

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

BAL-002-2 Disturbance Control Performance - Contingency Reserve for Recovery from a Balancing Contingency Event Mapping Document

BAL-002-0 Mapping to Proposed NERC Reliability Standard BAL-002-2		
Standard BAL-002-0 NERC Board Approved	Comment	Proposed Standard BAL-002-2
<p>R1. Each Balancing Authority shall have access to and/or operate Contingency Reserve to respond to Disturbances. Contingency Reserve may be supplied from generation, controllable load resources, or coordinated adjustments to Interchange Schedules.</p> <p>R1.1. A Balancing Authority may elect to fulfill its Contingency Reserve obligations by participating as a member of a Reserve Sharing Group. In such</p>	<p>This Requirement has been moved into BAL-002-2 Applicability and “Additional Compliance Information” sections</p>	<p>Applicability</p> <p>4.1. Balancing Authority</p> <p>4.1.1 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.</p> <p>4.2. Reserve Sharing Group</p> <p>1.4. Additional Compliance Information</p> <p>The Responsible Entity may use Contingency</p>

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<p>cases, the Reserve Sharing Group shall have the same responsibilities and obligations as each Balancing Authority with respect to monitoring and meeting the requirements of Standard BAL-002. The Reliability Coordinator and Planning Authority shall each establish a set of inter-regional and intra-regional Transfer Capabilities that is consistent with its current Transfer Capability Methodology.</p>		<p>Reserve for any Balancing Contingency Event and as required for any other applicable standards.</p>
<p>R2. Each Regional Reliability Organization, sub-Regional Reliability Organization or Reserve Sharing Group shall specify its Contingency Reserve policies, including:</p> <p>R2.1. The minimum reserve requirement for the group.</p> <p>R2.2. Its allocation among members.</p>	<p>This Requirement has been removed from BAL-002-2</p>	<p>This requirement falls under the Paragraph 81 rules. This requirement defines a commercial agreement between the BA involved in the RSG. This requirement does not provide for any reliability outcome and if violated would not cause separation, instability or cascading outages.</p>

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<p>R2.3. The permissible mix of Operating Reserve – Spinning and Operating Reserve – Supplemental that may be included in Contingency Reserve.</p> <p>R2.4. The procedure for applying Contingency Reserve in practice.</p> <p>R2.5. The limitations, if any, upon the amount of interruptible load that may be included.</p> <p>R2.6. The same portion of resource capacity (e.g. reserves from jointly owned generation) shall not be counted more than once as Contingency Reserve by multiple Balancing Authorities.</p>		

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<p>R3. Each Balancing Authority or Reserve Sharing Group shall activate sufficient Contingency Reserve to comply with the DCS.</p> <p>R3.1. As a minimum, the Balancing Authority or Reserve Sharing Group shall carry at least enough Contingency Reserve to cover the most severe single contingency. All Balancing Authorities and Reserve Sharing Groups shall review, no less frequently than annually, their probable contingencies to determine their prospective most severe single contingencies.</p>	<p>This Requirement has been moved into BAL-002-2 Requirements R1 and Requirement R2</p>	<p>BAL-002-2</p> <p>Requirement R1</p> <p>1. The Responsible Entity experiencing a Reportable Balancing Contingency Event shall, within the Contingency Event Recovery Period, return its Reporting ACE to at least: <i>[Violation Risk Factor: Medium][Time Horizon: Real-time Operations]</i></p> <ul style="list-style-type: none"> • Zero, (if its Pre-Reporting Contingency Event ACE Value was positive or equal to zero): <ul style="list-style-type: none"> ○ less the sum of the magnitudes of all subsequent Balancing Contingency Events that have already occurred during prior to that value of Reporting ACE within the Contingency Event Recovery Period, and ○ fFurther reduced by the magnitude of the difference between (i) the Responsible Entity's Most Severe Single Contingency (MSSC) and (ii) the sum of the magnitudes of the Reportable Balancing Contingency Event and all previous Balancing Contingency Events that have not completed their Contingency Reserve Restoration Period when the sum referenced in section clause (ii) of this bullet is greater than

