

## A. Introduction

1. **Title:** Reliability Coordination — Current Day Operations
2. **Number:** IRO-005-4
3. **Purpose:** To ensure that entities are notified when an expected or actual event with Adverse Reliability Impacts is identified.
4. **Applicability:**
  - 4.1. Reliability Coordinators.
5. **Effective Date:** In those jurisdictions where regulatory approval is required, this standard shall become effective on the first day of the first calendar quarter after applicable regulatory approval. In those jurisdictions where no regulatory approval is required, this standard shall become effective on the first day of the first calendar quarter after Board of Trustees approval.

## B. Requirements

- ~~**R1.** Each Reliability Coordinator shall monitor its Reliability Coordinator Area parameters, including but not limited to the following: *[Violation Risk Factor: High]*~~
  - ~~**R1.1.** Current status of Bulk Electric System elements (transmission or generation including critical auxiliaries such as Automatic Voltage Regulators and Special Protection Systems) and system loading. *[Violation Risk Factor: High]*~~
  - ~~**R1.2.** Current pre-contingency element conditions (voltage, thermal, or stability), including any applicable mitigation plans to alleviate System Operating Limits (SOL) or Interconnection Reliability Operating Limits (IROL) violations, including the plan's viability and scope. *[Violation Risk Factor: High]*~~
  - ~~**R1.3.** Current post-contingency element conditions (voltage, thermal, or stability), including any applicable mitigation plans to alleviate SOL or IROL violations, including the plan's viability and scope. *[Violation Risk Factor: High]*~~
  - ~~**R1.4.** System real and reactive reserves (actual versus required). *[Violation Risk Factor: High]*~~
  - ~~**R1.5.** Capacity and energy adequacy conditions. *[Violation Risk Factor: High]*~~
  - ~~**R1.6.** Current Area Control Error (ACE) for all its Balancing Authorities. *[Violation Risk Factor: High]*~~
  - ~~**R1.7.** Current local or Transmission Loading Relief procedures in effect. *[Violation Risk Factor: High]*~~
  - ~~**R1.8.** Planned generation dispatches. *[Violation Risk Factor: High]*~~

- ~~**R1.9.** Planned transmission or generation outages. *[Violation Risk Factor: High]*~~
- ~~**R1.10.** Contingency events. *[Violation Risk Factor: High]*~~
- R2.** Each Reliability Coordinator shall be aware of all Interchange Transactions that wheel through, source, or sink in its Reliability Coordinator Area, and make that Interchange Transaction information available to all Reliability Coordinators in the Interconnection. *[Violation Risk Factor: High]*
- R3.** As portions of the transmission system approach or exceed SOLs or IROLs, the Reliability Coordinator shall work with its Transmission Operators and Balancing Authorities to evaluate and assess any additional Interchange Schedules that would violate those limits. If a potential or actual IROL violation cannot be avoided through proactive intervention, the Reliability Coordinator shall initiate control actions or emergency procedures to relieve the violation without delay, and no longer than 30 minutes. The Reliability Coordinator shall ensure all resources, including load shedding, are available to address a potential or actual IROL violation. *[Violation Risk Factor: High]*
- R4.** Each Reliability Coordinator shall monitor its Balancing Authorities' parameters to ensure that the required amount of operating reserves is provided and available as required to meet the Control Performance Standard (CPS) and Disturbance Control Standard (DCS) requirements. If necessary, the Reliability Coordinator shall direct the Balancing Authorities in the Reliability Coordinator Area to arrange for assistance from neighboring Balancing Authorities. The Reliability Coordinator shall issue Energy Emergency Alerts as needed and at the request of its Balancing Authorities and Load-Serving Entities. *[Violation Risk Factor: High]*
- R5.** Each Reliability Coordinator shall identify the cause of any potential or actual SOL or IROL violations. The Reliability Coordinator shall initiate the control action or emergency procedure to relieve the potential or actual IROL violation without delay, and no longer than 30 minutes. The Reliability Coordinator shall be able to utilize all resources, including load shedding, to address an IROL violation. *[Violation Risk Factor: High]*
- R6.** Each Reliability Coordinator shall ensure its Transmission Operators and Balancing Authorities are aware of Geo-Magnetic Disturbance (GMD) forecast information and assist as needed in the development of any required response plans. *[Violation Risk Factor: High]*
- R7.** The Reliability Coordinator shall disseminate information within its Reliability Coordinator Area, as required. *[Violation Risk Factor: High]*
- R8.** Each Reliability Coordinator shall monitor system frequency and its Balancing Authorities' performance and direct any necessary rebalancing to return to CPS and DCS compliance. The Transmission Operators and Balancing Authorities shall utilize all resources, including firm load shedding, as directed by its Reliability Coordinator to relieve the emergent condition. *[Violation Risk Factor: High]*

