NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

Violation Risk Factor and Violation Severity Level Justifications

Project 2020-02 Modifications to PRC-024 (Generator Ride-through)
PRC-029-1

This document provides the drafting team's (DT's) justification for assignment of violation risk factors (VRFs) and violation severity levels (VSLs) for each requirement in PRC-029-1. Each requirement is assigned a VRF and a VSL. 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 Electric Reliability Organizations (ERO) Sanction Guidelines. The DT applied the following NERC criteria and FERC Guidelines when developing the VRFs and VSLs for the requirements.

NERC Criteria for Violation Risk Factors

High Risk Requirement
A requirement that, if violated, could directly cause or contribute to Bulk Power System (BPS) instability, separation, or a cascading sequence of failures, or could place the BPS 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 BPS instability, separation, or a cascading sequence of failures, or could place the BPS 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 BPS, or the ability to effectively monitor and control the BPS. However, violation of a medium risk requirement is unlikely to lead to BPS 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 BPS, or the ability to effectively monitor, control, or restore the BPS. However, violation of a medium risk requirement is unlikely, under emergency, abnormal, or restoration conditions anticipated by the preparations, to lead to BPS 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 BPS, or the ability to effectively monitor and control the BPS; 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 BPS, or the ability to effectively monitor, control, or restore the BPS.

FERC Guidelines for Violation Risk Factors

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

FERC seeks to ensure that VRFs assigned to Requirements of Reliability Standards in these identified areas appropriately reflect their historical critical impact on the reliability of the BPS. In the VSL Order, FERC listed critical areas (from the Final Blackout Report) where violations could severely affect the reliability of the BPS:

- 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
FERC expects a rational connection between the sub-Requirement VRF assignments and the main Requirement VRF assignment.

Guideline (3) – Consistency among Reliability Standards
FERC expects the assignment of VRFs 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 VRF 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 for 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 NERC's overarching criteria shown in the table below:

Lower VSL	Moderate VSL	High VSL	Severe VSL
The performance or product measured almost meets the full intent of the requirement.	The performance or product measured meets the majority of the intent of the requirement.	The performance or product measured does not meet the majority of the intent of the requirement, but does meet some of the intent.	The performance or product measured does not substantively meet the intent of the requirement.

FERC Order of Violation Severity Levels

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

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

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

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

A violation of a "binary" type requirement must be a "Severe" VSL.
Do not use ambiguous terms such as "minor" and "significant" to describe noncompliant performance.

Guideline (3) – Violation Severity Level Assignment Should Be Consistent with the Corresponding Requirement

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

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

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

VRF Justifications for PRC-029-1, Requirement R1	
Proposed VRF	**High**
NERC VRF Discussion	A VRF of High is appropriate as applicable generating resources must be able to ride-through system disturbances. Failure to ride-through has been documented in multiple NERC reports leading to exacerbated system conditions, resulting in the electrical disconnecting of additional generation and widespread outages.
FERC VRF G1 Discussion Guideline 1- Consistency with Blackout Report	This VRF is in line with the identified areas from the FERC list of critical areas in the Final Blackout Report.
FERC VRF G2 Discussion Guideline 2- Consistency within a Reliability Standard	The assignment of High VRF is consistent with the VRF assignments for other requirements in the proposed Reliability Standard. This requirement has only a main VRF and no different sub-requirement VRFs.
FERC VRF G3 Discussion Guideline 3- Consistency among Reliability Standards	Similar requirements in PRC-024-3 are identified as Medium but are based on equipment protection setting documentation rather than actual, recorded performance during a grid disturbance. Therefore, this VRF is in line with other VRFs that address similar reliability goals in different Reliability Standards.
FERC VRF G4 Discussion Guideline 4- Consistency with NERC Definitions of VRFs	This VRF is in line with the definition of a High VRF requirement per the criteria filed with FERC as part of the ERO's Sanctions Guidelines.
FERC VRF G5 Discussion Guideline 5- Treatment of Requirements that Co-mingle More than One Obligation	This requirement does not co-mingle a higher risk reliability objective and a lesser risk reliability objective.

