

# Violation Risk Factor and Violation Severity Level Justifications

Project 2015-06 Interconnection Reliability Operations and Coordination

IRO-006-EAST-2, IRO-009-2

## 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 IRO-006-EAST-2 (Transmission Loading Relief Procedure for the Eastern Interconnection) and IRO-009-2 (Reliability Coordinator Actions to Operate within IROLs).

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 Interconnection Reliability Operations and Coordination Standard Drafting Team applied the following NERC criteria and FERC Guidelines when proposing VRFs and VSLs for the requirements under this project:

### NERC Criteria – VRFs

#### 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 VRF Guidelines**

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

The Commission 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 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 VRF assignments and the main Requirement VRF assignment.

**Guideline (3) — Consistency among Reliability Standards**

The Commission 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 VRF 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.

## Consideration of FERC VRF Guidelines

The following discussion addresses how the SDT considered FERC’s VRF Guidelines 2 through 5. The team did not address Guideline 1 directly because of an apparent conflict between Guidelines 1 and 4. Whereas Guideline 1 identifies a list of topics that encompass nearly all topics within NERC’s Reliability Standards and implies that these requirements should be assigned a “High” VRF, Guideline 4 directs assignment of VRFs based on the impact of a specific requirement to the reliability of the system. The SDT believes that Guideline 4 is reflective of the intent of VRFs in the first instance and therefore concentrated its approach on the reliability impact of the requirements.

### IRO-006-EAST-2

Reliability Standard IRO-006-EAST-2 is a revision of IRO-006-EAST-1 TLR Procedure for the Eastern Interconnection, with the following stated purpose: “To ensure coordinated action between Reliability Coordinators within the Eastern Interconnection when implementing transmission loading relief procedures (TLR) for the Eastern Interconnection to prevent or manage potential or actual System Operating Limit (SOL) and Interconnection Reliability Operating Limit (IROL) exceedances to maintain reliability of the Bulk Electric System (BES).”

Reliability Standard IRO-006-EAST-2 has two (2) requirements that address identification of TLR level(s) and identification and instruction to implement congestion management actions. The requirements originated from revisions to two (2) requirements that existed in Reliability Standard IRO-006-EAST-1, Requirement R2 and Requirement R4. Reliability Standard IRO-006-EAST-2 seeks to retire two (2) other requirements that existed in IRO-006-EAST-1, Requirement R1 and Requirement R3. As such, the VRFs and VSLs associated with IRO-006-EAST-1, Requirement R1 and Requirement R3 have not been included in IRO-006-EAST-2.

Reliability Standard IRO-006-EAST-2 Requirement R1 maps to IRO-006-EAST-1 Requirement R2, and IRO-006-EAST-2 Requirement R2 maps to IRO-006-EAST-1 Requirement R4. The drafting team did not revise the VRFs for the requirements of IRO-006-EAST-2 Requirement R1 or Requirement R2.

The drafting team revised the VSL for IRO-006-EAST-2 Requirement R2 to conform to the revisions to the language of IRO-006-EAST-2 Requirement R2.

### **IRO-009-2**

Reliability Standard IRO-009-2 is a revision of IRO-009-1 Reliability Coordinator Actions to Operate Within IROLs, with the following stated purpose: To prevent instability, uncontrolled separation, or cascading outages that adversely impact the reliability of the interconnection by ensuring prompt action to prevent or mitigate instances of exceeding Interconnection Reliability Operating Limits (IROLs).

Reliability Standard IRO-009-2 has four (4) requirements that address Reliability Coordinator Operating Process, Procedure, or Plans that identify actions the Reliability Coordinator shall take or actions the Reliability Coordinator shall direct others to take to prevent exceeding that IROL, that can be implemented in time to prevent exceeding the identified IROL, mitigate exceeding that IROL within the IROL's Tv, Operating Processes, Procedures or Plans to prevent an IROL exceedance as part of its Real-time monitoring or Real-time Assessment, acts the Reliability Coordinator shall take or direct others to take so that the magnitude and duration of an IROL exceedance is mitigated within the IROL's Tv as part of its Real-time monitoring or Real-time Assessment, and Reliability Coordinator operation to the most limiting IROL and Tv in instances where there is a difference in an IROL or its Tv between Reliability Coordinators that are responsible for a Facility (or group of Facilities). The requirements originated from revisions to the five (5) requirements that existed in IRO-009-1, Requirement R1 through Requirement R5. Reliability Standard IRO-009-2 seeks to revise Requirement R1 and R2 by incorporating the requirements from Requirement R2 into Requirement R1 as Part R1.1 and R1.2.

