higher of \$6,000 or \$6 per MW of Sanction Measure
Level 4	Higher of \$2,000 or \$2 per MW of Sanction Measure	Higher of \$4,000 or \$4 per MW of Sanction Measure	Higher of \$6,000 or \$6 per MW of Sanction Measure	Higher of \$10,000 or \$10 per MW of Sanction Measure

Letter (A): Letter to Responsible Entity's Chief Executive Officer informing the Responsible Entity of noncompliance with copies to NERC, WECC Member Representative, and WECC Operating Committee Representative 1.

Letter (B): Identical to Letter (A), with additional copies to (i) Chairman of the Board of Responsible Entity (if different from Chief Executive Officer), and to (ii) state or provincial regulatory agencies with jurisdiction over Responsible Entity, and, in the case of U.S. entities, FERC, and Department of Energy, if such government entities request such information.

The "Specified Period" and the "Sanction Measure" are as specified in Section D1.4 for each criterion.

Sanctions shall be assessed for all instances of non-compliance within a Specified Period. For example, if a Responsible Entity had two instances of Level 1 non-compliance and

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<sup>1</sup> Copies of Letter A and Letter B will be sent to WECC Member Representative and WECC Operating Committee Representative when the Generator Operator is a WECC member.

one instance of Level 3 non-compliance for a specific criterion in the first Specified Period, it would be assessed the sanction from Column 2 of the Level 1 row, and the sanction from Column 1 of the Level 3 row.

If the Responsible Entity fails to comply with a given criterion for two or more consecutive Specified Periods, the sanctions assessed at each level of noncompliance for the most recent Specified Period shall be the sanction specified in the column immediately to the right of the indicated sanction. For example, if a Responsible Entity fails to comply with a given criterion for two consecutive Specified Periods, and in the second Specified Period the Responsible Entity has one instance of Level 1 non-compliance and two instances of Level 3 non-compliance, it would be assessed the sanction from Column 2 of the Level 1 row, and the sanction from Column 3 of the Level 3 row. If the sanction assessed at the highest level is the sanction in Column 4, no such modification of the specified sanction shall occur.

## **DEFINITIONS**

Unless the context requires otherwise, all capitalized terms shall have the meanings assigned in this Standard and as set out below:

**Area Control Error or ACE** means the instantaneous difference between net actual and scheduled interchange, taking into account the effects of Frequency Bias including correction for meter error.

**Automatic Generation Control or AGC** means equipment that automatically adjusts a Control Area's generation from a central location to maintain its interchange schedule plus Frequency Bias.

**Average Generation** means the total MWh generated within the Balancing Authority Operator's Balancing Authority Area during the prior year divided by 8760 hours (8784 hours if the prior year had 366 days).

**Business Day** means any day other than Saturday, Sunday, or a legal public holiday as designated in section 6103 of title 5, U.S. Code.

**Disturbance** means (i) any perturbation to the electric system, or (ii) the unexpected change in ACE that is caused by the sudden loss of generation or interruption of load.

**Extraordinary Contingency** shall have the meaning set out in Excuse of Performance, section B.4.c.

**Frequency Bias** means a value, usually given in megawatts per 0.1 Hertz, associated with a Control Area that relates the difference between scheduled and actual frequency to the amount of generation required to correct the difference.

**Nonspinning Reserve** means that Operating Reserve not connected to the system but capable of serving demand within a specified time, or interruptible load that can be removed from the system in a specified time.

**Operating Reserve** means that capability above firm system demand required to provide for regulation, load-forecasting error, equipment forced and scheduled outages and local area protection. Operating Reserve consists of Spinning Reserve and Nonspinning Reserve.

**Spinning Reserve** means unloaded generation which is synchronized and ready to serve additional demand. It consists of Regulating reserve and Contingency reserve (as each are described in Sections B.a.i and ii).

## EXCUSE OF PERFORMANCE

### A. Excused Non-Compliance

Non-compliance with any of the reliability criteria contained in this Standard shall be excused and no sanction applied if such non-compliance results directly from one or more of the actions or events listed below.

