

Standard Authorization Request Form

Title of Proposed Standard	Back-up Facilities Project 2006-04
Request Date	October 26, 2006

SAR Requestor Information	SAR Type <i>(Check a box for each one that applies.)</i>
Name Reliability Standards Development Plan: 2007 – 2009 Name <u>Sam Brattini</u>	<input type="checkbox"/> New Standard
Primary Contact Richard Schneider (To be replaced by SAR-DT Chair when the SAR-DT is appointed) <u>Sam Brattini</u>	<input checked="" type="checkbox"/> Revision to existing Standard
Telephone 609-452-8060 <u>215-997-4500 x270</u> Fax <u>215-997-3818</u>	<input type="checkbox"/> Withdrawal of existing Standard
E-mail Richard.schneider@nerc.net E-mail <u>sam.brattini@us.kema.com</u>	<input type="checkbox"/> Urgent Action

<p>Purpose</p> <p>Applicable Standards: COM-001: Telecommunications EOP-008: Plans for Loss of Control Center Functionality</p> <p>The purpose of revising these standards is to:</p> <ol style="list-style-type: none"> 1. Provide an adequate level of reliability for the North American bulk power systems — the standards are complete and the requirements are set at an appropriate level to ensure reliability. 2. Ensure they are enforceable as mandatory reliability standards with financial penalties — the applicability to bulk power system owners, operators, and users, and as appropriate particular classes of facilities, is clearly defined; the purpose, requirements, and measures are results-focused and unambiguous; the consequences of violating the requirements are clear. 3. Incorporate <u>Consider</u> other general improvements <u>as</u> described in the standards development work plan (see attachments) <u>Appendix A</u>. 4. Consider stakeholder comments received during the initial development of the standards and other comments received from ERO regulatory authorities as noted in the attached review sheets. 5. Satisfy the standards procedure requirement for five-year review of the standards.
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Industry Need

As the electric reliability organization begins enforcing compliance with reliability standards under Section 215 of the Federal Power Act in the United States and applicable statutes and regulations in Canada, the industry needs a set of clear, measurable, and enforceable reliability standards. The Version 0 standards and the translation of Phase III & IV planning measures, while a good foundation, were translated from historical operating and planning policies and guides that were appropriate in an era of voluntary compliance. The Version 0 standards, Phase III & IV standards, and recent updates were put in place as a temporary starting point to start up the electric reliability organization and begin enforcement of mandatory standards. However, it is important to update the standards in a timely manner, incorporating improvements to make the standards more suitable for enforcement and to capture prior recommendations that were deferred during the Version 0 and Phase III & IV translations. The ~~two standards~~ standard in this ~~set are both~~ project is a Version 0 standard~~s~~.

Brief Description

Revise EOP-008-0 Plans for Loss of Control Center Functionality to emphasize the continuation of functionality needed by Reliability Coordinators, Balancing Authorities and Transmission Operators for reliable system operation regardless of the manner in which it is achieved.

The definition of backup capability that is pertinent to this effort is: the ability to maintain situational awareness and continue to comply with reliability standards when primary control center facilities are not operational, including consideration for communications required to explicitly support backup facilities.

Brief~~Detailed~~ Description

~~A study of the backup capabilities that are needed to support reliable operations is required as part of this project.~~

~~The requirements in EOP-008 need additional specificity.- The study conducted before this development revision to EOP-008 may include other improvements to the standard is finalized should look at the facility requirements identified in the certification standards and identify which of these are essential to reliable operations.~~

~~There are backup facility requirements in some other standards, and those requirements should be moved into this standard.~~

~~The development may include other improvements to the standards deemed appropriate by the standard drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable and technically sufficient bulk power system reliability standards. In addition, the efforts of the OC Backup Control Center Task Force will be used as one of the inputs to the revision of EOP-008. Also, there may be backup facility requirements in some other standards, and those requirements should be considered for movement into this standard.~~

~~The definition of backup capability that is pertinent to this effort is: the ability to maintain situational awareness and continue to comply with reliability standards when primary control center facilities are not operational. The objective of EOP-008 should be to emphasize the continuation of functionality needed for reliable system operation regardless of the manner in which it is achieved.~~

~~Additionally, consideration for communications required to explicitly support backup facilities will be included in the scope of this revision as applicable.~~