The IRO-009-2 Requirement R1 maps to IRO-009-1 Requirement R1 and Requirement R2. The VRFs for IRO-009-1 Requirement R1 and Requirement R2 were both medium, therefore, the drafting team did not revise the VRFs for the requirements when revising IRO-009-2 Requirement R1 to include IRO-009-1 Requirement R2.

Reliability Standard IRO-009-2 Requirement R2 maps to IRO-009-1 Requirement R3; IRO-009-2 Requirement R3 maps to IRO-009-1 Requirement R4; IRO-009-2 Requirement R4 maps to IRO-009-1 Requirement R5. The drafting team did not revise the VRFs for the requirements of IRO-006-EAST-1 Requirement R3, Requirement R4, or Requirement R5.

The drafting team revised the VSLs for IRO-009-2 Requirements R2 through R4 to conform to the revisions to the language of IRO-009-2 Requirements R2 through R4.

**NERC Criteria - VSLs**

VSLs define the degree to which compliance with a requirement was not achieved. Each requirement must have at least one (1) VSL. While it is preferable to have four (4) VSLs for each requirement, some requirements do not have multiple “degrees” of noncompliant performance and may have only one (1), two (2), or three (3) VSLs.

VSLs should be based on the guidelines shown in the table below:

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

## FERC Order on VSLs

In its June 19, 2008 Order<sup>1</sup> on VSLs, FERC indicated it would use the following four guidelines for determining whether to approve VSLs:

### **Guideline 1: VSL 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: VSL 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: VSL Assignment Should Be Consistent with the Corresponding Requirement**

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

### **Guideline 4: VSL 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.

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<sup>1</sup> *Order on Violation Severity levels Proposed by the Electric Reliability Organization*, 123 FERC ¶61,284 (2008)

VRF and VSL Justifications

VRF and VSL Justifications – IRO-006-EAST-2, R2			
Proposed VSL – IRO-006-EAST-2, R2			
Lower	Moderate	High	Severe
			The responding Reliability Coordinator did not, within 15 minutes of receiving a request, either 1) instruct the Sink Balancing Authority to implement all the requested congestion management actions, or 2) coordinate alternate congestion management actions with the issuing Reliability Coordinator, provided that: assessment showed that the actions replaced would have resulted in a reliability concern or would have been ineffective.
FERC VSL G3 VSL Assignment Should Be Consistent with the Corresponding Requirement	The proposed VSL uses similar terminology to that used in the associated requirement, and is therefore consistent with the requirement.		
FERC VSL G4	The VSL is based on a single violation and not cumulative violations.		

**VRF and VSL Justifications – IRO-006-EAST-2, R2**

**Proposed VSL – IRO-006-EAST-2, R2**

VSL Assignment Should Be Based on A Single Violation, Not on A Cumulative Number of Violations



VRF and VSL Justifications – IRO-009-2, R1	
Proposed VRF – IRO-009-2, R1	
Proposed VRF	Medium
NERC VRF Discussion	Failure to have an Operating Process, Procedure, or Plan that identifies actions to prevent exceeding that IROL and failure to have an Operating Process, Procedure, or Plan that identifies actions to mitigate exceeding that IROL within the IROL’s Tv could directly affect the electrical state or the capability of the bulk power system. However, violation of this requirement is unlikely to lead to bulk power system instability, separation, or cascading failures. The applicable entities are always responsible for maintaining the reliability of the bulk power system regardless of the situation. This VRF emphasizes the risk to system performance that results from failure to have an Operating Process, Procedure, or Plan that identifies actions to prevent exceeding that IROL and failure to have an Operating Process, Procedure, or Plan that identifies actions to mitigate exceeding that IROL within the IROL’s Tv. Failure to have an Operating Process, Procedure, or Plan that identifies actions to prevent exceeding that IROL and failure to have an Operating Process, Procedure, or Plan that identifies actions to mitigate exceeding that IROL within the IROL’s Tv will not, by themselves, lead to instability, separation, or cascading failures. Thus, the requirement meets NERC’s criteria for a Medium VRF.
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 sub-requirements so only one VRF was assigned. The requirement utilizes Parts to identify the items to be included within the requirement. The VRF for this requirement is consistent with others in the standard with regard to relative risk; therefore, there is no conflict.
FERC VRF G3 Discussion	Guideline 3- Consistency among Reliability Standards:

