

## Standard Authorization Request Form

Title of Proposed Standard	Revisions to System Restoration and Blackstart Standards Project 2006-03
Request Date	January 18, 2007
Revised	March 23, 2007

<b>SAR Requestor Information</b>	<b>SAR Type</b> ( <i>Check a box for each one that applies.</i> )
Name           Richard J Kafka	<input type="checkbox"/> New Standard
Primary Contact    Richard J Kafka	<input checked="" type="checkbox"/> Revision to existing Standards EOP-005, EOP-006, EOP-007, EOP-009
Telephone   (301) 469-5274 Fax           (301) 469-5235	<input checked="" type="checkbox"/> Withdrawal of existing Standard
E-mail           rjkafka@pepcoholdings.com	<input type="checkbox"/> Urgent Action

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**Purpose** (Describe the purpose of the standard — what the standard will achieve in support of reliability.)

EOP-005-1 — System Restoration Plans

EOP-006-1 — Reliability Coordination - System Restoration

EOP-007-0 — Establish, Maintain, and Document a Regional Blackstart Capability Plan

EOP-009-0 — Documentation of Blackstart Generating Unit Test Results

The purpose of revising the above four standards is to:

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, are clearly defined; the purpose, requirements, and measures are results-focused and unambiguous; the consequences of violating the requirements are clear.
3. Consider other general improvements described in the standards development work plan. (See attachments)
4. Consider stakeholder comments received during the initial development of the standards and other comments received from Electric Reliability Organization (ERO) regulatory authorities, as noted in the attached review sheets.
5. Satisfy the standards procedure requirement for five-year review of the standards.

**Industry Need** (Provide a detailed statement justifying the need for the proposed standard, along with any supporting documentation.)

When all else fails, the bulk power system requires a clearly defined and comprehensive set of standards to ensure the ability to successfully restore the integrity of the system. The existing standards lack specificity and measures to guide the industry in a consistent and reliable manner for system restoration.

EOP-005 was a Version 0 standard that was modified to add some requirements that were translated from the Phase III & IV measures thus creating a -1 version standard; EOP-006 is a -1 standard as of January 1, 2007; EOP-007, and EOP-009 are Version 0 standards. 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 current standards, 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.

In addition, FERC indicated it will not propose to accept or remand EOP-007-0, as it applies only to regional reliability organizations.

**Brief Description** (Describe the proposed standard in sufficient detail to clearly define the scope in a manner that can be easily understood by others.)

This project involves reviewing and revising the four referenced standards including:

- Resolving the issue of associating compliance measures with Attachment 1-EOP-005 elements,
- EOP-005 only requires the TOP and the BA to have a system restoration plan. The role of these and other entities, especially the Reliability Coordinator, needs to be defined.
- Both EOP-005 and EOP-006 contain a mix of requirements that address advance planning and real-time operations. The Standards Drafting Team (SDT) should consider the need to clearly delineate the two processes within the standards requirements.
- The elimination of 'fill-in-the-blank' components in EOP-007-0 and EOP-009.
- Other improvements to the standards deemed appropriate by the drafting team, with the consensus of stakeholders, consistent with establishing high quality, enforceable standards and consistent with establishing technically sufficient bulk power system blackstart and restoration standards.

Work is not to be limited to the 'To Do Lists'. Those items shall be considered but are not mandatory revisions. Consideration will also be given to the comments on the appropriate EOP standards in FERC Order #693, issued March 16, 2007.

Throughout the process, the SDT should identify any conflicts that are found with other existing standards and bring them to the attention of the Standards Committee for resolution.

