Policy 9 – Reliability Coordinator Procedures

Version 2

For standing committees' ballot.

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Subsections

Rewritten. Combines Policy 9 and Appendix 9D.

A. Responsibilities – Authorization
B. Responsibilities – Delegation of Tasks
C. Common Tasks for Current-Day and Next-Day Operations
D. Next-Day Operations
E. Current-Day Operations
F. Emergency Operations
G. System Restoration
H. Coordination Agreements and Data Sharing
I. Facility
J. Staffing

Introduction

This document contains the process and procedures that the NERC RELIABILITY COORDINATORS are expected to follow to ensure the operational reliability of the INTERCONNECTIONS. These include:

- Planning for next-day operations, including reliability analyses (such as pre- and post-CONTINGENCY thermal monitoring, system reserves, area reserves, reactive reserves, voltage limits, stability, etc.) and identifying special operating procedures that might be needed,
- Analyzing current day operating conditions, and
- Implementing procedures (local, INTERCONNECTION-wide, or other) to mitigate SYSTEM OPERATING LIMIT (SOL) and INTERCONNECTION RELIABILITY OPERATING LIMIT (IROL) violations on the transmission system. Regardless of the process, the RELIABILITY COORDINATOR shall ensure its CONTROL AREAS return their transmission system to within INTERCONNECTED RELIABILITY OPERATING LIMITS without delay, and no longer than 30 minutes[1]

Need to state this clearly. Repeated several times.

RELIABILITY COORDINATORS shall have the capability to monitor their responsibilities with a WIDE AREA view perspective and calculate INTERCONNECTED RELIABILITY OPERATING LIMITS. WIDE AREA is described as the ability to monitor the complete RELIABILITY COORDINATOR AREA and may include critical flow and status information from adjacent RELIABILITY COORDINATOR AREAS as determined by detailed system studies. With this in mind it is likely that RELIABILITY COORDINATORS will discover IROL violations not normally seen by its TRANSMISSION OPERATING ENTITIES.

Important concepts: The Reliability Coordinator must have a "wide area" view, and may reveal IROL violations that the "local" control area or transmission operator would not realize.

[1] The 30-minute time period is not intended as a grace period for operating one CONTINGENCY away from instability, uncontrolled separation, or cascading outages. Some operating limit violations require mitigation much sooner.

Terms

RELIABILITY COORDINATOR. The entity that is the highest level of authority who is responsible for the reliable operation of the BULK ELECTRIC SYSTEM, has the WIDE AREA view of the BULK ELECTRIC SYSTEM and has the operating tools, processes and procedures, including the authority to prevent or mitigate emergency operating situations in both next day analysis and real time operations.

OPERATING AUTHORITY. An entity that:

1. Has ultimate accountability for a defined portion of the BULK ELECTRIC SYSTEM to meet one or more of three reliability objectives — generation/demand balance, transmission reliability, and/or emergency preparedness, and

2. Is accountable to NERC and its Regional Reliability Councils for complying with NERC and Regional Policies, and

3. Has the authority to control or direct the operation of generating resources, transmission facilities, or loads, to meet these Policies.

OPERATING AUTHORITIES include such entities as CONTROL AREAS, generation operators and TRANSMISSION OPERATING ENTITIES; they do not include RELIABILITY COORDINATORS.

RELIABILITY COORDINATOR AREA. That portion of the Bulk Electric System under the purview of the Reliability Coordinator.

OPERATING AUTHORITY AREA. That portion of the Bulk Electric System under the purview of the Operating Authority that is contained within a Reliability coordinator area.

BURDEN. Operation of the Bulk Electric System that violates or is expected to violate a SOL or IROL in the Interconnection or that violates any other NERC, Regional, or local operating reliability policies or standards.

WIDE AREA. The entire Reliability Coordinator Area as well as the critical flow and status information from adjacent Reliability Coordinator Areas as determined by detailed system studies to allow the calculation of Interconnected Reliability Operating Limits.

CONTINGENCY. The unexpected failure or outage of a system component, such as a generator, transmission line, circuit breaker, switch or other electrical element. A Contingency also may include multiple components that are related by situations leading to simultaneous component outages.

