

Standard Development Timeline

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

Description of Current Draft

(Describe the type of action associated with this posting, such as 30-day informal comment period, 45-day formal comment period with parallel ballot, 45-day formal comment period with parallel additional ballot, final ballot.)

Completed Actions	Date
The SAR for Project 2007-18, Reliability Based Controls, was posted for a 30-day formal comment period.	May 15, 2007
A revised SAR for Project 2007-05, Reliability Based Controls, was posted for a second 30-day formal comment period.	September 10, 2007
The Standards Committee approved Project 2007-18, Reliability Based Controls, to be moved to standard drafting.	December 11, 2007
The SAR for Project 2007-05, Balancing Authority Controls, was posted for a 30-day formal comment period.	July 3, 2007
The Standards Committee approved Project 2007-05, Balancing Authority Controls, to be moved to standard drafting.	January 18, 2008
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.	July 28, 2010
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.	July 13, 2011
The draft standard was posted for 30-day formal industry comment period.	June 4, 2012
The draft standard was posted for 45-day formal industry comment period and initial ballot.	March 12, 2013
The third draft standard was posted for 45-day formal industry comment period and additional ballot.	August 2, 2013

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The fourth draft standard was posted for 45-day formal industry comment period and additional ballot.	October 28, 2013
The fifth draft standard was posted for a 45 day formal industry comment period and additional ballot.	August 20, 2014

Anticipated Actions	Date
45-day formal comment period with parallel additional ballot	February/March 2015
Final ballot	April 2015
NERC Board adoption	May 2015

New or Modified Terms Used in NERC Reliability Standards

This section includes all new or modified terms used in the proposed standard that will be included in the *Glossary of Terms Used in NERC Reliability Standards* upon applicable regulatory approval. Terms used in the proposed standard that are already defined and are not being modified can be found in the *Glossary of Terms Used in NERC Reliability Standards*. The new or revised terms listed below will be presented for approval with the proposed standard.

Term:

Balancing Contingency Event: Any single event described in Subsections (A), (B), or (C) below, or any series of such otherwise single events, with each separated from the next by less than one minute.

- A. Sudden loss of generation:
 - a. Due to
 - i. Unit tripping,
 - ii. Loss of generator ~~Interconnection~~ Facility resulting in isolation of the generator from the Bulk Electric System or from the responsible entity's electric system, or
 - iii. Sudden unplanned outage of transmission Facility;
 - b. And, that causes an unexpected change to the responsible entity's ACE;
- B. Sudden loss of an import, due to forced outage of transmission equipment that causes an unexpected imbalance between generation and load on the Interconnection.
- C. Sudden restoration of a load that was used as a resource that causes an unexpected change to the responsible entity's ACE.

Most Severe Single Contingency (MSSC): The Balancing Contingency Event, due to a single contingency, that would result in the greatest loss (measured in MW) of resource output used by the Reserve Sharing Group (RSG) or a Balancing Authority that is not participating as a member of a RSG at the time of the event to meet firm system load and export obligation (excluding export obligation for which Contingency Reserve obligations are being met by the ~~S~~sink Balancing Authority).

Reportable Balancing Contingency Event: Any Balancing Contingency Event resulting in a loss of MW output less than or equal to the Most Severe Single Contingency, and greater than or equal to the lesser amount of: (i) 80% of the Most Severe Single Contingency, or (ii) the amount listed below for the applicable Interconnection, and occurring within a one-minute interval of the initial sudden decline in ACE based on EMS scan rate data. Prior to any given calendar quarter, the 80% threshold may be reduced by the responsible entity upon written notification to the Regional Entity.

- Eastern Interconnection - 900 MW
- Western Interconnection – 500 MW

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- ERCOT – 800 MW
- Quebec – 500 MW

Contingency Event Recovery Period: A period beginning at the time that the resource output begins to decline within the first one-minute interval that defines a Balancing Contingency Event, and extends for fifteen minutes thereafter.

Contingency Reserve Restoration Period: A period not exceeding 90 minutes following the end of the Contingency Event Recovery Period.

Pre-Reporting Contingency Event ACE Value: The average value of Reporting ACE, or Reserve Sharing Group Reporting ACE when applicable, in the 16-second interval immediately prior to the start of the Contingency Event Recovery Period based on EMS scan rate data.

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

Contingency Reserve: The provision of capacity that may be deployed by the Balancing Authority to respond to a Balancing Contingency Event and other contingency requirements (such as Energy Emergency Alerts as specified in the associated EOP standard). The capacity may be provided by resources such as Demand-Side Management (DSM), Interruptible Load and unloaded generation.

When this standard has received ballot approval, the text boxes will be moved to the Supplemental Material Section of the standard.

