



NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

Princeton Forrestal Village, 116-390 Village Boulevard, Princeton, New Jersey 08540-5731

Coordinate Operations Standard Drafting Team

Hyatt Rosemont

Rosemont (Chicago), IL

Thursday, October 16, 2003 — 8 a.m. to 5 p.m.

Friday, October 17, 2003 — 8 a.m. to Noon

Agenda

- 1) Welcome, introductions, review of administrative items — 8 to 8:15 a.m.
 - a. Direction/goals of meeting
 - b. Post first draft of Standard — November 1 or 15
- 2) Review and approval of August 11–12, 2003 Boston meeting minutes — 8:15 to 8:20 a.m.
- 3) Eastern Blackout discussion — 8:20 to 8:45 a.m.
 - a. Are there lessons learned that affect RA to RA coordination?
 - b. Key concept covered in Standard?
- 4) Do we have the right sections in the Standard? — 8:45 to 9:00 a.m.
 - a. Procedures for Identified Operating Scenarios
 - b. Notifications and Data Exchange
 - c. Coordination
 - d. Outages
 - e. Share Results of Operational Planning Analyses
- 5) Complete draft of Requirements and Measures
 - a. Procedures for Identified Operating Scenarios — 9 to 10 a.m.
Break 10 to 10:15 a.m.
 - b. Notifications and Data Exchange — 10:15 to 11:15 a.m.
 - c. Coordination — 11:15 a.m. to 12:15 p.m.
Lunch 12:15 to 1 p.m.
 - d. Outages — 1 to 2 p.m.
 - e. Share Results of Operational Planning Analyses — 2 to 3 p.m.
- 6) Draft Compliance Monitoring
 - a. Procedures for Identified Operating Scenarios — 3 to 3:30 p.m.
 - b. Notifications and Data Exchange — 3:30 to 4 p.m.
 - c. Coordination — 4 to 4:30 p.m.
 - d. Outages — 4:30 to 5 p.m.
 - e. Share Results of Operational Planning Analyses — 8 to 8:30 a.m.

- 7) Draft Comment Form — 8:30 to 10:30 a.m.
- 8) NAESB WEQ Business Practice Update — Steve McCoy — 10:30 to 10:45 a.m.
 - a. WEQ Subcommittees and Business Practices
 - b. CO BP Drafting Team Update
- 9) Develop Action Items and Due Dates — 10:45 to 11 a.m.

Comment Form for 1st Posting of Coordinate Operations Standard

Note – This form is to comment on version 1 of the Coordinate Operations Standard.

The latest version of this Standard (**COORD_OPERATONS_05_01**) is posted on the Standards web site at: <http://www.nerc.com/~filez/sar-approved.html>

E-mail this form between November 1 –December 15, 2003, to: sarcomm@nerc.com with “Comments” in the subject line.

If you have any questions about this Standards Draft Comment Form, please contact the Director of Standards – Tim Gallagher at 609-452-8060.

Background:

The Coordinate Operations Standard Drafting Team produced this first draft of the Coordinate Operations Standard without including all of the requirements originally identified in the associated SAR. As shown in the following table, several of the areas originally identified for inclusion in the Coordinate Operations Standard have been addressed by other SARs or Standards. To avoid a situation where there may be two requirements addressing the same performance, the Coordinate Operations Standard Drafting Team has highlighted areas where a topic has been dropped from the draft standard, and asks for industry feedback on the appropriateness of this action. The following table provides an overview.

Topics in Coordinate Operations SAR	How Topic is Addressed in Coordinate Operations Standard or Other Documents
Document the RA’s authority to assist in resolving problems that its caused to another system	The RA Certification SAR contains the following requirement that the RA’s authority be documented: Agreements. Agreements ¹ must be in place defining the responsibilities and authority of the RELIABILITY AUTHORITY with respect to all Balancing Authorities, Interchange Authorities, Transmission Operators, Transmission Service Provider and all other applicable functional entities within the reliability area and with other Reliability Authorities. Agreements shall address both normal and emergency operations.
Develop, Maintain and Share Operating Procedures <ul style="list-style-type: none"> • Operating procedures that address identified potential operating scenarios that may impact neighbor RA’s or the Interconnection shall be developed, and distributed to all entities that are expected 	This requirement is at least partially addressed elsewhere, in several different SARs and Standards, including: Operate within Interconnection Reliability Operating Limits Standard contains the following requirement: The reliability authority shall have an action plan that identifies actions it shall take or actions it shall direct others to take, to prevent or mitigate instances of exceeding its interconnection reliability operating limits. (Measures require plan to be shared.)

