

Standard Development Roadmap

This section is maintained by the drafting team during the development of the standard and will be removed when the standard becomes effective.

Development Steps Completed:

1. The Standards Committee approved the merger of Project 2007-05 Balancing Authority Controls and Project 2007-18 Reliability-based Control as Project 2010-14 Balancing Authority Reliability-based Controls on July 28, 2010.
2. The NERC Standards Committee approved breaking Project 2010-14 Balancing Authority Reliability-based Controls into two phases and moving Phase 1 (Project 2010-14.1 Balancing Authority Reliability-based Controls – Reserves) into formal standards development on July 13, 2011.

Proposed Action Plan and Description of Current Draft:

This is the first posting of the proposed revisions to the standard in accordance with Results-Based Criteria. This proposed draft standard will be posted for a 30-day formal comment period beginning on October ??, 2011 through November ??, 2011.

Future Development Plan:

Anticipated Actions	Anticipated Date
1. Second posting	
2. Initial Ballot	
3. Recirculation Ballot	
4. NERC BOT Approval	October, 2012

Definitions of Terms Used in Standard

This section includes all newly defined or revised terms used in the proposed standard. Terms already defined in the Reliability Standards Glossary of Terms are not repeated here. New or revised definitions listed below become approved when the proposed standard is approved. When the standard becomes effective, these defined terms will be removed from the individual standard and added to the Glossary.

Comment [TS1]: The Commission agrees with MISO that certain terms such as “spinning” and “non-spinning” or any other term used to describe contingency or operating reserves could be developed continent-wide. Additionally, we believe the technical requirements for resources that provide contingency reserves should not change from region to region.

Contingency Event

Adequacy
Adverse Reliability Impact
AGC
Burden
BAAL
Capacity Emergency
CBM
Contingency Margin
Contingency Reserve
Contingency Reserve Plan
CPS
FAL
FTL
FRL
Frequency Bias
Frequency Bias Setting
Frequency Regulation
Frequency Response
Frequency Responsive Reserve
Frequency Responsive Reserve Plan
Interconnected Operations Service
Interconnection
Manual Dispatch
Non-Spinning Reserve
Operating Reserve
Operating Reserve - Spinning
Operating Reserve - Supplemental
Operating Plan
Operational Planning Analysis
Operating Process?
Overlap Regulation Service
Ramp (Rate)
Real Time Assessment
Regulating Reserve
Regulating Reserve Plan
Regulating Margin
Regulation Service
Reportable Disturbance
Reserve Sharing Group
Resources
Response Rate
Spinning Reserve

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Stability
Supplemental Regulation Service
System
Unit Commitment and Dispatch

WECC

ACE
AGC
Disturbance
Extraordinary Contingency
Frequency Bias
Non-Spinning Reserve
Operating Reserve
Spinning Reserve

† FERC approved the WECC Tier One Reliability Standards in the Order Approving Regional Reliability Standards for the Western Interconnection and Directing Modifications, 119 FERC ¶ 61,260 (June 8, 2007). In that Order, FERC directed WECC to address the inconsistencies between the regional definitions and the NERC Glossary in developing permanent replacement standards. The replacement standards designed to address the shortcomings were filed with FERC in 2009.

A. Introduction

- 1. **Title:** Operating Reserve Planning
- 2. **Number:** BAL-00X
- 3. **Purpose:** To plan for adequate Regulating Reserve, Contingency Reserve and Frequency Responsive Reserve to maintain BA load/resource balance in support of interconnection frequency.
~~To plan to maintain and restore system frequency using adequate Regulating Reserve, Contingency Reserve and Frequency Responsive Reserve.~~
- 3.4. **Applicability:**
 - 4.1. Balancing Authorities
 - 3.1.4.2. Reserve Sharing Group
~~{May want to identify RSG — need to coordinate with work being done for BAL-002}~~
 - 4.5. **Effective Date:** The first day of the first calendar quarter six months after applicable regulatory approval. In those jurisdictions where no regulatory approval is required, the first day of the first quarter after NERC Board of Trustees approval.

Rationale
The documentation provides a basis for evaluating the competency of the Balancing Authority’s Regulating, Contingency, and Frequency Responsive reserve plans. There may be many acceptable approaches to balancing resources and demand on the operations planning horizon. Any approach must demonstrate that the Balancing Authority has addressed local risk factors and resource capabilities, constraints and volatilities.

