

Standard Development Roadmap

This section is maintained by the drafting team during the development of the standard and will be removed when the standard becomes effective.

Development Steps Completed:

1. SAR version 1 posted on November 6, 2006.
2. SAR version 1 comment period closed on December 5, 2006.
3. SAR version 2 and comment responses for SAR version 1 posted on February 8, 2007.
4. SAR version 2 comment period closed on March 9, 2007.
5. SAR version 3 and comment responses for SAR version 2 accepted by SC and SDT appointed on April 9, 2007.
6. First posting of revised standards on August 15, 2007 with comment period closed on September 28, 2007.
7. Second posting of revised standards on January 7, 2008 with comment period closed on February 5, 2008.
8. Third posting of revised standards on April 15, 2008 with comment period closed on May 29, 2008.
9. Fourth posting of revised standards on October 21, 2008 with comment period closed on November 18, 2008.

Proposed Action Plan and Description of Current Draft:

The SDT began meeting in mid-April 2007 immediately following the approval of the SAR by the SC with the goal of completing work in approximately one year's time. The current draft is the fourth posting of the proposed standards. Requirements in EOP-007 and EOP-009 have been incorporated into the revised EOP-005 and EOP-006. Therefore, EOP-007 and EOP-009 will be retired when this project is approved and EOP-005-2 and EOP-006-2 go into effect.

Future Development Plan:

Anticipated Actions	Anticipated Date
1. Standards posted for first ballot.	March 2009
2. Standards posted for second ballot.	April 2009
3. Standards sent to BOT for approval.	May 2009
4. Standards submitted to regulatory authorities for approval.	To be determined.

Definitions of Terms Used in Standard

This section includes all newly defined or revised terms used in the proposed standard. Terms already defined in the Reliability Standards Glossary of Terms are not repeated here. New or revised definitions listed below become approved when the proposed standard is approved. When the standard becomes effective, these defined terms will be removed from the individual standard and added to the Glossary.

Blackstart Capability Plan: Existing definition is retired.

Blackstart Resource: A generating unit(s) and its associated set of equipment which has the ability to be started without support from the System or is designed to remain energized without connection to the remainder of the System, with the ability to energize a bus, meeting the Transmission Operator's restoration plan needs for real and reactive power capability, frequency and voltage control, and that has been included in the Transmission Operator's restoration plan.

A. Introduction

1. **Title:** System Restoration from Blackstart Resources
2. **Number:** EOP-005-2
3. **Purpose:** Ensure plans, Facilities, and personnel are prepared to enable System restoration from Blackstart Resources to assure reliability is maintained during restoration and priority is placed on restoring the Interconnection.
4. **Applicability:**
 - 4.1. Transmission Operators.
 - 4.2. Generator Operators.
 - 4.3. Transmission Owners identified in the Transmission Operators restoration plan.
 - 4.4. Distribution Providers identified in the Transmission Operators restoration plan.
5. **Proposed Effective Date:** ~~As per the Implementation Plan~~ Twenty-four months after the first day of the first calendar quarter following applicable regulatory approval. In those jurisdictions where no regulatory approval is required, all requirements go into effect twenty-four months after Board of Trustees adoption.

B. Requirements

- R1. Each Transmission Operator shall have a restoration plan approved by its Reliability Coordinator. The restoration plan shall allow for restoring the Transmission Operator's System following a Disturbance in which one or more areas of the Bulk Electric System (BES) shuts down and the use of Blackstart Resources is required to restore the shut down area to service, to a state whereby the choice of the next Load to be restored is not driven by the need to control frequency or voltage regardless of whether the Blackstart Resource is located within the Transmission Operator's System. The restoration plan shall include: *[Violation Risk Factor = High] [Time Horizon = Operations Planning]*
 - R1.1. Strategies for system restoration that are coordinated with the Reliability Coordinator's high level strategy ~~A description of how the plan follows the high level strategies~~ for restoring the Interconnection ~~as outlined in the Transmission Operator's Reliability Coordinator restoration plan.~~
 - R1.2. A description of ~~the manner in which~~ how all Agreements or mutually agreed upon procedures or protocols for off-site power requirements of nuclear power plants, including priority of restoration, will be fulfilled during System restoration.
 - R1.3. Procedures for restoring interconnections with other Transmission Operators under the direction of the Reliability Coordinator.
 - R1.4. Identification of each Blackstart Resource and its characteristics including but not limited to the following: the name of the Blackstart Resource, location, megawatt and megavar capacity, and type of unit.
 - R1.5. Identification of Cranking Paths and initial switching requirements between each Blackstart Resource and the unit(s) to be started.