¹ An agreement is defined as a contract or other document delineating an arrangement that expresses assent by two or more parties to the same object. This arrangement determines a course of action to be followed by all parties involved in the situation. The key components of the agreement must identify the ability, intent, and authority of the parties. **The requirement for these agreements can be satisfied in a variety of ways, including but not limited to: contracts, designation of authority documents, policies, procedures.**

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<p>to take action or that may be impacted as a result of this procedure.</p>	<p>Prepare for and Respond to Blackout and Island Conditions</p> <p>Requirements shall be established for the development, coordination, implementation, and maintenance of an executable restoration plan to restore normal operation of the power system following blackout or island conditions. Plan requirements shall include items such as coordination among neighboring systems, black-start capability, resynchronization, transmission system restoration, load and generation restoration, etc.</p> <p>Prepare for and Respond to Abnormal or Emergency Conditions</p> <p>Requirements shall be established for the development, coordination, implementation, and maintenance of an executable operating plan to maintain safe and reliable operation of the power system given abnormal and/or emergency conditions such as the unexpected sudden outages of transmission, generation, or load facilities; capacity and energy shortages; failure of equipment such as communications facilities and control centers; etc. Plan requirements shall include items such as coordination among neighboring systems, load curtailments, notification requirements, restoration procedures, etc.</p> <p>Note: Requirements for the development of procedures that address specifically identified facility outages (e.g. loss of a specific line or transmission element) are not intended to be addressed by this standard and are expected to be covered elsewhere in standard operating procedures rather than by emergency plans.</p> <p>The RA Certification SAR includes a list of procedures that must be in place – however there is no requirement to share these procedures. The procedures include the following:</p> <ul style="list-style-type: none">Process/procedure in place to receive day-ahead hourly dispatch pattern from the Balancing Authority.Process/procedure in place to receive interchange transaction information from the Interchange Authority.Process/procedure in place for collecting transmission owners’ equipment ratings.Process/procedure and tools in place to perform real-time and contingency reliability analyses.Process/procedure and tools in place to coordinate and approve transmission outages from a reliability perspective.Process/procedure and tools in place to collect and analyze generation outages from a reliability perspective.Process/procedure in place with other Reliability Authorities to coordinate day-ahead
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	<p>analyses and to implement real-time actions.</p> <p>Process/procedure in place defining the analysis and approval process for interchange transactions into, out of, and through the reliability area.</p> <p>Process/procedure and tools in place to develop real-time operating reliability limits.</p> <p>Process/procedure in place that define the actions to be taken for maintaining reliability.</p> <p>Process/procedure and tools in place for compliance with all applicable NERC reliability standards.</p> <p>Process/procedure in place that defines the coordination and implementation of emergency operations within or on an area-wide basis.</p> <p>Process/procedure in place that defines the coordination and implementation of system restoration operations within or on an area-wide basis.</p> <p>Plan in place that ensures continued operation during abnormal and emergency conditions due to the loss of facilities.</p>
<p>Analyze Maintenance Outages (real time to 12 months ahead)</p> <ul style="list-style-type: none"> • Analyze the impact of generation outages from a reliability perspective • Analyze the impact of transmission outages from a reliability perspective 	<p>The Operate Within IROLs Standard includes the analysis of maintenance outages and generation resource availability as part of the day-ahead operational planning analysis. The definition of ‘operational planning analysis’ includes the following language:</p> <p style="padding-left: 40px;">An analysis of the expected system conditions, given the load forecast(s), and known system constraints some examples being transmission facility outages, generator outages and equipment limitations</p> <p>The Operate Within IROLs Standard requires that the RA develop a data specification to identify what data it needs to conduct real time monitoring, operational planning analyses and real-time assessments. The Operate Within IROLs Standard has a very short planning horizon – no further than a day ahead.</p> <p style="padding-left: 40px;">The reliability authority shall specify and collect the data it needs to support real-time monitoring, operational planning analyses and real-time assessments conducted relative to operating within its reliability area’s interconnection reliability operating limits. The reliability authority shall collect this data from the entities performing functions that have facilities monitored by the reliability authority, and from entities that provide facility status to the reliability authority.</p> <p>The section of the SAR does indicate a need to analyze outages, but doesn’t address sharing the results of these analyses. The exchange of data from these analyses is addressed under the Coordinate Operations requirement called, “Notifications and Data Exchange.” Note that</p>

