

Exhibit A

Proposed Reliability Standard

Proposed Reliability Standard IRO-009-2

A. Introduction

1. **Title:** Reliability Coordinator Actions to Operate Within IROLs
2. **Number:** IRO-009-2
3. **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).
4. **Applicability:**
 - 4.1. **Functional Entities:**
 - 4.1.1. Reliability Coordinator.
5. **Effective Date:** See the Implementation Plan for IRO-009-2.

B. Requirements and Measures

- R1. For each IROL (in its Reliability Coordinator Area) that the Reliability Coordinator identifies one or more days prior to the current day, the Reliability Coordinator shall have one or more Operating Processes, Procedures, or Plans that identify actions the Reliability Coordinator shall take or actions the Reliability Coordinator shall direct others to take (up to and including load shedding): *[Violation Risk Factor: Medium]* *[Time Horizon: Operations Planning or Same Day Operations]*
 - 1.1. That can be implemented in time to prevent the identified IROL exceedance.
 - 1.2. To mitigate the magnitude and duration of an IROL exceedance such that the IROL exceedance is relieved within the IROL's T_v .
- M1. Each Reliability Coordinator shall have, and make available upon request, evidence to confirm that it has Operating Processes, Procedures, or Plans to address both preventing and mitigating the magnitude and duration of IROL exceedances in accordance with Requirement R1. This evidence shall include a list of any IROLs (and each associated T_v) identified in advance, along with one or more dated Operating Processes, Procedures, or Plans that will be used.
- R2. Each Reliability Coordinator shall initiate one or more Operating Processes, Procedures, or Plans (not limited to the Operating Processes, Procedures, or Plans developed for Requirement R1) that are intended to prevent an IROL exceedance, as identified in the Reliability Coordinator's Real-time monitoring or Real-time Assessment. *[Violation Risk Factor: High]* *[Time Horizon: Real-time Operations]*
- M2. Each Reliability Coordinator shall have, and make available upon request, evidence to confirm that it initiated one or more Operating Processes, Procedures or Plans (not limited to the Operating Processes, Procedures, or Plans developed for Requirements R1) in accordance with Requirement R2. This evidence could include, but is not

limited to, Operating Processes, Procedures, or Plans from Requirement R1, dated operating logs, dated voice recordings, dated transcripts of voice recordings, or other evidence.

- R3.** Each Reliability Coordinator shall act or direct others to act so that the magnitude and duration of an IROL exceedance is mitigated within the IROL's T_v , as identified in the Reliability Coordinator's Real-time monitoring or Real-time Assessment. *[Violation Risk Factor: High] [Time Horizon: Real-time Operations]*
- M3.** Each Reliability Coordinator shall have, and make available upon request, evidence to confirm that it acted or directed others to act in accordance with Requirement R3. This evidence could include, but is not limited to, Operating Processes, Procedures, or Plans, dated operating logs, dated voice recordings, dated transcripts of voice recordings, or other evidence.
- R4.** Each Reliability Coordinator shall operate to the most limiting IROL and T_v in instances where there is a difference in an IROL or its T_v between Reliability Coordinators that are responsible for that Facility (or group of Facilities). *[Violation Risk Factor: High] [Time Horizon: Real-time Operations]*
- M4.** Each Reliability Coordinator shall have, and make available upon request, evidence to confirm that it operated to the most limiting IROL and T_v in instances where there was a difference in an IROL or its T_v . Such evidence could include, but is not limited to, dated computer printouts, dated operator logs, dated voice recordings, dated transcripts of voice recordings, or other equivalent evidence in accordance with Requirement R4.

C. Compliance

1. Compliance Monitoring Process

1.1. Compliance Enforcement Authority:

“Compliance Enforcement Authority” means NERC or the Regional Entity, or any entity as otherwise designated by an Applicable Governmental Authority, in their respective roles of monitoring and/or enforcing compliance with mandatory and enforceable Reliability Standards in their respective jurisdictions.

1.2. Evidence Retention:

The following evidence retention period(s) identify the period of time an entity is required to retain specific evidence to demonstrate compliance. For instances where the evidence retention period specified below is shorter than the time since the last audit, the Compliance Enforcement Authority may ask an entity to provide other evidence to show that it was compliant for the full-time period since the last audit.

The applicable entity shall keep data or evidence to show compliance as identified below unless directed by its Compliance Enforcement Authority to retain specific evidence for a longer period of time as part of an investigation.