VSLs for PRC-029-1, Requirement R1			
Lower	**Moderate**	**High**	**Severe**
The Generator Owner failed to ensure the design capability of each applicable IBR to Ride-through in accordance with Attachment 1, except for those conditions identified in Requirement R1.	N/A	N/A	The Generator Owner failed to ensure each applicable IBR adhered to Ride-through requirements in accordance with Attachment 1, except for those conditions identified in Requirement R1.

VSL Justifications for PRC-029-1, Requirement R1	
FERC VSL G1 Violation Severity Level Assignments Should Not Have the Unintended Consequence of Lowering the Current Level of Compliance	The requirement is new. Therefore, the proposed VSLs do not have the unintended consequence of lowering the level of compliance.
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	The proposed VSLs are binary and do not use any ambiguous terminology, thereby supporting uniformity and consistency in the determination of similar penalties for similar violations.

VSL Justifications for PRC-029-1, Requirement R1	
FERC VSL G3 Violation Severity Level Assignment Should Be Consistent with the Corresponding Requirement	The proposed VSLs use the same terminology as used in the associated requirement and are, therefore, consistent with the requirement.
FERC VSL G4 Violation Severity Level Assignment Should Be Based on A Single Violation, Not on A Cumulative Number of Violations	Each VSL is based on a single violation and not cumulative violations.

VRF Justifications for PRC-029-1, Requirement R2	
Proposed VRF	**High**
NERC VRF Discussion	A VRF of High is appropriate as applicable generating resources must be able to ride-through system disturbances. Failure to ride-through has been documented in multiple NERC reports leading to exacerbated system conditions, resulting in the electrical disconnecting of additional generation and widespread outages.
FERC VRF G1 Discussion Guideline 1- Consistency with Blackout Report	This VRF is in line with the identified areas from the FERC list of critical areas in the Final Blackout Report.
FERC VRF G2 Discussion Guideline 2- Consistency within a Reliability Standard	The assignment of High VRF is consistent with the VRF assignments for other requirements in the proposed Reliability Standard. This requirement has only a main VRF and no different sub-requirement VRFs.
FERC VRF G3 Discussion Guideline 3- Consistency among Reliability Standards	Similar requirements in PRC-024-3 are identified as Medium but are based on equipment protection setting documentation rather than actual, recorded performance during a grid disturbance. Therefore, this VRF is in line with other VRFs that address similar reliability goals in different Reliability Standards.
FERC VRF G4 Discussion Guideline 4- Consistency with NERC	This VRF is in line with the definition of a High VRF requirement per the criteria filed with FERC as part of the ERO's Sanctions Guidelines.

VRF Justifications for PRC-029-1, Requirement R2	
Proposed VRF	**High**
Definitions of VRFs	
FERC VRF G5 Discussion Guideline 5- Treatment of Requirements that Co-mingle More than One Obligation	This requirement does not co-mingle a higher risk reliability objective and a lesser risk reliability objective.

VSLs for PRC-029-1, Requirement R2			
Lower	**Moderate**	**High**	**Severe**
The Generator Owner failed to ensure the design capability of each applicable IBR to adhere to performance requirements during voltage excursions, as specified in Requirement R2, unless a documented hardware limitation exists in accordance with Requirement R4.	N/A	N/A	The Generator Owner failed to ensure each applicable IBR adhered to performance requirements during voltage excursions, as specified in Requirement R2, unless a documented hardware limitation exists in accordance with Requirement R4.

VSL Justifications for PRC-029-1, Requirement R2	
FERC VSL G1 Violation Severity Level Assignments Should Not Have the Unintended Consequence of Lowering the Current Level of Compliance	The requirement is new. Therefore, the proposed VSLs do not have the unintended consequence of lowering the level of compliance.

VSL Justifications for PRC-029-1, Requirement R2	
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	The proposed VSLs are binary and do not use any ambiguous terminology, thereby supporting uniformity and consistency in the determination of similar penalties for similar violations.
FERC VSL G3 Violation Severity Level Assignment Should Be Consistent with the Corresponding Requirement	The proposed VSLs use the same terminology as used in the associated requirement and are, therefore, consistent with the requirement.
FERC VSL G4 Violation Severity Level Assignment Should Be Based on A Single Violation, Not on A Cumulative Number of Violations	Each VSL is based on a single violation and not cumulative violations.