A. Introduction

- 1. Title:** Disturbance Control Standard – Contingency Reserve for Recovery from a Balancing Contingency Event
- 2. Number:** BAL-002-2
- 3. Purpose:** To ensure the Balancing Authority or Reserve Sharing Group balances resources and demand and returns the Balancing Authority's or Reserve Sharing Group's Area Control Error to defined values (subject to applicable limits) following a Reportable Balancing Contingency Event.
- 4. Applicability:**
 - 4.1. Responsible Entity**
 - 4.1.1. Balancing Authority**
 - 4.1.1.1.** A Balancing Authority that is a member of a Reserve Sharing Group is the Responsible Entity only in periods during which the Balancing Authority is not in active status under the applicable agreement or governing rules for the Reserve Sharing Group.
 - 4.1.2.** Reserve Sharing Group
- 5. Effective Date:** The standard shall become effective on the first day of the first calendar quarter that is six months after the date that the standard is approved by an applicable governmental authority or as otherwise provided for in a jurisdiction where approval by an applicable governmental authority is required for a standard to go into effect. Where approval by an applicable governmental authority is not required, the standard shall become effective on the first day of the first calendar quarter that is six months after the date the standard is adopted by the NERC Board of Trustees or as otherwise provided for in that jurisdiction.
- 6. Background:**

Reliably balancing an Interconnection requires frequency management and all of its aspects. Inputs to frequency management include Tie-Line Bias Control, Area Control Error (ACE), and the various Requirements in NERC Resource and Demand Balancing Standards, specifically BAL-001-2 Real Power Balancing Control Performance and BAL-003-1 Frequency Response and Frequency Bias Setting.

B. Requirements and Measures

Rationale for Requirement R1: Requirement R1 reflects the operating principles first established by NERC Policy 1. Its objective is to assure the Responsible Entity balances resources and demand and returns its Reportable Area Control Error (ACE) to defined values (subject to applicable limits) following a Reportable Balancing Contingency Event. It requires the Responsible Entity to recover from events that would be less than or equal to the Responsible Entity's MSSC. It establishes the amount of Contingency Reserve and recovery and restoration timeframes the Responsible Entity must demonstrate in a compliance evaluation. It is intended to eliminate the ambiguities and questions associated with the existing standard. In addition, it allows Responsible Entities to have a clear way to demonstrate compliance and support the Interconnection to the full extent of its MSSC.

Requirement R1 does not apply when an entity experiences a Balancing Contingency Event that exceeds its MSSC (which includes multiple Balancing Contingency Events as described in R1.3 below) because a fundamental goal of the SDT is to assure the Responsible Entity has enough flexibility to maintain service to load while managing reliability. Also, the SDT's intent is to eliminate any potential overlap or conflict with any other NERC Reliability Standard to eliminate duplicative reporting, and other issues.

- R1.** The Responsible Entity experiencing a Reportable Balancing Contingency Event shall, within the Contingency Event Recovery Period, demonstrate recovery by returning its Reporting ACE to at least the recovery value of: *[Violation Risk Factor: Medium] [Time Horizon: Real-time Operations]*
- Zero, (if its Pre-Reporting Contingency Event ACE Value was positive or equal to zero); however, during the Contingency Event Recovery Period, any Balancing Contingency Event that occurs shall reduce the required recovery: (i) beginning at the time of, and (ii) by the magnitude of, each individual Balancing Contingency Event,
- or,
- Its Pre-Reporting Contingency Event ACE Value, (if its Pre-Reporting Contingency Event ACE Value was negative); however, during the Contingency Event Recovery Period, any Balancing Contingency Event that occurs shall reduce the required recovery: (i) beginning at the time of, and (ii) by the magnitude of, each individual Balancing Contingency Event.
- 1.1.** All Reportable Balancing Contingency Events will be documented using CR Form 1.
- 1.2.** A Responsible Entity is not subject to compliance with Requirement R1 when it is experiencing an Reliability Coordinator approved Energy Emergency Alert Level under which Contingency Reserves have been activated.
- 1.3.** Requirement R1 (in its entirety) does not apply:

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- (i) when the Responsible Entity experiences a Balancing Contingency Event that exceeds its Most Severe Single Contingency, or
- (ii) after multiple Balancing Contingency Events for which the combined magnitude exceeds the Responsible Entity's Most Severe Single Contingency for those events that occur within a 105-minute period.

M1. Each Responsible Entity shall have, and provide upon request, as evidence, a CR Form 1 with date and time of occurrence to show compliance with Requirement R1, or dated documentation that demonstrates compliance with Requirement 1.2 and 1.3.