The Reliability Coordinator shall retain evidence of Requirement R1; Requirement R2; Requirement R3; and Requirement R4 for a rolling 12 months.

The Compliance Enforcement Authority shall keep the last audit records and all requested and submitted subsequent audit records, and any reported IROL violations submitted since the last audit.

1.3. Compliance Monitoring and Enforcement Program

As defined in the NERC Rules of Procedure, “Compliance Monitoring and Enforcement Program” refers to the identification of the processes that will be used to evaluate data or information for the purpose of assessing performance or outcomes with the associated Reliability Standard.

1.4. Additional Compliance Information

None.

Violation Severity Levels

R #	Violation Severity Levels			
	Lower VSL	Moderate VSL	High VSL	Severe VSL
R1.				<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 prevent that IROL exceedance (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 that IROL exceedance within the IROL’s T_v. (Part 1.2).</p>
R2.				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.
R3.				Actual system conditions showed that there was an IROL exceedance in its Reliability Coordinator Area, and that the IROL exceedance was not mitigated within the IROL’s T _v .
R4.				The most limiting IROL or its T _v was not operated to between Reliability Coordinators that are responsible for the Facility (or group of Facilities) associated with the IROL.

D. Regional Variances

None.

E. Associated Documents

None.

Version History

Version	Date	Action	Change Tracking
1	October 17, 2008	Adopted by NERC Board of Trustees	
1	March 17, 2011	FERC approved IRO-009-1	
2	August 13, 2015	Adopted by NERC Board of Trustees	Revised to address the recommendations of the Project 2012-09 Interconnected Reliability Operations Five-Year Review Team.

Standard Attachments

None.

Rationale

During development of this standard, text boxes were embedded within the standard to explain the rationale for various parts of the standard. Upon BOT adoption, the text from the rationale text boxes was moved to this section.

Rationale for revisions to Requirement R1: The standard drafting team (IRO SDT) revised this requirement by combining IRO-009-1 Requirements R1 and R2 to form one requirement with two subparts to make the requirements more concise, as both requirements contained similar language.

Rationale for revisions to new Requirement R2 (previously Requirement R3): The IRO SDT revised the language of this requirement to improve clarity as well as consistency with similar NERC Board of Trustees (Board) approved standards, such as, TOP standard revisions (TOP-001-3 R14); “IROL exceedance,” “Real-time monitoring,” and “Real-time Assessments.”

Rationale for Revisions to Requirement R3 (previously Requirement R4): The IRO SDT removed the term “without delay” from the requirement upon determining that the point of time at which the requirement is triggered is inherent in the requirement itself. The IRO SDT also revised the language of this requirement to improve clarity as well as consistency with similar Board approved standards, such as, TOP standard revisions (TOP-001-3 R14); “IROL exceedance,” “Real-time monitoring,” and “Real-time Assessments.”

Rationale for revisions to Requirement R4 (previously Requirement R5): The IRO SDT revised the language of this requirement for clarity as well as consistency with similar Board approved standards, such as TOP standard revisions (TOP-001-3 R18). The IRO SDT retained clarifying language to limit applicability to appropriate affected RCs.

A. Introduction

1. **Title:** Reliability Coordinator Actions to Operate Within IROLs
2. **Number:** IRO-009-12
3. **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).

4. **Applicability:**

- 4.1. **Functional Entities:**

- 4.1.1. Reliability Coordinator.

- ~~5. **Proposed Effective Date:**~~

- ~~6.5. In those jurisdictions where no regulatory approval is required, See the standard shall become effective on the latter of either April 1, 2009 or the first day of the first calendar quarter, three months after BOT adoption. Implementation Plan for IRO-009-2. In those jurisdictions where regulatory approval is required, the standard shall become effective on the latter of either April 1, 2009 or the first day of the first calendar quarter, three months after applicable regulatory approval.~~

B. Requirements and Measures

- R1. For each IROL (in its Reliability Coordinator Area) that the Reliability Coordinator identifies one or more days prior to the current day, the Reliability Coordinator shall have one or more Operating Processes, Procedures, or Plans that identify actions ~~it~~the Reliability Coordinator shall take or actions ~~it~~the Reliability Coordinator shall direct others to take (up to and including load shedding) ~~that can be implemented in time to prevent exceeding those IROLs. (~~[Violation Risk Factor: Medium]~~) (~~[Time Horizon: Operations Planning or Same Day Operations]~~)~~