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		<p>MSSC,</p> <p>Or,</p> <ul style="list-style-type: none"> • Its Pre-Reporting Contingency Event ACE Value, (if its Pre-Reporting Contingency Event ACE Value was negative), <ul style="list-style-type: none"> ○ less the sum of the magnitudes of all subsequent Balancing Contingency Events that <u>have already</u> occurred during prior to that value of Reporting ACE within the Contingency Event Recovery Period, and ○ Further reduced by the magnitude of the difference between (i) the Responsible Entity's Most Severe Single Contingency (MSSC) and (ii) the sum of the magnitudes of the Reportable Balancing Contingency Event and all previous Balancing Contingency Events that have not completed their Contingency Reserve Restoration Period when the sum referenced in <u>section clause</u> (ii) of this bullet is greater than MSSC. <p>1.1. <u>All Reportable Balancing Contingency Events will be documented using The required reporting form is</u> CR</p>

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		<p>Form 1.</p> <p>1.2. This RRequirement <u>R1</u> (in its entirety) does not apply when the Responsible Entity experiencing a Reportable Balancing Contingency Event is experiencing an Energy Emergency Alert Level 2 or Level 3.</p> <p><u>1.3 Requirement R1 (in its entirety) does not apply when the Responsible Entity experiencing an Balancing Contingency Event exceeding its Most Severe Single Contingency or multiple Balancing Contingency Events whose sum exceeds its Most Severe Single Contingency within a 15 minute period for those events that occur within that 15 minute period. Requirement R1 also shall not apply to subsequent events beyond the 15 minute period but within 105 minutes of the first Balancing Contingency Event if the sum of the events exceeds the Responsible Entity's Most Severe Single Contingency.</u></p> <p>BAL-001-2</p> <p>Requirement R2</p> <p>2. Except during the <u>Responsible Entity's</u> Contingency</p>

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		Event Recovery Period and <u>the Responsible Entity's</u> Contingency Reserve Restoration Period, or during an Energy Emergency Alert Level 2 or Level 3 <u>for the Responsible Entity, the each</u> Responsible Entity shall maintain an amount of Contingency Reserve, <u>average over the Clock Hour</u> , at least equal to its Most Severe Single Contingency.
<p>R4. A Balancing Authority or Reserve Sharing Group shall meet the Disturbance Recovery Criterion within the Disturbance Recovery Period for 100% of Reportable Disturbances. The Disturbance Recovery Criterion is:</p> <p>R4.1. A Balancing Authority shall return its ACE to zero if its ACE just prior to the Reportable Disturbance was positive or equal to zero. For negative initial ACE values just prior to the</p>	<p>This Requirement has been moved into BAL-002-2 Requirement R1 and into the "Contingency Event Recovery Period" and "Contingency Reserve Restoration Period" definitions.</p>	<p>BAL-002-0 Requirement R4 and R4.1 to BAL-002-2 Requirement R1</p> <p>1. The Responsible Entity experiencing a Reportable Balancing Contingency Event shall, within the Contingency Event Recovery Period, return its <u>Reporting ACE</u> to at least: <i>[Violation Risk Factor: Medium][Time Horizon: Real-time Operations]</i></p> <ul style="list-style-type: none"> • Zero, (if its Pre-Reporting Contingency Event ACE Value was positive or equal to zero): <ul style="list-style-type: none"> ○ less the sum of the magnitudes of all subsequent Balancing Contingency Events that <u>have already occurred during prior to that value of Reporting ACE within</u> the Contingency Event Recovery Period, and

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<p>Disturbance, the Balancing Authority shall return ACE to its pre-Disturbance value.</p> <p>R4.2. The default Disturbance Recovery Period is 15 minutes after the start of a Reportable Disturbance. Each Balancing Authority shall have access to and/or operate Contingency Reserve to respond to Disturbances. Contingency Reserve may be supplied from generation, controllable load resources, or coordinated adjustments to Interchange Schedules.</p>		<ul style="list-style-type: none"> ○ Further reduced by the magnitude of the difference between (i) the Responsible Entity’s Most Severe Single Contingency (MSSC) and (ii) the sum of the magnitudes of the Reportable Balancing Contingency Event and all previous Balancing Contingency Events that have not completed their Contingency Reserve Restoration Period when the sum referenced in section<u>clause</u> (ii) of this bullet is greater than MSSC, <p>Or,</p> <ul style="list-style-type: none"> ● Its Pre-Reporting Contingency Event ACE Value, (if its Pre-Reporting Contingency Event ACE Value was negative), <ul style="list-style-type: none"> ○ less the sum of the magnitudes of all subsequent Balancing Contingency Events that have already occurred during prior to that value of Reporting ACE within the Contingency Event Recovery Period, and ○ Further reduced by the magnitude of the difference between (i) the Responsible Entity’s Most Severe Single Contingency (MSSC) and (ii) the sum of the magnitudes of the Reportable