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***Reliability Functions***

<b>The Standard will Apply to the Following Functions</b> <i>(Check box for each one that applies.)</i>		
<input checked="" type="checkbox"/>	Reliability Coordinator	Responsible for the real-time operating reliability of its Reliability Coordinator Area in coordination with its neighboring Reliability 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 and supports system frequency in real time.
<input type="checkbox"/>	Interchange Authority	Ensures communication of interchange transactions for reliability evaluation purposes and coordinates implementation of valid and balanced interchange schedules between Balancing Authority Areas.
<input checked="" type="checkbox"/>	Planning Coordinator	Assesses the longer-term reliability of its Planning Coordinator Area.
<input type="checkbox"/>	Resource Planner	Develops a (>one year) plan for the resource adequacy of its specific loads within its portion of a Planning Coordinator area.
<input type="checkbox"/>	Transmission Planner	Develops a (>one year) plan for the reliability of the interconnected Bulk Electric System within its portion of the Planning Coordinator area.
<input checked="" type="checkbox"/>	Transmission Service Provider	Administers the transmission tariff and provides transmission services under applicable transmission service agreements (e.g., the pro forma tariff).
<input checked="" type="checkbox"/>	Transmission Owner	Owns and maintains transmission facilities.
<input checked="" type="checkbox"/>	Transmission Operator	Ensures the real-time operating reliability of the transmission assets within a Transmission Operator Area.
<input checked="" type="checkbox"/>	Distribution Provider	Delivers electrical energy to the End-use customer.
<input checked="" type="checkbox"/>	Generator Owner	Owns and maintains generating facilities.
<input checked="" type="checkbox"/>	Generator Operator	Operates generation unit(s) to provide real and reactive power.
<input type="checkbox"/>	Purchasing-Selling Entity	Purchases or sells energy, capacity, and necessary reliability-related services as required.
<input type="checkbox"/>	Market Operator	Interface point for reliability functions with commercial functions.

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<input checked="" type="checkbox"/>	Load-Serving Entity	Secures energy and transmission service (and related reliability-related services) to serve the End-use Customer.
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***Reliability and Market Interface Principles***

<b>Applicable Reliability Principles</b> <i>(Check box for all that apply.)</i>	
<input checked="" type="checkbox"/>	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 checked="" type="checkbox"/>	4. Plans for emergency operation and system restoration of interconnected bulk electric systems shall be developed, coordinated, maintained and implemented.
<input checked="" type="checkbox"/>	5. Facilities for communication, monitoring and control shall be provided, used and maintained for the reliability of interconnected bulk electric systems.
<input checked="" 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 checked="" type="checkbox"/>	7. The security of the interconnected bulk electric systems shall be assessed, monitored and maintained on a wide area basis.
<b>Does the proposed Standard comply with all of the following Market Interface Principles?</b> <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	

***Related Standards***

<b>Standard No.</b>	<b>Explanation</b>
PER-002	Applicable personnel must be trained in restoration and blackstart procedures.
EOP-001	R3.4 may be redundant after this project is completed.

***Related SARs***

<b>SAR ID</b>	<b>Explanation</b>

***Regional Differences***

<b>Region</b>	<b>Explanation</b>
ERCOT	
FRCC	
MRO	
NPCC	
SERC	
RFC	
SPP	
WECC	

<b>Standard Review Form</b>		
<b>Project 2006-03 System Restoration and Blackstart</b>		
<b>Standard #</b>	<b>EOP-005-0</b>	<b>Comments</b>
<b>Title</b>	System Restoration Plans	Okay
<b>Purpose</b>		Okay
<b>Applicability</b>		Okay
<b>Requirements</b>	<i>Conditions</i>	Interconnection is capitalized.
	<i>Who?</i>	Okay
	<i>Shall do what?</i>	R2 mentions simulated exercises – where did that come from? R3 – isn't this a function of the extent of the outage? R5 – define periodically R6 – provide training requirements R8 – how do you verify? R115.2 – what does considered mean R11.5.3 – depends on extent
	<i>Result or Outcome</i>	Missing
<b>Measures</b>		2 M for 11 R
<b>To Do List</b>	<p>FERC NOPR</p> <ul style="list-style-type: none"> <li>o Include Measures; and</li> <li>o Identify time frames for training and review of restoration plan requirements to simulate contingencies and prepare operators for anticipated and unforeseen events.</li> </ul> <p>FERC staff report</p> <ul style="list-style-type: none"> <li>o Periodicity of training</li> <li>o Lack of Measures</li> </ul> <p>Regional Fill-in-the-Blank Team Comments</p> <ul style="list-style-type: none"> <li>o Drafting team should address EOP-005, EOP-006 EOP-007 and EOP-009 concurrently. Primarily, references in EOP-005, EOP-006, and EOP-009 to meet RRO/Regional requirements need to be modified and EOP-007 needs to be more specific.</li> <li>o See notes for EOP-007</li> </ul> <p>V0 Industry Comments</p> <ul style="list-style-type: none"> <li>o Priority to integrity of interconnection</li> <li>o BA does not have all required information</li> <li>o Interdependency of planning and implementation missing as well as between functional entities</li> <li>o LSE &amp; GO should have plans</li> <li>o Additional element consideration</li> <li>o Can't really test plan</li> </ul> <p>Phase III/IV comments</p> <ul style="list-style-type: none"> <li>o Add LSEs to Applicability</li> <li>o Add a requirement for a blackstart agreement between the transmission operator and the generator owner - include items such as identification of generator owner/operator facilities required to participate in the blackstart plan; when and how quickly a blackstart unit must respond; and what cranking path requires energization</li> <li>o Add a requirement for a cranking path agreement between the transmission operator and the generator owner/operator</li> <li>o Condense the requirements and measures - R1 the requirement to develop the restoration plan and all the components required of that plan; and R2 the requirement to prove and document that the plan</li> </ul>	