~~For each 1.1. That can be implemented in time to prevent the identified IROL (in its Reliability Coordinator Area) that the Reliability Coordinator identifies one or more days prior to the current day, the Reliability Coordinator shall have one or more Operating Processes, Procedures, or Plans that identify actions it shall take or actions it shall direct others to take (up to and including load shedding) to exceedance.~~

- ~~1.2. To mitigate the magnitude and duration of exceeding that an IROL exceedance such that the IROL exceedance is relieved within the IROL's T_v. (Violation Risk Factor: Medium) (Time Horizon: Operations Planning or Same Day Operations)~~

- ~~R2. When an assessment of actual or expected system conditions predicts that an IROL in its Reliability Coordinator Area will be exceeded, the Reliability Coordinator shall~~

~~implement one or more Operating Processes, Procedures or Plans (not limited to the Operating Processes, Procedures, or Plans developed for Requirements R1) to prevent exceeding that IROL. (Violation Risk Factor: High) (Time Horizon: Real-time Operations)~~

~~**R3.** When actual system conditions show that there is an instance of exceeding an IROL in its Reliability Coordinator Area, the Reliability Coordinator shall, without delay, act or direct others to act to mitigate the magnitude and duration of the instance of exceeding that IROL within the IROL's T_v . (Violation Risk Factor: High) (Time Horizon: Real-time Operations)~~

~~**R4.** If unanimity cannot be reached on the value for an IROL or its T_v , each Reliability Coordinator that monitors that Facility (or group of Facilities) shall, without delay, use the most conservative of the values (the value with the least impact on reliability) under consideration. (Violation Risk Factor: High) (Time Horizon: Real-time Operations)~~

G. Measures

M1. Each Reliability Coordinator shall have, and make available upon request, evidence to confirm that it has Operating Processes, Procedures, or Plans to address both preventing and mitigating instances the magnitude and duration of exceeding IROLs/IROL exceedances in accordance with Requirement R1 ~~and Requirement R2.~~ This evidence shall include a list of any IROLs (and each associated T_v) identified in advance, along with one or more dated Operating Processes, Procedures, or Plans that ~~that~~ will be used.

R2. Each Reliability Coordinator shall initiate one or more Operating Processes, Procedures, or Plans (not limited to the Operating Processes, Procedures, or Plans developed for Requirement R1) that are intended to prevent an IROL exceedance, as identified in the Reliability Coordinator's Real-time monitoring or Real-time Assessment. [Violation Risk Factor: High] [Time Horizon: Real-time Operations]

M2. Each Reliability Coordinator shall have, and make available upon request, evidence to confirm that it ~~acted or directed others to act~~ initiated one or more Operating Processes, Procedures or Plans (not limited to the Operating Processes, Procedures, or Plans developed for Requirements R1) in accordance with Requirement ~~R3 and Requirement R4~~ R2. This evidence could include, but is not limited to, Operating Processes, Procedures, or Plans from Requirement R1, dated operating logs, dated voice recordings, dated transcripts of voice recordings, or other evidence.

R3. For a situation where Each Reliability Coordinators disagree on Coordinator shall act or direct others to act so that the value magnitude and duration of an IROL or its exceedance is mitigated within the IROL's T_v , as identified in the Reliability Coordinator's Real-time monitoring or Real-time Assessment. [Violation Risk Factor: High] [Time Horizon: Real-time Operations]

M3. Each Reliability Coordinator shall have, and make available upon request, evidence to confirm that it ~~used~~ acted or directed others to act in accordance with Requirement

R3. This evidence could include, but is not limited to, Operating Processes, Procedures, or Plans, dated operating logs, dated voice recordings, dated transcripts of voice recordings, or other evidence.

R4. Each Reliability Coordinator shall operate to the most conservative of the values under consideration, without delay limiting IROL and T_v in instances where there is a difference in an IROL or its T_v between Reliability Coordinators that are responsible for that Facility (or group of Facilities). [Violation Risk Factor: High] [Time Horizon: Real-time Operations]

M3.M4. Each Reliability Coordinator shall have, and make available upon request, evidence to confirm that it operated to the most limiting IROL and T_v in instances where there was a difference in an IROL or its T_v . Such evidence could include, but is not limited to, dated computer printouts, dated operator logs, dated voice recordings, dated transcripts of voice recordings, or other equivalent evidence. ~~(R5)~~ in accordance with Requirement R4.

