NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

Mapping Document

Project 2017-01 Modifications to BAL-003 – Phase II

Standard: BAL-003-3		
Requirement in Approved Standard	**Translation to New Standard or Other Action**	**Description and Change Justification**
BAL-003-2, Requirement R1 Each Frequency Response Sharing Group (FRSG) or Balancing Authority that is not a member of a FRSG shall achieve an annual Frequency Response Measure (FRM) (as calculated and reported in accordance with Attachment A) that is equal to or more negative than its Frequency Response Obligation (FRO) to ensure that sufficient Frequency Response is provided by each FRSG or BA that is not a member of a FRSG to maintain Interconnection Frequency Response equal to or more negative than the Interconnection Frequency Response Obligation. [Risk Factor: High][Time Horizon: Real-time Operations]	BAL-003-3, Requirement 1 Each Responsible Entity shall achieve an annual Frequency Response Compliance Measure (FRCM) (as calculated and reported in accordance with Attachment A) that is greater than or equal to one to ensure that sufficient Frequency Response is provided by each Responsible Entity to maintain Interconnection Frequency Response equal to or more negative than the Interconnection Frequency Response Obligation. *[Violation Risk Factor: High] [Time Horizon: Real-time Operations]*	Requirement R1 was revised to align with Section 4, Applicability, in the revised Reliability Standard. **4.** Applicability: **4.1. Functional Entities*:*** **4.1.1.** Responsible Entity **4.1.1.1.** Balancing Authority **4.1.1.1.1.** Balancing Authority is the responsible entity unless the Balancing Authority is a member of a Frequency Response Sharing Group, in which case, the Frequency Response Sharing Group becomes the responsible entity. **4.1.1.2.** Frequency Response Sharing Group

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		4.1.2 Generator Operator ~~**4.1.3** Generator Owner~~ Requirement R1 was revised to update "Frequency Response Measure (FRM)" to the revised term of "Frequency Response Compliance Measure (FRCM)"
BAL-003-2, Measure M1 Each Frequency Response Sharing Group or Balancing Authority that is not a member of a Frequency Response Sharing Group shall have evidence such as dated data plus documented formula in either hardcopy or electronic format that it achieved an annual FRM (in accordance with the methods specified by the ERO in Attachment A with data from FRS Form 1 reported to the ERO as specified in Attachment A) that is equal to or more negative than its FRO to demonstrate compliance with Requirement R1.	BAL-003-3, Measure M1 Each Responsible Entity shall have evidence such as dated data plus documented formula in either hardcopy or electronic format that it achieved an annual FRCM (in accordance with the methods and data specified by the ERO in Attachment A) that is greater than or equal to one to demonstrate compliance with Requirement R1.	Measure M1 was revised to reflect the revision to "Responsible Entity." In addition, the Reliability Standard revisions reflect the expectation that obligations associated with reporting FRM will eventually transition from occurring under the Reliability Standard and occur under a request issued pursuant to NERC Rules of Procedure (ROP)[1], Section 1600 – Request for Data or Information, subject to ~~RSTC and~~ NERC Board of Trustees approval. Reference to FRS Form 1 has been removed.
BAL-003-2, Requirement R2 Each Balancing Authority that is a member of a multiple Balancing Authority Interconnection and is not receiving Overlap Regulation Service and uses a fixed Frequency Bias Setting shall	BAL-003-3, Requirement R2 Each Balancing Authority that is a member of a multiple Balancing Authority Interconnection and is not receiving Overlap Regulation Service and uses a fixed Frequency Bias Setting shall	Requirement R2 was revised from Area Control Error (ACE) to Reporting ACE to eliminate the Reporting Area Control Error (ACE) conflict in the Western Interconnection's Automatic Time Error Correction (ATEC) process.