SYSTEM OPERATING LIMIT (SOL). The value (such as MW, MVar, Amperes, Frequency or Volts) that satisfies the most limiting of the prescribed operating criteria for a specified system configuration to ensure operation within acceptable reliability criteria. System Operating Limits are based upon certain operating criteria. These include, but are not limited to:

- Facility Ratings (Applicable pre- and post-CONTINGENCY equipment or facility ratings)
- Transient Stability Ratings (Applicable pre- and post-CONTINGENCY Stability Limits)
- Voltage Stability Ratings (Applicable pre- and post-CONTINGENCY Voltage Stability)
- System Voltage Limits (Applicable pre- and post-CONTINGENCY Voltage Limits)

INTERCONNECTION RELIABILITY OPERATING LIMIT (IROL). The value (such as MW, MVar, Amperes, Frequency or Volts) derived from, or a subset of the SYSTEM OPERATING LIMITS, which if exceeded, could expose a widespread area of the BULK ELECTRIC SYSTEM to instability, uncontrolled separation(s) or cascading outages.

A. Responsibilities – Authorization

Requirements

1. **RELIABILITY COORDINATOR responsibilities.** The RELIABILITY COORDINATOR is responsible for the reliable operation of its RELIABILITY COORDINATOR AREA within the BULK ELECTRIC SYSTEM in accordance with NERC, Regional and sub-Regional practices.

Requirement 1 and its subparts are essential to establishing the Reliability Coordinator's responsibilities and authorities. The RC may delegate tasks, but not responsibilities.

Expanded from Appendix 9D, Section A.

1.1. The RELIABILITY COORDINATOR is responsible for having the WIDE AREA view, the operating tools, processes and procedures, including the authority, to prevent or mitigate emergency operating situations in both next-day analysis and during real-time conditions.

1.2. The RELIABILITY COORDINATOR shall have clear decision-making authority to act and to direct actions to be taken by other OPERATING AUTHORITIES within its RELIABILITY COORDINATOR AREA to preserve the integrity and reliability of the BULK ELECTRIC SYSTEM. These actions shall be taken without delay, and no longer than 30 minutes[2]

1.3. The RELIABILITY COORDINATOR shall not delegate its responsibilities to other OPERATING AUTHORITIES or entities.

2. **Serving the interests of the RELIABILITY COORDINATOR AREA and the INTERCONNECTION.** The RELIABILITY COORDINATOR shall act in the interests of reliability for the overall RELIABILITY COORDINATOR AREA and its INTERCONNECTION before the interests of any other entity (CONTROL AREA, TRANSMISSION OPERATING ENTITY, PURCHASING-SELLING ENTITY, etc.).

From Appendix 9D, Sec A.4

3. **Compliance with RELIABILITY COORDINATOR directives.** All OPERATING AUTHORITIES shall comply with RELIABILITY COORDINATOR directives unless such actions would violate safety, equipment, or regulatory or statutory requirements. Under these circumstances the OPERATING AUTHORITY must immediately inform the RELIABILITY COORDINATOR of the inability to perform the directive so that the RELIABILITY COORDINATOR may implement alternate remedial actions.

4. **Reliability Plan approval.** The NERC Operating Committee must approve the RELIABILITY COORDINATOR or Regional Reliability Plan.

[2] The 30-minute time period is not intended as a grace period for operating one CONTINGENCY away from instability, uncontrolled separation, or cascading outages. Some operating limit violations require mitigation much sooner.

B. Responsibilities – Delegation of Tasks

Provides clarity on how tasks may be delegated.

Requirements

1. **Delegating tasks.** The RELIABILITY COORDINATOR may delegate tasks to other OPERATING AUTHORITIES and entities, but this delegation must be accompanied by formal operating agreements. The RELIABILITY COORDINATOR shall ensure that all delegated tasks are understood, communicated, and addressed by all OPERATING AUTHORITIES within its RELIABILITY COORDINATOR AREA.

2. **Designating delegation**. The RELIABILITY COORDINATOR or Regional Reliability Plan must list all OPERATING AUTHORITIES and entities to which RELIABILITY COORDINATOR tasks have been delegated.

3. **Requirements for certified operators.** OPERATING AUTHORITIES and entities must ensure that these delegated tasks are carried out by NERC-certified RELIABILITY COORDINATOR operators.

4. **Auditing delegated tasks**. Entities that accept delegation of RELIABILITY COORDINATOR tasks, may have these tasks audited under the NERC RELIABILITY COORDINATOR audit program.

C. Common Tasks for Next-Day and Current-Day Operations

Requirements

1. In all time frames RELIABILITY COORDINATORS are responsible for the following:

1.1. **Assessing CONTINGENCY situations**. The RELIABILITY COORDINATOR shall coordinate operations in regards to SOLs and IROLs for real time and next day operations for its RELIABILITY COORDINATOR AREA including thermal, voltage and stability related analysis. Assessments shall be conducted, up to and including next-day, at the CONTROL AREA level with any identified potential SOL violations reported to the RELIABILITY COORDINATOR. The RELIABILITY COORDINATOR is to ensure that its WIDE AREA view is modeled to ensure coordinated operations.