VRF Justifications for PRC-029-1, Requirement R3	
Proposed VRF	**Lower**
NERC VRF Discussion	A VRF of High is appropriate that if violated, it would be expected to adversely affect the electrical state or capability of the BPS.
FERC VRF G1 Discussion Guideline 1- Consistency with Blackout Report	This VRF is in line with the identified areas from the FERC list of critical areas in the Final Blackout Report.
FERC VRF G2 Discussion Guideline 2- Consistency within a Reliability Standard	The assignment of High VRF is consistent with the VRF assignments for other requirements in the proposed Reliability Standard. This requirement has only a main VRF and no different sub-requirement VRFs.
FERC VRF G3 Discussion Guideline 3- Consistency among Reliability Standards	This VRF is in line with other VRFs that address similar reliability goals in different Reliability Standards.
FERC VRF G4 Discussion Guideline 4- Consistency with NERC Definitions of VRFs	This VRF is in line with the definition of a High VRF requirement per the criteria filed with FERC as part of the ERO's Sanctions Guidelines.
FERC VRF G5 Discussion Guideline 5- Treatment of Requirements that Co-mingle More than One Obligation	This requirement does not co-mingle a higher risk reliability objective and a lesser risk reliability objective.

VSLs for PRC-029-1, Requirement R3			
Lower	**Moderate**	**High**	**Severe**
The Generator Owner IBR to ensure the design capability of each applicable IBR to Ride-through in accordance with Attachment 2,	N/A	N/A	The Generator Owner IBR to ensure each applicable IBR adhered to Ride-through requirements in accordance with Attachment 2,

unless a documented hardware limitation exists in accordance with Requirement R4.			unless a documented hardware limitation exists in accordance with Requirement R4.

VSL Justifications for PRC-029-1, Requirement R3	
FERC VSL G1 Violation Severity Level Assignments Should Not Have the Unintended Consequence of Lowering the Current Level of Compliance	The requirement is new. Therefore, the proposed VSLs do not have the unintended consequence of lowering the level of compliance.
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	The proposed VSLs are binary and do not use any ambiguous terminology, thereby supporting uniformity and consistency in the determination of similar penalties for similar violations.
FERC VSL G3 Violation Severity Level Assignment Should Be Consistent with the Corresponding Requirement	The proposed VSLs use the same terminology as used in the associated requirement and are, therefore, consistent with the requirement.
FERC VSL G4 Violation Severity Level Assignment Should Be Based on A Single Violation, Not on A Cumulative	Each VSL is based on a single violation and not cumulative violations.

VSL Justifications for PRC-029-1, Requirement R3	
Number of Violations	

VRF Justifications for PRC-029-1, Requirement R4	
Proposed VRF	**Lower**
NERC VRF Discussion	A VRF of Lower is appropriate that if violated, it would not be expected to adversely affect the electrical state or capability of the BPS.
FERC VRF G1 Discussion Guideline 1- Consistency with Blackout Report	This VRF is in line with the identified areas from the FERC list of critical areas in the Final Blackout Report.
FERC VRF G2 Discussion Guideline 2- Consistency within a Reliability Standard	The assignment of Lower VRF is consistent with the VRF assignments for other requirements in the proposed Reliability Standard. This requirement has only a main VRF and no different sub-requirement VRFs.
FERC VRF G3 Discussion Guideline 3- Consistency among Reliability Standards	This VRF is in line with other VRFs that address similar reliability goals in different Reliability Standards.
FERC VRF G4 Discussion Guideline 4- Consistency with NERC Definitions of VRFs	This VRF is in line with the definition of a Lower VRF requirement per the criteria filed with FERC as part of the ERO's Sanctions Guidelines.
FERC VRF G5 Discussion Guideline 5- Treatment of Requirements that Co-mingle More than One Obligation	This requirement does not co-mingle a higher risk reliability objective and a lesser risk reliability objective.