~~The reliability requirements for EOP-008 are such that simply checking the box in the Reliability Functions table for applicable functional model entities may not be appropriate. In some cases it may impose obligations on entities that are not truly warranted from a Bulk Power System reliability perspective (such as a small Transmission Operator that is only operating a radial transmission system), and at the other end it may not capture entities that are using control centers to perform critical Bulk Power System reliability tasks under delegation agreements.~~

~~The basic intent is to apply this standard to any entity for which the loss of its primary control capability would impose a significant real-time reliability risk to the Bulk Power System. In concept this would include:~~

- ~~• All Reliability Coordinators,~~
 - ~~• All Balancing Authorities,~~
 - ~~• All Transmission Operators, except those for which it is determined that loss of primary control capability would not impose a significant real-time reliability risk on the Bulk Power System~~
- ~~• Any entity performing reliability functions as a result of delegation of tasks from any Reliability Coordinator, Balancing Authority or Transmission Operator. An example of this situation would be a transmission control center operated by an entity that is registered as a Transmission Owner but not registered as a Transmission Operator. In order to afford the standard drafting team sufficient scope coverage to consider this delegation question, Transmission Owner is also checked as being a reliability function to which the standard will apply.~~

Standards Authorization Request Form

Note that Appendix B is an informative attachment that contains material for consideration in the standards revision process. It should not be considered to contain mandatory changes to the standard.

Standards Authorization Request Form

Reliability Functions

The Standard will Apply to the Following Functions <i>(Check box for each one that applies.)</i>		
<input checked="" type="checkbox"/>	Reliability Authority Coordinator	Ensures Responsible for the <u>real-time operating</u> reliability of the bulk transmission system within its Reliability Authority area. This is the highest Coordinator Area in coordination with its neighboring Reliability Authority Coordinator's wide area view.
<input checked="" type="checkbox"/>	Balancing Authority	Integrates resource plans ahead of time, and maintains load-interchange-resource balance within its metered boundary a <u>Balancing Authority Area</u> and supports system <u>interconnection</u> frequency in real time.
<input type="checkbox"/>	Interchange Authority Coordinator	Authorizes Ensures communication of interchange transactions for <u>reliability evaluation purposes and coordinates implementation of</u> valid and balanced Interchange Schedules interchange schedules between Balancing Authority Areas.
<input type="checkbox"/>	Planning Authority Coordinator	Plans the Bulk Electric System Assesses the longer-term reliability of its Planning Coordinator Area.
<input type="checkbox"/>	Resource Planner	Develops a long-term (>one year) plan for the resource adequacy of its specific loads within a Planning Authority Coordinator area.
<input type="checkbox"/>	Transmission Planner	Develops a long-term (>one year) plan for the reliability of transmission systems the <u>interconnected Bulk Electric System</u> within its portion of the Planning Authority Coordinator area.
<input type="checkbox"/>	Transmission Service Provider	Provides Administers the transmission tariff and provides transmission services to qualified market participants under applicable transmission service agreements <u>(e.g., the pro forma tariff)</u> .
<input checked="" type="checkbox"/>	Transmission Owner	Owns <u>and maintains</u> transmission facilities.
<input checked="" type="checkbox"/>	Transmission Operator	Operates and maintains the transmission facilities, and executes switching orders. Ensures the <u>real-time operating reliability of the transmission assets within a Transmission Operator Area.</u>
<input checked="" type="checkbox"/>	Distribution Provider	Provides and operates the "wires" between the transmission system and the customer. <u>Delivers electrical energy to the End-use customer.</u>
<input type="checkbox"/>	Generator Owner	Owns and maintains generation unit(s) facilities.
<input checked="" type="checkbox"/>	Generator Operator	Operates generation unit(s) <u>to provide real</u> and performs the functions of supplying energy and <u>Interconnected Operations Services</u> reactive power.
<input type="checkbox"/>	Purchasing-Selling Entity	The function of purchasing Purchases or selling sells energy, capacity, and all necessary <u>Interconnected Operations Services</u> <u>reliability-related services</u> as required.

