A. Introduction

1. Title: Operating Reserves
2. Number: RFC OPR-001-1
3. Purpose: To establish a ReliabilityFirst Corporation (ReliabilityFirst) requirement for Operating Reserves to support NERC Reliability Standard BAL-002.
4. Applicability: Balancing Authorities (BA) within ReliabilityFirst footprint
5. Effective Date: Upon Board approval

B. Requirements

R1 Each Balancing Authority, either individually or through participation in a Reserve Sharing Group, shall have a documented methodology to determine its Operating Reserves-Spinning and Operating Reserves-Supplemental, including the limitations, if any, upon the amount of interruptible load that may be included as Contingency Reserves that is used to plan for the next operating day, or shall:

[Violation Risk Factor: Lower]

R1.1 Have a minimum Operating Reserves – Spinning requirement of at least 50% of the Balancing Authority’s most severe single contingency and the remainder of the Contingency Reserves to be made up of any combination of Operating Reserves – Spinning and Operating Reserves – Supplemental.

R1.2 Implement its Contingency Reserve upon the contingent loss of generation equal to 80% or more of its most severe single contingency.

R1.3 Not allocate interruptible load as Operating Reserves-Spinning.

R1.4 Not allocate more than 25% of Operating Reserves-Supplemental as interruptible load.

R1.5 Document the requirements under R1.1 through R1.4 in a methodology to plan for the next operating day.

R2 The same portion of any resource shall not be counted more than once as Contingency Reserves by multiple Balancing Authorities. [Violation Risk Factor: Lower]
R2.1 The Balancing Authority shall document any amount of resources within its Balancing Authority Area designated as Contingency Reserves by another Balancing Authority.

R2.2 The Balancing Authority shall document any amount of resources outside its Balancing Authority Area included in its Contingency Reserves.

R3 On an annual basis the Balancing Authority, either individually or through participation in a Reserve Sharing Group, shall review and update its methodology followed under R1. [Violation Risk Factor: Lower]

R4 Each Balancing Authority shall document its most severe single contingency, as used in R1 for the determination of the Contingency Reserve requirement, and projected resources for Contingency Reserves for the peak hour of the next operating day for its Balancing Authority Area as follows3: [Violation Risk Factor: Lower]

R4.1 Each Balancing Authority shall document its required and projected resources in MWs for Contingency Reserves identifying the amount designated as Operating Reserve – Spinning and Operating Reserve – Supplemental, and the amount of interruptible load included as Contingency Reserves, if any, in accordance with R1.

C. Measures

M1 Each Balancing Authority shall have evidence of its methodology in accordance with R1.

M2 Each Balancing Authority shall have documentation in accordance with R2.

M3 Each Balancing Authority, either individually or through participation in a Reserve Sharing Group, shall have evidence that it reviewed and updated its methodology in accordance with R3.

M4 Each Balancing Authority shall have documentation in accordance with R4.

D. Compliance

1. Compliance Monitoring Process

1.1 Compliance Monitoring Responsibility

Reliability First Corporation

1.1.1 On a monthly basis, Balancing Authorities shall report by exception or self reporting to the Compliance Monitor any instances where the Balancing Authority projected that it might be deficient in meeting its reserve obligation absent implementing emergency procedures.

3 This information may be requested by the Reliability Coordinator under NERC IRO-004 R4

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Effective Date: TBD
1.1.2 On an Annual basis or less the Balancing Authority can be subject to compliance monitoring at the discretion of the Compliance Monitor.

1.2 Compliance Monitoring Period and Reset Time Frame

Compliance Monitoring Period – Daily
Reset period - One calendar month

1.3 Data Retention

The documented methodology and daily plans must be held for the current calendar year plus previous calendar year

1.4 Additional Compliance Information

None

2. Violation Severity Levels

2.1 Lower: There shall be a lower violation if the following condition exists:

2.1.1 The Balancing Authority has not documented its Contingency Reserves for one individual day within the calendar month in accordance with R4.

2.2 Moderate: There shall be a moderate violation if the following condition exists:

2.2.1 The Balancing Authority has not documented its Contingency Reserves for two to four individual days within the calendar month in accordance with R4.

2.3 High: There shall be a high violation if the following condition exists:

2.3.1 The Balancing Authority has not documented its Contingency Reserves for five to nine individual days within a calendar month in accordance with R4.

2.4 Severe: There shall be a severe violation if any of the following conditions exists:

2.4.1 The Balancing Authority has not documented its Contingency Reserves for ten or more individual days within a calendar month in accordance with R4.

2.4.2 The Balancing Authority accounted for the same portion of any resource capacity as Contingency Reserves as another Balancing Authority in violation of R2.

*Violation Severity Levels indicate to what degree the standard was not met, not the level of risk to the interconnection that an associated non-compliance may have.
2.4.3 The Balancing Authority did not review and update its methodology in accordance with R3.

2.4.4 The Balancing Authority has not specified its reserve requirements in its methodology or documented its methodology for allocation of Contingency Reserves in accordance with R1.

The following are definitions of terms used in this Standard

NOTE: These definitions are consistent with the NERC Glossary as of the effective date of this Standard but may differ if the NERC Glossary changes.