- R1.6.** Identification of acceptable operating voltage and frequency limits during restoration.
- R1.7.** Operating Processes to reestablish connections within the Transmission Operator's System for areas that have been restored and are prepared for reconnection.
- R1.8.** Operating Processes to restore Loads required to restore the System, such as station service for substations, units to be restarted or stabilized, the Load needed to stabilize generation and frequency, and provide voltage control.
- R1.9.** ~~Criteria~~Operating Processes for transferring ~~operations and~~ authority back to the Balancing Authority in accordance with the Reliability Coordinator's criteria.
- R2.** Each Transmission Operator shall provide the ~~operational~~ entities identified in its approved restoration plan with a description of any changes to their roles and specific tasks prior to the implementation date of the plan. *[Violation Risk Factor = Lower]* *[Time Horizon = Operations Planning]*
- R3.** Each Transmission Operator shall review ~~the Transmission Operator's~~ its restoration plan and submit it to its Reliability Coordinator annually on a mutually agreed predetermined schedule. *[Violation Risk Factor = Medium]* *[Time Horizon = Operations Planning]*

 - R3.1.** If there are no changes to the previously submitted restoration plan, the Transmission Operator shall confirm annually on a predetermined schedule to its Reliability Coordinator that it has reviewed its restoration plan and no changes were necessary.
- R4.** Each Transmission Operator shall update its restoration plan within ~~ninety~~90 calendar days after identifying any unplanned permanent System modifications, or prior to implementing a planned ~~System-BES~~ modification, that would change the implementation of its restoration plan. *[Violation Risk Factor = Medium]* *[Time Horizon = Operations Planning]*

 - R4.1.** Each Transmission Operator shall submit its revised restoration plan to its Reliability Coordinator for approval within the same ~~ninety~~90 calendar day period.
- R5.** Each Transmission Operator shall have a copy of its latest Reliability Coordinator approved restoration plan within its primary and backup control rooms ~~and~~so that it is available to all of its System Operators prior to its implementation date. *[Violation Risk Factor = Lower]* *[Time Horizon = Operations Planning]*
- R6.** Each Transmission Operator shall verify through analysis of actual events, steady state and dynamic simulations, or testing that its restoration plan accomplishes its intended function. This shall be completed every five years at a minimum. Such analysis, simulations or testing shall verify: *[Violation Risk Factor = Medium]* *[Time Horizon = Long-term Planning]*

- R6.1.** The capability of Blackstart Resources to meet the Real and Reactive Power requirements of the Cranking Paths and [the dynamic capability](#) to supply initial Loads.
- R6.2.** The location and magnitude of Loads required to control voltages and frequency within acceptable operating limits.
- R6.3.** The capability of generating resources required to control voltages and frequency within acceptable operating limits.
- R7.** Following a Disturbance in which one or more areas of the BES shuts down and the use of Blackstart Resources is required to restore the shut down area to service, each affected Transmission Operator shall implement its restoration plan. If the restoration plan cannot be executed as expected ~~because actual conditions do not match the studied conditions,~~ the Transmission Operator shall utilize its restoration ~~plan~~ strategies to facilitate restoration. *[Violation Risk Factor = High] [Time Horizon = Real-time Operations]*
- R8.** Following a Disturbance in which one or more areas of the BES shuts down and the use of Blackstart Resources is required to restore the shut down area to service, the Transmission Operator shall resynchronize area(s) with neighboring Transmission Operator area(s) only with the authorization of the Reliability Coordinator or in accordance with the established procedures of the Reliability Coordinator. *[Violation Risk Factor = High] [Time Horizon = Real-time Operations]*
- R9.** Each Transmission Operator shall have Blackstart Resource testing requirements to verify that each Blackstart Resource is capable of meeting the requirements of its restoration plan. These Blackstart Resource testing requirements shall include: *[Violation Risk Factor = Medium] [Time Horizon = Operations Planning]*
- R9.1.** The frequency of testing such that each Blackstart Resource is tested at least once every three [calendar](#) years.
- R9.2.** A list of required tests including:
- R9.2.1.** The ability to start the unit when isolated with no support from the BES or when designed to remain energized without connection to the remainder of the System.
- R9.2.2.** The ability to energize a bus. If it is not possible to energize a bus during the test, the testing entity must affirm that the unit has the capability to energize a bus such as verifying that the breaker close coil relay can be energized with the voltage and frequency monitor controls disconnected [from the synchronizing circuits](#).
- R9.3.** The minimum duration of each of the required tests.
- R10.** Each Transmission Operator shall include within its operations training program, annual System restoration training ~~to~~[for](#) its System Operators to assure the proper execution of its restoration plan. This training program shall include training on the following: *[Violation Risk Factor = Medium] [Time Horizon = Operations Planning]*