1.2. **Determining IROLs.** The RELIABILITY COORDINATOR shall determine IROLs based on local, regional and interregional studies. The RELIABILITY COORDINATOR must be aware that an IROL violation can be created during multiple, normally non-critical outage conditions and, as such, the RELIABILITY COORDINATOR must be knowledgeable of events that could lead to such an occurrence. The RELIABILITY COORDINATOR is responsible for disseminating this information within its RELIABILITY COORDINATOR AREA and to neighboring RELIABILITY COORDINATORS.

1.3. **Assuring OPERATING AUTHORITIES shall not BURDEN others.** The RELIABILITY COORDINATOR shall ensure that all OPERATING AUTHORITIES will 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. Doing otherwise is considered a BURDEN that one OPERATING AUTHORITY places on another. In instances where there is a difference in derived limits, the BULK ELECTRIC SYSTEM shall always be operated by the RELIABILITY COORDINATOR and its OPERATING AUTHORITIES to the most limiting parameter.

Repeated in Policy 5, Section D.2.

1.4. **Operating under known conditions.** The RELIABILITY COORDINATORS shall ensure OPERATING AUTHORITIES always operate their OPERATING AUTHORITY AREA under known and studied conditions and also ensure they reassess and repposture their systems following CONTINGENCY events without delay, and

no longer than 30 minutes[3], regardless of the number of CONTINGENCY events that occur or the status of their monitoring, operating and analysis tools.

1.5. Total Transfer Capability or Available Transfer Capability and transmission coordination. The RELIABILITY COORDINATOR shall make known to OPERATING AUTHORITIES within its RELIABILITY COORDINATOR AREA, SOLs or IROLs within its WIDE AREA view. The OPERATING AUTHORITY shall respect these SOLs or IROLs in accordance with filed tariffs and regional TTC/ATC calculation processes.

1.6. Communications. The RELIABILITY COORDINATOR shall issue directives in a clear, concise, definitive manner. The RELIABILITY COORDINATOR shall receive a response from the person receiving the directive that repeats the information given. The RELIABILITY COORDINATOR shall acknowledge the statement as correct or repeat the original statement to resolve misunderstandings.

[3] The 30-minute time period is not intended as a grace period for operating one CONTINGENCY away from instability, uncontrolled separation, or cascading outages. Some operating limit violations require mitigation much sooner.

D. Next-Day Operations

Requirements

1. **Performing reliability analysis and system studies.** The RELIABILITY COORDINATOR shall conduct next-day reliability analyses for its RELIABILITY COORDINATOR AREA to ensure that the BULK ELECTRIC SYSTEM can be operated reliably in anticipated normal and CONTINGENCY event conditions.

From Policy 9A1.

1.1. **Contingency analysis.** The RELIABILITY COORDINATOR shall conduct CONTINGENCY analysis studies to identify potential interface and other SOL and IROL violations, including overloaded transmission lines and transformers, voltage and stability limits, etc.

1.2. **Considering parallel flows.** The RELIABILITY COORDINATOR shall pay particular attention to parallel flows to ensure one RELIABILITY COORDINATOR AREA does not place an unacceptable or undue BURDEN on an adjacent RELIABILITY COORDINATOR AREA.

2. **Sharing information.** Each OPERATING AUTHORITY in the RELIABILITY COORDINATOR AREA shall provide information required for system studies, such as critical facility status, load, generation, operating reserve projections, and known INTERCHANGE TRANSACTIONS. This information shall be available by 1200 Central Standard Time for the Eastern INTERCONNECTION, and 1200 Pacific Standard Time for the Western INTERCONNECTION.

From Policy 9A1.1.

3. **Developing action plans.** The RELIABILITY COORDINATOR shall, in conjunction with its OPERATING AUTHORITIES, develop action plans that may be required including reconfiguration of the transmission system, redispatching of generation, reduction or curtailment of INTERCHANGE TRANSACTIONS, or reducing load to return transmission loading to within acceptable SOLs or IROLs.

From Policy 9A4.

4. **Sharing study results**. The RELIABILITY COORDINATOR shall share the results of its system studies, when conditions warrant or upon request, with other RELIABILITY COORDINATORS, and OPERATING AUTHORITIES within its RELIABILITY COORDINATION AREA. Study results shall be available no later than 1500 Central Standard Time for the Eastern INTERCONNECTION, and 1500 Pacific Standard Time for the Western INTERCONNECTION, unless circumstances warrant otherwise.

