

Project 2008-02 Undervoltage Load Shedding (PRC-010-1)

VRF and VSL Justifications

This document provides the Undervoltage Load Shedding Standard Drafting Team's (drafting team's) justification for assignment of violation risk factors (VRFs) and violation severity levels (VSLs) for each requirement in PRC-010-1 – Undervoltage Load Shedding.

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 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, place the Bulk Electric System at an unacceptable risk of instability, separation, or Cascading failures, or 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

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:

- 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.

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 drafting team 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 drafting team 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.

PRC-010-1 – Undervoltage Load Shedding is a standard revision with the stated purpose: *To establish an integrated and coordinated approach to the design, evaluation, and reliable operation of Undervoltage Load Shedding Programs.* FERC Order No. 693 requested that PRC-010-0 be modified to require that an integrated and coordinated approach be included in all protection systems on the Bulk-Power System, including generators and transmission lines, generators' low voltage ride-through capabilities, and underfrequency loading shedding (UFLS) and undervoltage load shedding (UVLS) programs. PRC-010-1 addresses this directive in addition to consolidating and revising PRC-010-0 – Assessment of the Design and Effectiveness of UVLS Program with three (3) other existing UVLS standards: PRC-020-1 – Under-Voltage Load Shedding Program Database, PRC-021-1 – Under-Voltage Load Shedding Program Data, and PRC-022-1 – Under-Voltage Load Shedding Program Performance.

PRC-010-1 has eight (8) requirements that incorporate and enhance the intent of the requirements of PRC-010-0, PRC-020-1, PRC-021-1, and PRC-022-1. The revised standard requires that entities developing an Undervoltage Load Shedding Program (UVLS Program) evaluate the program's effectiveness prior to providing the program specifications and schedule to applicable entities. Applicable entities are then required to adhere to the UVLS Program specifications and implementation schedule, including those specifications and schedules associated with Corrective Action Plans (CAPs) for existing programs. The standard also requires an assessment of a UVLS Program at least once every 60 months, and an assessment to evaluate program performance within 12 months of an applicable event. If program deficiencies are identified as a result of either of these assessments, entities are required to develop and provide a CAP to applicable entities within three (3) months. In addition, there are requirements to update, provide data for, and share a UVLS Program database containing information necessary to model the program for use in event analyses and assessments.

The requirements of PRC-010-1 do not map, one-to-one, with the requirements of the legacy standards. The new requirements comingle various reliability attributes of the legacy standards with new reliability objectives, thus a requirement-to-requirement comparison of VRFs is not always possible. In developing the new VRFs for the requirements of PRC-010-1, the drafting team carefully considered the NERC criteria for developing VRFs, as well as the FERC VRF guidelines. The VRFs of FERC-approved PRC-006-1 – Automatic Underfrequency Load Shedding influenced the drafting team’s VRF decisions (citing FERC VRF Guideline 3), as the drafting team used PRC-006-1 as a model with respect to PRC-010-1’s language and construct.

NERC Criteria - 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.

VSLs 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 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 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.

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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-010-1 Requirement R1	
Proposed VRF	High
NERC VRF Discussion	PRC-010-1 Requirement R1 meets the NERC criterion for a High VRF. Failure to evaluate a UVLS Program to show that it resolves the undervoltage issue it was designed for, and that it is coordinated with generator voltage ride-through capabilities and other protection and control systems, could lead to implementation of an ineffective or counterproductive program. In addition, failure to subsequently provide the UVLS Program specifications and implementation schedule to applicable entities would negate proper program implementation. Both these implications could, under anticipated Emergency, abnormal, or restorative conditions, directly contribute to Bulk Electric System (BES) instability, separation, or Cascading failures.
FERC VRF G1 Discussion	Guideline 1: Consistency w/ Blackout Report N/A
FERC VRF G2 Discussion	Guideline 2: Consistency within a Reliability Standard PRC-010-1 Requirement R1 has parts that all support the reliability objective so only one VRF was assigned; therefore no conflict(s) exist.
FERC VRF G3 Discussion	Guideline 3: Consistency among Reliability Standards PRC-010-1 Requirement R1 is similar to EOP-003-2, Requirements R3, R4, and R7, which have approved VRFs of High.
FERC VRF G4 Discussion	Guideline 4: Consistency with NERC Definitions of VRFs PRC-010-1 Requirement R1 meets the NERC criterion for a High VRF. Failure to evaluate a UVLS Program to show that it resolves the undervoltage issue it was designed for, and that it is coordinated with generator voltage ride-through capabilities and other protection and control systems, could lead to implementation of an ineffective or counterproductive program. In addition, failure to subsequently provide the UVLS Program specifications and implementation schedule to applicable entities would negate proper program implementation. Both these implications could, under anticipated Emergency, abnormal, or restorative conditions, directly contribute to BES instability, separation, or Cascading failures.
FERC VRF G5 Discussion	Guideline 5: Treatment of Requirements that Co-mingle More than One Obligation The obligations in PRC-010-1 Requirement R1, which are to evaluate the effectiveness of a UVLS Program according to the criteria specified in the two parts and subsequently provide the program specifications and implementation schedule to applicable entities, are all equally critical elements that failure to meet could, under anticipated Emergency, abnormal, or restorative conditions, directly contribute to BES instability, separation, or