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	<p>the Certification SAR includes a requirement that procedures be in place for the following:</p> <p>Process/procedure and tools in place to coordinate and approve transmission outages from a reliability perspective.</p> <p>Process/procedure and tools in place to collect and analyze generation outages from a reliability perspective.</p>
<p>Coordinate Reliability Analyses (Generator Resources and Transmission Facilities) (For current and next day and for its impact on other systems)</p> <ul style="list-style-type: none"> • The RA shall coordinate the development of its reliability analyses with other RAs. These analyses shall consider known generation and transmission outages. • The RA shall share the results of its system analyses, when conditions² warrant, with other RA's, and other involved entities (or upon request, subject to the FERC Code of Conduct and other Confidentiality Agreements) 	<p>The Operate Within IROLs Standard requires the RA to perform Operational Planning Analyses and Real-time Assessments but does not require that these be shared with others.</p> <p>The reliability authority shall perform operational planning analyses to assess whether the planned bulk electric system operations within the RA's reliability area will exceed any of its interconnection reliability operating limits.</p> <p>The reliability authority shall perform real-time assessments to determine if its reliability area is exceeding any interconnection reliability operating limits or is expected to exceed any interconnection reliability operating limits.</p> <p>Sharing the results of analyses is included in the Coordinate Operations Standard in the "Reliability Analyses" requirement.</p>
<p>Communicate with other impacted RAs to share information:</p> <ul style="list-style-type: none"> • The RA shall communicate with other impacted RAs whenever there is a known potential or actual condition that may adversely affect another RA's Area, such as: <ul style="list-style-type: none"> - A generator or transmission outage will impact another RA - Outages of information technology (IT) systems (telemetry, 	<p>This topic is not addressed elsewhere, and is included in the Coordinate Operations Standard in the "Notifications and Data Exchange" requirement.</p>

² The conditions referenced are those that, if left unattended, could cause instability, uncontrolled separation or cascading outages that adversely impact the reliability of the interconnected bulk transmission system.

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<p>communications, and/or control equipment or other information systems) prevent an RA from performing a reliability analysis of its RA Area or impact the ability of one RA to receive/send data or voice communications to another RA</p> <ul style="list-style-type: none"> - Results of analyses or real-time conditions indicate potential or actual reliability problems - Physical or cyber attacks have been threatened or have occurred 	
<p>Communicate with other impacted RAs to identify, agree upon, and act or direct others to act to implement solutions to prevent/resolve impending/actual operating problems such as:</p> <ul style="list-style-type: none"> • When interconnection -wide transmission reliability preservation procedures need to be implemented • When a reliability problem occurs that requires the initiation/coordination of Operating Procedures or the development of new or temporary procedures. • When interconnection frequency is exceeding interconnection frequency limits • For prioritization of transmission outages • For prioritization of IT outages 	<p>This topic is not addressed elsewhere, and is included in the Coordinate Operations Standard in the “Coordination” requirement.</p>
<p>Resolve Conflicts Between RAs</p>	<p>This topic is not addressed elsewhere, and is included in the Coordinate Operations Standard in the “Coordination” requirement.</p>

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Background

1. Do you agree with the SDT that documenting the RA's authority to assist in resolving problems that its caused to another system is addressed in the RA Certification Criteria?

- Yes
 No

Comments

2. Do you agree with the definition provided in the front of this standard for _____?

- Yes
 No

Comments

3. Do you agree with the definition provided in the front of this standard for _____?

- Yes
 No

Comments

4. Do you agree with the definition provided in the front of this standard for _____?

- Yes
 No

Comments

5. Do you agree with the definition provided in the front of this standard for _____?

- Yes
 No

Comments

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Requirement 01 - Procedures

1. Do you agree with the requirement?

Yes

No

Comments

2. Do you agree with the measures?

Yes

No

Comments

3. Do you agree with the compliance monitoring process?

Yes

No

Comments

4. Do you agree with the levels of non-compliance?

Yes

No

Comments

5. Do you feel there is a minimum list of 'operating scenarios' that should be addressed in procedures developed between RAs?