D.C. Compliance

1. Compliance Monitoring Process

1.1. Compliance Enforcement Authority:

~~For Reliability Coordinators that work for the Regional Entity, the ERO shall serve as the Compliance Enforcement Authority.~~

~~For Reliability Coordinators that do not work for the Regional Entity, the Regional Entity shall serve as the Compliance Enforcement Authority.~~

~~1.2. Compliance Monitoring Period and Reset Time Frame~~

~~Not “Compliance Enforcement Authority” means NERC or the Regional Entity, or any entity as otherwise designated by an Applicable Governmental Authority, in their respective roles of monitoring and/or enforcing compliance with mandatory and enforceable Reliability Standards in their respective jurisdictions.~~

1.2. Evidence Retention:

The following evidence retention period(s) identify the period of time an entity is required to retain specific evidence to demonstrate compliance. For instances where the evidence retention period specified below is shorter than the time since the last audit, the Compliance Enforcement Authority may ask an entity to provide other evidence to show that it was compliant for the full-time period since the last audit.

The applicable:

~~1.3. Compliance Monitoring and Enforcement Processes~~

~~Compliance Audits~~

~~Self-Certifications~~

~~Spot-Checking~~

~~Compliance Violation Investigations~~

~~Self-Reporting~~

~~Complaints~~

~~Exception Reporting~~

~~1.4. Data Retention~~

~~The Reliability Coordinator, entity shall keep data or evidence to show compliance as identified below unless directed by its Compliance Enforcement Authority to retain specific evidence for a longer period of time as part of an investigation:~~

~~The Reliability Coordinator shall retain evidence of Requirement R1, Requirement R2, and Measure M1, for a rolling 12 months.~~

~~The Reliability Coordinator shall retain evidence of; Requirement R3; and Requirement R4, Requirement R5, Measure M2, and Measure M3 for a rolling 12 months.~~

The Compliance Enforcement Authority shall keep the last audit records and all requested and submitted subsequent audit records, and all any reported IROL ~~Violation Reports~~violations submitted since the last audit.

1.3. Compliance Monitoring and Enforcement Program

As defined in the NERC Rules of Procedure, “Compliance Monitoring and Enforcement Program” refers to the identification of the processes that will be used to evaluate data or information for the purpose of assessing performance or outcomes with the associated Reliability Standard.

1.5.1.4. Additional Compliance Information

~~**Exception Reporting:** For each instance of exceeding an IROL for time greater than IROL T_v, the Reliability Coordinator shall submit an IROL Violation Report to its Compliance Enforcement Authority within 30 days of the initiation of the event.~~

None.

Violation Severity Levels

Requirement #	Lower Violation Severity Levels		Moderate	High	Severe
R1	<u>Lower VSL</u>	<u>Moderate VSL</u>	<u>High VSL</u>	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 prevent exceeding that IROL. (R1) <u>Severe VSL</u>	
<u>R2R1.</u>				<p><u>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 prevent that IROL exceedance (Part 1.1).</u></p> <p style="text-align: center;"><u>OR</u></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</p>	

				to mitigate exceeding that IROL <u>exceedance</u> within the IROL’s T _v . (R2) <u>Part 1.2</u>).
<u>R3R2.</u>				An assessment of actual or expected system conditions <u>No Operating Processes, Procedures, or Plans were initiated that were intended to prevent a predicted that an IROL exceedance as identified in the Reliability Coordinator’s Area would be exceeded, but no Operating Processes, Procedures, or Plans were implemented.</u> (R3) <u>Real-time monitoring or Real-time Assessment.</u>
<u>R4R3.</u>			Actual system conditions showed that there was an instance of exceeding an IROL in its Reliability Coordinator Area, and there was a delay of five minutes or more before acting or directing others to act to mitigate the	Actual system conditions showed that there was an instance of exceeding an <u>exceedance</u> in its Reliability Coordinator Area, and that the <u>IROL exceedance</u> was not resolved <u>mitigated</u> within the IROL’s T _v . (R4)

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			<p>magnitude and duration of the instance of exceeding that IROL, however the IROL was mitigated within the IROL T_v: (R4)</p>	
R5R4.	Not applicable.	Not applicable.	Not applicable.	<p>There was a disagreement on the value of the IROL or its T_v and the most conservative limit under consideration was not used. (R5)</p> <p><u>The most limiting IROL or its T_v was not operated to between Reliability Coordinators that are responsible for the Facility (or group of Facilities) associated with the IROL.</u></p>

~~E.D.~~ Regional Variances

None.