From Policy 9A2.

5. **Communication of results of next-day reliability analyses.** Whenever conditions warrant, the RELIABILITY COORDINATOR shall initiate a conference call or other appropriate communications to address the results of its reliability analyses.

From Policy 9A3.

6. **Alerts.** If the results of these studies indicate potential SOL or IROL violations, the RELIABILITY COORDINATORS shall issue the appropriate

alerts via the Reliability Coordinator Information System (RCIS) and direct their OPERATING AUTHORITIES to take any necessary action the RELIABILITY COORDINATOR deems appropriate to address the potential SOL or IROL violation.

7. **Operating Authority Response**. OPERATING AUTHORITIES shall comply with the directives of its RELIABILITY COORDINATOR based on the next day assessments in the same manner in which the OPERATING AUTHORITY would comply during real time operating events.

Explains relationship between Reliability Coordinator and Operating Authority.

E. Current-Day Operations

Requirements

1. Monitoring and Coordination

1.1. **WIDE AREA view.** The RELIABILITY COORDINATOR shall monitor all BULK ELECTRIC SYSTEM facilities within its RELIABILITY COORDINATOR AREA and adjacent RELIABILITY COORDINATOR AREAS as necessary to ensure that, at any time, regardless of prior planned or unplanned events, the RELIABILITY COORDINATOR is able to determine any potential SOL and IROL violations within its RELIABILITY COORDINATOR AREA. This responsibility may require RELIABILITY COORDINATORS to receive sub-transmission information not normally monitored by their Energy Management System to assist in IROL determination.

1.1.1. **WIDE AREA view – coordination.** When a neighboring RELIABILITY COORDINATOR is aware of an external operational concern, such as declining voltages, excessive reactive flows, or an IROL violation, the neighboring RELIABILITY COORDINATOR shall contact the RELIABILITY COORDINATOR in whose RELIABILITY COORDINATOR AREA the operational concern was observed. They shall coordinate any actions, including emergency assistance, required by the RELIABILITY COORDINATOR in mitigating the operational concern.

1.2. **Facility status.** The RELIABILITY COORDINATOR must know the status of all current critical facilities whose failure, degradation or disconnection could result in an SOL or IROL violation. RELIABILITY COORDINATORS must also know the status of any facilities that may be required to assist area restoration objectives.

1.3. **Situational awareness.** The RELIABILITY COORDINATOR shall be continuously aware of conditions within its RELIABILITY COORDINATOR AREA and include this information in its reliability assessments. To accomplish this objective the RELIABILITY COORDINATOR shall monitor its RELIABILITY COORDINATOR AREA parameters, including but not limited to the following:

1.3.1. 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

1.3.2. Current pre-CONTINGENCY element conditions (voltage, thermal, or stability), including any applicable mitigation

plans to alleviate an SOL or IROL violation including the plan's viability and scope

1.3.3. Current post- CONTINGENCY element conditions (voltage, thermal, or stability), including any applicable mitigation plans to alleviate an SOL or IROL including the plan's viability and scope

1.3.4. System real and reactive reserves (actual versus required)

1.3.5. Capacity and energy adequacy conditions

1.3.6. Current ACE for all its CONTROL AREAS

1.3.7. Current local or TLR procedures in effect

1.3.8. Planned generation dispatches

1.3.9. Planned transmission or generation outages

1.3.10. CONTINGENCY events

1.4. **BULK ELECTRIC SYSTEM monitoring**. The RELIABILITY COORDINATOR shall monitor BULK ELECTRIC SYSTEM parameters that may have significant impacts upon the RELIABILITY COORDINATOR AREA and with neighboring RELIABILITY COORDINATOR AREAS with respect to:

1.4.1. **INTERCHANGE TRANSACTION information.** The 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. (Note: This requirement is satisfied by the Interchange Distribution Calculator and E-Tag process for the Eastern INTERCONNECTION.)

From Policy 9C1

1.4.2. **Pending INTERCHANGE SCHEDULES to identify potential flow impacts.** As portions of the transmission system approach or exceed SOLS or IROLS, the RELIABILITY COORDINATOR shall work with the OPERATING AUTHORITIES to evaluate and assess any additional INTERCHANGE SCHEDULES that would violate those limits. If the potential or actual SOL or 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[4]. All resources, including load shedding shall be available to the RELIABILITY COORDINATOR in addressing a potential or actual SOL or IROL violation.

