

# Violation Risk Factor and Violation Severity Level Assignments

## Project 2007-09 Generator Verification

This document provides the drafting team's justification for assignment of violation risk factors (VRFs) and violation severity levels (VSLs) for each requirement in PRC-019-1 — Coordination of Generating Unit or Plant Capabilities, Voltage Regulating Controls and Protection

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 violations of requirements in FERC-approved Reliability Standards, as defined in the ERO Sanction Guidelines.

### **Justification for Assignment of Violation Risk Factors**

The Generator Verification 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 VRFs:<sup>1</sup>

***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:<sup>2</sup>

- 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***

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

<sup>2</sup> Id. at footnote 15.

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.

***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.

The following discussion addresses how the SDT considered FERC’s VRF Guidelines 2 through 5. The team did not address Guideline 1 directly because of an apparent conflict between Guidelines 1 and 4. Whereas Guideline 1 identifies a list of topics that encompass nearly all topics within NERC’s 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 to the reliability of the system. The SDT believes that Guideline 4 is reflective of the intent of VRFs in the first instance and therefore concentrated its approach on the reliability impact of the requirements.

#### **VRF for PRC-019-1:**

There ~~is are only two one~~ requirements in PRC-019-1 and ~~both it~~ has been assigned a “High” VRF.

#### **VRF for PRC-019-1, Requirement R1:**

- FERC Guideline 2 — Consistency within a Reliability Standard exists. Requirement R1 contains Parts that are procedural in nature for satisfying the main requirement. The VRF is only applied at the Requirement level. The standard requirements specify a Long-term Planning Time Horizon.
- FERC Guideline 3 — Consistency among Reliability Standards exists. Requirement R1 is similar in concept with both PRC-012-0 Requirement R1 and PRC-023-1 Requirement R1, both of which require protection coordination or settings. ~~Requirement R1, Part 1.2 is similar in concept with both PRC-010-0 Requirement R1 and PRC-014-0 Requirement R1, both of which require 5-year verification of protection coordination or settings.~~ In addition, and as is generally the case with PRC standard VRF definitions, this requirement is assigned a “High” VRF.
- FERC Guideline 4 — Consistency with NERC’s Definition of the VRF Level selected exists. Failure to verify voltage regulation controls, limiters and protection coordinated with unit and synchronous condenser coordination in the Long-term Planning Time Horizon is a requirement in the 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. Failure to periodically verify or following setting changes affecting coordination verify voltage regulation controls, limiters and protection coordinated with unit and synchronous condenser coordination in the Long-term Planning Time Horizon is a requirement in the 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. Therefore the assigned “High” VRF is appropriate.

- FERC Guideline 5 — Treatment of Requirements that Co-mingle More Than One Obligation is satisfactory. The Requirement R1 and Part 1.1 have a high risk objective to verify voltage regulation controls, limiters and protection coordinated with unit and synchronous condenser coordination. ~~The Requirement R1, Part 1.2 has a high risk objective to specify the periodicity for verifying voltage regulation controls, limiters and protection coordinated with unit and synchronous condenser coordination. Requirement Parts and obligations are lower risk procedural step elements that are administrative in nature for ensuring main requirement performance.~~ The “High” VRF assigned is based on the high risk objective specified.

#### VRF for PRC-019-1, Requirement R2:

- FERC Guideline 2 — Consistency within a Reliability Standard exists. Requirement R1 contains Parts that are procedural in nature for satisfying the main requirement. The VRF is only applied at the Requirement level. The standard requirements specify a Long-term Planning Time Horizon.
- FERC Guideline 3 — Consistency among Reliability Standards exists. Requirement R2 is similar in concept with both PRC-010-0 Requirement R1 and PRC-014-0 Requirement R1, both of which require 5-year verification of protection coordination or settings. In addition, and as is generally the case with PRC standard VRF definitions, this requirement is assigned a “High” VRF.
- FERC Guideline 4 — Consistency with NERC’s Definition of the VRF Level selected exists. Failure to verify voltage regulation controls, limiters and protection coordinated with unit and synchronous condenser coordination in the Long-term Planning Time Horizon is a requirement in the 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. Failure to periodically verify or following setting changes affecting coordination verify voltage regulation controls, limiters and protection coordinated with unit and synchronous condenser coordination in the Long-term Planning Time Horizon is a requirement in the 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. Therefore the assigned “High” VRF is appropriate.