Yes

No

If yes, please list what 'operating scenarios' should be addressed.

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Requirement 02 - Notifications and Data Exchange

6. Should there be a requirement that the RA's have a process for communicating data and information to all RAs within the interconnection?

- Yes
- No

Comments

7. Should this standard include a requirement that all the RAs in an interconnection to have an agreed-to method for RAs to communicate with one another across their interconnection?

- Yes
- No

Comments

8. Do you agree with the requirement?

- Yes
- No

Comments

9. Do you agree with the measures?

- Yes
- No

Comments

10. Do you agree with the compliance monitoring process?

- Yes
- No

Comments

11. Do you agree with the levels of non-compliance?

- Yes
- No

Comments

12. Do you feel there is a minimum list of 'data' that should be addressed in procedures developed between RAs?

- Yes
- No

Comments

If yes, please list what 'data' should be addressed.

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Requirement 03 - Coordination

13. Do you agree with the requirement?

Yes

No

Comments

14. Do you agree with the measures?

Yes

No

Comments

15. Do you agree with the compliance monitoring process?

Yes

No

Comments

16. Do you agree with the levels of non-compliance?

Yes

No

Comments

17. Do you feel there is a minimum list of 'data' that should be addressed in procedures developed between RAs?

Yes

No

If yes, please list what 'data' should be addressed.

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Requirement 04 – Outages

18. Should this requirement specify when the RAs must exchange outage data (example – should the requirement state that an RA must share the data within 5 days of receipt) or should this be left up to the individual RAs to decide amongst themselves?

- The process or procedure addressed in this requirement should include a specific timing element
 The process or procedure addressed in this requirement should not be required to include a specific timing element

Comments

19. Should this requirement identify what data RAs should exchange relative to outages, or should this be left up to the individual RAs to decide amongst themselves?

- The process or procedure addressed in this requirement should include a minimum list of data to exchange relative to the outage
 The process or procedure addressed in this requirement should not be required to include a minimum list of data

Comments

20. Should this requirement include a statement that the RA notify its Compliance Monitor if data or information is not exchanged in accordance with the agreed upon process.

Yes

No

Comments

21. Do you agree with the requirement?

Yes

No

Comments

22. Do you agree with the measures?

Yes

No

Comments

23. Do you agree with the compliance monitoring process?

Yes

No

Comments

24. Do you agree with the levels of non-compliance?

Yes

No

Comments

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Requirement 05 - Reliability Analyses

25. Do you agree with the requirement?

Yes

No

Comments

26. Do you agree with the measures?

Yes

No

Comments

27. Do you agree with the compliance monitoring process?

Yes

No

Comments

28. Do you agree with the levels of non-compliance?

Yes

No

Comments

Definitions

- **(Operating) Procedures** – [These are procedures for communications and coordination between RA's. Unclear if the word "Operating" is appropriate or not].

From NERC Glossary:

Operating Procedures - A set of policies, practices, or system adjustments that may be automatically or manually implemented by the system operator within a specified time frame to maintain the operational integrity of the interconnected electric systems.

Normal (Pre-contingency) Operating Procedures – Operating procedures that are normally invoked by the system operator to alleviate potential facility overloads or other potential system problems in anticipation of a contingency.

Post-contingency Operating Procedures – Operating procedures that may be invoked by the system operator to mitigate or alleviate system problems after a contingency has occurred.

- **(Operating) Processes** – [These are processes for doing things between RA's such as data exchange. Unclear is the word "Operating" is appropriate or not].
- **Operating Scenarios** – These are operating conditions of the grid that occur in one RA area of operation that could adversely affect another RA or the Interconnection as a whole such as:
 - Emergencies
 - Abnormal conditions
 - Restoration and Separation
 - IROL mitigation
 - ??

The changes in operating parameters that occur as a result of natural or man-made interventions.

- **Adversely Impacts** – The negative impact of the operation of the grid on another RA.
- **Planned-Outage Data** – Planned and forced generation and transmission outages [The word "planned" needs to be dropped. Forced outages need to be exchanged between RA's also].