**VRF and VSL Justifications – IRO-009-2, R1**

**Proposed VRF – IRO-009-2, R1**

	<p>Since the SDT revised the requirement to include a requirement that was already approved along with its associated VRF and VSL, the SDT concludes that there is consistency among existing approved Standards relative to requirements of this nature. The SDT has assigned a Medium VRF, which is consistent with the VRF that this requirement and the requirement that was combined with this requirement were previously assigned in the approved standard.</p>
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VRF and VSL Justifications – IRO-009-2, R1			
Proposed VRF – IRO-009-2, R1			
Proposed VRF	Medium		
FERC VRF G4 Discussion	<p>Failure to have an Operating Process, Procedure, or Plan that identifies actions to prevent exceeding that IROL and failure to have an Operating Process, Procedure, or Plan that identifies actions to mitigate exceeding that IROL within the IROL’s Tv could directly affect the electrical state or the capability of the bulk power system. However, violation of this requirement is unlikely to lead to bulk power system instability, separation, or cascading failures. The applicable entities are always responsible for maintaining the reliability of the bulk power system regardless of the situation. This VRF emphasizes the risk to system performance that results from failure to have an Operating Process, Procedure, or Plan that identifies actions to prevent exceeding that IROL and failure to have an Operating Process, Procedure, or Plan that identifies actions to mitigate exceeding that IROL within the IROL’s Tv. Failure to have an Operating Process, Procedure, or Plan that identifies actions to prevent exceeding that IROL and failure to have an Operating Process, Procedure, or Plan that identifies actions to mitigate exceeding that IROL within the IROL’s Tv will not, by themselves, lead to instability, separation, or cascading failures. Thus, the requirement meets NERC’s criteria for a Medium VRF.</p>		
FERC VRF G5 Discussion	<p>Guideline 5- Treatment of Requirements that Co-mingle More than One Obligation: This requirement establishes a single risk-level, and the assigned VRF is consistent with that risk level.</p>		
Proposed VSL – IRO-009-2, R1			
Lower	Moderate	High	Severe
			<p>An IROL in its Reliability Coordinator Area was identified one or more days in advance and the Reliability Coordinator does not have an Operating Process, Procedure, or Plan that identifies actions to</p>

			<p>prevent exceeding that IROL (Part 1.1).</p> <p style="text-align: center;">OR</p> <p>An IROL in its Reliability Coordinator Area was identified one or more days in advance and the Reliability Coordinator does not have an Operating Process, Procedure, or Plan that identifies actions to mitigate exceeding that IROL within the IROL's Tv. (Part 1.2)</p>
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VRF and VSL Justifications – IRO-009-2, R1	
Proposed VSL – IRO-009-2, R1	
FERC VSL G3 VSL Assignment Should Be Consistent with the Corresponding Requirement	The proposed VSL uses similar terminology to that used in the associated requirement, and is therefore consistent with the requirement.
FERC VSL G4 VSL Assignment Should Be Based on A Single Violation, Not on A Cumulative Number of Violations	The VSL is based on a single violation and not cumulative violations.

VRF and VSL Justifications – IRO-009-2, R2			
Proposed VSL – IRO-009-2, R2			
Lower	Moderate	High	Severe
			No Operating Processes, Procedures, or Plans were initiated that were intended to prevent a predicted IROL exceedance as identified in the Reliability Coordinator’s Real-time monitoring or Real-time Assessment.
FERC VSL G3 VSL Assignment Should Be Consistent with the Corresponding Requirement	The proposed VSL uses similar terminology to that used in the associated requirement, and is therefore consistent with the requirement.		
FERC VSL G4 VSL Assignment Should Be Based on A Single Violation, Not on A Cumulative Number of Violations	The VSL is based on a single violation and not cumulative violations.		

VRF and VSL Justifications – IRO-009-2, R3			
Proposed VSL – IRO-009-2, R3			
Lower	Moderate	High	Severe
			Actual system conditions showed that there was an IROL exceedance

VRF and VSL Justifications – IRO-009-2, R3			
Proposed VSL – IRO-009-2, R3			
			in its Reliability Coordinator Area, and that the IROL exceedance was not mitigated within the IROL’s Tv.
FERC VSL G3 VSL Assignment Should Be Consistent with the Corresponding Requirement	The proposed VSL uses similar terminology to that used in the associated requirement, and is therefore consistent with the requirement.		
FERC VSL G4 VSL Assignment Should Be Based on A Single Violation, Not on A Cumulative Number of Violations	The VSL is based on a single violation and not cumulative violations.		

VRF and VSL Justifications – IRO-009-2, R4			
Proposed VSL – IRO-009-2, R4			
Lower	Moderate	High	Severe
			The most limiting IROL or its Tv was not operated to between Reliability Coordinators that are responsible for the Facility (or group of Facilities) associated with the IROL.
FERC VSL G3	The proposed VSL uses similar terminology to that used in the associated requirement, and is therefore consistent with the requirement.		

**VRF and VSL Justifications – IRO-009-2, R4**

**Proposed VSL – IRO-009-2, R4**

<p>VSL Assignment Should Be Consistent with the Corresponding Requirement</p>	
<p>FERC VSL G4 VSL 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>