Rationale for Requirement R2: R2 establishes a uniform continent-wide contingency reserve requirement. R2 establishes a requirement that contingency reserve be at least equal to the applicable entity's Most Severe Single Contingency. By including a definition of Most Severe Single Contingency and R2, a consistent uniform continent-wide contingency reserve requirement has been established. Its goal is to assure that the Responsible Entity will have sufficient contingency reserve that can be deployed to meet R1.

FERC Order 693 (at P356) directed BAL-002 to be developed as a continent-wide contingency reserve policy. R2 fulfills the requirement associated with the required amount of contingency reserve a Responsible Entity must have available to respond to a Reportable Balancing Contingency Event. Within FERC Order 693 (at P336) the Commission noted that the appropriate mix of operating reserve, spinning reserve and non-spinning reserve should be addressed. However, the Order predated the approval of the new BAL-003, which addresses frequency responsive reserve and the amount of frequency response obligation. With the development of BAL-003, and the associated reliability performance requirement, the SDT believes that, with R2 of BAL-002 and the approval of BAL-003, the Commission's goals of a continent-wide contingency reserves policy is met. The suites of BAL standards (BAL-001, BAL-002, and BAL-003) are all performance-based. With the suite of standards and the specific requirements within each respective standard, a continent-wide contingency policy is established.

In the Violation Severity Levels for Requirement R1, the impact of the Responsible Entity recovering from a Reportable Balancing Contingency Event depends on the amount of its Contingency Reserve available and whether it has sufficient response. Additionally, the drafting team understands that the Responsible Entity's available Contingency Reserve may vary slightly from MSSC at any time. This variability is recognized in Requirement R2 through averaging the available Contingency Reserve over each Clock Hour.

The ideal goal of maintaining an amount of Contingency Reserve to cover the Most Severe Single Contingency at all times is not necessarily in the best interest of reliability. It may have the unintended result of tying operators' hands by removing use of their

available contingency reserve from their toolbox in order to maintain service to load or manage other reliability issues. By allowing for the occasional use of this minimal amount of Contingency Reserve at the operators' discretion for other contingencies, reliability is enhanced. The SDT crafted the proposed standard to encourage the operators to use, at their discretion and within the limits set forth in the standard, their available contingency reserve to best serve reliability in Real-time. The last thing that anyone desires is to have Contingency Reserve held available and the lights go off because the standard would penalize the operator for using the Contingency Reserve to maintain service to the load. However, the drafting team did not believe that the use of reserves for issues other than a Reportable Balancing Contingency Event should be unbounded. The SDT limited the use of Contingency Reserve.

R2. The Responsible Entity shall maintain Contingency Reserve, averaged over each Clock Hour, greater than or equal to its average Clock Hour Most Severe Single Contingency, except during one or more of the following periods when the Responsible Entity is ~~in~~:
[Violation Risk Factor: Medium] [Time Horizon: Real-time Operations]

2.1 using its Contingency Reserve, for a period not to exceed 90 minutes, to mitigate the reliability concerns associated with Contingencies that are not Balancing Contingency Events; and/or

2.2 using its Contingency Reserve, for a period not to exceed 90 minutes, to respond to an Operating Instruction requiring the use of Contingency Reserve; and/or

2.3 using its Contingency Reserve for a period not to exceed 90 minutes, to resolve the exceedance of a System Operating Limit (SOL) or Interconnection Reliability Operation Limit (IROL) that requires the use of Contingency Reserve; and/or

2.4 in a Contingency Reserve Restoration Period; and/or

2.5 in a Contingency Event Recovery Period; and/or

2.6 in an Energy Emergency Alert Level under which the Responsible Entity no longer has required Contingency Reserve available provided that the Responsible Entity has made preparations for interruption of Firm Load to replace the shortfall of Contingency Reserve to avoid the uncontrolled failure of components or cascading outages of the Interconnection. For this exemption to apply, the preparations must be initiated within 5 minutes from the time that the Energy Emergency Alert Level is declared.

M2. Each Responsible Entity shall have dated documentation that demonstrates compliance with Requirement R2. ~~e~~ Evidence of compliance may include, but is not limited to, documenting Contingencies and Energy Emergency Alert Levels through outage records, ~~an Energy Emergency Alert Level under which Contingency Reserves have been activated with communication from their RC,~~ operator logs, and others.

Compliance may be achieved by demonstrating that:

- Contingency Reserve, averaged over each Clock Hour, meets or exceeds the required Contingency Reserve; or,
- Contingency Reserve has been restored to the required Contingency Reserve levels within the specified period; or,
- the sum of the Contingency Reserve and Firm Load available as a substitute for unavailable Contingency Reserve reaches the required Contingency Reserve level within the specified period;

Any shortfall from compliance will be measured as compliance of 100% minus the shortfall's percentage share of MSSC.

