Appendix 9D – Reliability Coordinator Criteria and ~~Functions~~Tasks

Version 4, Draft 2

Functions → Tasks

Remove "proper" and "appropriate"

Appendix Subsections

A. Criteria for Reliability Coordinators
B. Tasks of Reliability Coordinators

Terms

From Terms section of Manual. Can keep here as well.

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 ~~security~~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.

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.

Wide Area. The entire RELIABILITY COORDINATOR AREA as well as that critical flow and status information from adjacent RELIABILITY COORDINATOR AREAS as determined by detailed system studies to allow the calculation of Interconnected Reliability Limits.

New def of Wide Area from our meeting. Added highlighted words.

Introduction

Reliability Coordinators shall have the capability to monitor their responsibilities with a wide area view perspective and calculate Interconnection Reliability Operating Limits. Wide area is described as the ability to monitor the complete Reliability Coordinator footprint (as listed above) and may include critical flow and status information from adjacent footprints as determined by detailed system studies. With this in mind it is likely that Reliability Coordinators will develop IROL conditions not normally seen by Transmission Operators.

A. ~~Criteria for Reliability Coordinators~~Reliability Coordinator Criteria

1. Responsibilities.

Suggest reorganizing this section. See pages 6-7 for suggested organization outline.

1.1. Reliability Coordinator responsibilities. The RELIABILITY COORDINATOR is responsible for having the wide area view, the operating tools, processes and procedures to prevent or mitigate emergency operating situations in both next-day analysis and during real-time conditions. The Reliability Coordinator shall have clear decision-making authority to act or direct others to act to preserve the integrity and reliability of the bulk electric system. **The RELIABILITY COORDINATOR may not delegate its responsibilities to other OPERATING AUTHORITIES or entities.**

1.2. Operating Authority responsibilities to the Reliability Coordinator. The Operating Authority~~, such as Control Areas, have the responsibility to implement~~is responsible for implementing the actions identified by the RELIABILITY COORDINATOR to protect the ~~Interconnection~~RELIABILITY AREA.

Copied into Policy 5 Intro

1.3. Operating Authority responsibilities for its own area. ~~Control Areas~~The OPERATING AUTHORITY ~~have the responsibility~~is responsible for operating its systems in a safe and reliable manner to ensure reliable service of their end use customers. (MOVE TO ANOTHER POLICY)

2. Delegating tasks. ~~The responsibilities of a Reliability Coordinator cannot be delegated.~~ The Reliability Coordinator may delegate tasks, as indicated in section "B," ~~may be delegated~~ to other Operating Authorities and entities, but this delegation ~~require~~ must be accompanied by formal operating agreements ~~to~~ and ensure those tasks are ~~properly~~ understood, communicated, and addressed by all Operating Authorities within the Reliability Area and not just the signatories to those agreements.

2.1. Designating delegation. The Regional Reliability Plan must ~~include~~ list all OPERATING AUTHORITIES and entities to whom RELIABILITY COORDINATOR tasks have been delegated.

2.2. Requirements for certified operators. OPERATING AUTHORITIES and ~~E~~entities must also ensure that these tasks are carried out by NERC-certified system operators.

2.3. Auditing delegated tasks. Entities that accept delegation of ~~-~~Reliability Coordinator tasks, ~~will~~ may have these tasks audited under the NERC Reliability Coordinator audit program.

3. Reliability Coordinator ~~Entity~~ Reliability Plan~~organization certification~~. The Reliability Coordinator's ~~entity organization performing the Reliability Coordinator task must~~ Reliability Plan must be approved~~certified~~ by the NERC Operating Committee. ~~, and that certification ratified by the Board of Trustees.~~

4. Wide Area View. The Reliability Coordinator shall monitor all bulk system facilities within its Reliability ~~Coordinator~~ Area and adjacent areas as necessary to ensure that, at any time, regardless of prior planned or unplanned events, the Reliability Coordinator is able to determine ~~any relevant IROL's.~~ any potential Interconnected Reliability Limits within its Reliability Area.

