

Violation Risk Factors and Violation Severity Level Justifications

Project 2010-13.3 – Relay Loadability: Stable Power Swings
(PRC-026-1 – Relay Performance During Stable Power Swings)

Violation Risk Factor and Violation Severity Level Justifications

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-026-1 – Relay Performance During Stable Power Swings.

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.

The Protection System Response to Power Swings Standard Drafting Team applied the following NERC criteria and FERC Guidelines when proposing VRFs and VSLs for the requirements under this project.

NERC Criteria - Violation Risk Factors

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.

FERC Violation Risk Factor Guidelines

The standard drafting team (SDT) also considered consistency with the FERC Violation Risk Factor Guidelines for setting VRFs:¹

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

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.

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.

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.

NERC Criteria - Violation Severity Levels

Violation Severity Levels (VSLs) define the degree to which compliance with a requirement was not achieved. Each requirement must have at least one VSL. While it is preferable to have four VSLs for each requirement, some requirements do not have multiple “degrees” of noncompliant performance and may have only one, two, or three VSLs.

Violation severity levels should be based on the guidelines shown in the table below:

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 Order on Violation Severity Levels

In its June 19, 2008 Order on Violation Severity Levels, FERC indicated it would use the following four guidelines for determining whether to approve 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

Guideline 2a: A violation of a “binary” type requirement must be a “Severe” VSL.

Guideline 2b: 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.

VRF and VSL Justifications – PRC-026-1, R1	
Proposed VRF	Medium
NERC VRF Discussion	<p>A Violation Risk Factor of Medium is consistent with the NERC VRF Guidelines:</p> <p>A failure to notify the respective Generator Owner or Transmission Owner of the BES Element(s) that meet the Requirement R1 criteria prohibits further evaluation of any load-responsive protective relay applied at the terminal of the Element(s). A load-responsive protective relay that goes without evaluation may not be secure for a stable power swing and could, in the planning time frame, 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.</p> <p>Identifying an Element for notification that is expected to encounter stable power swings based on Requirement R1 criteria is the first step in ensuring the reliable operation of the Bulk Electric System (BES) and in preventing the future severity of disturbances from affecting a wider area.</p>
FERC VRF G1 Discussion	<p>Guideline 1- Consistency w/ Blackout Report:</p> <p>The blackout report and subsequent technical analysis identified that two Bulk Power System (BPS) transmission lines tripped due to protective relay operation in response to stable power swings. The Protection System operations on these lines did not contribute significantly to the overall outcome of the August 14, 2003 system disturbance; however, Protection System operation during stable powers swings could negatively impact system reliability under different operating conditions. Identification and evaluation of BES Elements susceptible to power swings and the subsequent mitigation of load-responsive protective relays applied at the terminals of these BES Elements that do not meet the PRC-026-1 – Attachment B criteria will reduce the likelihood of reoccurrence.</p> <p>This Requirement is consistent with the intent of Recommendation 8: Improve System Protection to Slow or Limit the Spread of Future Cascading Outages. While the actions associated with this recommendation did not focus specifically on the issue of Protection Systems tripping in response to stable power swings, the recommendation does note that “power system protection devices should be set to address the</p>

VRF and VSL Justifications – PRC-026-1, R1	
	specific condition of concern, such as a fault, out-of-step condition, etc., and should not compromise a power system’s inherent physical capability to slow down or stop a cascading event.”
FERC VRF G2 Discussion	<p>Guideline 2- Consistency within a Reliability Standard:</p> <p>The Requirement has a single reliability activity associated with the reliability objective and no sub-Requirement(s) which allows a single VRF to be assigned; therefore no conflict(s) exist.</p>
FERC VRF G3 Discussion	<p>Guideline 3- Consistency among Reliability Standards:</p> <p>The Requirement is consistent with NERC Reliability Standard FAC-014-2, R6 (“...Planning Authority shall identify the subset of multiple contingencies...”) which has a VRF of Medium.</p>
FERC VRF G4 Discussion	<p>Guideline 4- Consistency with NERC Definitions of VRFs:</p> <p>A failure of the Planning Coordinator to notify the respective Generator Owner or Transmission Owner of the BES Element(s) that meet the Requirement R1 criteria prohibits further evaluation of any load-responsive protective relay applied at the terminal of the Element. A load-responsive protective relay that goes without evaluation may not be secure for a stable power swing and could, in the planning time frame, 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.</p> <p>Identifying an Element for notification that is expected to encounter stable power swings based on the Requirement R1 criteria is the first step in ensuring the reliable operation of the BES and in preventing the future severity of disturbances from affecting a wider area.</p>
FERC VRF G5 Discussion	<p>Guideline 5- Treatment of Requirements that Co-mingle More than One Obligation:</p> <p>This Requirement does not co-mingle reliability objectives of differing risk; therefore, the assigned VRF of Medium is consistent.</p>