1.4.3. Availability or shortage of OPERATING RESERVES needed to maintain reliability. The RELIABILITY COORDINATOR shall monitor CONTROL AREA parameters to ensure that the required amount of OPERATING RESERVES are provided and available as required to meet NERC Control Performance Standard and Disturbance Control Standards requirements. If necessary, the RELIABILITY COORDINATOR shall direct the CONTROL AREAS in the RELIABILITY COORDINATOR AREA to arrange for assistance from neighboring areas (CONTROL AREAS, REGIONS, etc.). The RELIABILITY COORDINATOR shall issue ENERGY EMERGENCY Alerts, as needed, and at the request of LOAD SERVING ENTITIES.

From Appendix 9D, Section B.1.2

1.4.4. Actual flows versus limits. The RELIABILITY COORDINATOR shall identify the cause of the potential or actual SOL or IROL violations and initiate the control action or emergency procedure to relieve the potential or actual SOL or IROL violation without delay, and no longer than 30 minutes[5]All resources, including load shedding, shall be available to the RELIABILITY COORDINATOR in addressing a SOL or IROL violation.

From Appendix 9D, Section B.1.3

1.4.5. Time error correction and GMD notification. The RELIABILITY COORDINATOR will communicate start and end times for time error corrections to the CONTROL AREAS within its RELIABILITY AREA. The RELIABILITY COORDINATOR will ensure all CONTROL AREAS are aware of Geo-Magnetic Disturbance (GMD) forecast information and assist as needed in the development of any required response plans.

From Appendix 9D, Section B.1.4

1.4.6. RELIABILITY COORDINATOR coordination with other Regions. The RELIABILITY COORDINATOR shall participate in NERC Hotline discussions, assist in the assessment of reliability of the Regions and the overall interconnected system, and coordinate actions in anticipated or actual emergency situations. The RELIABILITY COORDINATOR will disseminate

From Appendix 9D, Section B.1.5

[4] The 30-minute time period is not intended as a grace period for operating one CONTINGENCY away from instability, uncontrolled separation, or cascading outages. Some operating limit violations require mitigation much sooner.
[5] The 30-minute time period is not intended as a grace period for operating one CONTINGENCY away from instability, uncontrolled separation, or cascading outages. Some operating limit violations require mitigation much sooner.

information within its RELIABILITY COORDINATOR AREA.

1.4.7. System frequency and resolution of significant frequency errors, deviations, and real-time trends. The RELIABILITY COORDINATOR shall monitor system frequency and its CONTROL AREAS' performance and direct any necessary rebalancing to return to CPS and DCS compliance. All resources, including firm load shedding, shall be utilized as directed by a RELIABILITY COORDINATOR to relieve the emergent condition.

From Appendix 9D, Section B.1.6

1.4.8. Sharing with other RELIABILITY COORDINATORS any information regarding potential, expected, or actual critical operating conditions that could negatively impact other RELIABILITY COORDINATOR AREAS. The RELIABILITY COORDINATOR shall coordinate with other RELIABILITY COORDINATORS and CONTROL AREAS, as needed, to develop and implement action plans to mitigate potential or actual SOL, IROL, CPS or DCS violations. This would include coordination of pending generation and transmission maintenance outages in both the real time and next day reliability analysis timeframes.

From Appendix 9D, Section B.1.7

1.4.9. Availability or shortage of Interconnected Operations Services required (in applicable RELIABILITY COORDINATOR AREAS). As necessary, the RELIABILITY COORDINATOR shall assist the CONTROL AREAS in its RELIABILITY AREA in arranging for assistance from neighboring RELIABILITY COORDINATOR AREAS or CONTROL AREAS.

From Appendix 9D, Section B.1.8

1.4.10. Individual CONTROL AREA or RELIABILITY COORDINATOR AREA ACE (in applicable RELIABILITY AREAS). The RELIABILITY COORDINATOR will identify sources of large AREA CONTROL ERRORS that may be contributing to frequency, time error, or inadvertent interchange and will discuss corrective actions with the appropriate CONTROL AREA operator. If a frequency, time error, or inadvertent problem occurs outside of the RELIABILITY COORDINATOR AREA, the RELIABILITY COORDINATOR will initiate a NERC Hotline call to discuss the frequency, time error, or inadvertent interchange with other RELIABILITY COORDINATORS. The RELIABILITY COORDINATOR shall direct its CONTROL AREAS to comply with CPS and DCS as indicated in section 1.4.7 above.

From Appendix 9D, Section B.1.9

1.4.11. Use of Special Protection Systems (in applicable RELIABILITY COORDINATOR AREAS). Whenever a Special Protection System that may have an inter-

From Appendix 9D, Section B.1.10

CONTROL AREA or inter-RELIABILITY COORDINATOR AREA 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 on inter-Area flows. The RELIABILITY COORDINATOR shall be kept informed of the status of the Special Protection System including any degradation or potential failure to operate as expected.