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		<p>Balancing Contingency Event and all previous Balancing Contingency Events that have not completed their Contingency Reserve Restoration Period when the sum referenced in <u>section clause</u> (ii) of this bullet is greater than MSSC.</p> <p>1.1. <u>All Reportable Balancing Contingency Events will be documented using The required reporting form is</u> CR Form 1.</p> <p>1.2. This requirement (in its entirety) does not apply when the Responsible Entity experiencing a Reportable Balancing Contingency Event is experiencing an Energy Emergency Alert Level 2 or Level 3.</p> <p><u>1.3 Requirement R1 (in its entirety) does not apply when the Responsible Entity experiencing an Balancing Contingency Event exceeding its Most Severe Single Contingency or multiple Balancing Contingency Events whose sum exceeds its Most Severe Single Contingency within a 15 minute period for those events that occur within that 15 minute period. Requirement R1 also shall not apply to subsequent events beyond the 15 minute period but within 105 minutes of the first Balancing</u></p>

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		<p><u>Contingency Event if the sum of the events exceeds the Responsible Entity's Most Severe Single Contingency.</u></p> <p>Contingency Event Recovery Period</p> <p>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.</p> <p>Contingency Reserve Restoration Period:</p> <p>A period not exceeding 90 minutes following the end of the Contingency Event Recovery Period.</p>
<p>R5. Each Reserve Sharing Group shall comply with the DCS. A Reserve Sharing Group shall be considered in a Reportable Disturbance condition whenever a group member has experienced a Reportable Disturbance and calls for the activation of Contingency Reserves from one or more other group members. (If a group member has experienced a Reportable</p>	<p>This Requirement has been moved into BAL-002-2 Requirement R1 and Reserve Sharing Group Reporting ACE</p>	<p>BAL-002-2</p> <p>Requirement R1</p> <p>1. The Responsible Entity experiencing a Reportable Balancing Contingency Event shall, within the Contingency Event Recovery Period, return its <u>Reporting ACE</u> to at least: <i>[Violation Risk Factor: Medium][Time Horizon: Real-time Operations]</i></p> <ul style="list-style-type: none"> • Zero, (if its Pre-Reporting Contingency Event ACE Value was positive or equal to zero):

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<p>Disturbance but does not call for reserve activation from other members of the Reserve Sharing Group, then that member shall report as a single Balancing Authority.) Compliance may be demonstrated by either of the following two methods:</p> <p>R5.1. The Reserve Sharing Group reviews group ACE (or equivalent) and demonstrates compliance to the DCS. To be in compliance, the group ACE (or its equivalent) must meet the Disturbance Recovery Criterion after the schedule change(s) related to reserve sharing have been fully implemented, and within the Disturbance Recovery Period.</p> <p>or</p> <p>R5.2. The Reserve Sharing Group reviews each member's ACE in</p>		<ul style="list-style-type: none"> ○ less the sum of the magnitudes of all subsequent Balancing Contingency Events that have already occurred during prior to that value of Reporting ACE within the Contingency Event Recovery Period, and ○ Further reduced by the magnitude of the difference between (i) the Responsible Entity's Most Severe Single Contingency (MSSC) and (ii) the sum of the magnitudes of the Reportable Balancing Contingency Event and all previous Balancing Contingency Events that have not completed their Contingency Reserve Restoration Period when the sum referenced in section clause (ii) of this bullet is greater than MSSC, <p>Or,</p> <ul style="list-style-type: none"> ● Its Pre-Reporting Contingency Event ACE Value, (if its Pre-Reporting Contingency Event ACE Value was negative), <ul style="list-style-type: none"> ○ less the sum of the magnitudes of all subsequent Balancing Contingency Events that have already occurred during prior to that value of Reporting ACE within the Contingency

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<p>response to the activation of reserves. To be in compliance, a member’s ACE (or its equivalent) must meet the Disturbance Recovery Criterion after the schedule change(s) related to reserve sharing have been fully implemented, and within the Disturbance Recovery Period.</p>		<p>Event Recovery Period, and</p> <ul style="list-style-type: none"> ○ Further reduced by the magnitude of the difference between (i) the Responsible Entity’s Most Severe Single Contingency (MSSC) and (ii) the sum of the magnitudes of the Reportable Balancing Contingency Event and all previous Balancing Contingency Events that have not completed their Contingency Reserve Restoration Period when the sum referenced in <u>section clause</u> (ii) of this bullet is greater than MSSC. <p>1.1. <u>All Reportable Balancing Contingency Events will be documented using The required reporting form is</u> CR Form 1.</p> <p>1.2. This requirement (in its entirety) does not apply when the Responsible Entity experiencing a Reportable Balancing Contingency Event is experiencing an Energy Emergency Alert Level 2 or Level 3.</p> <p><u>1.3 Requirement R1 (in its entirety) does not apply when the Responsible Entity experiencing an Balancing Contingency Event exceeding its Most Severe Single Contingency or multiple Balancing Contingency</u></p>