VRF and VSL Justifications – PRC-010-1 Requirement R1	
	Cascading failures. Therefore, the assigned VRF of High is consistent throughout the requirement.
Proposed Lower VSL	N/A
Proposed Moderate VSL	N/A
Proposed High VSL	N/A
Proposed Severe VSL	The applicable entity that developed the UVLS Program failed to evaluate the program’s effectiveness and subsequently provide the UVLS Program’s specifications and implementation schedule to UVLS entities in accordance with Requirement R1, including the items specified in parts 1.1 and 1.2.
NERC VSL Guidelines Discussion	The proposed VSL for PRC-010-1 Requirement R1 meets NERC’s VSL Guidelines in that there is a binary aspect for failure; the VSL addresses the degrees of compliance with respect to equal importance of the two parts.
FERC VSL G1 Discussion	<p>Guideline 1: Violation Severity Level Assignments Should Not Have the Unintended Consequence of Lowering the Current Level of Compliance</p> <p>The basis for the current level of compliance in relation to PRC-010-1 Requirement R1 is EOP-003-2 Requirements R3, R4, and R7, as these requirements are being retired because they map to PRC-010-1 Requirement R1. Since the VSL for PRC-010-1 Requirement R1 is binary, the current level of compliance is met or exceeded when compared to the VSLs for EOP-003-2 Requirements R3, R4, and R7.</p>
FERC VSL G2 Discussion	<p>Guideline 2: 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>The proposed VSL for PRC-010-1 Requirement R1 is binary and is consistent with the guideline in that it is classified as a severe VSL.</p> <p>Guideline 2b: Violation Severity Level Assignments that Contain Ambiguous Language</p> <p>The proposed VSL for PRC-010-1 Requirement R1 uses the term “effectiveness” from the associated requirement, which could be considered ambiguous terminology; however, Requirement R1 does qualify the term “effectiveness” by indicating that the applicable entity must include what is listed in the requirement’s parts in its evaluation of effectiveness. The VSL subsequently notes that the items specified in the parts must be included. This thereby supports uniformity and consistency in the determination of similar penalties for similar violations.</p>

VRF and VSL Justifications – PRC-010-1 Requirement R1	
FERC VSL G3	<p>Guideline 3: Violation Severity Level Assignment Should Be Consistent with the Corresponding Requirement</p> <p>The proposed VSL for PRC-010-1 Requirement R1 uses similar terminology to that used in the requirement and is therefore consistent with the requirement.</p>
FERC VSL G4	<p>Guideline 4: Violation Severity Level Assignment Should Be Based on A Single Violation, Not on A Cumulative Number of Violations</p> <p>The proposed VSL for PRC-010-1 Requirement R1 is based on a single violation and not cumulative violations.</p>

VRF and VSL Justifications – PRC-010-1 Requirement R2	
Proposed VRF	High
NERC VRF Discussion	PRC-010-1 Requirement R2 meets the NERC criterion for a High VRF. Failure to implement a UVLS Program by adhering to the program specifications and implementation schedule increases the risk that the program will not perform properly. Under anticipated Emergency, abnormal, or restorative conditions, this could directly contribute to BES instability, separation, or Cascading failures.
FERC VRF G1 Discussion	Guideline 1: Consistency w/ Blackout Report N/A
FERC VRF G2 Discussion	Guideline 2: Consistency within a Reliability Standard PRC-010-1 Requirement R2 has no parts so only one VRF was assigned.
FERC VRF G3 Discussion	Guideline 3: Consistency among Reliability Standards PRC-010-1 Requirement R2 is similar to PRC-006-1 Requirement R9 and EOP-003-2 Requirement R5, which have approved VRFs of High.
FERC VRF G4 Discussion	Guideline 4: Consistency with NERC Definitions of VRFs PRC-010-1 Requirement R2 meets the NERC criterion for a High VRF. Failure to implement a UVLS Program by adhering to the program specifications and implementation schedule increases the risk that the program will not perform properly. Under anticipated Emergency, abnormal, or restorative conditions, this could directly contribute to BES instability, separation, or Cascading failures.
FERC VRF G5 Discussion	Guideline 5: Treatment of Requirements that Co-mingle More than One Obligation The obligations required in PRC-010-1 Requirement R2 are to adhere to the UVLS Program specifications and implementation schedule associated with program development (per Requirement R1) and corrective action (per Requirement R5). The requirement to develop a CAP in Requirement R5 is assigned a Medium VRF; therefore, execution of the corrective actions required by Requirement R2 has a commensurate VRF of Medium. However, since the obligations related to the development of a UVLS Program in Requirement R1 are assigned a High VRF, the failure to implement the program per Requirement R2 could, under anticipated Emergency, abnormal, or restorative conditions, directly contribute to BES instability, separation, or Cascading failures. Therefore, Requirement R2 is assigned a High VRF to reflect the higher risk level associated with the more critical objective.
Proposed Lower VSL	N/A