B. Background

The reliable operation of the interconnected power system requires that adequate resources be available to maintain BA load/resource balance in support of interconnection frequency~~maintain scheduled frequency and stabilize frequency immediately following the sudden loss of generation.~~ The Balancing Authority shall plan for these reserves, composed of Regulating Reserve, Contingency Reserve and Frequency Responsive Reserve.

In order 693 the Commission required NERC to develop through the Reliability Standards development process, a continent-wide contingency reserve policy, a process to calculate a Balancing Authority’s minimum contingency reserve and a modification that defines the necessary amount of frequency response needed for reliable operation for each balancing authority.

The Commission clarified that the continent-wide policy can allow for regional differences, but that the policy should include procedures to determine the appropriate mix of operating reserves, spinning and non-spinning, as well as requirements pertaining to the specific amounts of operating reserves based on the load characteristics and magnitude, topology, and mix of available resources.

Historically there have been standards related to Operating Reserves (CPS1, DCS, CPS2/~~BAAL~~, AGC), but there has been no overarching requirements regarding planning for Operating Reserves. There has also been overlapping and sometimes confusing terminology.

Note that this ~~r~~Reliability ~~s~~Standard does not concern ~~r~~Resource ~~a~~Adequacy, but addresses short-term operating reserve planning. Resource ~~a~~Adequacy is determined through long-term resource

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planning. Planning reserve margins used in developing long-range plans are designed to measure the amount of generation capacity available to meet expected demand in (long-term) planning horizon. As this is a capacity based metric, it does not provide an accurate assessment of performance for scheduling energy in the operating time-frame.

Operational Planning Analysis is a near-term process that takes into account expected system conditions for near-term operations. This analysis may be performed a day ahead or as much as 12 months ahead. Expected system conditions include load forecast(s), generation output levels, and known system constraints (transmission facility outages, generator outages, equipment limitations, etc.). It is from this process that Balancing Authorities prospectively determine a mix of resources to reliably (and economically) meet their load-serving-requirements.

This standard defines the Operating Reserve planning requirements for Balancing Authorities. There are separate planning requirements for Regulating Reserve, Contingency Reserve and Frequency Responsive Reserve, although these designations cannot be maintained distinctly in real time operation. The resulting Operating Plan will be used by Balancing Authorities during the Operational Planning Analysis process to commit, schedule and dispatch the resources required to maintain appropriate amounts of Operating Reserve.

Other Reliability Standards define performance requirements and measurements for Balancing Authorities' application of Operating Reserves; BAL-001, Real Power Balancing Control Performance, BAL-002, Disturbance Control Performance; and BAL-003, Frequency Response.

Comment [TS2]: Need to also address requirements in TOP-002

C. Requirements

R1. Each Balancing Authority shall document its Regulating Reserve Plan addressing:

- ~~The methodology for determination of~~ the Balancing Authority's regulating margin.
- The amounts and types of resources ~~margins~~ used to manage the Balancing Authority's Area Control Error.
- ~~The control~~~~The method or methods for managing of (automatic or manual adjustments)~~ supply and demand resources such as generators, controllable loads, and energy storage devices.
- ~~The~~ incorporation of energy exports and imports by entities within the Balancing Authority Area and with other Balancing Authorities including the ability of resources to meet the net ramping requirement associated with these transactions.
- ~~The characteristics~~~~The capabilities, constraints and volatility~~ of the resources operating inside the Balancing Authority Area.
- The ~~characteristic~~~~capabilities, constraints and volatility~~ of the ~~load demand~~ ~~(need to examine "demand" exactly what does this mean)~~ operating inside the Balancing Authority Area.
- The exclusion of (those portions of) shared resources included in another Balancing Authority's Regulating, Contingency, or Frequency Responsive Reserve plans.
- The sharing of resources to provide its other Operating Reserve needs as well as its Regulating Reserve requirement.
- ~~The portion of a shared resource's not included in another Balancing Authority's Reserve Plan.~~

Comment [r3]: Need to re-word.

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M1. Each Balancing Authority ~~shall have a dated~~ ~~has evidence that it had in place a~~ Regulating Reserve Plan in accordance with R1.