From NERC Glossary: Maintenance Outage – the removal of equipment from service availability to perform work on specific components that can be deferred beyond the end of the next weekend, but requires the equipment be removed from service before the next planned outage. Typically, a Maintenance Outage may occur anytime during the year, have a flexible start date, and may or may not have a predetermined duration.

Planned Outage – Removing the equipment from service availability for inspection and/or general overhaul of one or more major equipment groups. The outage usually is scheduled well in advance.

- **Mutually Agreeable Process** – An agreement between RA's to do something.

From RA Certification Criteria:

- 1.1. Process/procedure in place to receive day-ahead hourly dispatch pattern from the Balancing Authority.
- 1.2. Process/procedure in place to receive interchange transaction information from the Interchange Authority.
- 1.3. Process/procedure in place for collecting transmission owners' equipment ratings.
- 1.4. Process/procedure and tools in place to perform real-time and contingency reliability analyses.
- 1.5. Process/procedure and tools in place to coordinate and approve transmission outages from a reliability perspective.
- 1.6. Process/procedure and tools in place to collect and analyze generation outages from a reliability perspective.
- 1.7. Process/procedure in place with other Reliability Authorities to coordinate day-ahead analyses and to implement real-time actions.
- 1.8. Process/procedure in place defining the analysis and approval process for interchange transactions into, out of, and through the reliability area.
- 1.9. Process/procedure and tools in place to develop real-time operating reliability limits.
- 1.10. Process/procedure in place that define the actions to be taken for maintaining reliability.
- 1.11. Process/procedure and tools in place for compliance with all applicable NERC reliability

From SAR

- Develop, Maintain and Share Operating Procedures
 - Operating procedures that address identified potential operating scenarios that may impact neighbor RA's or the Interconnection shall be developed, and distributed to all entities that are expected to take action or that may be impacted as a result of this procedure.

Suggestion from Maureen:

1. The RA shall develop, share and maintain Operating Procedures that address post-contingency scenarios involving more than one reliability area.
2. The RA shall distribute each of those Operating Procedures to those RAs that are referenced in these Operating Procedures.
3. The RA shall update these Operating Procedures to conform with changes to their associated Operating Scenarios.

Procedures

Requirements

1. The RA shall distribute each of the Procedures **or Processes** required as part of a NERC Reliability Standard, including the standard for RA Certification.
 - The RA shall distribute each of those Operating Procedures and or Processes to its adjacent RA(s)
2. The RA shall update these Procedures or Processes.

We've defined operating procedures – do we need to add processes?

How often – based on what criteria?

Distribute to the RAs referenced in the procedure?

Measures

1. The RA shall have evidence that each Procedure or Process identified in Requirement 1 was distributed to adjacent RAs. (Example of Evidence: E-mail transmittal notice, a copy of a memo or other documentation).
2. The RA shall have evidence that these Procedures or Processes have been updated to conform with changes to Reliability Standards and to changes in the RA's system configuration, personnel changes, etc.

From the SAR:

- Communicate with other impacted RAs to share information:
 - The RA shall communicate with other impacted RAs whenever there is a known potential or actual condition that may adversely affect another RA's Area, such as:
 - A generator or transmission outage will impact another RA
 - Outages of information technology (IT) systems (telemetry, communications, and/or control equipment or other information systems) prevent an RA from performing a reliability analysis of its RA Area or impact the ability of one RA to receive/send data or voice communications to another RA
 - Results of analyses or real-time conditions indicate potential or actual reliability problems
 - Physical or cyber attacks have been threatened or have occurred

Notifications and Data Exchange

Process or procedure? Is this addressing the tools to use or the steps to take? All notifications or just notifications to other RAs in the interconnection?

Requirement

1. The RA shall have a documented process for making notifications.
2. The RA shall have a documented process for exchanging data between adjacent RAs that is agreed upon by involved parties. By all RA's or all RA's in the interconnection?
3. The RA shall follow its process from Requirement __ for making notifications and exchanging data.
4. Those processes not performed on a regular interval basis must be tested on a periodic basis. (Note this is not a test of the tool – it is a test of the process, using the tool.)

Measures

1. The RA shall have a documented process as described in Requirement __ that addresses items such as notifications for unusual events, real-time system status, etc.
2. The RA shall have documentation of its notifications – (operating log or other data source)
3. The RA shall have test results or shall be able to demonstrate usage of the process.