**AGC**: Equipment that automatically adjusts generation in a Balancing Authority Area from a central location to maintain the Balancing Authority’s interchange schedule plus Frequency Bias. AGC may also accommodate automatic inadvertent payback and time error correction.

**Balancing Authority**: The responsible entity that integrates resource plans ahead of time, maintains load-interchange-generation balance within a Balancing Authority Area, and supports Interconnection frequency in real time.

**Balancing Authority Area**: The collection of generation, transmission, and loads within the metered boundaries of the Balancing Authority. The Balancing Authority maintains load resource balance within this area.

**Contingency Reserve**: The provision of capacity deployed by the Balancing Authority to meet the Disturbance Control Standard (DCS) and other NERC and Regional Reliability Organization contingency requirements.

**Operating Reserve - Supplemental**: The portion of Operating Reserve consisting of:

- Generation (synchronized or capable of being synchronized to the system) that is fully available to serve load within the Disturbance Recovery Period following the contingency event; or
- Load fully removable from the system within the Disturbance Recovery Period following the contingency event.

**Operating Reserve – Spinning**: The portion of Operating Reserve consisting of:

- Generation synchronized to the system and fully available to serve load within the Disturbance Recovery Period following the contingency event; or
- Load fully removable from the system within the Disturbance Recovery Period following the contingency event.

**Regulating Reserve**: An amount of reserve responsive to Automatic Generation Control, which is sufficient to provide normal regulating margin.

**Regulation Service**: The process whereby one Balancing Authority contracts to provide corrective response to all or a portion of the ACE of another Balancing Authority. The Balancing Authority providing the response assumes the obligation of meeting all applicable control criteria as specified by NERC for itself and the Balancing Authority for which it is providing the Regulation Service.
Reliability Coordinator: The entity that is the highest level of authority who is responsible for the reliable operation of the Bulk Electric System, has the Wide Area view of the Bulk Electric System, and has the operating tools, processes and procedures, including the authority to prevent or mitigate emergency operating situations in both next day analysis and real-time operations. The Reliability Coordinator has the purview that is broad enough to enable the calculation of Interconnection Reliability Operating Limits, which may be based on the operating parameters of transmission systems beyond any Transmission Operator’s vision.

Reserve Sharing Group: A group whose members consist of two or more Balancing Authorities that collectively maintain, allocate, and supply operating reserves required for each Balancing Authority’s use in recovering from contingencies within the group. Scheduling energy from an Adjacent Balancing Authority to aid recovery need not constitute reserve sharing provided the transaction is ramped in over a period the supplying party could reasonably be expected to load generation in (e.g., ten minutes). If the transaction is ramped in quicker (e.g., between zero and ten minutes) then, for the purposes of Disturbance Control Performance, the Areas become a Reserve Sharing Group.

E. IntraRegional Differences

None

F. Notes

Balancing Authorities are permitted to define Supplemental (30 Minute) Reserves as an option.

Version History

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R1 Each Balancing Authority shall schedule sufficient Regulating Reserve for each hour of the next day for its Balancing Authority Area within RFC so that the hourly minimum value shall not be less than 1% of its forecasted load for the peak hour of the next day.

R1.1 Regulating Reserves shall be made up of not less than 75% Spinning Reserves and the remainder may be made up of qualified demand side resources if applicable, otherwise Regulating Reserves shall be 100% Spinning Reserves.

R1.2 Resources allocated to Regulating Reserve shall not be included as part of Contingency Reserve.

R2 The Total RFC Contingency Reserve Requirement shall not be less than 150% of the largest contingency within RFC plus the sum of the Frequency Bias response for an offset of 0.1 Hz for all the BAs within RFC.

R3 Each BA shall schedule sufficient Contingency Reserves for the next day for its Balancing Authority Area within RFC

R3.1 Each BA’s minimum Contingency Reserve Requirement shall be its Proportional Share of the daily RFC Contingency Reserve Requirement. The Proportional Share shall be the daily RFC Contingency Reserve Requirement multiplied by the BA’s prior year annual peak load then divided by the sum of the prior year non-coincident BA annual peak loads in RFC.

R3.2 Each BA’s Contingency Reserves must be made up of at least 45% Spinning Reserves. The remainder may be made up of Non-Spinning Reserve plus qualified demand side resources plus interconnection purchases that can be loaded within ten minutes plus recallable sales that can be loaded within ten minutes.

R3.3 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.

R4 Each BA shall provide Load & Capacity documentation for the next day’s forecasted load for the peak hour to the RC that shows the following:

R4.1 Regulating reserves and the amount that will come from Spinning Reserves and qualified demand side resources. One daily value for each is

Appendix A

Sample Daily Load and Capacity Report
Date______________

Report for date______________

Balancing Authority________________________________

Peak hour load forecast _____________________@________ Peak Hour

Total Operating Capacity____________________@ Peak Hour

Regulating Reserves:

Spinning________________________

Qualified DSR___________________

Total__________________________

Contingency Reserves:

Spinning________________________

Quick Start______________________

Qualified DSR___________________

Recallable Sales__________________

Interconnection Purchases__________

Total___________________________