

Violation Risk Factor and Violation Severity Level Assignments

Project 2007-12 – Frequency Response

This document provides the drafting team’s justification for assigning draft standard Requirement violation risk factors (VRFs) and violation severity levels (VSLs) for:

- BAL-003-1 — Frequency Response and Frequency Bias Setting

Each primary Requirement is assigned a VRF and a set of one or more VSLs. These elements support the determination of an initial value range for the Base Penalty Amount regarding violation of requirements in FERC-approved Reliability Standards, as defined in the ERO Sanction Guidelines.

Justification for Assignment of Violation Risk Factors

The Frequency Response Standard Drafting Team applied the following NERC criteria when proposing VRFs for the requirements under this project:

High Risk Requirement

A requirement that, if violated, could directly cause or contribute to bulk electric system instability, separation, or a cascading sequence of failures, or could place the bulk electric system at an unacceptable risk of instability, separation, or cascading failures; or, a requirement in a planning time frame that, if violated, could, under emergency, abnormal, or restorative conditions anticipated by the preparations, directly cause or contribute to bulk electric system instability, separation, or a cascading sequence of failures, or could place the bulk electric system at an unacceptable risk of instability, separation, or cascading failures, or could hinder restoration to a normal condition.

Medium Risk Requirement

A requirement that, if violated, could directly affect the electrical state or the capability of the bulk electric system, or the ability to effectively monitor and control the bulk electric system. However, violation of a medium risk requirement is unlikely to lead to bulk electric system instability, separation, or cascading failures; or, a requirement in a planning time frame that, if violated, could, under emergency, abnormal, or restorative conditions anticipated by the preparations, directly and adversely affect the electrical state or capability of the bulk electric system, or the ability to effectively monitor, control, or restore the bulk electric system. However, violation of a medium risk requirement is unlikely, under emergency, abnormal, or restoration conditions anticipated by the preparations, to lead to bulk electric system instability, separation, or cascading failures, nor to hinder restoration to a normal condition.

Lower Risk Requirement

A requirement that is administrative in nature and a requirement that, if violated, would not be expected to adversely affect the electrical state or capability of the bulk electric system, or the

ability to effectively monitor and control the bulk electric system; or, a requirement that is administrative in nature and a requirement in a planning time frame that, if violated, would not, under the emergency, abnormal, or restorative conditions anticipated by the preparations, be expected to adversely affect the electrical state or capability of the bulk electric system, or the ability to effectively monitor, control, or restore the bulk electric system. A planning requirement that is administrative in nature.

The SDT also considered consistency with the FERC Violation Risk Factor Guidelines for setting VRFs¹:

Guideline (1) — Consistency with the Conclusions of the Final Blackout Report

The Commission seeks to ensure that Violation Risk Factors assigned to Requirements of Reliability Standards in these identified areas appropriately reflect their historical critical impact on the reliability of the Bulk-Power System.

In the VSL Order, FERC listed critical areas (from the Final Blackout Report) where violations could severely affect the reliability of the Bulk-Power System:²

- Emergency operations
- Vegetation management
- Operator personnel training
- Protection systems and their coordination
- Operating tools and backup facilities
- Reactive power and voltage control
- System modeling and data exchange
- Communication protocol and facilities
- Requirements to determine equipment ratings
- Synchronized data recorders
- Clearer criteria for operationally critical facilities
- Appropriate use of transmission loading relief

Guideline (2) — Consistency within a Reliability Standard

The Commission expects a rational connection between the sub-Requirement Violation Risk Factor assignments and the main Requirement Violation Risk Factor assignment.

Guideline (3) — Consistency among Reliability Standards

The Commission expects the assignment of Violation Risk Factors corresponding to Requirements that address similar reliability goals in different Reliability Standards would be treated comparably.

¹ North American Electric Reliability Corp., 119 FERC 61,145, order on reh'g and compliance filing, 120 FERC 61,145 (2007) (“VRF Rehearing Order”).

² Id. at footnote 15.

Guideline (4) — Consistency with NERC’s Definition of the Violation Risk Factor Level
 Guideline (4) was developed to evaluate whether the assignment of a particular Violation Risk Factor level conforms to NERC’s definition of that risk level.