## 2006-03 System Restoration and Blackstart

	<p>works. Then, two measurements would follow: one to assess the contents of the plan and one to assess the simulation or testing of the plan.</p> <ul style="list-style-type: none"><li>○ Need to resolve the issue of the elements on the Attachment – are these mandatory or not – there is a mismatch between R1 and levels of non-compliance</li><li>○ R3 – revise to place emphasis for TOP on restoring local transmission system as preparation for restoring the integrity of the Interconnection.</li><li>○ R4 – Add LSEs</li><li>○ R5 – replace ‘periodic’ with a specific periodicity for testing</li><li>○ R6 – add specificity to frequency and scope of required training</li><li>○ R11.5 - replace the word, ‘may’ with: The affected Transmission Operators shall not resynchronize the isolated area(s) with the surrounding area(s) until the following conditions are met: the voltage, frequency, and phase angle permit, the affected reliability coordinator(s) and the adjacent areas are notified, and reliability coordinator approval is given.</li><li>○ Delete R11.5.4. It does not seem reasonable or logical for a control area to be required to shed 5,000 MWs of load, for example, in order for their neighbor to reconnect 1,000 MWs of their own load.</li><li>○ R11.5. Should exclude islands within a system that do not affect surrounding areas</li></ul> <p>VRF comments</p> <ul style="list-style-type: none"><li>○ R1, 5 &amp; 8 – Does not just apply to local restoration</li><li>○ R2 – Could be broken up into 2 requirements</li><li>○ R11.4 – Ambiguous</li><li>○ R11.5 - This needs to be looked at for 30 days - should be done prior to access being granted.</li></ul>
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Standard Review Form Project 2006-03 System Restoration and Blackstart		
Standard #	EOP-006-0	Comments
<b>Title</b>	Reliability Coordination – System Restoration	Okay
<b>Purpose</b>		Don't need names. Interconnection is capitalized.
<b>Applicability</b>		Okay
<b>Requirements</b>	<i>Conditions</i>	Okay
	<i>Who?</i>	Okay
	<i>Shall do what?</i>	R5 – burden is capitalized R6 – define actions
	<i>Result or Outcome</i>	Missing
<b>Measures</b>		Addressed by CESDT.
<b>To Do List</b>	FERC NOPR <ul style="list-style-type: none"> <li>o Require that the reliability coordinator be involved in the development and approval of restoration plans; and</li> <li>o Include Measures and Levels of Non-Compliance</li> </ul> FERC staff report <ul style="list-style-type: none"> <li>o RC should be involved in approving TO &amp; BA plans</li> <li>o Expect new standard in November</li> </ul> Regional Fill-in-the-Blank Team Comments <ul style="list-style-type: none"> <li>o Drafting team should address EOP-005, EOP-006 EOP-007 and EOP-009 concurrently. Primarily, references in EOP-005, EOP-006, and EOP-009 to meet RRO/Regional requirements need to be modified and EOP-007 needs to be more specific.</li> <li>o See notes for EOP-007</li> </ul>	
<b>Misc. Items</b>		Compliance not specified but appears in CESDT version