(This responsibility may require Reliability Coordinators to receive sub-transmission information not normally monitored by their Energy Management System to assist in IRL determination.)~~.~~

5. Determination of ~~Assessments of~~ IR~~O~~Ls.

5.1. ~~The basis for~~ The Reliability Coordinator shall determine IRLs ~~shall be based~~ on local, regional and interregional studies.

~~4.2.~~5.2. The Reliability Coordinator must be aware~~It should also be noted~~ that an IR~~O~~L can ~~become restrictive~~occur during multiple, normally non-critical outage conditions and as such, the Reliability Coordinator must ~~monitor~~ be knowledgeable of events that could lead to such an occurrence~~.~~

~~5.~~6. ~~Monitoring~~Situational Awareness. The Reliability Coordinator shall monitor its Reliability ~~Coordinator~~ Area, including the following parameters, to maintain "situational awareness," such as:

New section. List contributed by Dave McNeill.

- Current status of the Bulk Electric System within the Reliability Coordinator's Reliability Area
- Current projected post-contingency overloads (PPCO), the applicable mitigation plan for each identified PPCO, the viability and scope of each mitigation plan;
- Current projected post-contingency undervoltages (PPCU), the applicable mitigation plan for each identified PPCU, and the viability and scope of each mitigation plan;

~~•Additional PPCO's and PPCU's expected to arise within the next 4 hours;~~

- System configuration changes planned for the next 24 hours;
- All generators within the subregion operating with AVR in a mode other than automatic voltage control;
- System reserve requirements;
- Current and expected reserves for next 4 hours;
- Current ACE for CA's within the subregion;
- Current TLR's in effect for constraints within the Subregion;
- Current local procedures in effect for constraints within the Subregion;
- Developing constraints within the Subregion;
- Planned native generation outages;
- Load zone import requirements and limits;
- EEA's in effect for the Entergy subregion or neighboring control areas;
- Status and criteria of all load-shed protection schemes.

~~6.~~7. Facility status. The Reliability Coordinator must know the status of all current and next day critical facilities whose failure, degradation or disconnection could result in an Interconnection Reliability Limit violation. Reliability Coordinators must also know the status of any facilities that may be required to assist area restoration objectives.

~~7.~~8. **Authority to act**. The Reliability Coordinator must have the authority to act and to direct actions to be taken by other OPERATING AUTHORITIES within its RELIABILITY COORDINATOR AREA. These actions shall be taken within the NERC approved timelines listed in Policy 2.

~~8.~~9. **Serving the interests of Reliability Coordinator Area and Interconnection**. The RELIABILITY COORDINATOR must act in the interests of the reliability of the overall RELIABILITY ~~COORDINATOR~~ AREA and its INTERCONNECTION before any other entity (CONTROL AREA, PURCHASING-SELLING ENTITY, etc.).

~~9.~~10. **Coordination Agreements**. The RELIABILITY COORDINATOR must have clear, comprehensive coordination agreements with adjacent RELIABILITY COORDINATORS to mitigate transmission overloads or minimum voltage concerns ~~across~~ within its RELIABILITY ~~COORDINATOR~~ AREA ~~boundaries~~.

~~10.~~11. **TTC/ATC and transmission coordination**. The Reliability Coordinator must have the authority to direct OPERATING AUTHORITIES within the RELIABILITY ~~COORDINATOR~~ AREA to include known or expected transmission limitations within the RELIABILITY ~~COORDINATOR~~ AREA and other RELIABILITY COORDINATOR RELIABILITY AREAS in the determination of transfer capabilities. The ~~Src~~ Relia must direct that provision of transmission service be coordinated such that known or expected transmission limitations within its RELIABILITY ~~COORDINATOR~~ AREA and other RELIABILITY COORDINATOR RELIABILITY AREAS are respected, in accordance with filed tariffs and regional TTC/ATC calculation processes.

Should #11 be moved to Policy 6?