VRF and VSL Justifications – PRC-026-1, R1			
Proposed VSL			
Lower	Moderate	High	Severe
The Planning Coordinator provided notification of the BES Element(s) in accordance with Requirement R1, but was less than or equal to 30 calendar days late.	The Planning Coordinator provided notification of the BES Element(s) in accordance with Requirement R1, but was more than 30 calendar days and less than or equal to 60 calendar days late.	The Planning Coordinator provided notification of the BES Element(s) in accordance with Requirement R1, but was more than 60 calendar days and less than or equal to 90 calendar days late.	The Planning Coordinator provided notification of the BES Element(s) in accordance with Requirement R1, but was more than 90 calendar days late. OR The Planning Coordinator failed to provide notification of the BES Element(s) in accordance with Requirement R1.
NERC VSL Guidelines	Meets NERC’s VSL Guidelines—There is an incremental aspect to the VSL for tardiness and a binary aspect for failure. The VSL is entity size-neutral because performance is Element-driven and not by the total assets which an entity may have awareness over.		
FERC VSL G1 Violation Severity Level Assignments Should Not Have the Unintended Consequence of Lowering the Current Level of Compliance	The proposed VSL does not lower the current level of compliance because the Requirement is new.		

VRF and VSL Justifications – PRC-026-1, R1

<p>FERC VSL G2</p> <p>Violation Severity Level Assignments Should Ensure Uniformity and Consistency in the Determination of Penalties</p> <p>Guideline 2a: The Single Violation Severity Level Assignment Category for "Binary" Requirements Is Not Consistent</p> <p>Guideline 2b: Violation Severity Level Assignments that Contain Ambiguous Language</p>	<p>Guideline 2a:</p> <p>This Requirement is not binary; therefore, this criterion does not apply and utilizes a VSL of Severe for <u>failure in addition to incremental VSLs for tardiness.</u></p> <p>Guideline 2b:</p> <p>The proposed VSL does not use any ambiguous terminology, thereby supporting uniformity and consistency in the determination of similar penalties for similar violations.</p>
<p>FERC VSL G3</p> <p>Violation Severity Level Assignment Should Be Consistent with the Corresponding Requirement</p>	<p>The proposed VSL uses similar terminology to that used in the corresponding Requirement, and is therefore consistent with the Requirement.</p>
<p>FERC VSL G4</p> <p>Violation Severity Level Assignment Should Be Based on A Single Violation, Not on A Cumulative Number of Violations</p>	<p>The VSL is based on a single violation and not cumulative violations.</p>

VRF and VSL Justifications – PRC-026-1, R2

Proposed VRF	High
<p>NERC VRF Discussion</p>	<p>A Violation Risk Factor of High is consistent with the NERC VRF Guidelines:</p> <p>A failure to evaluate the Protection System to determine that it is expected to not trip for a stable power swing for a BES Element 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.</p> <p>A Protection System that does not meet the PRC-026-1 – Attachment B criteria is less secure during stable power swings, which increases the risk of tripping should the Protection System be challenged by a power swing.</p>
<p>FERC VRF G1 Discussion</p>	<p>Guideline 1- Consistency w/ Blackout Report:</p> <p>The blackout report and subsequent technical analysis identified that two bulk power system (BPS) transmission lines tripped due to protective relay operation in response to stable power swings. The Protection System operations on these lines did not contribute significantly to the overall outcome of the August 14, 2003 system disturbance; however, Protection System operation during stable powers swings could negatively impact system reliability under different operating conditions. Evaluation of load-responsive protective relays applied at the terminals of identified BES Elements will allow the Generator Owner and Transmission Owner to determine whether the load-responsive protective relays meet the PRC-026-1 – Attachment B criteria.</p> <p>This Requirement is consistent with the intent of Recommendation 8: Improve System Protection to Slow or Limit the Spread of Future Cascading Outages. While the actions associated with this recommendation did not focus specifically on this issue of Protection Systems tripping in response to stable power swings, the recommendation does note that “power system protection devices should be set to address the specific condition of concern, such as a fault, out-of-step condition, etc., and should not compromise a power system’s inherent physical capability to slow down or stop a cascading event.”</p>