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<input type="checkbox"/>	Market Operator	Integrates energy, capacity, balancing, and transmission resources to achieve an economic, reliability-constrained dispatch. <u>Interface point for reliability functions with commercial functions.</u>
<input type="checkbox"/>	Load-Serving Entity	Secures energy and transmission <u>service</u> (and related generation <u>reliability-related</u> services) to serve the end-user. <u>End-use Customer.</u>

Standards Authorization Request Form

Reliability and Market Interface Principles

Applicable Reliability Principles <i>(Check box for all that apply.)</i>	
X	1. Interconnected bulk electric systems shall be planned and operated in a coordinated manner to perform reliably under normal and abnormal conditions as defined in the NERC Standards.
<input type="checkbox"/>	2. The frequency and voltage of interconnected bulk electric systems shall be controlled within defined limits through the balancing of real and reactive power supply and demand.
<input type="checkbox"/>	3. Information necessary for the planning and operation of interconnected bulk electric systems shall be made available to those entities responsible for planning and operating the systems reliably.
<input type="checkbox"/>	4. Plans for emergency operation and system restoration of interconnected bulk electric systems shall be developed, coordinated, maintained and implemented.
X	5. Facilities for communication, monitoring and control shall be provided, used and maintained for the reliability of interconnected bulk electric systems.
<input type="checkbox"/>	6. Personnel responsible for planning and operating interconnected bulk electric systems shall be trained, qualified, and have the responsibility and authority to implement actions.
<input type="checkbox"/>	7. The security of the interconnected bulk electric systems shall be assessed, monitored and maintained on a wide area basis.
Does the proposed Standard comply with all of the following Market Interface Principles? <i>(Select 'yes' or 'no' from the drop-down box.)</i>	
1. The planning and operation of bulk electric systems shall recognize that reliability is an essential requirement of a robust North American economy. Yes	
2. An Organization Standard shall not give any market participant an unfair competitive advantage. Yes	
3. An Organization Standard shall neither mandate nor prohibit any specific market structure. Yes	
4. An Organization Standard shall not preclude market solutions to achieving compliance with that Standard. Yes	
5. An Organization Standard shall not require the public disclosure of commercially sensitive information. All market participants shall have equal opportunity to access commercially non-sensitive information that is required for compliance with reliability standards. Yes	

Reliability Standard Review Guidelines

Related Standards

Standard No.	Explanation
IRO-002	Currently contains provisions for backup facilities.

Related SARs

SAR ID	Explanation

Regional Differences

Region	Explanation
ERCOT	
FRCC	
MRO	
NPCC	
SERC	
RFC	
SPP	
WECC	

Reliability Standard Review Guidelines

Standard Review Form Project 2006-04 Back-up Facilities		
Standard #	COM-001-0	Comments
Title	Telecommunications	Okay
Purpose		Not sure that we need to include entities in Purpose.
Applicability		Not sure about inclusion of NERCNet
Requirements	Conditions	Interconnection is capitalized.
	Who?	Okay
	Shall do what?	R1.4 — should spell out applicability and extent for redundancy R2 — provide periodicity of testing R4 — cite communication protocol such as two-part communications R6 — probably doesn't belong here CESDT: R1 duplicated by COM-002-R1 R2 — 'special attention' R3 — 'provide a means' & 'ability to investigate'
	Result or Outcome	Missing
Measures		CESDT addressing but: • — 4M for 6R • — Still lacks measurability
To-Do-List	FERC NOPR ○ Include Measures and Levels of Non-Compliance; ○ Include generator operators and distribution provider as applicable entities; and ○ Include requirements for communication facilities for use during emergency situations. FERC staff report ○ Lacks adequacy, redundancy and routing requirements ○ Generation owners missing ○ Expect new standard in November VO Industry Comments ○ Redundant with Policy 5A, R1 ○ Many players missing ○ Apply R1 to all but smallest entities VRF comments ○ R6 — administrative requirement	
Misc. Items		-Compliance not specified but appears in CESDT version

Appendix A

Reliability Standard Review Guidelines

Applicability

Does this reliability standard clearly identify the functional classes of entities responsible for complying with the reliability standard, with any specific additions or exceptions noted? Where multiple functional classes are identified is there a clear line of responsibility for each requirement identifying the functional class and entity to be held accountable for compliance? Does the requirement allow overlapping responsibilities between Registered Entities possibly creating confusion for who is ultimately accountable for compliance?

Does this reliability standard identify the geographic applicability of the standard, such as the entire North American bulk power system, an interconnection, or within a regional entity area? If no geographic limitations are identified, the default is that the standard applies throughout North America.

Does this reliability standard identify any limitations on the applicability of the standard based on electric facility characteristics, such as generators with a nameplate rating of 20 MW or greater, or transmission facilities energized at 200 kV or greater or some other criteria? If no functional entity limitations are identified, the default is that the standard applies to all identified functional entities.

Purpose

Does this reliability standard have a clear statement of purpose that describes how the standard contributes to the reliability of the bulk power system? Each purpose statement should include a value statement.