~~11.~~12. **Staff and facilities.** Must have adequate staff and facilities:

~~11.1.~~12.1. **Staffing and Training.** The RELIABILITY COORDINATOR must be staffed with ~~appropriately~~ adequately trained and NERC-Certified System Operators, 24 hours/day, seven days/week. The Reliability Coordinator ~~is expected to~~must have detailed knowledge of ~~their~~ its area~~s~~, ~~their~~ its facilities and associated Operating Authorities' processes including emergency procedures and restoration objectives. Minimum training for the RELIABILITY COORDINATOR~~s~~ 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. ~~**[Reference Policy 8]**~~

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

~~11.2.~~12.2. **Adequate facilities.** Must have the facilities to perform their responsibilities, including:

~~11.2.1.~~12.2.1. **Communications.** ~~Appropriate~~ Adequate communications (voice ~~&~~and data links) such as priority communication paths to appropriate ~~entities which~~entities, which are staffed and available to act in addressing a real time emergency condition.

~~11.2.2.~~12.2.2. **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).

~~11.2.3.~~12.2.3. **Monitoring**. Detailed real-time monitoring capability of the RELIABILITY ~~COORDINATOR~~ AREA and sufficient monitoring capability of the surrounding RELIABILITY ~~COORDINATOR~~ AREAS to ensure that potential

Interconnection Reliability Limits (IR~~O~~L) violations are identified. Monitoring systems shall provide information that can be easily understood and interpreted by the Reliability Coordinator, giving . ~~P~~particular emphasis ~~should be given~~ to alarm management and awareness systems, automated data transfers, synchronized information systems, over a redundant and highly reliable infrastructure.

Reliability Coordinators are expected to monitor their bulk system elements (generators, transmission lines, busses, transformers, breakers etc) that affect or could potentially affect the Interconnection. This monitoring overview shall include both real and reactive power system flows, parameters and reserves, elements that are or could be critical to IR~~O~~L's and system restoration requirements.

12.2.4. Analysis tools. The Reliability Coordinator shall have adequate ~~A~~analysis tools such as State Estimation, Pre- and Post- Contingency analysis capabilities (thermal, stability and voltage) and wide-~~-~~area overview displays.

12.2.4.1. RELIABILITY COORDINATOR analysis tools must 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.

~~**11.2.5.**~~**12.2.5. Knowledge of** RELIABILITY ~~COORDINATOR~~ AREA**.** The Reliability Coordinator shall have a comprehensive understanding of its RELIABILITY ~~COORDINATOR~~ AREA and interaction with neighboring RELIABILITY COORDINATOR RELIABILITY AREAS. Although individual entities such as Transmission and Generator Operators have the ~~expert~~ most detailed knowledge of their particular systems, ~~it is expected that~~ Reliability Coordinator~~s~~ must ~~will~~ have an extensive understanding of the Operating Authorities within its area, such as, ~~including but not limited to~~ staff, operating practices and procedures ~~philosophies~~, restoration priorities and objectives, outage plans, equipment capabilities and restrictions. The Reliability Coordinator shall place ~~P~~particular attention ~~shall be placed~~ on IR~~O~~Ls and intertie ~~facilities~~facility limits. The RELIABILITY COORDINATOR shall ensure ~~proper~~ protocols are in place to allow the RELIABILITY COORDINATOR to have the best available information at all times.

~~**11.3.**~~**12.3. 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

~~**12.Independence.** The Reliability Coordinator shall be independent of the merchant function and must not pass on information or data to any wholesale merchant function (either internal or external) that is not made available simultaneously to all such wholesale merchant functions.~~

Suggest removing Section 12. It's covered much better in the Standards of Conduct document required in Section 13.

13. Standards of Conduct. The Reliability Coordinator shall sign and adhere to the NERC Reliability Coordinator Standards of Conduct. [Found in the front section of the Operating Manual.]

Suggested Organization for Section A. May be able to combine A and B into a single section. This outline has more detail than needed for this rewrite. Sam Jones and I are considering this for the RA Plan "template."