- R10.1.** System restoration plan including coordination with the Reliability Coordinator and Generator Operators included in the restoration plan.
- R10.2.** Restoration priorities.
- R10.3.** Building of cranking paths.
- R10.4.** Synchronizing (re-energized sections of the System).
- R11.** Each Transmission Operator, each applicable Transmission Owner, and each applicable Distribution Provider shall provide a minimum of two hours of System restoration training every two calendar years to their field switching personnel identified as performing unique tasks associated with the Transmission Operator's restoration plan that are outside of their normal tasks. [*Violation Risk Factor = ~~Lower~~Medium*] [*Time Horizon = Operations Planning*]
- R12.** Each Transmission Operator shall participate in its Reliability Coordinator's restoration drills, exercises, or simulations as requested by its Reliability Coordinator. [*Violation Risk Factor = Medium*] [*Time Horizon = Operations Planning*]
- R13.** Each Transmission Operator and each Generator Operator with a Blackstart Resource shall have written Blackstart Resource Agreements or mutually agreed upon procedures or protocols, specifying the terms and conditions of their arrangement. Such Agreements shall include references to the Blackstart Resource testing requirements. [*Violation Risk Factor = Medium*] [*Time Horizon = Operations Planning*]
- R14.** Each Generator Operator with a Blackstart Resource shall have documented procedures for starting each Blackstart Resource and energizing a bus. [*Violation Risk Factor = Medium*] [*Time Horizon = Operations Planning*]
- R15.** Each Generator Operator with a Blackstart Resource shall notify its Transmission Operator of any known changes to the capabilities of that Blackstart Resource affecting the ability to meet the Transmission Operator's restoration plan within ~~twenty-four~~ 24 hours following such change. [*Violation Risk Factor = Medium*] [*Time Horizon = Operations Planning*]
- R16.** Each Generator Operator with a Blackstart Resource shall perform Blackstart Resource tests, and maintain records of such testing, in accordance with the testing requirements set by the Transmission Operator to verify that the Blackstart Resource can perform as specified in the restoration plan. [*Violation Risk Factor = Medium*] [*Time Horizon = Operations Planning*]
- R16.1.** Testing records shall include at a minimum: name of the Blackstart Resource, unit tested, date of the test, duration of the test, time required to start the unit, an indication of any testing requirements not met under Requirement R9.
- R16.2.** Each Generator Operator shall provide the blackstart test results within ~~thirty~~30 calendar days following a request from its Reliability Coordinator or Transmission Operator.
- R17.** Each Generator Operator with a Blackstart Resource shall provide a minimum of two hours of training every two calendar years to each of its operating personnel

responsible for the startup of its Blackstart Resource generation units and energizing a bus. The training program shall include training on the following: [*Violation Risk Factor = Medium*] [*Time Horizon = Operations Planning*]

R17.1. System restoration plan including coordination with the Transmission Operator.

R17.2. The procedures documented in Requirement R14.