Compliance

1. The reliability authority shall demonstrate compliance through self-certification submitted to its compliance monitor annually. The compliance monitor may also use scheduled on-site reviews every three years, and investigations upon complaint, to assess performance.
2. The performance-reset period shall be one calendar year. The reliability authority shall keep documentation for rolling 12 months. The compliance monitor shall not keep audited data once the audit has been completed.
3. The reliability authority shall have the following available upon the request of its compliance monitor:
 - Agreed upon processes

- Evidence it followed the agreed upon processes
- Evidence of any tests conducted

Levels of Non-compliance

Level one: Process documented, but not followed or tested

Level two: No documented process.

Level three: Not applicable

Level four: Not applicable

From Operating policy:

Other operating information updated as soon as available

- 2.1. OPERATING SECURITY LIMITS in effect.
- 2.2. Forecast of operating reserve at peak, and time of peak for current day and next day.
- 2.3. Forecast peak demand for current day and next day.
- 2.4. Forecast changes in equipment status
- 2.5. New facilities in place
- 2.6. New or degraded special protection systems
- 2.7. Emergency operating procedures in effect
- 2.8. Severe weather, fire, or earthquake
- 2.9. Multi-site sabotage

From Operating Policy:

Reestablishing INTERCHANGE TRANSACTIONS. The RELIABILITY COORDINATOR shall coordinate with the CONTROL AREAS in his RELIABILITY AREA, and with other RELIABILITY COORDINATORS as appropriate, the reestablishment of the INTERCHANGE TRANSACTIONS that were curtailed. The reestablishment of these INTERCHANGE TRANSACTIONS and the resulting INTERCHANGE SCHEDULES shall be in compliance with **Policy 3, “Interchange.**

From Operating Policy:

Notify RELIABILITY COORDINATORS of potential problems. The RELIABILITY COORDINATOR who foresees a transmission problem within his RELIABILITY AREA shall issue an alert to all CONTROL AREAS and Transmission Providers in his RELIABILITY AREA, and all RELIABILITY COORDINATORS within the INTERCONNECTION via the RCIS without delay.

From Operating Policy:

The RELIABILITY COORDINATOR shall ensure that information on all INTERCHANGE TRANSACTIONS is available to all RELIABILITY COORDINATORS in the INTERCONNECTION.

From Operating Policy:

Notifying other systems. A system shall inform other systems in their Region or subregion, through predetermined communication paths, whenever the following situations are anticipated or arise:

- 4.1. **System is burdening others.** The system's condition is burdening other systems or reducing the reliability of the Interconnection.
- 4.2. **Insufficient resources.** The system is unable to purchase capacity to meet its load and reserve requirements on a day-ahead basis or at the start of any hour.
- 4.3. **Lack of single contingency coverage.** The system's line loadings and voltage/reactive levels are such that a single contingency could threaten the reliability of the Interconnection.
- 4.4. **Emergency actions for inability to purchase capacity.** The system anticipates 3% or greater voltage reduction or public appeals because of an inability to purchase emergency capacity.
- 4.5. **Emergency actions for other reasons.** The system has instituted 3% or greater voltage reduction, public appeals for load reduction, or load shedding for other than local problems.

Sabotage incident. The system suspects or has identified a multi-site sabotage occurrence, or single-site sabotage of a critical facility.

From SAR:

Communicate with other impacted RAs to identify, agree upon, and act or direct others to act to implement solutions to prevent/resolve impending/actual operating problems such as:

- When interconnection -wide transmission reliability preservation procedures need to be implemented
- When a reliability problem occurs that requires the initiation/coordination of Operating Procedures or the development of new or temporary procedures.
- When interconnection frequency is exceeding interconnection frequency limits
- For prioritization of transmission outages
- For prioritization of IT outages

Coordination

Requirement

1. The RA that identifies a potential, expected, or actual problem that adversely impacts the Interconnection shall contact other RAs to discuss options and decide upon a solution to prevent or resolve the identified problem.
 - If an agreed upon solution cannot be reached, each RA will take actions in its own Reliability Area to preserve Interconnection reliability up to and including re-dispatching generation and load, system reconfiguration, firm load shedding and separation from the Interconnection.
2. The RAs involved shall implement the selected action or solution. **Documentation of selected actions and solutions shall be shared with all RAs involved. (NKS)**