Guideline (5) — Treatment of Requirements that Co-mingle More Than One Obligation
 Where a single Requirement co-mingles a higher risk reliability objective and a lesser risk reliability objective, the VRF assignment for such Requirements must not be watered down to reflect the lower risk level associated with the less important objective of the Reliability Standard.

Justification for Assignment of Violation Severity Levels:

In developing the VSLs for the standards under this project, the SDT anticipated the evidence that would be reviewed during an audit, and developed its VSLs based on the noncompliance an auditor may find during a typical audit. The SDT based its assignment of VSLs on the following NERC criteria:

Lower	Moderate	High	Severe
Missing a minor element (or a small percentage) of the required performance The performance or product measured has significant value as it almost meets the full intent of the requirement.	Missing at least one significant element (or a moderate percentage) of the required performance. The performance or product measured still has significant value in meeting the intent of the requirement.	Missing more than one significant element (or is missing a high percentage) of the required performance or is missing a single vital component. The performance or product has limited value in meeting the intent of the requirement.	Missing most or all of the significant elements (or a significant percentage) of the required performance. The performance measured does not meet the intent of the requirement or the product delivered cannot be used in meeting the intent of the requirement.

FERC VSL guidelines are presented below, followed by an analysis of whether the VSLs proposed for each requirement in this standard meet the FERC Guidelines for assessing VSLs:

Guideline 1: Violation Severity Level Assignments Should Not Have the Unintended Consequence of Lowering the Current Level of Compliance

Compare the VSLs to any prior levels of non-compliance and avoid significant changes that may encourage a lower level of compliance than was required when levels of non-compliance were used.

Guideline 2: Violation Severity Level Assignments Should Ensure Uniformity and Consistency in the Determination of Penalties

A violation of a “binary” type requirement must be a “Severe” VSL.

Do not use ambiguous terms such as “minor” and “significant” to describe noncompliant performance.

Guideline 3: Violation Severity Level Assignment Should Be Consistent with the Corresponding Requirement

VSLs should not expand on what is required in the requirement.

Guideline 4: Violation Severity Level Assignment Should Be Based on a Single Violation, Not on a Cumulative Number of Violations

Unless otherwise stated in the requirement, each instance of non-compliance with a requirement is a separate violation. Section 4 of the Sanction Guidelines states that assessing penalties per violation per day basis is the “default” for penalty calculations.

VRF and VSL Justification

BAL-003-1 VRF and VSL Justifications		
	Proposed VRF	Medium
	NERC VRF Discussion	This Requirement, if violated, could directly affect the electrical state or the capability of the bulk electric system, or the ability to effectively monitor and control the bulk electric system but would unlikely result in the bulk electric system instability, separation, or cascading failures since a Balancing Authority would have the previous year's Frequency Bias Setting already in its ACE equation and would provide support for the contingency. This is consistent with the NERC definition.
R1	FERC VRF G1 Discussion	This Requirement is more administrative in nature requiring calculated FRM to be equal to or more negative than FRO. The requirement does not directly correlate to the list of critical areas identified in the FERC VRF Guideline 1. Guideline 1 appears to conflict with guideline 4. Guideline 1 identifies a list of topics that encompass nearly all topics within the NERC Reliability Standards and implies that these requirements should be assigned a High VRF. Guideline 4 directs assignment of VRFs based on the impact of a specific requirement on the reliability of the system. The SDT believes that Guideline 4 better reflects the intent for assigning VRFs for this standard since this approach is focused on the reliability impact of the requirement.
	FERC VRF G2 Discussion	Consistency within a Reliability Standard exists. This Requirement does not contain Parts. Requirement action is unique with respect to other standard requirements. All standard requirements have a common reliability focus relevant to Frequency Response and Frequency Bias Setting.
	FERC VRF G3 Discussion	The Requirement VRF is consistent with other BES standards addressing responsiveness. This requirement is similar in concept to the current enforceable BAL-003-0.1b standard Requirement R2 which specifies a Medium VRF.
	FERC VRF G4 Discussion	This Requirement, if violated, could directly affect the electrical state or the capability of the bulk electric system, or the ability to effectively monitor and control the bulk electric system but would unlikely result in the bulk electric system instability, separation, or cascading failures since a Balancing Authority would have the previous year's Frequency Bias Setting already in its ACE equation and would provide support for the contingency. This is consistent with the NERC definition.
	FERC VRF G5	This requirement does not co-mingle reliability objectives.