Standard Review Form Project 2006-03 System Restoration and Blackstart		
Standard #	EOP-007-0	Comments
<b>Title</b>	Establish, Maintain, and Document a Regional Blackstart Capability Plan	Too long
<b>Purpose</b>		Need benefit or value proposition.
<b>Applicability</b>		Need to check applicability for RRO as per SAR.
<b>Requirements</b>	<i>Conditions</i>	Okay
	<i>Who?</i>	Okay
	<i>Shall do what?</i>	R1.1 – quicker if unit status changes
	<i>Result or Outcome</i>	Missing
<b>Measures</b>		M1 – need to spell out measures M2 – define evidence
<b>To Do List</b>	FERC NOPR <ul style="list-style-type: none"> <li>o Commission will not propose to accept or remand EOP-007-0, as it applies only to regional reliability organizations.</li> </ul> FERC staff report <ul style="list-style-type: none"> <li>o Appropriateness of RRO questioned</li> </ul> Regional Fill-in-the-Blank Team Comments <ul style="list-style-type: none"> <li>o R1 &amp; R2 considerations</li> </ul> VO Industry Comments <ul style="list-style-type: none"> <li>o Clarify testing requirements</li> </ul>	
<b>Misc. Items</b>		Question reasonability of simulation as proof of capability.

<b>Standard Review Form</b>		
<b>Project 2006-03 System Restoration and Blackstart</b>		
<b>Standard #</b>	<b>EOP-009-0</b>	<b>Comments</b>
<b>Title</b>	Documentation of Blackstart Generating Unit Test Results	'Documentation of' could probably be dropped.
<b>Purpose</b>		Title and purpose do not align. Same purpose as EOP-008.
<b>Applicability</b>		Need to check applicability for GO & GOP as per SAR.
<b>Requirements</b>	<i>Conditions</i>	Okay
	<i>Who?</i>	Okay
	<i>Shall do what?</i>	R1 – do we need MW values? R2 – within how many days?
	<i>Result or Outcome</i>	Missing
<b>Measures</b>		M1 only applies to R2 and needs to define evidence.
<b>To Do List</b>	FERC NOPR o No changes identified. FERC staff report o Lack of periodicity for testing Regional Fill-in-the-Blank Team Comments o Region mentioned in Requirements VO Industry Comments o Distinction between RA & TO vs. RRO for test results	

**System Restoration Standards**

**EOP-005-1**

630. ...the Commission directs the ERO to develop a modification to EOP-005-1 through the Reliability Standards development process that identifies time frames for training and review of restoration plan requirements to simulate contingencies and prepare operators for anticipated and unforeseen events ....

**EOP-006-1**

638. ...the Commission directs the ERO to develop a modification to EOP-006-1 through the Reliability Standards development process that ensures that the reliability coordinator, which is the highest level of authority responsible for reliability of the Bulk-Power System, is involved in the development and approval of system restoration plans.

**EOP-007-0**

647. EEI, FirstEnergy and MRO offer suggestions for improving the Reliability Standard. The Commission directs the ERO to consider these suggestions in future revisions to improve EOP-007-0, through the Reliability Standards development process.

648. Accordingly, the Commission will not approve or remand EOP-007-0 at this time.

642. EEI suggests that EOP-007-0 be rewritten so that compliance obligations are assigned directly to those entities that provide the data and other information.

643. FirstEnergy and MRO state that the reliability coordinator, not the Regional Entity, should be responsible for the regional blackstart plan for its area of responsibility. Further, FirstEnergy states that the blackstart plan developed for a region should be consistent with NRC requirements, should recognize that nuclear units have no blackstart capability and should recognize that nuclear units must have priority access to off-site power for safety reasons. FirstEnergy requests that the Commission direct NERC to revise the definition of a blackstart unit to mean a “diesel, hydro, pump storage, or the combustion turbine generating unit that is used to provide cranking power to a larger steam generating unit designed to restore load” or to mean a “larger steam generating unit designed to restore load.” MRO states that arrangements for coordination of blackstart capability should be addressed in a contract between appropriate entities.

**EOP-009-0**

674. ...Xcel states that the Reliability Standard should provide details on what constitutes a blackstart test and FirstEnergy states that EOP-009-0 should be consolidated with EOP-007-0 because the Requirements of EOP-009-0 already exist in EOP-007-0.

676. ...The Commission directs the ERO to take these suggestions into consideration when revising the Reliability Standard through the Reliability Standards development process.