~~F.E.~~ Associated Documents

~~IROL Violation Report~~

None.

Version History

Version	Date	Action	Change Tracking
1	October 17, 2008	Adopted by NERC Board of Trustees	
1	March 17, 2011	Order issued by FERC approving <u>approved</u> IRO-009-1 (approval effective 5/23/11)	
12	February 28, 2014 <u>August 13, 2015</u>	Updated VRFs based on June 24, 2013 approval. <u>Adopted by NERC Board of Trustees</u>	<u>Revised to address the recommendations of the Project 2012-09 Interconnected Reliability Operations Five-Year Review Team.</u>

Standard Attachments

None.

Rationale

During development of this standard, text boxes were embedded within the standard to explain the rationale for various parts of the standard. Upon BOT adoption, the text from the rationale text boxes was moved to this section.

Rationale for revisions to Requirement R1: The standard drafting team (IRO SDT) revised this requirement by combining IRO-009-1 Requirements R1 and R2 to form one requirement with two subparts to make the requirements more concise, as both requirements contained similar language.

Rationale for revisions to new Requirement R2 (previously Requirement R3): The IRO SDT revised the language of this requirement to improve clarity as well as consistency with similar NERC Board of Trustees (Board) approved standards, such as, TOP standard revisions (TOP-001-3 R14); “IROL exceedance,” “Real-time monitoring,” and “Real-time Assessments.”

Rationale for Revisions to Requirement R3 (previously Requirement R4): The IRO SDT removed the term “without delay” from the requirement upon determining that the point of time at which the requirement is triggered is inherent in the requirement itself. The IRO SDT also revised the language of this requirement to improve clarity as well as consistency with similar Board approved standards, such as, TOP standard revisions (TOP-001-3 R14); “IROL exceedance,” “Real-time monitoring,” and “Real-time Assessments.”

Rationale for revisions to Requirement R4 (previously Requirement R5): The IRO SDT revised the language of this requirement for clarity as well as consistency with similar Board approved standards, such as TOP standard revisions (TOP-001-3 R18). The IRO SDT retained clarifying language to limit applicability to appropriate affected RCs.

EXHIBIT B

Implementation Plan

Implementation Plan for IRO-009

Implementation Plan

Project 2015-06 Interconnection Reliability Operations and Coordination IRO-009-2

Standards Involved

Approval:

- IRO-009-2 – Reliability Coordinator Actions to Operate within IROLs

Retirement:

- IRO-009-1 – Reliability Coordinator Actions to Operate within IROLs

Prerequisite Approvals

N/A

Background

Project 2015-06 Interconnection Reliability Operations and Coordination (Project) was initiated to implement the Project 2012-09 Interconnection Reliability Operations Five-Year Review Team (FYRT) recommendations to revise IRO-006-EAST-1 and IRO-009-1.

The FYRT originally reviewed IRO-003-2, IRO-004-2, IRO-005-4, IRO-006-5, IRO-006-EAST, IRO-008-1, IRO-009-1 and IRO-010-1a, and recommended revising all of these standards except for IRO-006-5, which was reaffirmed by the NERC Board of Trustees (Board). Additionally, Project 2014-03 Revisions to TOP and IRO Standards, retired IRO-003-2, IRO-004-2, IRO-005-4, IRO-008-1, and IRO-010-1a, leaving only IRO-006-EAST-1 and IRO-009-1 with outstanding recommendations for revision.

Based on the FYRT's recommendation to revise IRO-009-1 and industry comments in response to the 30-day informal comment period for the Project ending on April 15, 2015 the Project standard drafting team (SDT) recommends revising the standard as reflected in the posted documents.

General Considerations

Reliability Standard IRO-009-2 is proposed for approval to address the recommendations of the five-year review and industry comments.

Effective Date

Reliability Standard IRO-009-2 shall become effective on the first day of the first calendar quarter after the date that the standard is approved by an applicable governmental authority or as otherwise

provided for in a jurisdiction where approval by an applicable governmental authority is required for a standard to go into effect. Where approval by an applicable governmental authority is not required, the standard shall become effective the first day of the first calendar quarter after the date the standard is adopted by the NERC Board of Trustees, or as otherwise provided for in that jurisdiction.

Retirement of Existing Standards

Reliability Standard IRO-009-1 shall be retired immediately prior to the effective date of IRO-009-2 in the particular jurisdiction in which the revised standard is becoming effective.

Cross References

The Implementation Plan for IRO-009-1 is available [here](#).