VRF and VSL Justifications – PRC-026-1, R2	
FERC VRF G2 Discussion	<p>Guideline 2- Consistency within a Reliability Standard:</p> <p>The Requirement has a single reliability activity associated with the reliability objective and no sub-Requirement(s) which allows a single VRF to be assigned; therefore no conflict(s) exist.</p>
FERC VRF G3 Discussion	<p>Guideline 3- Consistency among Reliability Standards:</p> <p>The Requirement is consistent with NERC Reliability Standard PRC-023-3, R1 (“...Each Transmission Owner, Generator Owner, and Distribution Provider shall evaluate relay loadability at 0.85 per unit voltage and a power factor angle of 30 degrees”) which has a VRF of High.</p>
FERC VRF G4 Discussion	<p>Guideline 4- Consistency with NERC Definitions of VRFs:</p> <p>A failure of the Generator Owner or Transmission Owner to evaluate that the Protection System is expected to not trip in response to a stable power swing during a non-Fault condition for a BES Element 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.</p> <p>A Protection System that does not meet the PRC-026-1 – Attachment B criteria is less secure during stable power swings, it increases the risk of tripping should the Protection System be challenged by a power swing.</p>
FERC VRF G5 Discussion	<p>Guideline 5- Treatment of Requirements that Co-mingle More than One Obligation:</p> <p>This Requirement does not co-mingle reliability objectives of differing risk; therefore, the assigned VRF of Medium is consistent.</p>

VRF and VSL Justifications – PRC-026-1, R2			
Proposed VSL			
Lower	Moderate	High	Severe
The Generator Owner or Transmission Owner evaluated its load-responsive protective relay(s) in accordance with Requirement R2, but was less than or equal to 30 calendar days late.	The Generator Owner or Transmission Owner evaluated its load-responsive protective relay(s) in accordance with Requirement R2, but was more than 30 calendar days and less than or equal to 60 calendar days late.	The Generator Owner or Transmission Owner evaluated its load-responsive protective relay(s) in accordance with Requirement R2, but was more than 60 calendar days and less than or equal to 90 calendar days late.	The Generator Owner or Transmission Owner evaluated its load-responsive protective relay(s) in accordance with Requirement R2, but was more than 90 calendar days late. OR The Generator Owner or Transmission Owner failed to evaluate its load-responsive protective relay(s) in accordance with Requirement R2.
NERC VSL Guidelines	Meets NERC’s VSL Guidelines—There is an incremental aspect to the VSL for tardiness and a binary aspect for failure. The VSL is entity size-neutral because performance is driven by exception. For example, each identified Element must be evaluated.		
FERC VSL G1 Violation Severity Level Assignments Should Not Have the Unintended Consequence of Lowering the Current Level of Compliance	The proposed VSL does not lower the current level of compliance because the Requirement is new.		

VRF and VSL Justifications – PRC-026-1, R2

<p>FERC VSL G2</p> <p>Violation Severity Level Assignments Should Ensure Uniformity and Consistency in the Determination of Penalties</p> <p>Guideline 2a: The Single Violation Severity Level Assignment Category for "Binary" Requirements Is Not Consistent</p> <p>Guideline 2b: Violation Severity Level Assignments that Contain Ambiguous Language</p>	<p>Guideline 2a:</p> <p>This Requirement is not binary; therefore, this criterion does not apply.</p> <p>Guideline 2b:</p> <p>The proposed VSL does not use any ambiguous terminology, thereby supporting uniformity and consistency in the determination of similar penalties for similar violations.</p>
<p>FERC VSL G3</p> <p>Violation Severity Level Assignment Should Be Consistent with the Corresponding Requirement</p>	<p>The proposed VSL uses similar terminology to that used in the corresponding Requirement, and is therefore consistent with the Requirement.</p>
<p>FERC VSL G4</p> <p>Violation Severity Level Assignment Should Be Based on A Single Violation, Not on A Cumulative Number of Violations</p>	<p>The VSL is based on a single violation and not cumulative violations.</p>