Discussion	
Proposed Lower VSL	The summation of the Balancing Authorities' FRM within an Interconnection was equal to or more negative than the Interconnection's FRO and the Balancing Authority's, or Frequency Response Sharing Group's, FRM was less negative than its FRO by more than 1% but by at most 30% or 15 MW/0.1 Hz, whichever one is the greater deviation from its FRO
Proposed Moderate VSL	The summation of the Balancing Authorities' FRM within an Interconnection was equal to or more negative than the Interconnection's FRO and the Balancing Authority's, or Frequency Response Sharing Group's, FRM was less negative than its FRO by more than 30% or by more than 15 MW/0.1 Hz, whichever is the greater deviation from its FRO
Proposed High VSL	The summation of the Balancing Authorities' FRM within an Interconnection did not meet its FRO and the Balancing Authority's, or Frequency Response Sharing Group's, FRM was less negative than its FRO by more than 1% but by at most 30% or 15 MW/0.1 Hz, whichever one is the greater deviation from its FRO
Proposed Severe VSL	The summation of the Balancing Authorities' FRM within an Interconnection did not meet its FRO and the Balancing Authority's, or Frequency Response Sharing Group's, FRM was less negative than its FRO by more than 30% or by more than 15 MW/0.1 Hz, whichever is the greater deviation from its FRO
Compliance with NERC Revised VSL Guidelines	The NERC VSL guidelines are satisfied by incorporating percentage of noncompliance performance for the calculated FRM being less negative than FRO.
FERC VSL G1 Discussion	This is not applicable since there was not a Requirement mandating a certain level of Frequency Response prior to this standard.
FERC VSL G2 Discussion	Proposed VSL's is not binary. Proposed VSL language does not include ambiguous terms and ensures uniformity and consistency in the determination of penalties based only on the amount the calculated FRM is less negative than FRO.
FERC VSL G3 Discussion	Proposed VSL's do not expand on what is required. The VSL's assigned only consider results of the calculation required. Proposed VSL's are consistent with the requirement.
FERC VSL G4 Discussion	Proposed VSL's are based on a single violation and not a cumulative violation methodology.

	Proposed VRF	Medium
	NERC VRF Discussion	This Requirement, if violated, could directly affect the electrical state or the capability of the bulk electric system, or the ability to effectively monitor and control the bulk electric system but would unlikely result in the bulk electric system instability, separation, or cascading failures since a Balancing Authority would have the previous year's Frequency Bias Setting already in its ACE equation and would provide support f the contingency. This is consistent with the NERC definition.
	FERC VRF G1 Discussion	This Requirement is more administrative in nature requiring entities to implement the Frequency Bias Setting validated by the ERO. The requirement does not directly correlate to the list of critical areas identified in the FERC VRF Guideline 1. Guideline 1 appears to conflict with guideline 4. Guideline 1 identifies a list of topics that encompass nearly all topics within the NERC Reliability Standards and implies that these requirements should be assigned a High VRF. Guideline 4 directs assignment of VRFs based on the impact of a specific requirement on the reliability of the system. The SDT believes that Guideline 4 better reflects the intent for assigning VRFs for this standard since this approach is focused on the reliability impact of the requirement.
R2	FERC VRF G2 Discussion	Consistency within a Reliability Standard exists. This Requirement does not contain Parts. Requirement action is unique with respect to other standard requirements. All standard requirements have a common reliability focus relevant to Frequency Response and Frequency Bias Setting.
	FERC VRF G3 Discussion	The Requirement VRF is consistent with other BES standards addressing responsiveness. This Requirement is similar in concept to the current enforceable BAL-003-0.1b Requirement R1 which specifies a Lower VRF however BAL-003-1 Requirements R1, R3, and R4 specify a Medium VRF and the SDT believes it is appropriate for this Requirement to also possess a Medium VRF given the nature of the revision to BAL-003-0.1b.
	FERC VRF G4 Discussion	This Requirement, if violated, could directly affect the electrical state or the capability of the bulk electric system, or the ability to effectively monitor and control the bulk electric system but would unlikely result in the bulk electric system instability, separation, or cascading failures since a Balancing Authority would have the previous year's Frequency Bias Setting already in its ACE equation and would provide support f the contingency. This is consistent with the NERC definition.
	FERC VRF G5 Discussion	This requirement does not co-mingle reliability objectives.