Performance Requirements

Does this reliability standard state one or more performance requirements, which if achieved by the applicable entities, will provide for a reliable bulk power system, consistent with good utility practices and the public interest?

Does each requirement identify who shall do what under what conditions and to what outcome?

Measurability

Is each performance requirement stated so as to be objectively measurable by a third party with knowledge or expertise in the area addressed by that requirement?

Does each performance requirement have one or more associated measures used to objectively evaluate compliance with the requirement?

If performance results can be practically measured quantitatively, are metrics provided within the requirement to indicate satisfactory performance?

Technical Basis in Engineering and Operations

Is this reliability standard based upon sound engineering and operating judgment, analysis, or experience, as determined by expert practitioners in that particular field?

Completeness

Is this reliability standard complete and self-contained? Does the standard depend on external information to determine the required level of performance?

Consequences for Noncompliance

In combination with guidelines for penalties and sanctions, as well as other ERO and regional entity compliance documents, are the consequences of violating a standard clearly known to the responsible entities?

Clear Language

Is the reliability standard stated using clear and unambiguous language? Can responsible entities, using reasonable judgment and in keeping with good utility practices, arrive at a consistent interpretation of the required performance?

Practicality

Does this reliability standard establish requirements that can be practically implemented by the assigned responsible entities within the specified effective date and thereafter?

Capability Requirements versus Performance Requirements

In general, requirements for entities to have ‘capabilities’ (this would include facilities for communication, agreements with other entities, etc.), should be located in the standards for certification. The certification requirements should indicate that entities have a responsibility to ‘maintain’ their capabilities.

Consistent Terminology

To the extent possible, does this reliability standard use a set of standard terms and definitions that are approved through the NERC reliability standards development process?

If the standard uses terms that are included in the NERC Glossary of Terms Used in Reliability Standards, then the term must be capitalized when it is used in the standard. New terms should not be added unless they have a ‘unique’ definition when used in a NERC reliability standard. Common terms that could be found in a college dictionary should not be defined and added to the NERC Glossary.

Are the verbs on the ‘verb list’ from the DT Guidelines? If not – do new verbs need to be added to the guidelines or could you use one of the verbs from the verb list?

Violation Risk Factors (Risk Factor)

High Risk Requirement

A requirement that, if violated, could directly cause or contribute to bulk electric system instability, separation, or a cascading sequence of failures, or could place the bulk electric system at an unacceptable risk of instability, separation, or cascading failures;

or a requirement in a planning time frame that, if violated, could, under emergency, abnormal, or restorative conditions anticipated by the preparations, directly cause or contribute to bulk electric system instability, separation, or a cascading sequence of failures, or could place the bulk electric system at an unacceptable risk of instability, separation, or cascading failures, or could hinder restoration to a normal condition.

Medium Risk Requirement

This is a requirement that, if violated, could directly affect the electrical state or the capability of the bulk electric system, or the ability to effectively monitor and control the bulk electric system. However, violation of a medium risk requirement is unlikely to lead to bulk electric system instability, separation, or cascading failures;

or a requirement in a planning time frame that, if violated, could, under emergency, abnormal, or restorative conditions anticipated by the preparations, directly and adversely affect the electrical state or capability of the bulk electric system, or the ability to effectively monitor, control, or restore the bulk electric system. However, violation of a medium risk requirement is unlikely,

under emergency, abnormal, or restoration conditions anticipated by the preparations, to lead to bulk electric system instability, separation, or cascading failures, nor to hinder restoration to a normal condition.

Lower Risk Requirement

A requirement that, if violated, would not be expected to adversely affect the electrical state or capability of the bulk electric system, or the ability to effectively monitor and control the bulk electric system. A requirement that is administrative in nature;

Or a requirement in a planning time frame that, if violated, would not, under the emergency, abnormal, or restorative conditions anticipated by the preparations, be expected to adversely affect the electrical state or capability of the bulk electric system, or the ability to effectively monitor, control, or restore the bulk electric system. A planning requirement that is administrative in nature.

Time Horizon

The drafting team should also indicate the time horizon available for mitigating a violation to the requirement using the following definitions:

- **Long-term Planning** — a planning horizon of one year or longer.
- **Operations Planning** — operating and resource plans from day-ahead up to and including seasonal.
- **Same-day Operations** — routine actions required within the timeframe of a day, but not real-time.
- **Real-time Operations** — actions required within one hour or less to preserve the reliability of the bulk electric system.
- **Operations Assessment** — follow-up evaluations and reporting of real time operations.