VRF and VSL Justifications – PRC-004-3, R3

Proposed VRF	Medium
<p>NERC VRF Discussion</p>	<p>A Violation Risk Factor of Medium is consistent with the NERC VRF Guidelines:</p> <p>Failure to develop a Corrective Action Plan (CAP) such that the Protection System of a BES Element will meet the PRC-026-1 – Attachment B criteria or to exclude the Protection System under the PRC-026-1 – Attachment A criteria (e.g., modifying the Protection System so that relay functions are supervised by power swing blocking or using relay systems that are immune to power swings) could in the planning time frame, 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.</p> <p>An unmitigated Protection System could affect the electrical state or capability of the bulk electric system, or the ability to effectively monitor, control, or restore the bulk electric system.</p>
<p>FERC VRF G1 Discussion</p>	<p>Guideline 1- Consistency w/ Blackout Report:</p> <p>The blackout report and subsequent technical analysis identified that two bulk power system (BPS) transmission lines tripped due to protective relay operation in response to stable power swings. The Protection System operations on these lines did not contribute significantly to the overall outcome of the August 14, 2003 system disturbance; however, Protection System operation during stable powers swings could negatively impact system reliability under different operating conditions. Developing a CAP such that the Protection System will meet the Attachment B criteria or to exclude the Protection System under the PRC-026-1 – Attachment A criteria (e.g., modifying the Protection System so that relay functions are supervised by power swing blocking or using relay systems that are immune to power swings) applied at the terminals of BES Elements will reduce the likelihood of reoccurrence.</p>

VRF and VSL Justifications – PRC-004-3, R3	
	<p>This Requirement is consistent with the intent of Recommendation 8: Improve System Protection to Slow or Limit the Spread of Future Cascading Outages. While the actions associated with this recommendation did not focus specifically on this issue of Protection Systems tripping in response to stable power swings, the recommendation does note that “power system protection devices should be set to address the specific condition of concern, such as a fault, out-of-step condition, etc., and should not compromise a power system’s inherent physical capability to slow down or stop a cascading event.”</p>
FERC VRF G2 Discussion	<p>Guideline 2- Consistency within a Reliability Standard:</p> <p>This Requirement has a single reliability activity associated with the reliability objective and no sub-Requirement(s) which allows a single VRF to be assigned; therefore no conflict(s) exist.</p>
FERC VRF G3 Discussion	<p>Guideline 3- Consistency among Reliability Standards:</p> <p>This Requirement is consistent with the following Reliability Standards which requiring<u>require</u> corrective actions (e.g., Corrective Action Plans); PRC-016-0.1, R2 (“...shall take corrective actions to avoid future Misoperations”), PRC-022-1, R1.5 (“For any Misoperation, a Corrective Action Plan...”), and FAC-003, R5 (“...Transmission Owner or applicable Generator Owner shall take corrective action to ensure continued vegetation management”) all three of which have a VRF of Medium.</p>
FERC VRF G4 Discussion	<p>Guideline 4- Consistency with NERC Definitions of VRFs:</p> <p>A Violation Risk Factor of Medium is consistent with the NERC VRF Guidelines:</p> <p>A failure to develop the Corrective Action Plan (CAP) such that the Protection System of a BES Element will meet the Attachment B criteria or to exclude the Protection System under the PRC-026-1 – Attachment A criteria (e.g., modifying the Protection System so that relay functions are supervised by power swing blocking or using relay systems that are immune to power swings) could, in the planning time frame, 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.</p>