[1] NERC Rules of Procedure are available at: https://www.nerc.com/AboutNERC/RulesOfProcedure/NERC_ROP_With_Appendices.pdf

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implement the Frequency Bias Setting determined in BAL-003-2 – Frequency Response and Frequency Bias Setting Page 2 of 13 accordance with Attachment A, as validated by the ERO, into its Area Control Error (ACE) calculation during the implementation period specified by the ERO and shall use this Frequency Bias Setting until directed to change by the ERO. [Risk Factor: Medium][Time Horizon: Operations Planning]	implement the Frequency Bias Setting determined in accordance with Attachment A, as validated by the ERO, into its Reporting ACE calculation during the implementation period specified by the ERO and shall use this Frequency Bias Setting until directed by the ERO to change. *[Violation Risk Factor: Medium] [Time Horizon: Operations Planning]*	
BAL-003-2, Measure M2 The Balancing Authority that is a member of a multiple Balancing Authority Interconnection and is not receiving Overlap Regulation Service shall have evidence such as a dated document in hard copy or electronic format showing the ERO validated Frequency Bias Setting was implemented into its ACE calculation within the implementation period specified or other evidence to demonstrate compliance with Requirement R2.	BAL-003-3, Measure M2 The Balancing Authority that is a member of a multiple Balancing Authority Interconnection and is not receiving Overlap Regulation Service shall have evidence such as a dated document in hard copy or electronic format showing the ERO validated Frequency Bias Setting was implemented into its Reporting ACE calculation within the implementation period specified or other evidence to demonstrate compliance with Requirement R2.	Measure M2 was revised from Area Control Error (ACE) to Reporting ACE to eliminate the Reporting Area Control Error (ACE) conflict in the Western Interconnection's Automatic Time Error Correction (ATEC) process.
BAL-003-2, Requirement R4 Each Balancing Authority that is performing Overlap Regulation Service shall modify its Frequency Bias Setting in its ACE calculation, in order to represent the Frequency Bias Setting for	BAL-003-3, Requirement R4 Each Balancing Authority that is performing Overlap Regulation Service shall modify its Frequency Bias Setting in its Reporting ACE calculation, in order to represent the Frequency	Requirement R4 was revised from Area Control Error (ACE) to Reporting ACE to eliminate the Reporting Area Control Error (ACE) conflict in the Western Interconnection's Automatic Time Error Correction (ATEC) process.

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the combined Balancing Authority Area, to be equivalent to either: [Risk Factor: Medium][Time Horizon: Operations Planning] • The sum of the Frequency Bias Settings as shown on FRS Form 1 and FRS Form 2 for the participating Balancing Authorities as validated by the ERO, or • The Frequency Bias Setting shown on FRS Form 1 and FRS Form 2 for the entirety of the participating Balancing Authorities' Areas.	Bias Setting for the combined Balancing Authority Area, to be equivalent to either: *[Violation Risk Factor: Medium][Time Horizon: Operations Planning]* • The sum of the Frequency Bias Settings as validated by the ERO for the participating Balancing Authorities, or • The Frequency Bias Setting as validated by the ERO for the entirety of the participating Balancing Authorities' Areas.	
BAL-003-2, Measure M4 The Balancing Authority shall have evidence such as a dated operating log, database or list in hard copy or electronic format showing that when it performed Overlap Regulation Service, it modified its Frequency Bias Setting in its ACE calculation as specified in Requirement R4 to demonstrate compliance with Requirement R4.	BAL-003-3, Measure M4 The Balancing Authority shall have evidence such as a dated operating log, database or list in hard copy or electronic format showing that when it performed Overlap Regulation Service, it modified its Frequency Bias Setting in its Reporting ACE calculation as specified in Requirement R4 to demonstrate compliance with Requirement R4.	Requirement R4 was revised from Area Control Error (ACE) to Reporting ACE to eliminate the Reporting Area Control Error (ACE) conflict in the Western Interconnection's Automatic Time Error Correction (ATEC) process.
	BAL-003-3, Requirement R5	

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	Each Generator Operator shall operate each generating unit/generating facility connected to an Interconnection with its Governor in speed or frequency control mode unless: *[Violation Risk Factor = Medium] [Time Horizon = Real-time Operations]* • The generating unit/generating facility is not equipped with a Governor; • System operating conditions are incompatible with the generating unit/generating facility operating the Governor in speed or frequency control mode as determine by the Balancing Authority; or • The generating unit/generating facility is being operate start-up, shut-down, or other temporary mode that requires the Governor speed or frequency control mode to be temporarily disabled. **5.1** Other control modes, such as outer loop control, shall not override the Primary Frequency Response of the Governor.	Requirement R5 is being added to the Reliability Standard to require that units with Governors operate with the Governors in service and that other controls do not override any PFR that is provided. ~~Requirement R5 was drafted to address concerns related to the current performance metric for Balancing Authorities, where the median performance of all Operating Year selected events is used to determine compliance, potentially allowed for an entity to perform well in the first half of the year and then "detune" their performance for the second half of the year. This new requirement and measure in BAL-003-3 would mandate that an entity must have an Operating Process as part of its Operating Plan to address the needed Frequency Responsive reserves.~~