1. Responsibilities

1.1. Responsibilities – Tasks

1.1.1. Operations Planning

1.1.1.1. Next-day studies

1.1.1.2. Generation plan review

1.1.1.3. Maintenance review (Transmission and Generation)

1.1.2. Monitoring

1.1.2.1. Wide area view

1.1.2.2. Transaction approvals

1.1.2.3. Transmission parameters

1.1.2.4. Frequency and balancing

1.1.2.5. Operating reserves (Interconnected Operations Services)

1.1.2.6. IROL calculation

1.1..2..6.1. State Estimator and Contingency Analysis

1.1..2..6.2. Nomograms

1.1.3. Emergency Operations

1.1.3.1. Directing emergency procedures

1.1.3.2. Mitigating IROL violations – using local and Interconnection procedures

1.1.4. Restoration

1.1.4.1. Restoration plan

1.1.4.2. Authority to direct restoration

1.2. Responsibilities – Authorization

1.2.1. Authority to act directly

1.2.2. Authority to direct others to act

1.3. Responsibilities – Delegation

1.3.1. To whom tasks are delegated

1.3.2. Assurance that responsibilities are not delegated

2. Coordination and Data Sharing

2.1. With adjacent Reliability Authority Areas

2.1.1. Joint operating agreements (seams management)

2.1.2. Information sharing

2.1.3. ISN and SDX

2.2. With other Reliability Authorities

2.2.1. RCIS, ~~WON,~~ et al

2.3. With other responsible entities

2.3.1. Balancing Authorities

2.3.2. Transmission Operator

2.3.3. Generator Operators

2.3.4. Transmission Service Providers

2.3.5. Interchange Authorities

3. Facilities

3.1. Communications

3.2. Study and analysis tools

3.2.1. State estimators and contingency analysis

4. Staff

4.1. Training

4.2. Certification

4.3. Code of conduct

4.4. Independence

B. Reliability Coordinator Tasks

Replace "Control Area" with "Operating Authority"?

The RELIABILITY COORDINATOR is responsible for the following tasks. Some of these tasks may be delegated to other OPERATING AUTHORITIES to perform on behalf of the RELIABILITY COORDINATOR. It should be noted that the responsibility given to the Reliability Coordinator rests with the Reliability Coordinator even if a task or a number of tasks has been delegated to another entity. Operating Authorities~~, so designated,~~ to whom the Reliability Coordinator has delegated certain tasks, must also ~~be independent of the merchant function and must~~ sign the Reliability Coordinator Standards of Conduct unless regulatory requirements specify otherwise.

1. Monitor the parameters that may have significant impacts within the RELIABILITY COORDINATOR'S RELIABILITY AREA and with neighboring RELIABILITY COORDINATOR RELIABILITY AREAS with respect to:

1.1. Pending interchange schedules to identify potential flow impacts. As constrained areas approach or exceed ~~reliability limits~~System Operating Limits or Interconnected Reliability Limits, the RELIABILITY COORDINATOR shall work with the CONTROL AREA operators to evaluate and assess any additional INTERCHANGE SCHEDULES that would have an adverse impact on the CONSTRAINT. If CONSTRAINTS cannot be avoided through proactive intervention, the RELIABILITY COORDINATOR shall initiate ~~the appropriate~~ control action or emergency procedure to relieve the constraint consistent with the NERC approved timelines in Policy 2. All resources, including load shedding shall be available to the Reliability Coordinator in addressing a reliability issue. .

1.2. Availability/shortage of operating reserves needed to maintain reliability. The RELIABILITY COORDINATOR will monitor Control Area parameters to ensure that the required amount of operating reserves are provided and available as required. 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 ~~appropriate~~needed.

1.3. Actual flows versus limits at key facilities (particularly inter-CONTROL AREA, inter-REGIONAL and inter-RELIABILITY COORDINATOR RELIABILITY AREA interfaces**)** The RELIABILITY COORDINATOR shall identify the cause of the CONSTRAINT and initiate the ~~appropriate~~ control action or emergency procedure to relieve the constraint consistent with the NERC approved timelines in Policy 2. All resources, including load shedding, shall be available to the Reliability Coordinator in addressing a reliability issue.

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

1.5. Security issues of other Regions. The RELIABILITY COORDINATOR will participate in NERC Hotline discussions, assist in the assessment of security of the Regions and the overall Interconnected system, and coordinate actions in anticipated or actual emergency situations. The RELIABILITY COORDINATOR will disseminate information within ~~his~~ its RELIABILITY ~~COORDINATOR~~ AREA.

1.6. 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 mitigate a reliability concern. All resources, including firm load shedding, shall be utilized as directed by a Reliability Coordinator to relieve the emergent condition.