R18. Each Generator Operator shall participate in the Reliability Coordinator's restoration drills, exercises, or simulations as requested by the Reliability Coordinator. [*Violation Risk Factor = Medium*] [*Time Horizon = Operations Planning*]

C. Measures

M1. Each Transmission Operator shall have a dated, documented System restoration plan developed in accordance with Requirement R1 that has been approved by its Reliability Coordinator as shown with the ~~written~~-documented approval ~~letter~~ from its Reliability Coordinator.

M2. Each Transmission Operator shall have evidence such as e-mails with receipts or registered mail receipts that it provided the ~~operational~~ entities identified in its approved restoration plan with a description of any changes to their roles and specific tasks prior to the implementation date of the plan in accordance with Requirement R2.

M3. Each Transmission Operator shall have documentation such as a dated review signature sheet, revision histories, e-mails with receipts, or registered mail receipts, that it has annually reviewed and submitted the Transmission Operator's restoration plan to its Reliability Coordinator in accordance with Requirement R3.

M4. Each Transmission Operator shall have documentation such as dated review signature sheets, revision histories, e-mails with receipts, or registered mail receipts, that it has updated its restoration plan and submitted it to its Reliability Coordinator in accordance with Requirement R4.

M5. Each Transmission Operator shall have documentation that it has made the latest Reliability Coordinator approved copy of its restoration plan available in its primary and backup control rooms and ~~to each of~~ its System Operators prior to its implementation date in accordance with Requirement R5.

M6. Each Transmission Operator shall have documentation such as power flow outputs, that it has verified that its latest restoration plan will accomplish its intended function in accordance with Requirement R6.

M7. If there has been a Disturbance in which Blackstart Resources have been utilized in restoring the shut down area of the ~~System~~-BES to service, each Transmission Operator involved shall have evidence such as voice recordings, e-mail, dated computer printouts, or operator logs, that it implemented its restoration plan or restoration plan strategies in accordance with Requirement R7.

M8. If there has been a Disturbance in which Blackstart Resources have been utilized in restoring the shut down area of the ~~System~~-BES to service, each Transmission Operator involved in such an event shall have evidence, such as voice recordings, e-mail, dated

computer printouts, or operator logs, that it resynchronized shut down areas in accordance with Requirement R8.

- M9.** Each Transmission Operator shall have documented Blackstart Resource testing requirements in accordance with Requirement R9.
- M10.** Each Transmission Operator shall have an electronic or hard copy of the training program material provided ~~to~~for its System Operators for System restoration training in accordance with Requirement R10.
- M11.** Each Transmission Operator, each applicable Transmission Owner, and each applicable Distribution Provider shall have an electronic or hard copy of the training program material provided to their field switching personnel for System restoration training and the corresponding training records including training dates and duration in accordance with Requirement R11.
- M12.** Each Transmission Operator shall have evidence, such as training records, that it participated in the Reliability Coordinator's restoration drills, exercises, or simulations as requested in accordance with Requirement R12.
- M13.** Each Transmission Operator and Generator Operator with a Blackstart Resource shall have the dated Blackstart Resource Agreements or mutually agreed upon procedures or protocols in accordance with Requirement R13.
- M14.** Each Generator Operator with a Blackstart Resource shall have dated documented procedures on file for starting each unit and energizing a bus in accordance with Requirement R14.
- M15.** Each Generator Operator with a Blackstart Resource shall provide evidence, such as e-mails with receipts or registered mail receipts, showing that it notified its Transmission Operator of any known changes to its Blackstart Resource capabilities within twenty-four hours of such changes in accordance with Requirement R15.
- M16.** Each Generator Operator with a Blackstart Resource shall maintain dated documentation of its Blackstart Resource test results and shall have evidence such as e-mails with receipts or registered mail receipts, that it provided these records to its Reliability Coordinator and Transmission Operator when requested in accordance with Requirement R16.
- M17.** Each Generator Operator with a Blackstart Resource shall have an electronic or hard copy of the training program material provided to its operating personnel responsible for the startup and synchronization of its Blackstart Resource generation units and a copy of its dated training records including training dates and durations showing that it has provided training in accordance with Requirement R17.
- M18.** Each Generator Operator shall have evidence, such as dated training records, that it participated in the Reliability Coordinator's restoration drills, exercises, or simulations if requested to do so in accordance with Requirement R18.