If the recording of Contingency Reserve or MSSC is interrupted such that more than 50 percent of the samples within the clock hour are invalid data, then that clock hour is excluded from evaluation. If any portion of the Clock Hour is excluded by rule in Requirement R2, then compliance with that portion of the hour not excluded may be shown by either determination of the integrated value for that portion of the hour not excluded by the rule or an instantaneous value showing reserves any time during the excluded period.

C. Compliance

1. Compliance Monitoring Process

1.1. Compliance Enforcement Authority

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

1.2. Evidence Retention

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

The Responsible Entity shall retain data or evidence to show compliance for the current year, plus three previous calendar years, unless directed by its

Compliance Enforcement Authority to retain specific evidence for a longer period of time as part of an investigation.

If a Responsible Entity is found noncompliant, it shall keep information related to the noncompliance until found compliant, or for the time period specified above, whichever is longer.

The Compliance Enforcement Authority shall keep the last audit records and all subsequent requested and submitted records.

1.3. Compliance Monitoring and Assessment Processes:

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

~~1.4. Compliance Audits~~

~~Self-Certifications~~

~~Spot-Checking~~

~~Compliance Investigations~~

~~Self-Reporting~~

~~Complaints~~

1.5.1.4. Additional Compliance Information

The Responsible Entity may use Contingency Reserve for any Balancing Contingency Event and as required for any other applicable standards.

~~A Responsible Entity is not subject to compliance with this standard in any period during which the Responsible Entity is in an Energy Emergency Alert Level under which Contingency Reserves have been activated.~~

Table of Compliance Elements

R #	Time Horizon	VRF	Violation Severity Levels			
			Lower VSL	Moderate VSL	High VSL	Severe VSL
R1.	Real-time Operations	Medium	<p>The Responsible Entity recovered partially from a Reportable Balancing Contingency Event during the Contingency Event Recovery Period but recovered less than 100% but more than 90% of required recovery <u>from a Reportable Balancing Contingency Event during the Contingency Event Recovery Period</u></p> <p><u>OR</u></p> <p><u>The Responsible Entity failed to use CR Form 1 to document a Reportable Balancing Contingency Event.</u></p>	<p>The Responsible Entity recovered partially from a Reportable Balancing Contingency Event during the Contingency Event Recovery Period but recovered 90% or less but more than 80% of required recovery <u>from a Reportable Balancing Contingency Event during the Contingency Event Recovery Period.</u></p>	<p>The Responsible Entity recovered partially from a Reportable Balancing Contingency Event during the Contingency Event Recovery Period but recovered 80% or less but more than 70% of required recovery <u>from a Reportable Balancing Contingency Event during the Contingency Event Recovery Period.</u></p>	<p>The Responsible Entity recovered 70% or less of required recovery during the Contingency Event Recovery Period.</p>
R2.	Real-time Operations	Medium	<p>The Responsible Entity had Contingency</p>	<p>The Responsible Entity had Contingency</p>	<p>The Responsible Entity had Contingency</p>	<p>The Responsible Entity did not have</p>

			Reserve but the Clock Hour average amount of Contingency Reserve was less than 100% of MSSC but was greater than or equal to 90% of MSSC as averaged over the Clock Hour.	Reserve but the Clock Hour average amount of Contingency Reserve was less than 90% of MSSC but was greater than or equal to 80% of MSSC as averaged over the Clock Hour.	Reserve but the Clock Hour average amount of Contingency Reserve was less than 80% of MSSC but was greater than or equal to 70% of MSSC as averaged over the Clock Hour.	Contingency Reserve that was equal to or greater than 70% of MSSC averaged over the Clock Hour.

D. Regional Variances

None.

E. Interpretations

None.

F. Associated Documents

BAL-002-2 Contingency Reserve for Recovery from a Balancing Contingency Event Background Document

CR Form 1

Version History

Version	Date	Action	Change Tracking
0	April 1, 2005	Effective Date	New
0	August 8, 2005	Removed “Proposed” from Effective Date	Errata

0	February 14, 2006	Revised graph on page 3, “10 min.” to “Recovery time.” Removed fourth bullet.	Errata
2		NERC BOT Adoption	Complete revision

R2.

R3.

R4.

R5.

R6.

R7.

R8.

Standards Attachments

NOTE: Use this section for attachments or other documents that are referenced in the standard as part of the requirements. These should appear after the end of the standard template and before the Supplemental Material. If there are none, delete this section.

R9.

R10.

[Application Guidelines, Guidelines and Technical Basis, Training Material, Reference Material and/or other Supplemental Material]

R11.

Rationale

R12. Upon Board approval, the text from the rationale boxes will be moved to this section.

R13.