- R9.** ~~The Reliability Coordinator shall coordinate with Transmission Operators, Balancing Authorities, and Generator Operators as needed to develop and implement action plans to mitigate potential or actual SOL, IROL, CPS, or DCS violations. The Reliability Coordinator shall coordinate pending generation and transmission maintenance outages with Transmission Operators, Balancing Authorities, and Generator Operators as needed in both the real time and next day reliability analysis time frames. [Violation Risk Factor: High]~~
- R10.** ~~As necessary, the Reliability Coordinator shall assist the Balancing Authorities in its Reliability Coordinator Area in arranging for assistance from neighboring Reliability Coordinator Areas or Balancing Authorities. [Violation Risk Factor: High]~~
- R11.** ~~The Reliability Coordinator shall identify sources of large Area Control Errors that may be contributing to Frequency Error, Time Error, or Inadvertent Interchange and shall discuss corrective actions with the appropriate Balancing Authority. The Reliability Coordinator shall direct its Balancing Authority to comply with CPS and DCS. [Violation Risk Factor: High]~~
- R12.** ~~Whenever a Special Protection System that may have an inter-Balancing Authority, or inter-Transmission Operator impact (e.g., could potentially affect transmission flows resulting in a SOL or IROL violation) is armed, the Reliability Coordinators shall be aware of the impact of the operation of that Special Protection System on inter-area flows. The Transmission Operator shall immediately inform the Reliability Coordinator of the status of the Special Protection System including any degradation or potential failure to operate as expected. [Violation Risk Factor: High]~~
- R13.** ~~Each Reliability Coordinator shall ensure that all Transmission Operators, Balancing Authorities, Generator Operators, Transmission Service Providers, Load Serving Entities, and Purchasing Selling Entities operate to prevent the likelihood that a disturbance, action, or non-action in its Reliability Coordinator Area will result in a SOL or IROL violation in another area of the Interconnection. In instances where there is a difference in derived limits, the Reliability Coordinator and its Transmission Operators, Balancing Authorities, Generator Operators, Transmission Service Providers, Load Serving Entities, and Purchasing Selling Entities shall always operate the Bulk Electric System to the most limiting parameter. [Violation Risk Factor: High]~~
- R14.** ~~Each Reliability Coordinator shall make known to Transmission Service Providers within its Reliability Coordinator Area, SOLs or IROLs within its wide-area view. The Transmission Service Providers shall respect these SOLs or IROLs in accordance with filed tariffs and regional Total Transfer Calculation and Available Transfer Calculation processes. [Violation Risk Factor: High]~~
- R15.** ~~Each Reliability Coordinator that identifies an expected or actual condition with Adverse Reliability Impacts who foresees a transmission problem (such as an SOL or IROL violation, loss of reactive reserves, etc.) within its Reliability Coordinator Area shall notify issue an alert to all impacted Transmission Operators and Balancing Authorities in its Reliability Coordinator Area without delay. The receiving Reliability Coordinator shall disseminate this information to its impacted~~

~~Transmission Operators and Balancing Authorities. [Violation Risk Factor: High] [Time Horizon: Real-time Operations, Same Day Operations and Operations Planning]~~

**R16.** ~~The~~ Each Reliability Coordinator that identifies an expected or actual condition with Adverse Reliability Impacts within its Reliability Coordinator Area shall notify all impacted Transmission Operators and Balancing Authorities in its Reliability Coordinator Area when the ~~transmission~~ problem has been mitigated. [Violation Risk Factor: Medium] [Time Horizon: Real-time Operations, Same Day Operations and Operations Planning]

**R17.** ~~Each Reliability Coordinator shall confirm reliability assessment results and determine the effects within its own and adjacent Reliability Coordinator Areas. The Reliability Coordinator shall discuss options to mitigate potential or actual SOL or IROL violations and take actions as necessary to always act in the best interests of the Interconnection at all times. [Violation Risk Factor: High]~~

**R18.** ~~When an IROL or SOL is exceeded, the Reliability Coordinator shall evaluate the local and wide-area impacts, both real-time and post-contingency, and determine if the actions being taken are appropriate and sufficient to return the system to within IROL in thirty minutes. If the actions being taken are not appropriate or sufficient, the Reliability Coordinator shall direct the Transmission Operator, Balancing Authority, Generator Operator, or Load Serving Entity to return the system to within IROL or SOL. [Violation Risk Factor: High]~~

### C. Measures

**M15.** Each Reliability Coordinator shall have and provide evidence which may include, but is not limited to dated operator logs, dated and timestamped voice recordings or dated transcripts of voice recordings, electronic communications, or equivalent documentation, that will be used to determine that it notified all impacted Transmission Operators and Balancing Authorities in its Reliability Coordinator Area when it identified a real or potential condition with Adverse Reliability Impacts, within its Reliability Coordinator Area. (R15)

**M16.** Each Reliability Coordinator shall have and provide evidence which may include, but is not limited to dated operator logs, dated and timestamped voice recordings or dated transcripts of voice recordings, electronic communications, or equivalent documentation, that will be used to determine that it notified all impacted Transmission Operators and Balancing Authorities in its Reliability Coordinator Area when a real or potential condition with Adverse Reliability Impacts within its Reliability Coordinator Area had been mitigated. (R16)

Not specified.