VRF and VSL Justifications – PRC-010-1 Requirement R2	
Proposed Moderate VSL	N/A
Proposed High VSL	<p>The applicable entity failed to adhere to the UVLS Program specifications in accordance with Requirement R2.</p> <p>OR</p> <p>The applicable entity failed to adhere to the implementation schedule in accordance with Requirement R2.</p>
Proposed Severe VSL	The applicable entity failed to adhere to the UVLS Program specifications and implementation schedule in accordance with Requirement R2.
NERC VSL Guidelines Discussion	PRC-010-1 Requirement R2 meets NERC’s VSL Guidelines in that the VSLs cover aspects of the requirement that are equal in importance.
FERC VSL G1 Discussion	<p>Guideline 1: Violation Severity Level Assignments Should Not Have the Unintended Consequence of Lowering the Current Level of Compliance</p> <p>PRC-010-1 Requirement R2 is a new requirement; therefore, there is no prior level of compliance.</p>
FERC VSL G2 Discussion	<p>Guideline 2: 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>N/A</p> <p>Guideline 2b: Violation Severity Level Assignments that Contain Ambiguous Language</p> <p>The proposed VSLs for PRC-010-1 Requirement R2 do not use any ambiguous terminology, thereby supporting uniformity and consistency in the determination of similar penalties for similar violations.</p>
FERC VSL G3	<p>Guideline 3: Violation Severity Level Assignment Should Be Consistent with the Corresponding Requirement</p> <p>The proposed VSLs for PRC-010-1 Requirement R2 use similar terminology to that used in the requirement and are therefore consistent with the requirement.</p>
FERC VSL G4	<p>Guideline 4: Violation Severity Level Assignment Should Be Based on A Single Violation, Not on A Cumulative Number of Violations</p> <p>The proposed VSLs for PRC-010-1 Requirement R2 are based on a single violation and not cumulative violations.</p>

VRF and VSL Justifications – PRC-010-1 Requirement R3	
Proposed VRF	Medium
NERC VRF Discussion	<p>PRC-010-1 Requirement R3 meets NERC’s criterion for a Medium VRF.</p> <p>Failure to perform a comprehensive assessment to evaluate the effectiveness of a UVLS Program at least once every 60 calendar months could lead to failure to identify and address a necessary program modification, which could, under anticipated Emergency, abnormal, or restorative conditions, directly and adversely affect the electrical state or the capability of the BES, or the ability to effectively monitor and control the BES.</p> <p>However, while the performance that must be met when initially developing a UVLS Program is assigned a High VRF in Requirement R1 due to the likely implications of developing and subsequently implementing an ineffective or counterproductive program if the criteria is not met, it is less likely that failure to do a periodic comprehensive assessment of the program, which supplements the annual Transmission Planning (TPL) assessment required by NERC Reliability Standards, would have implications on the BES.</p> <p>Therefore, a violation of Requirement R3 is unlikely to lead to BES instability, separation, or Cascading failures. The applicable entities are always responsible for maintaining the reliability of the BES regardless of the situation.</p>
FERC VRF G1 Discussion	<p>Guideline 1: Consistency w/ Blackout Report N/A</p>
FERC VRF G2 Discussion	<p>Guideline 2: Consistency within a Reliability Standard PRC-010-1 Requirement R3 has parts that all support the reliability objective so only one VRF was assigned; therefore no conflict(s) exist.</p>
FERC VRF G3 Discussion	<p>Guideline 3: Consistency among Reliability Standards PRC-010-1 Requirement R3 is consistent with the current requirement it is replacing (PRC-010-0 Requirement R1), which has an approved VRF of Medium.</p> <p>Similar performance exists in PRC-006-1 Requirement R4, which has an approved VRF of High. This discrepancy is justified due to the differing nature of the programs these standards are addressing, as PRC-006-1 addresses mandatory UFLS programs and PRC-010-1 covers optional UVLS Programs. A UFLS program inherently has a more likely overall impact on the BES.</p>
FERC VRF G4 Discussion	<p>Guideline 4: Consistency with NERC Definitions of VRFs PRC-010-1 Requirement R3 meets NERC’s criterion for a Medium VRF.</p> <p>Failure to perform a comprehensive assessment to evaluate the effectiveness of a UVLS Program at least once every 60 calendar months could lead to failure to identify and address a necessary program modification, which could, under anticipated Emergency, abnormal, or restorative conditions, directly and</p>