D. Compliance

- 1. Compliance Monitoring Process**
 - 1.1. Compliance Enforcement Authority**

Regional Entity.

1.2. Compliance Monitoring Period and Reset Time Frame

Not applicable.

1.3. Compliance Monitoring and Enforcement Processes:

Compliance Audits

Self-Certifications

Spot Checking

Compliance Violation Investigations

Self-Reporting

Complaints

1.4. Data Retention

The Transmission Operator shall keep data or evidence to show compliance as identified below unless directed by its Compliance Enforcement Authority to retain specific evidence for a longer period of time as part of an investigation:

- Approved restoration plan and any restoration plans in force since the last compliance audit for Requirement R1, Measure M1.
- Provided the ~~operational~~-entities identified in its approved restoration plan with a description of any changes to their roles and specific tasks prior to the implementation date of the plan for the current calendar year and three prior calendar years for Requirement R2, Measure M2.
- Submission of the Transmission Operator's annually reviewed restoration plan to its Reliability Coordinator for the current calendar year and three prior calendar years for Requirement R3, Measure M3.
- Submission of an updated restoration plan to its Reliability Coordinator for all versions for the current calendar year and the prior three years for Requirement R4, Measure M4.
- The current, restoration plan approved by the Reliability Coordinator ~~restoration plan~~ and any restoration plans ~~in force~~ for the last three calendar years that was made available in its control rooms for Requirement R5, Measure M5.
- The verification results for the current, approved restoration plan and the previous approved restoration plan for Requirement R6, Measure M6.
- Implementation of its restoration plan or restoration plan strategies on any occasion for three calendar years if there has been a Disturbance in which Blackstart Resources have been utilized in restoring the shut down area of the ~~System~~-BES to service for Requirement R7, Measure M7.
- Resynchronization of shut down areas on any occasion over three calendar years if there has been a Disturbance in which Blackstart Resources have

been utilized in restoring the shut down area of the ~~System~~ [BES](#) to service for Requirement R8, Measure M8.

- The verification process and results for the current Blackstart Resource testing requirements and the last previous Blackstart Resource testing requirements for Requirement R9, Measure M9.
- Actual training program materials or descriptions for three calendar years for Requirement R10, Measure M10.
- Records of participation in all requested Reliability Coordinator restoration drills, exercises, or simulations since its last compliance audit as well as one previous compliance audit period for Requirement R12, Measure M12.

If a Transmission Operator is found non-compliant for any requirement, it shall keep information related to the non-compliance until found compliant.

The Transmission Operator, applicable Transmission Owner, and applicable Distribution provider shall keep data or evidence to show compliance as identified below unless directed by its Compliance Enforcement Authority to retain specific evidence for a longer period of time as part of an investigation:

- Actual training program materials or descriptions and actual training records for three calendar years for Requirement R11, Measure M11.

If a Transmission Operator, applicable Transmission owner, or applicable Distribution Provider is found non-compliant for any requirement, it shall keep information related to the non-compliance until found compliant.

The Transmission Operator and Generator Operator with a Blackstart Resource shall keep data or evidence to show compliance as identified below unless directed by its Compliance Enforcement Authority to retain specific evidence for a longer period of time as part of an investigation:

- Current Blackstart Resource Agreements and any Blackstart Resource Agreements or mutually agreed upon procedures or protocols in force since its last compliance audit for Requirement R13, Measure M13.

The Generator Operator with a Blackstart Resource shall keep data or evidence to show compliance as identified below unless directed by its Compliance Enforcement Authority to retain specific evidence for a longer period of time as part of an investigation:

- Current documentation and any documentation in force since its last compliance audit on procedures to start each Blackstart Resources and for energizing a bus for Requirement R14, Measure M14.
- Notification to its Transmission Operator of any known changes to its Blackstart Resource capabilities over the last three [calendar](#) years for Requirement R15, Measure M15.

- The verification test results for the current set of requirements and one previous set for its Blackstart Resources for Requirement R16, Measure M16.
- Actual training program materials and actual training records for three calendar years for Requirement R17, Measure M17.