### D. Compliance

1. Compliance Monitoring Process

1.1. Compliance Enforcement Authority

Regional Entity

1.2. Compliance Monitoring and Enforcement Processes:

Compliance Audits

Self-Certifications

Spot Checking

Compliance Violation Investigations

Self-Reporting

Complaints

1.3. Data Retention

The Reliability Coordinator, Transmission Operator, Balancing Authority, Generator Operator, Distribution Provider, Transmission Service Provider, Purchasing-Selling Entity or Load Serving 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:

- o The Reliability Coordinator shall retain its evidence for 90 days for Requirements R1 and R2 and Measures M1 and M2.
- o If a Reliability Coordinator, Transmission Operator, Balancing Authority, Generator Operator, Distribution Provider, Transmission Service Provider, Purchasing-Selling Entity or Load Serving Entity is found non-compliant, it shall keep information related to the non-compliance until found compliant.
- o The Compliance Enforcement Authority shall keep the last audit records and all requested and submitted subsequent audit records.

1.4. Additional Compliance Information

None.

**2. Violation Severity Levels**

R#	Lower VSL	Moderate VSL	High VSL	Severe VSL
R1	<p>The Reliability Coordinator who identified an expected or actual condition with Adverse Reliability Impacts within its Reliability Coordinator Area failed to issue an alert to one, but not all, impacted Transmission Operators and Balancing Authorities in its Reliability Coordinator Area.</p>	<p>The Reliability Coordinator who identified an expected or actual condition with Adverse Reliability Impacts within its Reliability Coordinator Area failed to issue an alert to two, but not all, impacted Transmission Operators and Balancing Authorities in its Reliability Coordinator Area.</p>	<p>The Reliability Coordinator who identified an expected or actual condition with Adverse Reliability Impacts within its Reliability Coordinator Area failed to issue an alert to three, but not all, impacted Transmission Operators and Balancing Authorities in its Reliability Coordinator Area.</p>	<p>The Reliability Coordinator who identified an expected or actual condition with Adverse Reliability Impacts within its Reliability Coordinator Area failed to issue an alert to more than three impacted Transmission Operators and Balancing Authorities in its Reliability Coordinator Area.</p> <p>OR</p> <p>The Reliability Coordinator who identified an expected or actual condition with Adverse Reliability Impacts within its Reliability Coordinator Area failed to issue an alert to all impacted Transmission Operators and Balancing Authorities in its Reliability Coordinator Area (in cases where there are less than three impacted entities)..</p>
R2	<p>The Reliability Coordinator failed to notify one, but not all, impacted Transmission Operators, Balancing Authorities, when the transmission problem had been mitigated.</p>	<p>The Reliability Coordinator failed to notify two, but not all, impacted Transmission Operators, Balancing Authorities, when the transmission problem had been mitigated.</p>	<p>The Reliability Coordinator failed to notify three, but not all, impacted Transmission Operators, Balancing Authorities, when the transmission problem had been mitigated.</p>	<p>The Reliability Coordinator failed to notify more than three impacted Transmission Operators, Balancing Authorities, when the transmission problem had been mitigated.</p> <p>OR</p> <p>The Reliability Coordinator failed to notify more all impacted Transmission Operators, Balancing Authorities, when the</p>

R#	Lower VSL	Moderate VSL	High VSL	Severe VSL
				transmission problem had been mitigated (in cases where there are less than three impacted entities).

**E. Regional Differences**

None identified.

**F. Associated Documents**

**Version History**

Version	Date	Action	Change Tracking
0	April 1, 2005	Effective Date	New
0	August 8, 2005	Removed “Proposed” from Effective Date	Errata
1	August 28, 2006	Added three items that were inadvertently left out to “Applicability” section: 4.5 Generator Operators. 4.6 Load-Serving Entities. 4.7 Purchasing-Selling Entities.	Errata
1	February 7, 2006	BOT Approval	Revised
1	April 4, 2007	Regulatory Approval — Effective Date	New

2	August 3, 2010	Revised under Project 2006-06	Revised
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