VRF and VSL Justifications – PRC-010-1 Requirement R3	
	<p>adversely affect the electrical state or the capability of the BES, or the ability to effectively monitor and control the BES.</p> <p>However, while the performance that must be met when initially developing a UVLS Program is assigned a High VRF in Requirement R1 due to the likely implications of developing and subsequently implementing an ineffective or counterproductive program if the criteria is not met, it is less likely that failure to do a periodic comprehensive assessment of the program, which supplements the annual TPL assessment required by NERC Reliability Standards, would have implications on the BES.</p> <p>Therefore, a violation of Requirement R3 is unlikely to lead to BES instability, separation, or Cascading failures. The applicable entities are always responsible for maintaining the reliability of the BES regardless of the situation.</p>
FERC VRF G5 Discussion	<p>Guideline 5: Treatment of Requirements that Co-mingle More than One Obligation</p> <p>The obligation required in PRC-010-1 Requirement R3 is to periodically evaluate the effectiveness of a UVLS Program according to the criteria specified in the two parts; the parts are equally critical elements that failure to meet could, under anticipated Emergency, abnormal, or restorative conditions, directly contribute to BES instability, separation, or Cascading failures. However, violation of these commensurate elements is unlikely to lead to BES instability, separation, or Cascading failures. Therefore, the assigned VRF of Medium is consistent throughout the requirement.</p>
Proposed Lower VSL	N/A
Proposed Moderate VSL	N/A
Proposed High VSL	N/A
Proposed Severe VSL	The applicable entity failed to perform an assessment at least once during the 60 calendar months in accordance with Requirement R3, including the items specified in parts 3.1 and 3.2.
NERC VSL Guidelines Discussion	PRC-010-1 Requirement R3 meets NERC’s VSL Guidelines in that there is a binary aspect for failure; the VSL addresses the degrees of compliance with respect to equal importance of the two parts.
FERC VSL G1 Discussion	<p>Guideline 1: Violation Severity Level Assignments Should Not Have the Unintended Consequence of Lowering the Current Level of Compliance</p> <p>The proposed VSL for PRC-010-1 Requirement R3 is consistent in nature with the VSL for the requirement it is replacing (PRC-010-0 Requirement R1) and therefore does not lower the current level of compliance.</p>

VRF and VSL Justifications – PRC-010-1 Requirement R3	
FERC VSL G2 Discussion	<p>Guideline 2: 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>The proposed VSL for PRC-010-1 Requirement R3 for this binary requirement is consistent with the guideline in that it is classified as a severe VSL.</p> <p>Guideline 2b: Violation Severity Level Assignments that Contain Ambiguous Language</p> <p>The proposed VSL for PRC-010-1 Requirement R3 does not use any ambiguous terminology, thereby supporting uniformity and consistency in the determination of similar penalties for similar violations.</p>
FERC VSL G3	<p>Guideline 3: Violation Severity Level Assignment Should Be Consistent with the Corresponding Requirement</p> <p>The proposed VSL for PRC-010-1 Requirement R3 uses similar terminology to that used in the requirement and is therefore consistent with the requirement.</p>
FERC VSL G4	<p>Guideline 4: Violation Severity Level Assignment Should Be Based on A Single Violation, Not on A Cumulative Number of Violations</p> <p>The proposed VSL for PRC-010-1 Requirement R3 is based on a single violation and not cumulative violations.</p>

VRF and VSL Justifications – PRC-010-1 Requirement R4	
Proposed VRF	Medium
NERC VRF Discussion	<p>PRC-010-1 Requirement R4 meets NERC’s criterion for a Medium VRF.</p> <p>Failure to perform an assessment to evaluate whether the UVLS Program resolved the undervoltage issues associated with a qualifying event in a timely manner could lead to failure to identify and address a necessary program modification. This could, under anticipated Emergency, abnormal, or restorative conditions, directly affect the electrical state or the capability of the BES, or the ability to effectively monitor and control the BES.</p> <p>However, while the performance that must be met when initially developing a UVLS Program is assigned a High VRF in Requirement R1 due to the likely implications of developing and subsequently implementing an ineffective or counterproductive program if the criteria is not met, it is less likely that failure to perform an assessment to evaluate whether the UVLS Program resolved the undervoltage issues associated with a qualifying event would have implications on the BES, as these are infrequent and would be done in addition to the annual TPL assessment required by NERC Reliability Standards.</p> <p>Therefore, a violation of Requirement R4 is unlikely to lead to BES instability, separation, or Cascading failures. The applicable entities are always responsible for maintaining the reliability of the BES regardless of the situation.</p>
FERC VRF G1 Discussion	<p>Guideline 1: Consistency w/ Blackout Report N/A</p>
FERC VRF G2 Discussion	<p>Guideline 2: Consistency within a Reliability Standard PRC-010-1 Requirement R4 has no parts so only one VRF was assigned.</p>
FERC VRF G3 Discussion	<p>Guideline 3: Consistency among Reliability Standards PRC-010-1 Requirement R4 is similar to PRC-022-1 Requirement 1 and PRC-006-1 Requirement R11, which have approved VRFs of Medium.</p>
FERC VRF G4 Discussion	<p>Guideline 4: Consistency with NERC Definitions of VRFs</p> <p>PRC-010-1 Requirement R4 meets NERC’s criterion for a Medium VRF.</p> <p>Failure to perform an assessment to evaluate whether the UVLS Program resolved the undervoltage issues associated with a qualifying event in a timely manner could lead to failure to identify and address a necessary program modification. This could, under anticipated Emergency, abnormal, or restorative conditions, directly affect the electrical state or the capability of the BES, or the ability to effectively monitor and control the BES.</p> <p>However, while the performance that must be met when initially developing a UVLS Program is assigned a High VRF in Requirement R1 due to the likely implications of developing and subsequently implementing an ineffective or</p>