Proposed Lower VSL	The Balancing Authority in a multiple Balancing Authority Interconnection and not receiving Overlap Regulation Service and uses a fixed Frequency Bias Setting failed to implement the validated Frequency Bias Setting value into its ACE calculation within the implementation period specified but did so within 5 calendar days from the implementation period specified by the ERO.
Proposed Moderate VSL	The Balancing Authority in a multiple Balancing Authority Interconnection and not receiving Overlap Regulation Service and uses a fixed Frequency Bias Setting implemented the validated Frequency Bias Setting value into its ACE calculation in more than 5 calendar days but less than or equal to 15 calendar days from the implementation period specified by the ERO.
Proposed High VSL	The Balancing Authority in a multiple Balancing Authority Interconnection and not receiving Overlap Regulation Service and uses a fixed Frequency Bias Setting implemented the validated Frequency Bias Setting value into its ACE calculation in more than 15 calendar days but less than or equal to 25 calendar days from the implementation period specified by the ERO.
Proposed Severe VSL	The Balancing Authority in a multiple Balancing Authority Interconnection and not receiving Overlap Regulation Service and uses a fixed Frequency Bias Setting did not implement the validated Frequency Bias Setting value into its ACE calculation in more than 25 calendar days from the implementation period specified by the ERO.
Compliance with NERC Revised VSL Guidelines	The NERC VSL guidelines are satisfied by incorporating increments for tardiness implementing the validated Frequency Bias Setting into the ACE calculation.
FERC VSL G1 Discussion	This Requirement is similar in concept to the current enforceable BAL-003-0.1b Requirement R1 which specifies a Lower VRF. Proposed VSL's meet or exceed the current threshold of compliance.
FERC VSL G2 Discussion	Proposed VSL's is not binary. Proposed VSL language does not include ambiguous terms and ensures uniformity and consistency in the determination of penalties based only on how late the validated Frequency Bias Setting is implemented.
FERC VSL G3 Discussion	Proposed VSL's do not expand on what is required. The VSL's assigned only consider performance of required action. Proposed VSL's are consistent with the requirement.
FERC VSL G4	Proposed VSL's are based on a single violation and not a cumulative

Discussion	violation methodology.
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R3	Proposed VRF	Medium
	NERC VRF Discussion	This Requirement, if violated, could directly affect the electrical state or the capability of the bulk electric system, or the ability to effectively monitor and control the bulk electric system but would unlikely result in the bulk electric system instability, separation, or cascading failures since a Balancing Authority would have the previous year's Frequency Bias Setting in its ACE equation and would provide support for a contingency. This is consistent with the NERC definition.
	FERC VRF G1 Discussion	This Requirement is more administrative in nature requiring entities to implement a Frequency Bias Setting validated by the ERO. The requirement does not directly correlate to the list of critical areas identified in the FERC VRF Guideline 1. Guideline 1 appears to conflict with guideline 4. Guideline 1 identifies a list of topics that encompass nearly all topics within the NERC Reliability Standards and implies that these requirements should be assigned a High VRF. Guideline 4 directs assignment of VRFs based on the impact of a specific requirement on the reliability of the system. The SDT believes that Guideline 4 better reflects the intent for assigning VRFs for this standard since this approach is focused on the reliability impact of the requirement.
	FERC VRF G2 Discussion	Consistency within a Reliability Standard exists. This Requirement does not contain Parts. Requirement action is unique with respect to other standard requirements. All standard requirements have a common reliability focus relevant to Frequency Response and Frequency Bias Setting.
	FERC VRF G3 Discussion	The Requirement VRF is consistent with other BES standards addressing responsiveness. This Requirement is similar in concept to the current enforceable BAL-003-0.1b Requirement R1 which specifies a Lower VRF however BAL-003-1 Requirements R1, R2, and R4 specify a Medium VRF and the SDT believes it is appropriate for this Requirement to also possess a Medium VRF given the nature of the revision to BAL-003-0.1b.
	FERC VRF G4 Discussion	This Requirement, if violated, could directly affect the electrical state or the capability of the bulk electric system, or the ability to effectively monitor and control the bulk electric system but would unlikely result in the bulk electric system instability, separation, or cascading failures since a Balancing Authority would have the previous year's Frequency Bias Setting already in its ACE equation and would provide support for a contingency. This is consistent with the NERC definition.
FERC VRF G5	This requirement does not co-mingle reliability objectives.	