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

1.8. Availability/shortage of Interconnected Operations Services required (in applicable RELIABILITY COORDINATOR RELIABILTY AREAS). As necessary, the RELIABILITY COORDINATOR shall ~~-~~assist the CONTROL AREAS in ~~his~~ its RELIABILITY ~~COORDINATOR~~ AREA in arranging for assistance from neighboring areas (CONTROL AREAS, Regions, etc.).

1.9. Individual CONTROL AREA or RELIABILITY COORDINATOR RELIABILITY AREA ACE (in applicable RELIABILITY ~~COORDINATOR~~ AREAS). The RELIABILITY COORDINATOR will identify sources of large ACE deviations that may be contributing to frequency, time error, or inadvertent problems and will discuss corrective action with the appropriate CONTROL AREA operator. If a frequency, time error, or inadvertent problem occurs outside of the RELIABILITY COORDINATOR'S RELIABILITY AREA, the RELIABILITY COORDINATOR will discuss on the NERC Hotline with other RELIABILITY COORDINATORS. Reliability Coordinators shall direct its Control Areas to rebalance their systems as indicated in section 1.6 above.

1.10. Use of Special Protection Systems (in applicable RELIABILITY COORDINATOR RELIAB ILITY AREAS). Whenever a Special Protection System that may have an inter-CONTROL AREA or inter-RELIABILITY COORDINATOR RELIABILITY AREA impact 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 SPS scheme including any degradation or potential failure to operate as expected.

1.11. Control and restoration of islanded areas. The RELIABILITY COORDINATOR will assist CONTROL AREA operators in controlling islanding. The RELIABILITY COORDINATOR will assist the CONTROL AREA operators in re-establishing normal system configuration as requested and coordinate communications as required. Reliability Coordinators shall approve, communicate and coordinate the reparalleling of major system islands or paralleling points that could potentially have an adverse impact on an adjacent entity.

2. Ensure that the RELIABILITY COORDINATOR staff adhere to the data confidentiality agreement

3. Assume the responsibility for the safe and ~~-~~reliable operation of the bulk interconnected transmission system in accordance with NERC, Regional, and sub-Regional practices.

4. Determine the data requirements to support the reliability ~~-~~coordination task and coordinate for the provision of such data.

5. Provide, or arrange provisions for, data exchange to other RELIABILITY COORDINATORS via the Interregional Security Network.

6. ~~-~~**Assess contingency situations.** The Reliability Coordinator shall ~~determine~~ identify Interconnection Reliability Operating Limits for real time and next day operations. These assessments include thermal, voltage and stability related issues. Assessments shall be made up to and including ~~in real time and for the operations planning horizon~~ next-day at the CONTROL AREA level with any identified problems reported to the RELIABILITY COORDINATOR. The RELIABILITY COORDINATOR is to ensure that CONTROL AREA, RELIABILITY ~~COORDINATOR~~ AREA, and regional boundaries are sufficiently modeled to capture problems crossing such boundaries.

7. The RELIABILITY COORDINATOR will be aware ~~ensure~~ each CONTROL AREA has a restoration plan in accordance with NERC and Regional requirements. During system restoration, the RELIABILITY COORDINATOR shall monitor restoration progress and coordinate any needed assistance. The RELIABILITY COORDINATOR will serve as the primary contact for disseminating information regarding restoration to neighboring RELIABILITY COORDINATORS and CONTROL AREAS not immediately involved in restoration. . Reliability Coordinators shall approve, communicate and coordinate the reparalleling of major system islands or paralleling points that could potentially have an adverse impact on an adjacent entity.

~~**8.**~~

~~**9.**~~**8. Provide other coordination services** as appropriate and as ~~appropriate and as~~ **requested** by the CONTROL AREAS within its RELIABILITY ~~COORDINATOR~~ AREA and neighboring RELIABILITY COORDINATORS. The RELIABILITY COORDINATOR shall confirm study results and determine the effects within its own and adjacent RELIABILITY ~~COORDINATOR~~ AREAS. This action includes discussing options to mitigate system constraints and taking actions as necessary as to always act in the best interests of the interconnections at all times