VSLs for PRC-029-1, Requirement R4			
Lower	**Moderate**	**High**	**Severe**
The Generator Owner provided a copy to the applicable entities as detailed in Requirement R4.2 more than 12 months but less than or equal to 15 months after the effective date of Requirement R4. OR The Generator Owner failed to respond to the applicable entities as detailed in Requirement R4.2.1 more than 90 days but less than or equal to 120 days after receiving a request for additional information by an entity listed in Requirement R4.2.1. OR The Generator Owner failed to respond to the applicable entities as detailed in Requirement R4.2.2 more than 90 days but less than or equal to 120 days after receiving the acceptance of a hardware limitation by the CEA. OR The Generator Owner with a previously communicated hardware limitation that replaces	The Generator Owner failed to respond to the applicable entities as detailed in Requirement R4.2.1 more than 120 days but less than or equal to 150 days after receiving a request for additional information by an entity listed in Requirement R4.2.1. OR The Generator Owner failed to respond to the applicable entities as detailed in Requirement R4.2.2 more than 120 days but less than or equal to 150 days after receiving the acceptance of a hardware limitation by the CEA. OR The Generator Owner with a previously communicated hardware limitation that replaces the documented limiting hardware but failed to document and communicate the change to its Planning Coordinator(s), Transmission Planner(s), Reliability Coordinator(s), Transmission Operator(s), and CEA more than 120 calendar days but less than or	The Generator Owner failed to respond to the applicable entities as detailed in Requirement R4.2.1 more than 150 days but less than or equal to 180 days after receiving a request for additional information by an entity listed in Requirement R4.2.1. OR The Generator Owner failed to respond to the applicable entities as detailed in Requirement R4.2.2 more than 150 days but less than or equal to 180 days after receiving the acceptance of a hardware limitation by the CEA. OR The Generator Owner with a previously communicated hardware limitation that replaces the documented limiting hardware but failed to document and communicate the change to its Planning Coordinator(s), Transmission Planner(s), Reliability Coordinator(s), Transmission Operator(s), and CEA more than 150 calendar days but less than or	The Generator Owner failed to document complete information for IBR identified with known hardware limitations that prevent the IBR from meeting Ride-through criteria as detailed in Requirements R1 or R2. OR The Generator Owner failed to provide a copy to the applicable entities as detailed in Requirement R4.2 within 24 months after the effective date of Requirement R4. OR The Generator Owner failed to respond to the applicable entities as detailed in Requirement R4.2.1 more than 180 days after receiving a request for additional information by an entity listed in Requirement R4.2.1. OR The Generator Owner failed to respond to the applicable entities as detailed in Requirement R4.2.2 more than 180 days after receiving the acceptance of a hardware limitation by the CEA.

VSLs for PRC-029-1, Requirement R4			
Lower	**Moderate**	**High**	**Severe**
the documented limiting hardware but failed to document and communicate the change to its Planning Coordinator(s), Transmission Planner(s), Transmission Operator(s), Reliability Coordinator(s), and CEA more than 90 calendar days but less than or equal to 120 calendar days after the change to the hardware.	equal to 150 calendar days after the change to the hardware.	equal to 180 calendar days after the change to the hardware.	OR The Generator Owner failed to document complete information for IBR identified with known hardware limitations that prevent the IBR from meeting Ride-through criteria as detailed in Requirements R1 or R2.

VSL Justifications for PRC-029-1, Requirement R4	
FERC VSL G1 Violation Severity Level Assignments Should Not Have the Unintended Consequence of Lowering the Current Level of Compliance	The requirement is new. Therefore, the proposed VSLs do not have the unintended consequence of lowering the level of compliance.
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	The proposed VSLs are binary and do not use any ambiguous terminology, thereby supporting uniformity and consistency in the determination of similar penalties for similar violations.

VSL Justifications for PRC-029-1, Requirement R4	
Level Assignments that Contain Ambiguous Language	
FERC VSL G3 Violation Severity Level Assignment Should Be Consistent with the Corresponding Requirement	The proposed VSLs use the same terminology as used in the associated requirement and are, therefore, consistent with the requirement.
FERC VSL G4 Violation Severity Level Assignment Should Be Based on A Single Violation, Not on A Cumulative Number of Violations	Each VSL is based on a single violation and not cumulative violations.