Violation Severity Levels

The drafting team should indicate a set of violation severity levels that can be applied for the requirements within a standard. ('Violation severity levels' replaces the existing 'levels of non-compliance.') The violation severity levels may be applied for each requirement or combined to cover multiple requirements, as long as it is clear which requirements are included.

The violation severity levels should be based on the following definitions:

- **Lower: mostly compliant with minor exceptions** — the responsible entity is mostly compliant with and meets the intent of the requirement but is deficient with respect to one or more minor details. Equivalent score: 95% to 99% compliant.
- **Moderate: mostly compliant with significant exceptions** — the responsible entity is mostly compliant with and meets the intent of the requirement but is deficient with respect to one or more significant elements. Equivalent score: 85% to 94% compliant.
- **High: marginal performance or results** — the responsible entity has only partially achieved the reliability objective of the requirement and is missing one or more significant elements. Equivalent score: 70% to 84% compliant.
- **Severe: poor performance or results** — the responsible entity has failed to meet the reliability objective of the requirement. Equivalent score: less than 70% compliant.

Compliance Monitor

Replace, 'Regional Reliability Organization' with 'Reliability Entity'

Fill-in-the-blank Requirements

Do not include any 'fill-in-the-blank' requirements. These are requirements that assign one entity responsibility for developing some performance measures without requiring that the performance measures be included in the body of a standard – then require another entity to comply with those requirements.

Every reliability objective can be met, at least at a threshold level, by a North American standard. If we need regions to develop regional standards, such as in under-frequency load shedding, we can always write a uniform North American standard for the applicable functional entities as a means of encouraging development of the regional standards.

Requirements for Regional Reliability Organization

Do not write any requirements for the Regional Reliability Organization. Any requirements currently assigned to the RRO should be re-assigned to the applicable functional entity.

Effective Dates

Must be 1st day of 1st quarter after entities are expected to be compliant – must include time to file with regulatory authorities and provide notice to responsible entities of the obligation to comply. If the standard is to be actively monitored, time for the Compliance Monitoring and Enforcement Program to develop reporting instructions and modify the Compliance Data Management System(s) both at NERC and Regional Entities must be provided in the implementation plan.

Associated Documents

If there are standards that are referenced within a standard, list the full name and number of the standard under the section called, 'Associated Documents'.

Appendix B: EOP-008 Technical Issues List

Excerpted from NERC Reliability Standards Development Plan: 2007 - 2009

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Reliability Standard Review Guidelines

Standard Review Form Project 2006-04 Back-up Facilities		
Standard #	EOP-008-0	Comments
Title	Plans for Loss of Control Center Functionality	Okay but could probably drop 'Plans for'.
Purpose		Okay
Applicability		Isn't the reliability entity the TSP and not the TO as per the FM?
Requirements	<i>Conditions</i>	Okay
	<i>Who?</i>	Okay
	<i>Shall do what?</i>	Grammar error in R1.2
	<i>Result or Outcome</i>	Missing
Measures		Measure doesn't define required evidence.
To-Do List Issues to Consider	<p>FERC NOPR</p> <ul style="list-style-type: none"> o Include a Requirement that all reliability coordinators have full backup control centers since they are essential to Bulk-Power System reliability. o Provision for backup capabilities should be an explicit Requirement. Such backup capability, at a minimum, must: (1) be independent of the primary control center; (2) be capable of operating for a prolonged period of time; and (3) provide for a minimum set of tools and facilities to replicate the critical reliability functions of the primary control center. <p>FERC staff report</p> <ul style="list-style-type: none"> o Distinction between providing plans and proving capabilities o Independence from primary control center <p>Regional Fill-in-the-Blank Team Comments</p> <ul style="list-style-type: none"> o No comments <p>V0 Industry Comments</p> <ul style="list-style-type: none"> o How does staff know control center is lost? o How is backup control achieved? o Max. time to restore capabilities <p>VRF comments</p> <ul style="list-style-type: none"> o R1 - Not having a written plan does not directly cause or contribute to bulk electric system instability, separation, or a cascading sequence of failures, or could place the bulk electric system at an unacceptable risk of instability, separation, or cascading o R1.1 - Not having a written plan is unlikely, under emergency, abnormal, or restoration conditions anticipated by the preparations, to lead to bulk electric system instability, separation, or cascading failures, nor to hinder restoration to a normal condition. 	