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		<p><u>Events whose sum exceeds its Most Severe Single Contingency within a 15 minute period for those events that occur within that 15 minute period. Requirement R1 also shall not apply to subsequent events beyond the 15 minute period but within 105 minutes of the first Balancing Contingency Event if the sum of the events exceeds the Responsible Entity's Most Severe Single Contingency.</u></p> <p>Reserve Sharing Group Reporting ACE At any given time of measurement for the applicable Reserve Sharing Group, the algebraic sum of the ACEs (<u>or equivalent</u> as calculated at such time of measurement) of all of the Balancing Authorities <u>participating in that make up</u> the Reserve Sharing Group <u>at the time of measurement</u>.</p>
R6. A Balancing Authority or Reserve Sharing Group shall fully restore its Contingency Reserves within the Contingency Reserve Restoration Period for its	This Requirement has been moved into the BAL-002-2 Requirement R1 and "Contingency Event Restoration Period" definition	<p>BAL-002-2</p> <p>Requirement R1</p> <p>1. The Responsible Entity experiencing a Reportable</p>

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<p>Interconnection.</p> <p>R6.1. The Contingency Reserve Restoration Period begins at the end of the Disturbance Recovery Period.</p> <p>R6.2. The default Contingency Reserve Restoration Period is 90 minutes.</p>		<p>Balancing Contingency Event shall, within the Contingency Event Recovery Period, return its <u>Reporting ACE</u> to at least: <i>[Violation Risk Factor: Medium][Time Horizon: Real-time Operations]</i></p> <ul style="list-style-type: none"> • Zero, (if its Pre-Reporting Contingency Event ACE Value was positive or equal to zero): <ul style="list-style-type: none"> ○ less the sum of the magnitudes of all subsequent Balancing Contingency Events that <u>have already occurred</u> red during-prior to that value of Reporting ACE within the Contingency Event Recovery Period, and ○ Further reduced by the magnitude of the difference between (i) the Responsible Entity's Most Severe Single Contingency (MSSC) and (ii) the sum of the magnitudes of the Reportable Balancing Contingency Event and all previous Balancing Contingency Events that have not completed their Contingency Reserve Restoration Period when the sum referenced in <u>section</u>clause (ii) of this bullet is greater than MSSC, <p>Or,</p>

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		<ul style="list-style-type: none"> • Its Pre-Reporting Contingency Event ACE Value, (if its Pre-Reporting Contingency Event ACE Value was negative), <ul style="list-style-type: none"> ○ less the sum of the magnitudes of all subsequent Balancing Contingency Events that have already occurred during prior to that value of Reporting ACE within the Contingency Event Recovery Period, and ○ Further reduced by the magnitude of the difference between (i) the Responsible Entity’s Most Severe Single Contingency (MSSC) and (ii) the sum of the magnitudes of the Reportable Balancing Contingency Event and all previous Balancing Contingency Events that have not completed their Contingency Reserve Restoration Period when the sum referenced in section clause (ii) of this bullet is greater than MSSC. <p>1.1. All Reportable Balancing Contingency Events will be documented using The required reporting form is CR Form 1.</p> <p>1.2. This requirement (in its entirety) does not apply when the Responsible Entity experiencing a</p>

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		<p>Reportable Balancing Contingency Event is experiencing an Energy Emergency Alert Level 2 or Level 3.</p> <p><u>1.3 Requirement R1 (in its entirety) does not apply when the Responsible Entity experiencing an Balancing Contingency Event exceeding its Most Severe Single Contingency or multiple Balancing Contingency Events whose sum exceeds its Most Severe Single Contingency within a 15 minute period for those events that occur within that 15 minute period. Requirement R1 also shall not apply to subsequent events beyond the 15 minute period but within 105 minutes of the first Balancing Contingency Event if the sum of the events exceeds the Responsible Entity's Most Severe Single Contingency.</u></p> <p>Contingency Reserve Restoration Period:</p> <p>A period not exceeding 90 minutes following the end of the Contingency Event Recovery Period.</p>