1.5. Communication with RELIABILITY COORDINATORS of potential problems. The RELIABILITY COORDINATOR who foresees a transmission problem (such as an SOL or IROL violation, loss of reactive reserves, etc.) within its RELIABILITY COORDINATOR AREA shall issue an alert to all CONTROL AREAS and TRANSMISSION OPERATING ENTITIES in its RELIABILITY AREA, and all RELIABILITY COORDINATORS within the INTERCONNECTION via the Reliability Coordinator Information System without delay. The RELIABILITY COORDINATOR will disseminate this information to its OPERATING AUTHORITIES.

From Policy 9, Section C.2

1.6. Provide other coordination services as appropriate and as requested by the CONTROL AREAS within its RELIABILITY COORDINATOR AREA and neighboring RELIABILITY COORDINATOR AREAS. The RELIABILITY COORDINATOR shall confirm reliability assessment results and determine the effects within its own and adjacent RELIABILITY COORDINATOR AREAS. This action includes discussing options to mitigate potential or actual SOL or IROL violations and taking actions as necessary as to always act in the best interests of the INTERCONNECTION at all times.

From Appendix 9D, Section B.9.

Based on Policy 9C.

F. Emergency Operations

Requirements

1. **Mitigating SOL and IROL violations.** Regardless of the process it uses, the RELIABILITY COORDINATOR shall direct its OPERATING AUTHORITIES to return the transmission system to within the SOL or IROL as soon as possible, but no longer than 30 minutes. With this in mind, RELIABILITY COORDINATORS and their OPERATING AUTHORITIES must be aware that Transmission Loading Relief (TLR) procedures may not be able to mitigate the SOL or IROL violation in a timely fashion. Under these circumstances other actions such as reconfiguration, redispatch or load shedding may be necessary until the relief requested by the TLR process is achieved. In these instances the RELIABILITY COORDINATOR shall direct and OPERATING AUTHORITIES shall comply with the more timely requests.

2. **Implementing emergency procedures.** If the RELIABILITY COORDINATOR deems that SOL or IROL violations are imminent, the RELIABILITY COORDINATOR shall have the authority and obligation to immediately direct its OPERATING AUTHORITIES to redispatch generation, reconfigure transmission, manage INTERCHANGE TRANSACTIONS, or reduce system demand to mitigate the SOL or IROL violation until INTERCHANGE TRANSACTIONS can be reduced utilizing a transmission loading relief procedure, or other procedures, to return the system to a reliable state. The RELIABILITY COORDINATOR shall coordinate these emergency procedures with other RELIABILITY COORDINATORS as needed. [See also Policy 5, "Emergency Operations"]

3. **Implementing relief procedures.** If transmission loading progresses or is projected to violate a SOL or IROL, the RELIABILITY COORDINATOR will perform the following procedures as necessary:

3.1. **Selecting transmission loading relief procedure.** The RELIABILITY COORDINATOR experiencing a potential or actual SOL or IROL violation on the transmission system within its RELIABILITY COORDINATOR AREA shall, at its discretion, select from either a "local" (Regional, Interregional, or subregional) transmission loading relief procedure or an INTERCONNECTION-wide procedure, such as those listed in Appendix 9C1, 9C2, or 9C3

3.2. **Using local transmission loading relief procedure.** The RELIABILITY COORDINATOR may use local transmission loading relief or congestion management procedures, provided the TRANSMISSION OPERATING ENTITY experiencing the potential or actual SOL or IROL violation is a party to those procedures.

3.3. **Using a local procedure with an INTERCONNECTION-wide procedure.** A RELIABILITY COORDINATOR may implement a local transmission loading relief or congestion management

procedure simultaneously with an INTERCONNECTION-wide procedure. However, the RELIABILITY COORDINATOR is obligated to follow the curtailments as directed by the INTERCONNECTION-wide procedure. If the RELIABILITY COORDINATOR desires to use a local procedure *as a substitute* for curtailments as directed by the INTERCONNECTION-wide procedure, it may do so only if such use is approved by the NERC Operating Reliability Subcommittee and Operating Committee.

3.4. Complying with procedures. When implemented, all RELIABILITY COORDINATORS shall comply with the provisions of the INTERCONNECTION-wide procedure. This may include action by RELIABILITY COORDINATORS in other INTERCONNECTIONS to, for example, curtail an INTERCHANGE TRANSACTION that crosses an INTERCONNECTION boundary.