VRF and VSL Justifications – PRC-004-3, R3			
	An unmitigated Protection System could contribute to the severity of future disturbances affecting a wider area, or potential equipment damage.		
FERC VRF G5 Discussion	<p>Guideline 5- Treatment of Requirements that Co-mingle More than One Obligation:</p> <p>This requirement does not co-mingle reliability objectives of differing risk; therefore, the assigned VRF of Medium is consistent.</p>		
Proposed VSL			
Lower	Moderate	High	Severe
The Generator Owner or Transmission Owner developed a Corrective Action Plan (CAP) in accordance with Requirement R3, but in more than six calendar months and less than or equal to seven calendar months.	The Generator Owner or Transmission Owner developed a Corrective Action Plan (CAP) in accordance with Requirement R3, but in more than seven calendar months and less than or equal to eight calendar months.	The Generator Owner or Transmission Owner developed a Corrective Action Plan (CAP) in accordance with Requirement R3, but in more than eight calendar months and less than or equal to nine calendar months.	<p>The Generator Owner or Transmission Owner developed a Corrective Action Plan (CAP) in accordance with Requirement R3, but in more than nine calendar months.</p> <p>OR</p> <p>The Generator Owner or Transmission Owner failed to develop a CAP in accordance with Requirement R3.</p>
NERC VSL Guidelines	Meets NERC’s VSL Guidelines—There is an incremental aspect to the VSL for failing to develop the Corrective Action Plan in a timely fashion and a binary aspect for a complete failure. The VSL is entity size-neutral because performance is driven by the need to mitigate the Protection System so that it is expected to not trip on a stable power swing.		

VRF and VSL Justifications – PRC-004-3, R3

<p>FERC VSL G1</p> <p>Violation Severity Level Assignments Should Not Have the Unintended Consequence of Lowering the Current Level of Compliance</p>	<p>The proposed VSL does not lower the current level of compliance because the Requirement is new.</p>
<p>FERC VSL G2</p> <p>Violation Severity Level Assignments Should Ensure Uniformity and Consistency in the Determination of Penalties</p> <p>Guideline 2a: The Single Violation Severity Level Assignment Category for "Binary" Requirements Is Not Consistent</p> <p>Guideline 2b: Violation Severity Level Assignments that Contain Ambiguous Language</p>	<p>Guideline 2a:</p> <p>This Requirement is not binary; therefore, this criterion does not apply and utilizes a VSL of Severe for <u>failure in addition to incremental VSLs for tardiness.</u></p> <p>Guideline 2b:</p> <p>This proposed VSL does not use any ambiguous terminology, thereby supporting uniformity and consistency in the determination of similar penalties for similar violations.</p>
<p>FERC VSL G3</p> <p>Violation Severity Level Assignment Should Be Consistent with the Corresponding Requirement</p>	<p>This proposed VSL uses similar terminology to that used in the corresponding Requirement, and is therefore consistent with this Requirement.</p>
<p>FERC VSL G4</p>	<p>The VSL is based on a single violation and not cumulative violations.</p>

VRF and VSL Justifications – PRC-004-3, R3

<p>Violation Severity Level Assignment Should Be Based on A Single Violation, Not on A Cumulative Number of Violations</p>	
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VRF and VSL Justifications – PRC-026-1, R4

Proposed VRF	Medium
<p>NERC VRF Discussion</p>	<p>A Violation Risk Factor of Medium is consistent with the NERC VRF Guidelines:</p> <p>A failure to implement the Corrective Action Plan (CAP) to meet the PRC-026-1 – Attachment B criteria or to exclude the Protection System under the PRC-026-1 – Attachment A criteria (e.g., modifying the Protection System so that relay functions are supervised by power swing blocking or using relay systems that are immune to power swings) could, in the planning time frame, 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.</p> <p>An unmitigated Protection System could affect the electrical state or capability of the bulk electric system, or the ability to effectively monitor, control, or restore the bulk electric system.</p>
<p>FERC VRF G1 Discussion</p>	<p>Guideline 1- Consistency w/ Blackout Report:</p> <p>The blackout report and subsequent technical analysis identified that two bulk power system (BPS) transmission lines tripped due to protective relay operation in response to stable power swings. The Protection System operations on these lines did not contribute significantly to the overall outcome of the August 14, 2003 system disturbance; however, Protection System operation during stable powers swings</p>