Discussion	
Proposed Lower VSL	The Balancing Authority that is a member of a multiple Balancing Authority Interconnection and not receiving Overlap Regulation Service and uses a variable Frequency Bias Setting average Frequency Bias Setting during periods when the clock-minute average frequency was outside of the range 59.964 Hz to 60.036 Hz was less negative than its Frequency Response Obligation by more than 1% but by at most 10%.
Proposed Moderate VSL	The Balancing Authority that is a member of a multiple Balancing Authority Interconnection and not receiving Overlap Regulation Service and uses a variable Frequency Bias Setting average Frequency Bias Setting during periods when the clock-minute average frequency was outside of the range 59.964 Hz to 60.036 Hz was less negative than its Frequency Response Obligation by more than 10% but by at most 20%.
Proposed High VSL	The Balancing Authority that is a member of a multiple Balancing Authority Interconnection and not receiving Overlap Regulation Service and uses a variable Frequency Bias Setting average Frequency Bias Setting during periods when the clock-minute average frequency was outside of the range 59.964 Hz to 60.036 Hz was less negative than its Frequency Response Obligation by more than 20% but by at most 30%.
Proposed Severe VSL	The Balancing Authority that is a member of a multiple Balancing Authority Interconnection and not receiving Overlap Regulation Service and uses a variable Frequency Bias Setting average Frequency Bias Setting during periods when the clock-minute average frequency was outside of the range 59.964 Hz to 60.036 Hz was less negative than its Frequency Response obligation by more than 30%..
Compliance with NERC Revised VSL Guidelines	The NERC VSL guidelines are satisfied by incorporating percentage of noncompliance performance for the calculated average Frequency Bias Setting being less negative than its minimum as defined in Attachment B.
FERC VSL G1 Discussion	This Requirement is similar in concept to the current enforceable BAL-003-0.1b Requirement R1 which specifies a Medium VRF. Proposed VSL's meet or exceed the current threshold of compliance.
FERC VSL G2 Discussion	Proposed VSL is not binary. Proposed VSL language does not include ambiguous terms and ensures uniformity and consistency in the determination of penalties based on the calculated average Frequency Bias Setting being less negative than its minimum as defined in Attachment B.

FERC VSL G3 Discussion	Proposed VSL does not expand on what is required. The VSLs assigned only consider compliance with the Frequency Bias Setting calculation and implementation required. Proposed VSL's are consistent with the requirement.
FERC VSL G4 Discussion	Proposed VSL's are based on a single violation and not a cumulative violation methodology.