3.5. Complying with interchange policies. During the implementation of relief procedures, and up to the point that emergency action is necessary, RELIABILITY COORDINATORS and OPERATING AUTHORITIES shall comply with the Requirements of Policy 3, Section C, "Interchange Schedule Standards."

4. Determining causes of Interconnection frequency error. Any RELIABILITY COORDINATOR noticing an INTERCONNECTION frequency error in excess of 0.03 Hz (Eastern INTERCONNECTION) or 0.05 Hz (Western and ERCOT INTERCONNECTIONS) for more than 20 minutes shall initiate a NERC Hotline conference call, or notification via the Reliability Coordinator Information System, to determine the CONTROL AREA(S) with the energy emergency or control problem.

4.1. If a RELIABILITY COORDINATOR determines that one or more of its CONTROL AREAS is contributing to the frequency error, the RELIABILITY COORDINATOR shall direct those CONTROL AREA(S) to immediately comply with CPS and DCS requirements by using all resources available to it, including load shedding. The CONTROL AREA(S) shall comply with the RELIABILITY COORDINATOR request.

5. Authority to provide emergency assistance. The RELIABILITY COORDINATOR shall have the authority to take or direct whatever action is needed, including load shedding, to mitigate an energy emergency within its RELIABILITY COORDINATOR AREA. OPERATING AUTHORITIES shall ensure the directive of the RELIABILITY COORDINATOR is implemented. RELIABILITY COORDINATORS shall provide assistance to other RELIABILITY COORDINATORS experiencing an energy emergency in accordance with Appendix 5C, Subsection A, "Energy Emergency Alerts."

6. Communication of Energy Emergencies. The RELIABILITY COORDINATOR that is experiencing a potential or actual Energy

F. Emergency Operations Requirements

Emergency within any CONTROL AREA, RESERVE-SHARING GROUP, or LOAD-SERVING ENTITY within its RELIABILITY COORDINATOR AREA shall initiate an Energy Emergency Alert as detailed in Appendix 5C, Subsection A – "Energy Emergency Alert Levels." The RELIABILITY COORDINATOR shall also act to mitigate the emergency condition, including a request for emergency assistance if required.

G. System Restoration

Several new Requirements. There is little mention of the Reliability Coordinator's role in system restoration in existing Appendix 9D.

Requirements

1. **Operating Authority restoration plans.** The RELIABILITY COORDINATOR shall be aware of each OPERATING AUTHORITY'S restoration plan in its RELIABILITY COORDINATOR AREA in accordance with NERC and Regional requirements. During system restoration, the RELIABILITY COORDINATOR shall monitor restoration progress and coordinate any needed assistance.

2. **Reliability Coordinator restoration plan.** The RELIABILITY COORDINATOR shall have a RELIABILITY COORDINATOR AREA restoration plan that provides coordination between individual OPERATING AUTHORITY restoration plans and that ensures reliability is maintained during system restoration events.

3. **Reliability Coordinator is the primary contact.** The RELIABILITY COORDINATOR shall serve as the primary contact for disseminating information regarding restoration to neighboring RELIABILITY COORDINATORS and OPERATING AUTHORITIES not immediately involved in restoration.

4. **Re-synchronizing islands.** RELIABILITY COORDINATORS shall approve, communicate, and coordinate the re-synchronizing of major system islands or synchronizing points so as not to BURDEN adjacent OPERATING AUTHORITIES or RELIABILITY COORDINATOR AREAS.

4.1. **Reestablishing normal operations.** The RELIABILITY COORDINATOR shall take actions to restore normal operations once an operating emergency has been mitigated in accordance with its restoration plan.

H. Coordination Agreements and Data Sharing

New coordination agreements requirements.

Requirements

1. **Coordination agreements.** The RELIABILITY COORDINATOR must have clear, comprehensive coordination agreements with adjacent RELIABILITY COORDINATORS to ensure that SOL or IROL violation mitigation requiring actions in adjacent RELIABILITY COORDINATOR AREAS are coordinated.

2. **Data requirements.** The RELIABILITY COORDINATOR shall determine the data requirements to support its reliability coordination tasks and shall request such data from its OPERATING AUTHORITIES or adjacent RELIABILITY COORDINATORS, in accordance with the provisions of Policy 4, "System Coordination."

3. **Data exchange.** The RELIABILITY COORDINATOR or its OPERATING AUTHORITIES shall provide, or arrange provisions for, data exchange to other RELIABILITY COORDINATORS or OPERATING AUTHORITIES via the Interregional Security Network or RCIS network as required by NERC policy.