- FERC Guideline 5 — Treatment of Requirements that Co-mingle More Than One Obligation is satisfactory. The Requirement R2 has a high risk objective to specify the periodicity for verifying voltage regulation controls, limiters and protection coordinated with unit and synchronous condenser coordination. The “High” VRF assigned is based on the high risk objective specified.

**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
<p>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.</p>	<p>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.</p>	<p>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.</p>	<p>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.</p>

FERC’s VSL guidelines are presented below, followed by an analysis of whether the VSLs proposed for each requirement in PRC-019-1 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 on a per violation per day basis is the “default” for penalty calculations.

VSLs for PRC-019-1 Requirement R1:

R#	Compliance with NERC Revised VSL Guidelines	Guideline 1 Violation Severity Level Assignments Should Not Have the Unintended Consequence of Lowering the Current Level of Compliance	Guideline 2 Violation Severity Level Assignments Should Ensure Uniformity and Consistency in the Determination of Penalties  Guideline 2a: The Single Violation Severity Level Assignment Category for "Binary" Requirements Is Not Consistent  Guideline 2b: Violation Severity Level Assignments that Contain Ambiguous Language	Guideline 3 Violation Severity Level Assignment Should Be Consistent with the Corresponding Requirement	Guideline 4 Violation Severity Level Assignment Should Be Based on A Single Violation, Not on A Cumulative Number of Violations
R1.	The NERC VSL guidelines are satisfied by incorporating binary VSL elements <u>as the requirement has a reliability objective that is either met or not and identifying noncompliance of missing actions and obligations specified by listed Parts.</u>	This is a new Requirement and does not have a prior level of compliance.	<del>The Proposed VSL's is are a combination of binary elements with additional consideration for completeness of listed parts.</del> Binary requirements are categorized as severe. Proposed VSL language does not include ambiguous terms and ensure uniformity and consistency in the determination of penalties based on binary performance, and completeness of the actions and obligations specified.	Proposed VSL's do not expand on what is required in the requirement. The VSL's assigned only consider performing required action per the procedure specified by listed parts. Proposed VSL's are consistent with the requirement.	Proposed VSL's are based on a single violation and not a cumulative violation methodology.



VSLs for PRC-019-1 Requirement R2:

<u>R#</u>	<u>Compliance with NERC Revised VSL Guidelines</u>	<u>Guideline 1</u> <u>Violation Severity Level Assignments Should Not Have the Unintended Consequence of Lowering the Current Level of Compliance</u>	<u>Guideline 2</u> <u>Violation Severity Level Assignments Should Ensure Uniformity and Consistency in the Determination of Penalties</u> <u>Guideline 2a: The Single Violation Severity Level Assignment Category for "Binary" Requirements is Not Consistent</u> <u>Guideline 2b: Violation Severity Level Assignments that Contain Ambiguous Language</u>	<u>Guideline 3</u> <u>Violation Severity Level Assignment Should Be Consistent with the Corresponding Requirement</u>	<u>Guideline 4</u> <u>Violation Severity Level Assignment Should Be Based on A Single Violation, Not on A Cumulative Number of Violations</u>
<u>R2.</u>	<u>The NERC VSL guidelines are satisfied by identifying noncompliance based on the obligation to verify coordination within a certain timeframe. VSLs account for increments of tardiness..</u>	<u>This is a new Requirement and does not have a prior level of compliance.</u>	<u>Proposed VSL's are based on increments of tardiness for competing required verifications. Proposed VSL language does not include ambiguous terms and ensure uniformity and consistency in the determination of penalties based on binary performance, and completeness of the actions and obligations specified.</u>	<u>Proposed VSL's do not expand on what is required in the requirement. The VSL's assigned only consider performing required action per the procedure specified by listed parts. Proposed VSL's are consistent with the requirement.</u>	<u>Proposed VSL's are based on a single violation and not a cumulative violation methodology.</u>