VRF and VSL Justifications – PRC-010-1 Requirement R4	
	<p>counterproductive program if the criteria is not met, it is less likely that failure to perform an assessment to evaluate whether the UVLS Program resolved the undervoltage issues associated with a qualifying event would have implications on the BES, as these are infrequent and would be done in addition to the annual TPL assessment required by NERC Reliability Standards.</p> <p>Therefore, a violation of Requirement R4 is unlikely to lead to BES instability, separation, or Cascading failures. The applicable entities are always responsible for maintaining the reliability of the BES regardless of the situation.</p>
FERC VRF G5 Discussion	<p>Guideline 5: Treatment of Requirements that Co-mingle More than One Obligation</p> <p>PRC-010-1 Requirement R4 does not co-mingle reliability objectives of differing risk; the assigned VRF of Medium is consistent throughout the requirement.</p>
Proposed Lower VSL	The applicable entity performed an assessment in accordance with Requirement R4 within a time period greater than 12 calendar months but less than or equal to 13 calendar months after an applicable event.
Proposed Moderate VSL	The applicable entity performed an assessment in accordance with Requirement R4 within a time period greater than 13 calendar months but less than or equal to 14 calendar months after an applicable event.
Proposed High VSL	The applicable entity performed an assessment in accordance with Requirement R4 within a time period greater than 14 calendar months but less than or equal to 15 calendar months after an applicable event.
Proposed Severe VSL	<p>The applicable entity performed an assessment in accordance with Requirement R4 within a time period greater than 15 months after an applicable event.</p> <p>OR</p> <p>The applicable entity failed to perform an assessment in accordance with Requirement R4.</p>
NERC VSL Guidelines Discussion	PRC-010-1 Requirement R4 meets NERC’s VSL Guidelines in that there is an incremental aspect to the VSLs for tardiness and a binary aspect for failure.
FERC VSL G1 Discussion	<p>Guideline 1: Violation Severity Level Assignments Should Not Have the Unintended Consequence of Lowering the Current Level of Compliance</p> <p>PRC-010-1 Requirement R4 is different in construct from the requirement it is replacing (PRC-022-1 Requirement R1) and, therefore, the VSLs cannot be compared. However, both sets of VSLs have incremental aspects and a binary aspect for failure.</p>

VRF and VSL Justifications – PRC-010-1 Requirement R4	
FERC VSL G2 Discussion	<p>Guideline 2: 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>N/A</p> <p>Guideline 2b: Violation Severity Level Assignments that Contain Ambiguous Language</p> <p>The proposed VSLs for PRC-010-1 Requirement R4 do not use any ambiguous terminology, thereby supporting uniformity and consistency in the determination of similar penalties for similar violations.</p>
FERC VSL G3	<p>Guideline 3: Violation Severity Level Assignment Should Be Consistent with the Corresponding Requirement</p> <p>The proposed VSLs for PRC-010-1 Requirement R4 use similar terminology to that used in the requirement and are therefore consistent with the requirement.</p>
FERC VSL G4	<p>Guideline 4: Violation Severity Level Assignment Should Be Based on A Single Violation, Not on A Cumulative Number of Violations</p> <p>The proposed VSLs for PRC-010-1 Requirement R4 are based on a single violation and not cumulative violations.</p>

VRF and VSL Justifications – PRC-010-1 Requirement R5	
Proposed VRF	Medium
NERC VRF Discussion	<p>PRC-010-1 Requirement R5 meets NERC’s criterion for a Medium VRF.</p> <p>Failure to develop and subsequently provide a CAP to address the deficiencies identified as a result of a UVLS Program assessment in a timely manner could lead to failure to address a necessary program modification, which could, under anticipated Emergency, abnormal, or restorative conditions, directly affect the electrical state or the capability of the BES, or the ability to effectively monitor and control the BES.</p> <p>However, since the development of a CAP in Requirement R5 is dependent on the outcomes of Requirement R3 or R4, the likelihood of implications on the BES is commensurate with those of Requirements R3 and R4, which are assigned Medium VRFs.</p> <p>Therefore, a violation of Requirement R5 is unlikely to lead to BES instability, separation, or Cascading failures. The applicable entities are always responsible for maintaining the reliability of the BES regardless of the situation.</p>
FERC VRF G1 Discussion	<p>Guideline 1: Consistency w/ Blackout Report</p> <p>N/A</p>
FERC VRF G2 Discussion	<p>Guideline 2: Consistency within a Reliability Standard</p> <p>PRC-010-1 Requirement R5 has no parts so only one VRF was assigned.</p>
FERC VRF G3 Discussion	<p>Guideline 3: Consistency among Reliability Standards</p> <p>PRC-010-1 Requirement R5 is similar to PRC-022-1 Requirement R1.5, which has an approved VRF of Medium.</p>
FERC VRF G4 Discussion	<p>Guideline 4: Consistency with NERC Definitions of VRFs</p> <p>PRC-010-1 Requirement R5 meets NERC’s criterion for a Medium VRF.</p> <p>Failure to develop and subsequently provide a CAP to address the deficiencies identified as a result of a UVLS Program assessment in a timely manner could lead to failure to address a necessary program modification, which could, under anticipated Emergency, abnormal, or restorative conditions, directly affect the electrical state or the capability of the BES, or the ability to effectively monitor and control the BES.</p> <p>However, since the development of a CAP in Requirement R5 is dependent on the outcomes of Requirement R3 or R4, the likelihood of implications on the BES is commensurate with those of Requirements R3 and R4, which are assigned Medium VRFs.</p> <p>Therefore, a violation of Requirement R5 is unlikely to lead to BES instability, separation, or Cascading failures. The applicable entities are always responsible for maintaining the reliability of the BES regardless of the situation.</p>