Sections I and J are based on Appendix 9D, Section B.5.2, and considerably expanded.

I. Facility

Requirements

1. RELIABILITY COORDINATORS shall have the facilities to perform their responsibilities, including:

1.1. Communications. RELIABILITY COORDINATORS shall have adequate communications (voice and data links) to appropriate entities within its RELIABILITY COORDINATOR AREA, which are staffed and available to act in addressing a real time emergency condition.

1.2. Timely dissemination of information. This includes multi directional capabilities between an OPERATING AUTHORITY and its RELIABILITY COORDINATOR and also from a RELIABILITY COORDINATOR to its neighboring RELIABILITY COORDINATOR(S) for both voice and data exchange as required to meet reliability needs of the INTERCONNECTION.

1.3. Monitoring capability. Detailed real-time monitoring capability of the RELIABILITY COORDINATOR AREA and sufficient monitoring capability of the surrounding RELIABILITY COORDINATOR AREAS to ensure that potential or actual SOL or IROL violations are identified. Monitoring systems shall provide information that can be easily understood and interpreted by the RELIABILITY COORDINATOR, giving particular emphasis to alarm management and awareness systems, automated data transfers, synchronized information systems, over a redundant and highly reliable infrastructure.

1.3.1. RELIABILITY COORDINATORS shall monitor BULK ELECTRIC SYSTEM elements (generators, transmission lines, busses, transformers, breakers, etc.) that could result in SOL or IROL violations within its RELIABILITY COORDINATOR AREA. This monitoring overview shall include both real and reactive power system flows, and OPERATING RESERVES, and the status of BULK ELECTRIC SYSTEM elements that are or could be critical to SOLs and IROLs and system restoration requirements within its RELIABILITY COORDINATOR AREA.

1.4. Study and analysis tools.

1.4.1. Analysis tools. The RELIABILITY COORDINATOR shall have adequate analysis tools such as State Estimation, pre- and post-CONTINGENCY analysis capabilities (thermal, stability, and voltage) and WIDE AREA overview displays.

1.4.2. Continuous monitoring of RELIABILITY COORDINATOR AREA. The RELIABILITY COORDINATOR

shall continuously monitor its RELIABILITY COORDINATOR AREA. This includes the provisions for backup facilities that shall be exercised if the main monitoring system is unavailable. Backup provisions shall ensure SOL and IROL monitoring and derivations continues if the main monitoring system is unavailable.

1.4.3. Availability of analysis capabilities. RELIABILITY COORDINATOR analysis tools shall be under the control of the RELIABILITY COORDINATOR, including approvals for planned maintenance. Procedures shall be in place to mitigate the affects of analysis tool outages.

J. Staffing

Requirements

The minimum training requirements will be moved to Policy 8 upon its next revision.

1. RELIABILITY COORDINATORS shall have adequate staff and facilities:

1.1. **Staffing and training**. The RELIABILITY COORDINATOR shall be staffed with adequately trained and NERC-Certified RELIABILITY COORDINATOR operators, 24 hours/day, seven days/week. The RELIABILITY COORDINATOR must have detailed knowledge of its RELIABILITY COORDINATOR AREA, its facilities, and associated OPERATING AUTHORITIES' processes including emergency procedures and restoration objectives. Training for RELIABILITY COORDINATOR operators shall meet or exceed a minimum of 5 days per year of training and drills using realistic simulations of system emergencies, in addition to other training required to maintain qualified operating personnel.

1.2. **Knowledge of the RELIABILITY COORDINATOR AREA**. The RELIABILITY COORDINATOR shall have a comprehensive understanding of its RELIABILITY COORDINATOR AREA and interaction with neighboring RELIABILITY COORDINATOR AREAS. Although OPERATING AUTHORITIES have the most detailed knowledge of their particular systems, the RELIABILITY COORDINATOR must have an extensive understanding of the OPERATING AUTHORITIES within its RELIABILITY COORDINATOR AREA, such as staff, operating practices and procedures, restoration priorities and objectives, outage plans, equipment capabilities and restrictions. The RELIABILITY COORDINATOR shall place particular attention on SOLs and IROLs and intertie facility limits. The RELIABILITY COORDINATOR shall ensure protocols are in place to allow the RELIABILITY COORDINATOR to have the best available information at all times.

1.3. **Standards of Conduct**. The entity responsible for the RELIABILITY COORDINATOR function shall sign and adhere to the NERC RELIABILITY COORDINATOR Standards of Conduct.

From Appendix 9, Section A.7.

Requirement for independence is already in the Standards of Conduct and will not be brought over from Appendix 9D, Section A.7.