VRF and VSL Justifications – PRC-026-1, R4	
	<p>could negatively impact system reliability under different operating conditions. Implementing a CAP such that the Protection System will meet the Attachment B criteria or to exclude the Protection System under the PRC-026-1 – Attachment A criteria (e.g., modifying the Protection System so that relay functions are supervised by power swing blocking or using relay systems that are immune to power swings) applied at the terminals of these Elements will reduce the likelihood of reoccurrence.</p> <p>This Requirement is consistent with the intent of Recommendation 8: Improve System Protection to Slow or Limit the Spread of Future Cascading Outages. While the actions associated with this recommendation did not focus specifically on this issue of Protection Systems tripping in response to stable power swings, the recommendation does note that “power system protection devices should be set to address the specific condition of concern, such as a fault, out-of-step condition, etc., and should not compromise a power system’s inherent physical capability to slow down or stop a cascading event.”</p>
FERC VRF G2 Discussion	<p>Guideline 2- Consistency within a Reliability Standard:</p> <p>The Requirement has a single reliability activity associated with the reliability objective and no sub-Requirement(s) which allows a single VRF to be assigned; therefore no conflict(s) exist.</p>
FERC VRF G3 Discussion	<p>Guideline 3- Consistency among Reliability Standards:</p> <p>This Requirement is consistent with the following Reliability Standards which requiring<u>require</u> corrective actions (e.g., Corrective Action Plans): PRC-016-0.1, R2 (“...shall take corrective actions to avoid future Misoperations”), PRC-022-1, R1.5 (“For any Misoperation, a Corrective Action Plan...”), and FAC-003, R5 (“...Transmission Owner or applicable Generator Owner shall take corrective action to ensure continued vegetation management”) all of which have a VRF of Medium.</p>
FERC VRF G4 Discussion	<p>A Violation Risk Factor of Medium is consistent with the NERC VRF Guidelines:</p> <p>A failure to implement the Corrective Action Plan such that the Protection System of a BES Element will meet the Attachment B criteria or to exclude the Protection System under the PRC-026-1 – Attachment A criteria (e.g., modifying the Protection System so that relay functions are supervised by power swing blocking or using relay systems that are immune to power swings) could, in the planning time frame, under emergency, abnormal, or restorative conditions anticipated by the preparations, directly and</p>

VRF and VSL Justifications – PRC-026-1, R4			
	<p>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.</p> <p>An unmitigated Protection System could contribute to the severity of future disturbances affecting a wider area, or potential equipment damage.</p>		
FERC VRF G5 Discussion	<p>Guideline 5- Treatment of Requirements that Co-mingle More than One Obligation:</p> <p>This Requirement does not co-mingle reliability objectives of differing risk; therefore, the assigned VRF of Medium is consistent.</p>		
Proposed VSL			
Lower	Moderate	High	Severe
The responsible entity implemented, but failed to update a CAP, when actions or timetables changed, in accordance with Requirement R4.	N/A	N/A	The responsible entity failed to implement a CAP in accordance with Requirement R4.
NERC VSL Guidelines	<p>Meets NERC’s VSL Guidelines—There is an incremental aspect to the VSL for failing to update the Corrective Action Plan and a binary aspect for failure to implement. The VSL is entity size-neutral because performance is driven by the need to mitigate the Protection System so that it is expected to not trip on a stable power swing.</p>		
FERC VSL G1 Violation Severity Level Assignments Should Not Have	<p>The proposed VSL does not lower the current level of compliance because the Requirement is new.</p>		

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<p>the Unintended Consequence of Lowering the Current Level of Compliance</p>	
<p>FERC VSL G2 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</p>	<p>Guideline 2a: This Requirement is not binary; therefore, this criterion does not apply. Guideline 2b: The proposed VSL does not use any ambiguous terminology, thereby supporting uniformity and consistency in the determination of similar penalties for similar violations.</p>
<p>FERC VSL G3 Violation Severity Level Assignment Should Be Consistent with the Corresponding Requirement</p>	<p>The proposed VSL uses similar terminology to that used in the corresponding Requirement, and is therefore consistent with the Requirement.</p>
<p>FERC VSL G4 Violation Severity Level Assignment Should Be Based on A Single Violation, Not on A</p>	<p>The VSL is based on a single violation and not cumulative violations.</p>

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Cumulative Number of Violations	
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