R2. Each Balancing Authority shall document its Contingency Reserve Plan addressing:

- The ~~determination of methodology for determining~~ the Balancing Authority's contingency margin. ~~{may not be consistent with discussion regarding reserves and margin}.~~
- The amounts and types of resources ~~margins~~ that are capable of reducing ~~{need to revisit reducing to make sure it is consistent with prior discussion in R1}~~ the Balancing Authority's Area Control Error in response to a Contingency Event.
- The ~~control of method or methods for managing (automatic or manual adjustments)~~ supply and demand resources such as generators, controllable loads and energy storage devices.
- The incorporation of energy imports and exports schedules by entities within the Balancing Authority Area and with other Balancing Authorities.
- The ~~characteristics of capabilities, constraints and volatility of~~ the supply resources operating inside the Balancing Authority Area.
- The ~~characteristics of capabilities, constraints and volatility of~~ the load demand operating inside the Balancing Authority Area.
- The portion of a shared resource's margin not included in another Balancing Authority's Reserve Plan.
- The sharing of resources to provide its other Operating Reserve needs as well as its Contingency Reserve requirement.

M2. Each Balancing Authority has evidence that it had in place a Contingency Reserve Plan in accordance with R2.

R3. Each Balancing Authority shall document its Frequency Responsive Reserve Plan addressing:

- The Frequency Response Obligation (FRO) assigned to the Balancing Authority
- The amounts and types of resources ~~margins~~ required to meet the Balancing Authority's FRO.
- The Frequency Responsive capabilities of supply operating inside the Balancing Authority Area.
- The Frequency Responsive capabilities of load demand operating inside the Balancing Authority Area.
- The Frequency Responsive capabilities of energy storage devices operating inside the Balancing Authority Area.
- The portion of a shared resource's capability margin not included in another Balancing Authority's Reserve Plan.
- The amount of Frequency Responsive margins exchange through contractual agreements.
- The sharing of resources to provide its other Operating Reserve needs as well as its Contingency Reserve requirement.

M3. Each Balancing Authority has evidence that it had in place a document containing its Frequency Responsive Reserve Plan in accordance with R3.

Comment [TS4]: Accordingly, the Commission requires the ERO to develop a continent-wide contingency reserve policy through the Reliability Standards development process, which should include uniform elements such as certain definitions and requirements as discussed in this section. The Commission clarifies that the continent-wide policy can allow for regional differences pursuant to Order No. 672, but that the policy should include procedures to determine the appropriate mix of operating reserves, spinning and non-spinning, as well as requirements pertaining to the specific amounts of operating reserves based on the load characteristics and magnitude, topology, and mix of resources available in the region.

Comment [TS5]: We believe a continent-wide contingency reserves policy would assure that there are adequate magnitude and frequency responsive contingency reserves in each balancing authority. This will improve performance so that no balancing authority will be doing less than its fair share.

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- R4.** Each Balancing Authority shall review no less frequently than annually and update as needed, its Regulating Reserve Plan.
- M4.** Each Balancing Authority has evidence that it reviewed and updated as needed its Regulating Reserve Plan in compliance with R4.

- R5.** Each Balancing Authority shall review no less frequently than annually and update as needed, its Contingency Reserve Plan.
- M5.** Each Balancing Authority has evidence that it reviewed and updated as needed its Contingency Reserve Plan in compliance with R5.

- R6.** Each Balancing Authority shall review no less frequently than annually and update as needed, its Frequency Responsive Reserve Plan.
- M6.** Each Balancing Authority has evidence that it reviewed and updated as needed its Frequency Responsive Reserve Plan in compliance with R6.

D. Compliance

1. Compliance Monitoring Process

1.1. Compliance Enforcement Authority

Regional Entity

1.2. Compliance Monitoring Period and Reset Timeframe

Not applicable

1.3. Compliance Monitoring and Enforcement Processes:

Compliance Audits

Self-Certifications

Spot Checking

Compliance Violation Investigations

Self-Reporting

Complaints

1.4. Data Retention

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

~~Data that supports the calculation of ACE, CPSI, and BAAL are to be retained in for a three-year period.~~

1.5. Additional Compliance Information

None.

Comment [TS6]: The data retention period has been increased from the normal one year to three years in order to correlate with the audit period.

Comment [MLP7]: I think this should be removed since it is not applicable to this standard. Perhaps data supporting these plans should be mentioned with a 1 year retention?

2. **Violation Severity Levels**

	Lower VSL	Moderate VSL	High VSL	Severe VSL

Comment [TS8]: No sense in attempting to write these until some agreement is reached on the requirements.

E. Regional

None

Version History

Version	Date	Action	Change Tracking
0		BOT Approval	New