R4	Proposed VRF	Medium
	NERC VRF Discussion	This Requirement, if violated, could directly affect the electrical state or the capability of the bulk electric system, or the ability to effectively monitor and control the bulk electric system but would unlikely result in the bulk electric system instability, separation, or cascading failures since a Balancing Authority would have the previous year's Frequency Bias Setting already in its ACE equation and would provide support of the contingency. This is consistent with the NERC definition. In addition, this Requirement VRF is consistent with the BAL-003-0 Requirement which has been approved by FERC.
	FERC VRF G1 Discussion	This Requirement is more administrative in nature requiring entities providing Overlap Regulation Services to correctly increase its Frequency Bias Setting. The requirement does not directly correlate to the list of critical areas identified in the FERC VRF Guideline 1. Guideline 1 appears to conflict with guideline 4. Guideline 1 identifies a list of topics that encompass nearly all topics within the NERC Reliability Standards and implies that these requirements should be assigned a High VRF. Guideline 4 directs assignment of VRFs based on the impact of a specific requirement on the reliability of the system. The SDT believes that Guideline 4 better reflects the intent for assigning VRFs for this standard since this approach is focused on the reliability impact of the requirement.
	FERC VRF G2 Discussion	Consistency within a Reliability Standard exists. This Requirement does not contain Parts. Requirement action is unique with respect to other standard requirements. All standard requirements have a common reliability focus relevant to Frequency Response and Frequency Bias Setting.
	FERC VRF G3 Discussion	The Requirement VRF is consistent with other BES standards addressing responsiveness. This Requirement is similar in concept to the current enforceable BAL-003-0.1b Requirement R6 which specifies a Medium VRF
	FERC VRF G4 Discussion	This Requirement, if violated, could directly affect the electrical state or the capability of the bulk electric system, or the ability to effectively monitor and control the bulk electric system but would unlikely result in the bulk electric system instability, separation, or cascading failures since a Balancing Authority would have the

	previous year's Frequency Bias Setting already in its ACE equation and would provide support f the contingency. This is consistent with the NERC definition. In addition, this Requirement VRF is consistent with the BAL-003-0 Requirement which has been approved by FERC.
FERC VRF G5 Discussion	This requirement does not co-mingle reliability objectives.
Proposed Lower VSL	The Balancing Authority incorrectly changed the Frequency Bias Setting value used in its ACE calculation when providing Overlap Regulation Services with combined footprint setting error less than 10% of the validated or calculated value.
Proposed Moderate VSL	The Balancing Authority incorrectly changed the Frequency Bias Setting value used in its ACE calculation when providing Overlap Regulation Services with combined footprint setting error more than 10% but less than or equal to 20% of the validated or calculated value
Proposed High VSL	The Balancing Authority incorrectly changed the Frequency Bias Setting value used in its ACE calculation when providing Overlap Regulation Services with combined footprint setting error more than 20% but less than or equal to 30% of the validated or calculated value.
Proposed Severe VSL	The Balancing Authority incorrectly changed the Frequency Bias Setting value used in its ACE calculation when providing Overlap Regulation Services with setting error more than 30% of the validated or calculated value. OR The Balancing Authority failed to change the Frequency Bias Setting value used in its ACE calculation when providing Overlap Regulation Services
Compliance with NERC Revised VSL Guidelines	The NERC VSL guidelines are satisfied by incorporating percentage of noncompliance performance for the absolute value of the Balancing Authorities' calculated monthly average Frequency Bias Setting being below the minimum percentage specified by the ERO. The VSL also includes a binary requirement for failing to change the Frequency Bias Setting value when providing Overlap Regulation Services.
FERC VSL G1 Discussion	This Requirement is similar in concept to the current enforceable BAL-003-0.1b Requirement R6 which specifies a Medium VRF. Proposed VSL's meet or exceed the current threshold of compliance.
FERC VSL G2 Discussion	Proposed VSL's has both a percentage of noncompliance performance and binary element. The binary element is designated severe. Proposed VSL language does not include ambiguous terms and ensures uniformity and consistency in the determination of penalties based only on the amount the calculated monthly average Frequency Bias Setting is below the minimum percentage specified

		by the ERO or if the entity fails to change the Frequency Bias Setting value when providing Overlap Regulation Services.
	FERC VSL G3 Discussion	Proposed VSL's do not expand on what is required. The VSL's assigned only consider results of the calculation required and if the Frequency Bias Setting is correctly set when providing Overlap Regulation Services. Proposed VSL's are consistent with the requirement.
	FERC VSL G4 Discussion	Proposed VSL's are based on a single violation and not a cumulative violation methodology.