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	~~Each Balancing Authority shall develop, review and maintain annually, and implement an Operating Process as part of its Operating Plan to determine its Frequency Response requirements and make preparations to have Frequency Response equal to or greater than (in absolute value) the Balancing Authority's Frequency Response Obligation available for maintaining system reliability. *[Violation Risk Factor: High] [Time Horizon: Operations Planning]*~~	
	BAL-003-3, Measure M5 The Generator Operator shall have evidence to show that it operated each generating unit/generating facility connected to an Interconnection with its Governor in speed or frequency control mode as specified in Requirement R5, Part R5.1, unless it meets one of the bulleted exceptions. Examples of suitable evidence may include, but is not limited to, performance testing, records showing Primary Frequency Response of a unit to frequency disturbances, appropriate documentation and/or control system settings that show the Governor is enabled (droop, deadband, control mode enable/disable, etc., as applicable).	Measure M5 is being added to the Reliability standard to reflect the addition of Requirement R5 and to make it measurable.

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	~~Each Balancing Authority will have the following documentation to show compliance with Requirement R5:~~ • ~~A dated Operating Process;~~ • ~~Evidence to indicate that the Operating Process has been reviewed and maintained annually; and~~ • ~~Evidence, such as Operating Plans or other operator documentation, that demonstrate that the entity determines in its Operating Plans its Frequency Response available and that Frequency Response is equal to or greater than (in absolute value) its Frequency Response Obligation.~~	
	~~BAL-003-3, Requirement R6~~ ~~Each Generator Operator shall operate each generating unit/generating facility that is connected to the interconnected transmission system with frequency responsive controls in service when the generating unit/generating facility is online and released for dispatch[2];~~	~~Requirement R6 requires the Generator Operator to operate generators with the Governor in service, unless the Balancing Authority has been notified that the Governor is out of service to address Balancing Authorities that may be concerned about not seeing the Frequency Response expected.~~

~~[2] That the generator is not being operated in start-up, shutdown, or testing mode pursuant to a Real-time communication or a procedure that was previously provided to the Balancing Authority.~~

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	~~unless the Generator Operator has notified the Balancing Authority as soon as practical but within 30 minutes of the discovery of a Governor status change (in-service, out-of-service).~~ ~~*[Violation Risk Factor = Medium] [Time Horizon = Real-time Operations]*~~	
	~~BAL-003-3, Measure M6~~ ~~The Generator Operator shall have evidence to show that it notified its associated Balancing Authority any time it failed to operate a generator in the frequency responsive mode when the generating facility was online and released for dispatch.~~	
	~~BAL-003-3, Requirement R7~~ ~~Each Generator Owner shall have its Governor capability on each resource set with a droop of no more than five (5) percent and a deadband not more than 0.036 Hz. Exceptions to these setting requirements are allowed if the Generator Owner has notified its Balancing Authority that:~~ ~~*[Violation Risk Factor: Medium] [Time Horizon: Operations Planning]*~~ • ~~The droop setting is greater than five (5) percent or the deadband is greater than 0.036 Hz; or~~	~~Requirement R7 states that the Generator Owner is responsible to ensure minimum settings for the Governor droop and deadband or for notification to the Balancing Authority if the settings are not within these minimum settings to address Balancing Authorities that may be concerned about not seeing the Frequency Response expected.~~

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	• ~~The resource as designed does not have the frequency response capability.~~	
	~~BAL-003-3, Measure M7~~ ~~Each Generator Owner shall have evidence that it set its Governor in accordance with Requirement R7. Examples of evidence include, but are not limited to, Governor test reports, Governor setting sheets, performance monitoring reports or documentation that shows the Generator Owner has provided information to the Balancing Authority information to address the exceptions allowed.~~	