VRF and VSL Justifications – PRC-010-1 Requirement R5	
FERC VRF G5 Discussion	<p>Guideline 5: Treatment of Requirements that Co-mingle More than One Obligation</p> <p>PRC-010-1 Requirement R5 does not co-mingle reliability objectives of differing risk; the assigned VRF of Medium is consistent throughout the requirement.</p>
Proposed Lower VSL	The applicable entity developed a Corrective Action Plan and provided it to UVLS entities in accordance with Requirement R5 but was late by less than or equal to 15 calendar days.
Proposed Moderate VSL	The applicable entity developed a Corrective Action Plan and provided it to UVLS entities in accordance with Requirement R5 but was late by more than 15 calendar days but less than or equal to 30 calendar days.
Proposed High VSL	The applicable entity developed a Corrective Action Plan and provided it to UVLS entities in accordance with Requirement R5 but was late by more than 30 calendar days but less than or equal to 45 calendar days.
Proposed Severe VSL	<p>The applicable entity developed a Corrective Action Plan and provided it to UVLS entities in accordance with Requirement R5 but was late by more than 45 calendar days.</p> <p>OR</p> <p>The responsible entity failed to develop a Corrective Action Plan or provide it to UVLS entities in accordance with Requirement R5.</p>
NERC VSL Guidelines Discussion	PRC-010-1 Requirement R5 meets NERC’s VSL Guidelines in that there is an incremental aspect to the VSLs for tardiness and a binary aspect for failure.
FERC VSL G1 Discussion	<p>Guideline 1: Violation Severity Level Assignments Should Not Have the Unintended Consequence of Lowering the Current Level of Compliance</p> <p>PRC-010-1 Requirement R5 is different in construct from the requirement it is replacing (PRC-022-1 Requirement R1) and, therefore, the VSLs cannot be compared. However, both sets of VSLs have incremental aspects and a binary aspect for failure.</p>
FERC VSL G2 Discussion	<p>Guideline 2: 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>N/A</p> <p>Guideline 2b: Violation Severity Level Assignments that Contain Ambiguous Language</p> <p>The proposed VSLs for PRC-010-1 Requirement R5 do not use any ambiguous terminology, thereby supporting uniformity and consistency in the determination of similar penalties for similar violations.</p>

VRF and VSL Justifications – PRC-010-1 Requirement R5	
FERC VSL G3	<p>Guideline 3: Violation Severity Level Assignment Should Be Consistent with the Corresponding Requirement</p> <p>The proposed VSLs for PRC-010-1 Requirement R5 use similar terminology to that used in the requirement and are therefore consistent with the requirement.</p>
FERC VSL G4	<p>Guideline 4: Violation Severity Level Assignment Should Be Based on A Single Violation, Not on A Cumulative Number of Violations</p> <p>The proposed VSLs for PRC-010-1 Requirement R5 are based on a single violation and not cumulative violations.</p>

VRF and VSL Justifications – PRC-010-1 Requirement R6	
Proposed VRF	Lower
NERC VRF Discussion	PRC-010-1 Requirement R6 meets NERC’s criterion for a Lower VRF. Though having a current UVLS Program database is necessary to properly inform accurate undervoltage studies and event analyses, this is a planning requirement that is administrative in nature; failure to annually update a UVLS Program database would not, under the anticipated Emergency, abnormal, or restorative conditions, be expected to adversely affect the electrical state or capability of the BES, or the ability to effectively monitor, control, or restore the BES. The applicable entities are always responsible for maintaining the reliability of the BES regardless of the situation.
FERC VRF G1 Discussion	Guideline 1: Consistency w/ Blackout Report N/A
FERC VRF G2 Discussion	Guideline 2: Consistency within a Reliability Standard The requirement has no parts so only one VRF was assigned.
FERC VRF G3 Discussion	Guideline 3: Consistency among Reliability Standards PRC-010-1 Requirement R6 similar to PRC-006-1 Requirement R6, which has an approved VRF of Lower.
FERC VRF G4 Discussion	Guideline 4: Consistency with NERC Definitions of VRFs PRC-010-1 Requirement R6 meets NERC’s criterion for a Lower VRF. Though having a current UVLS Program database is necessary to properly inform accurate undervoltage studies and event analyses, this is a planning requirement that is administrative in nature; failure to annually update a UVLS Program database would not, under the anticipated Emergency, abnormal, or restorative conditions, be expected to adversely affect the electrical state or capability of the BES, or the ability to effectively monitor, control, or restore the BES. The applicable entities are always responsible for maintaining the reliability of the BES regardless of the situation.
FERC VRF G5 Discussion	Guideline 5: Treatment of Requirements that Co-mingle More than One Obligation PRC-010-1 Requirement R6 does not co-mingle reliability objectives of differing risk; the assigned VRF of Lower is consistent throughout the requirement.
Proposed Lower VSL	The applicable entity updated the database in accordance with Requirement R6 but was late by less than or equal to 30 calendar days.
Proposed Moderate VSL	The applicable entity updated the database in accordance with Requirement R6 but was late by less than or equal to 30 calendar days.
Proposed High VSL	The applicable entity updated the database in accordance with Requirement R6 but was late by more than 60 calendar days but less than or equal to 90