### B. Specific Excuses

#### 1. Governmental Order

The Reliability Entity's compliance with or action under any applicable law or regulation or other legal obligation related thereto or any curtailment, order, regulation or restriction imposed by any governmental authority (other than the Reliability Entity, if the Reliability Entity is a municipal corporation or a federal, state, or provincial governmental entity or subdivision thereof).

#### 2. Order of Reliability Coordinator

The Reliability Entity's compliance or reasonable effort to comply with any instruction, directive, order or suggested action ("Security Order") by the WECC Reliability Coordinator for the WECC sub-region within which the Reliability Entity is operating, provided that the need for such Security Order was not due to the Reliability Entity's non-compliance with (a) the WECC Reliability Criteria for Transmission System Planning, (b) the WECC Power Supply

Design Criteria, (c) the WECC Minimum Operating Reliability Criteria, or (d) any other WECC reliability criterion, policy or procedure then in effect (collectively, "WECC Reliability Standards"), and provided further that the Reliability Entity in complying or attempting to comply with such Security Order has taken all reasonable measures to minimize Reliability Entity's non-compliance with the reliability criteria.

**3. Protection of Facilities**

Any action taken or not taken by the Reliability Entity which, in the reasonable judgment of the Reliability Entity, was necessary to protect the operation, performance, integrity, reliability or stability of the Reliability Entity's computer system, electric system (including transmission and generating facilities), or any electric system with which the Reliability Entity's electric system is interconnected, whether such action occurs automatically or manually; provided that the need for such action or inaction was not due to Reliability Entity's non-compliance with any WECC Reliability Standard and provided further that Reliability Entity could not have avoided the need for such action or inaction through reasonable efforts taken in a timely manner. Reasonable efforts shall include shedding load, disconnecting facilities, altering generation patterns or schedules on the transmission system, or purchasing energy or capacity, except to the extent that the Reliability Entity demonstrates to the WECC Staff and/or the RCC that in the particular circumstances such action would have been unreasonable.

**4. Extraordinary Contingency**

- a. Any Extraordinary Contingency (as defined in subsection c); provided that this provision shall apply only to the extent and for the duration that the Extraordinary Contingency actually and reasonably prevented the Reliability Entity from complying with any applicable reliability criteria; and provided further that Reliability Entity took all reasonable efforts in a timely manner to mitigate the effects of the Extraordinary Contingency and to resume full compliance with all applicable reliability criteria contained in this Reliability Agreement. Reasonable efforts shall include shedding load, disconnecting facilities, altering generation patterns or schedules on the transmission system, or purchasing energy or capacity, except to the extent that the Reliability Entity



demonstrates to the WECC Staff and/or the RCC that in the particular circumstances such action would have been unreasonable. Reasonable efforts shall not include the settlement of any strike, lockout or labor dispute.

- b. Any Reliability Entity whose compliance is prevented by an Extraordinary Contingency shall immediately notify the WECC of such contingency and shall report daily or at such other interval prescribed by the WECC the efforts being undertaken to mitigate the effects of such contingency and to bring the Reliability Entity back into full compliance.
- c. An Extraordinary Contingency means any act of God, actions by a non-affiliated third party, labor disturbance, act of the public enemy, war, insurrection, riot, fire, storm or flood, earthquake, explosion, accident to or breakage, failure or malfunction of machinery or equipment, or any other cause beyond the Reliability Entity's reasonable control; provided that prudent industry standards (ms., maintenance, design, operation) have been employed; and provided further that no act or cause shall be considered an Extraordinary Contingency if such act or cause results in any contingency contemplated in any WECC Reliability Standard (e.g., the "Most Severe Single Contingency" as defined in the WECC Reliability Criteria or any lesser contingency).

## **5. Participation in Field Testing**

Any action taken or not taken by the Reliability Entity in conjunction with the Reliability Entity's involvement in the field testing (as approved by either the WECC Operating Committee or the WECC Planning Coordination Committee) of a new reliability criterion or a revision to an existing reliability criterion where such action or non-action causes the Reliability Entity's non-compliance with the reliability criterion to be replaced or revised by the criterion being field tested; provided that Reliability Entity's noncompliance is the result of Reliability Entity's reasonable efforts to participate in the field testing.