Measures

1. The RA shall document via operations log or other data source all coordination attempts as described in requirement 1. This documentation shall include date and time, RA contacted, description of the condition or problem, action to be taken to alleviate problem (if applicable), and other comments relevant to the condition.
2. **The RA shall maintain documentation of development of implementation plans for selected actions or solutions. Each of the involved RA shall maintain documentation showing that the actions and solutions have been jointly developed and implemented. (NKS)**

Compliance

1. The RA shall demonstrate compliance through self-certification submitted to its compliance monitor annually. The compliance monitor may also use scheduled on-site reviews every three years, and investigations upon complaint (complaints must be filed within 90 days of incident), or triggered by a system disturbance or abnormal operating condition, or to assess performance.
2. The performance-reset period shall be one calendar year. The RA shall keep operations logs, or other data sources for 12 rolling months. The compliance monitor shall not keep audited data once the audit has been completed.
3. The RA shall have the following available upon the request of its compliance monitor:

- Operations logs or other data sources with the date and time other RAs were contacted for assistance in solving a problem, description of the problem that led to the notification, actions taken or directives issued to alleviate the problem (if applicable) , and other comments relevant to the condition.

Levels of Non-compliance

May need to add to list for 2nd requirement's measure(s)

Level one

Level two

Level three

Level four

- 1) Assist with the regular testing of all telecommunications channels
 - ◆ Voice channels
 - ◆ SCADA
 - ◆ AGC channels
 - ◆ Protection channels

Special Protection Systems

1. **Coordination when new or changed.** All new protective systems and all protective system changes shall be coordinated among neighboring systems if the new or changed protective systems affect neighboring systems.
2. **Coordination.** Protection systems on major transmission lines and interconnections shall be coordinated with the interconnected systems.
3. **Notification of system changes.** Neighboring systems shall be notified in advance of changes in generating sources, transmission, load, or operating conditions, which could require changes in their protection system.
4. **Monitoring SPS.** The system operator shall monitor the status of each Special Protection System (SPS) and notify all affected systems of each change in status.

Coordination for Security Needs To coordinate plans, information, and actions to ensure the safe and secure operation of the transmission system over a wide area. Must coordinate system information

- Outages (G&T)
- Interchange
- Special Protection System settings
- Limits
- Etc.
- Must coordinate (voltage control) between Transmission Operators and Security Authorities
- Must have coordinated switching procedures (phase-shifters, dc ties, etc)
- Must coordinate transmission outage schedules
- Must perform and coordinate security analysis

From SAR:

- Analyze Maintenance Outages (real time to 12 months ahead)
 - Analyze the impact of generation outages from a reliability perspective
 - Analyze the impact of transmission outages from a reliability perspective

Suggestion from Maureen:

Requirement:

- The RA shall have a process or procedure that identifies how it shall coordinate its planned and maintenance outages with other RAs within its interconnection. This process or procedure shall be agreed upon by all involved RAs. This process or procedure shall, as a minimum, address the following:
 - Types of facilities covered by process or procedure, including generating units transmission facilities and telecommunication facilities
 - Timing of initial data exchange and notifications of changes to outage schedules
 - Process for prioritizing conflicting outages
- The RA shall analyze its planned and maintenance outages for their impact on other reliability areas.
- When the results of its analyses indicate that an outage in one RA's area will affect the reliability of interconnected operations, then this outage shall be coordinated with all of the RA's whose areas will be affected, following the mutually agreed upon process or procedure for coordinating outages between RAs.

Measures:

- The RA shall have a process or procedure that outlines how it will coordinate planned and maintenance outages with other RAs within its interconnection. There shall be evidence that the process or procedure has been agreed upon by all involved RAs. The process or procedure shall address the following:
 - Types of facilities covered by process or procedure, including generating units transmission facilities and telecommunication facilities
 - Timing of initial data exchange and notifications of changes to outage schedules
 - Process for prioritizing conflicting outages
- The RA shall have evidence that it has analyzed its planned and maintenance outages for their impact on other reliability areas.
- The RA shall have evidence that it has followed its process or procedure for coordinating outages with other RAs.

Outages

Requirement

1. The RA shall have a mutually agreeable process for sharing its planned outage data with its adjacent RAs.
2. The RA shall follow its process for sharing its planned outage data with its adjacent RAs.