VRF and VSL Justifications – PRC-010-1 Requirement R6	
	calendar days.
Proposed Severe VSL	The applicable entity updated the database in accordance with Requirement R6 but was late by more than 90 calendar days. OR The applicable entity failed to update the database in accordance with Requirement R6.
NERC VSL Guidelines Discussion	PRC-010-1 Requirement R6 meets NERC’s VSL Guidelines in that there is an incremental aspect to the VSLs for tardiness and a binary aspect for failure.
FERC VSL G1 Discussion	Guideline 1: Violation Severity Level Assignments Should Not Have the Unintended Consequence of Lowering the Current Level of Compliance PRC-010-1 Requirement R6 is replacing PRC-020-1 Requirement R1, which is applicable to the Regional Reliability Organization and has no associated VSLs. Therefore, there is no prior level of compliance.
FERC VSL G2 Discussion	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 N/A Guideline 2b: Violation Severity Level Assignments that Contain Ambiguous Language The proposed VSLs for PRC-010-1 Requirement R6 do not use any ambiguous terminology, thereby supporting uniformity and consistency in the determination of similar penalties for similar violations.
FERC VSL G3	Guideline 3: Violation Severity Level Assignment Should Be Consistent with the Corresponding Requirement The proposed VSLs for PRC-010-1 Requirement R6 use similar terminology to that used in the requirement and are therefore consistent with the requirement.
FERC VSL G4	Guideline 4: Violation Severity Level Assignment Should Be Based on A Single Violation, Not on A Cumulative Number of Violations The proposed VSLs for PRC-010-1 Requirement R6 are based on a single violation and not cumulative violations.

VRF and VSL Justifications – PRC-010-1 Requirement R7	
Proposed VRF	Lower
NERC VRF Discussion	PRC-010-1 Requirement R7 meets NERC’s criterion for a Lower VRF. Though providing current and formatted data is necessary to properly support a UVLS Program database, which subsequently informs accurate undervoltage studies and event analyses, this is a planning requirement that is administrative in nature; failure to provide the data according to the format and schedule specified would not, under the anticipated Emergency, abnormal, or restorative conditions, be expected to adversely affect the electrical state or capability of the BES, or the ability to effectively monitor, control, or restore the BES. The applicable entities are always responsible for maintaining the reliability of the BES regardless of the situation.
FERC VRF G1 Discussion	Guideline 1: Consistency w/ Blackout Report N/A
FERC VRF G2 Discussion	Guideline 2: Consistency within a Reliability Standard PRC-010-1 Requirement R7 has no parts so only one VRF was assigned.
FERC VRF G3 Discussion	Guideline 3 Consistency among Reliability Standards: PRC-010-1 Requirement R7 is similar to PRC-006-1 Requirement R8, which has an approved VRF of Lower.
FERC VRF G4 Discussion	Guideline 4: Consistency with NERC Definitions of VRFs PRC-010-1 Requirement R7 meets NERC’s criterion for a Lower VRF. Though providing current and formatted data is necessary to properly support a UVLS Program database, which subsequently informs accurate undervoltage studies and event analyses, this is a planning requirement that is administrative in nature; failure to provide the data according to the format and schedule specified would not, under the anticipated Emergency, abnormal, or restorative conditions, be expected to adversely affect the electrical state or capability of the BES, or the ability to effectively monitor, control, or restore the BES. The applicable entities are always responsible for maintaining the reliability of the BES regardless of the situation.
FERC VRF G5 Discussion	Guideline 5: Treatment of Requirements that Co-mingle More than One Obligation PRC-010-1 Requirement R7 does not co-mingle reliability objectives of differing risk; the assigned VRF of Lower is consistent throughout the requirement.
Proposed Lower VSL	The applicable entity provided data in accordance with Requirement R7 but was late by less than or equal to 30 calendar days per the specified schedule. OR

VRF and VSL Justifications – PRC-010-1 Requirement R7	
	The applicable entity provided data in accordance with Requirement R7 but the data was not provided according to the specified format.
Proposed Moderate VSL	The applicable entity provided data in accordance with Requirement R7 but was late by more than 30 calendar days but less than or equal to 60 calendar days per the specified schedule.
Proposed High VSL	The applicable entity provided data in accordance with Requirement R7 but was late by more than 60 calendar days but less than or equal to 90 calendar days per the specified schedule.
Proposed Severe VSL	The applicable entity provided data in accordance with Requirement R7 but was late by more than 90 calendar days per the specified schedule. OR The applicable entity failed to provide data in accordance with Requirement R7.
NERC VSL Guidelines Discussion	PRC-010-1 Requirement R7 meets NERC’s VSL Guidelines in that the VSLs cover aspects of the requirement that are not equal in importance; there is an incremental aspect to the VSLs for tardiness and a binary aspect for failure.
FERC VSL G1 Discussion	Guideline 1: Violation Severity Level Assignments Should Not Have the Unintended Consequence of Lowering the Current Level of Compliance PRC-010-1 Requirement R7 is different in construct from the requirement it is replacing (PRC-021-1 Requirement R1) and, therefore, the VSLs cannot be compared. However, both sets of VSLs have incremental aspects and a binary aspect for failure.
FERC VSL G2 Discussion	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 N/A Guideline 2b: Violation Severity Level Assignments that Contain Ambiguous Language The proposed VSLs for PRC-010-1 Requirement R7 do not use any ambiguous terminology, thereby supporting uniformity and consistency in the determination of similar penalties for similar violations.
FERC VSL G3	Guideline 3: Violation Severity Level Assignment Should Be Consistent with the Corresponding Requirement The proposed VSLs for PRC-010-1 Requirement R7 use similar terminology to that used in the requirement and are therefore consistent with the requirement.

VRF and VSL Justifications – PRC-010-1 Requirement R7	
FERC VSL G4	<p>Guideline 4: Violation Severity Level Assignment Should Be Based on A Single Violation, Not on A Cumulative Number of Violations</p> <p>The proposed VSLs for PRC-010-1 Requirement R7 are based on a single violation and not cumulative violations.</p>

VRF and VSL Justifications – PRC-010-1 Requirement R8	
Proposed VRF	Lower
NERC VRF Discussion	PRC-010-1 Requirement R8 meets NERC’s criterion for a Lower VRF. Though sharing a UVLS Program database with applicable entities in a timely manner supports an integrated and coordinated approach to UVLS programs, this is a planning requirement that is administrative in nature; failure to share the database within 30 calendar days of a request would not, under the anticipated Emergency, abnormal, or restorative conditions, be expected to adversely affect the electrical state or capability of the BES, or the ability to effectively monitor, control, or restore the BES. The applicable entities are always responsible for maintaining the reliability of the BES regardless of the situation.
FERC VRF G1 Discussion	Guideline 1: Consistency w/ Blackout Report N/A
FERC VRF G2 Discussion	Guideline 2: Consistency within a Reliability Standard The requirement has no parts so only one VRF was assigned.
FERC VRF G3 Discussion	Guideline 3: Consistency among Reliability Standards PRC-010-1 Requirement R8 is similar to PRC-006-1 Requirement R7, which has an approved VRF of Lower.
FERC VRF G4 Discussion	Guideline 4: Consistency with NERC Definitions of VRFs PRC-010-1 Requirement R8 meets NERC’s criterion for a Lower VRF. Though sharing a UVLS Program database with applicable entities in a timely manner supports an integrated and coordinated approach to UVLS programs, this is a planning requirement that is administrative in nature; failure to share the database within 30 calendar days of a request would not, under the anticipated Emergency, abnormal, or restorative conditions, be expected to adversely affect the electrical state or capability of the BES, or the ability to effectively monitor, control, or restore the BES. The applicable entities are always responsible for maintaining the reliability of the BES regardless of the situation.
FERC VRF G5 Discussion	Guideline 5: Treatment of Requirements that Co-mingle More than One Obligation PRC-010-1 Requirement R8 does not co-mingle reliability objectives of differing risk; the assigned VRF of Lower is consistent throughout the requirement.
Proposed Lower VSL	The applicable entity provided its UVLS Program database in accordance with Requirement R8 but was late by less than or equal to 15 calendar days.
Proposed Moderate VSL	The applicable entity provided its UVLS Program database in accordance with Requirement R8 but was late by more than 15 calendar days but less than or equal to 30 calendar days.

VRF and VSL Justifications – PRC-010-1 Requirement R8	
Proposed High VSL	The applicable entity provided its UVLS Program database in accordance with Requirement R8 but was late by more than 30 calendar days but less than or equal to 45 calendar days.
Proposed Severe VSL	The applicable entity provided its UVLS Program database in accordance with Requirement R8 but was late by more than 45 calendar days. OR The applicable entity failed to provide its UVLS Program database in accordance with Requirement R8.
NERC VSL Guidelines Discussion	PRC-010-1 Requirement R8 meets NERC’s VSL Guidelines in that there is an incremental aspect to the VSLs for tardiness and a binary aspect for failure.
FERC VSL G1 Discussion	Guideline 1: Violation Severity Level Assignments Should Not Have the Unintended Consequence of Lowering the Current Level of Compliance PRC-010-1 Requirement R8 is replacing PRC-020-1 Requirement R2, which is applicable to the Regional Reliability Organization and has no associated VSLs. Therefore, there is no prior level of compliance.
FERC VSL G2 Discussion	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 N/A Guideline 2b: Violation Severity Level Assignments that Contain Ambiguous Language The proposed VSLs for PRC-010-1 Requirement R8 do not use any ambiguous terminology, thereby supporting uniformity and consistency in the determination of similar penalties for similar violations.
FERC VSL G3	Guideline 3: Violation Severity Level Assignment Should Be Consistent with the Corresponding Requirement The proposed VSLs for PRC-010-1 Requirement R8 use similar terminology to that used in the requirement and are therefore consistent with the requirement.
FERC VSL G4	Guideline 4: Violation Severity Level Assignment Should Be Based on A Single Violation, Not on A Cumulative Number of Violations The proposed VSLs for PRC-010-1 Requirement R8 are based on a single violation and not cumulative violations.