Measures

1. The RA shall have a mutually agreeable documented process for sharing its planned outage data with its adjacent RAs.

Compliance

Levels of Non-compliance

outage scheduling procedures

generation re-dispatch to adjust system power flows and allow a scheduled outage to proceed
transmission switching to adjust system power flows and allow a scheduled outage to proceed

Generator and transmission outages. Scheduled generator and transmission outages that may affect the reliability of interconnected operations shall be planned and coordinated among affected systems and control areas. Special attention shall be given to results of pertinent studies.

Voltage regulation equipment. Scheduled outages of system voltage regulating equipment, such as automatic voltage regulators on generators, supplementary excitation control, synchronous condensers, shunt and series capacitors, reactors, etc., shall be coordinated as required.

Telemetry, control, and communications. Scheduled outages of telemetry and control equipment and associated communication channels shall be coordinated between the affected areas.

From SAR:

- Coordinate Reliability Analyses (Generator Resources and Transmission Facilities) (For current and next day and for its impact on other systems)
 - The RA shall coordinate the development of its reliability analyses with other RAs. These analyses shall consider known generation and transmission outages.
 - The RA shall share the results of its system analyses, when conditions¹ warrant, with other RA's, and other involved entities (or upon request, subject to the FERC Code of Conduct and other Confidentiality Agreements)

¹Reliability Analyses

Requirements: (From August Meeting)

1. When the results of operational planning analyses show that the RA's system will have an adverse impact on another RA or the Interconnection as a whole, the RA shall share the results of its analyses with impacted RA's .
2. When requested, the RA shall share the results of its operational planning analyses with an involved entity that is within the RA's reliability area, subject to the FERC Code of Conduct and other Confidentiality Agreements
3. When an RA requests the results of another RA's Operational Planning Analysis, the RA requested shall provide the information requested.

Measures: (From August Meeting)

1. The RA shall maintain a record of the current day and next day operational planning analysis. If the operational planning analysis results in a potential IROL event than the following additional information shall at a minimum be recorded.
 - A list of potential IROL events.
 - A list of RAs that were distributed the results of the operational planning analysis that which has the potential to cause an IROL event.
2. The RA shall maintain a record of requests for operational planning analysis from any functional model entity. This record shall contain at minimum the following information.
 - The name of the functional model entity that requested the operational planning analysis.
 - The date of the operational planning analysis requested.
 - Documentation on if the request was honor or denied.
 - If the request was denied documentation on why the request was denied.
3. The RA shall maintain a record of requests for operational planning analysis from other RAs. This record shall contain at a minimum the following information.
 - The name of the RA that requested the operational planning analysis.
 - The date of the operational planning analysis requested.
 - Documentation on if the request was honor or denied.
 - If the request was denied documentation on why the request was denied. (Jason)

^{1 1} The conditions referenced are those that, if left unattended, could cause instability, uncontrolled separation or cascading outages that adversely impact the reliability of the interconnected bulk transmission system.

4.0 Compliance Monitoring Process (Suggestion from GC)

- 4.1 The responsible entity shall demonstrate compliance to the compliance monitor within the first year that this standard becomes effective or the first year the entity commences operation by information submittal to the compliance monitor, either on or off site.
- 4.2 Subsequent to the initial compliance review, compliance will be:
 - 4.2.1 Self –certified at a minimum every three year except in those years which are verified by the specification in 4.2.2
 - 4.2.2 Verified by review by the compliance monitor, either on or off site, at least once every five years
 - 4.2.3 Verified at anytime as the result of a complaint from a directly affected RA.
- 4.3 The performance reset period shall be one year from the date of the violation.
- 4.4 The compliance monitor shall not keep procedures, data or evidence of compliance once the entity has been found fully compliant.

4. Compliance Monitoring Process (From IROL Standard)

- 4.1. The reliability authority shall demonstrate compliance through self-certification submitted to its compliance monitor annually. The compliance monitor may also use scheduled on-site reviews every three years, and investigations upon complaint, to assess performance.
- 4.2. The performance-reset period shall 12 months from the last violation. The reliability authority shall keep Interconnection Reliability Operating Limit Violation Reports, operations logs, or other documentation for three calendar years. The compliance monitor shall keep audited data for three calendar years.
- 4.3. The reliability authority shall have the following available upon the request of its compliance monitor: (add list of documents)