If a Generation Operator with a Blackstart Resource is found non-compliant for any requirement, it shall keep information related to the non-compliance until found compliant.

The Generator Operator shall keep data or evidence to show compliance as identified below unless directed by its Compliance Enforcement Authority to retain specific evidence for a longer period of time as part of an investigation:

- Records of participation in all requested Reliability Coordinator restoration drills, exercises, or simulations since its last compliance audit for Requirement R18, Measure M18.

If a Generation Operator is found non-compliant for any requirement, it shall keep information related to the non-compliance until found compliant.

The Compliance Enforcement Authority shall keep the last audit records and all requested and submitted subsequent audit records.

1.5. Additional Compliance Information

None.

2. Violation Severity Levels

R#	Lower VSL	Moderate VSL	High VSL	Severe VSL
R1.	The Transmission Operator <u>has an approved plan but</u> failed to comply with one of the sub-requirements within the requirement.	The Transmission Operator <u>has an approved plan but</u> failed to comply with two of the sub-requirements within the requirement.	The Transmission Operator <u>has an approved plan but</u> failed to comply with three of the sub-requirements within the requirement.	The Transmission Operator has failed to comply with four or more of the sub-requirements within the requirement. <u>The Transmission Operator does not have an approved restoration plan.</u>
R2.	The Transmission Operator failed to provide one of the operational entities identified in its approved restoration plan with a description of any changes to their roles and specific tasks prior to the implementation date of the plan. OR ; † The Transmission Operator provided the information to all entities but was <u>up to thirty 30 calendar</u> days late in doing so-	The Transmission Operator failed to provide two of the operational entities identified in its approved restoration plan with a description of any changes to their roles and specific tasks prior to the implementation date of the plan. OR ; † The Transmission Operator provided the information to all entities but was <u>more than 30 and less than or equal to sixty 60 calendar</u> days or more late in doing so-	The Transmission Operator failed to provide three of the operational entities identified in its approved restoration plan with a description of any changes to their roles and specific tasks prior to the implementation date of the plan. OR ; † The Transmission Operator provided the information to all entities but was <u>more than 60 and less than or equal to ninety 90 calendar</u> days or more late in doing so.	The Transmission Operator failed to provide four or more of the operational entities identified in its approved restoration plan with a description of any changes to their roles and specific tasks prior to the implementation date of the plan. OR ; † The Transmission Operator provided the information to all entities but was <u>more than 90 calendar +20</u> days or more late in doing so.
R3.	The Transmission Operator did not submit <u>submitted</u> the reviewed restoration plan or confirmation of no change within twenty nine 30 calendar days of after the pre-determined schedule.	The Transmission Operator did not submit <u>submitted</u> the reviewed restoration plan or confirmation of no change within more than thirty 30 to fifty nine <u>and less than or equal to 60</u> calendar days of after the pre-determined schedule.	The Transmission Operator did not submit <u>submitted</u> the reviewed restoration plan or confirmation of no change within more than sixty 60 to eighty nine <u>and less than or equal to 90</u> calendar days of after the pre-determined schedule.	The Transmission Operator did not submit <u>submitted</u> the reviewed restoration plan or confirmation of no change within more than ninety 90 calendar days or longer after of the pre-determined schedule.

Standard EOP-005-2 — System Restoration from Blackstart Resources

R#	Lower VSL	Moderate VSL	High VSL	Severe VSL
R4.	The Transmission Operator failed to update and submit its restoration plan to the Reliability Coordinator within ninety <u>90</u> calendar days of the <u>an</u> <u>unplanned</u> change.	The Transmission Operator failed to update and submit its restoration plan to the Reliability Coordinator within <u>more than 90 calendar days but less than 120</u> calendar days of the <u>an</u> <u>unplanned</u> change.	The Transmission Operator has failed to update and submit its restoration plan to the Reliability Coordinator within <u>more than 120 calendar days but less than 150</u> calendar days of the <u>unplanned</u> change.	The Transmission Operator has failed to update and submit its restoration plan to the Reliability Coordinator within 180 <u>more than 150</u> calendar days of the <u>an</u> <u>unplanned</u> change. <u>OR</u> <u>The Transmission Operator failed to update and submit its restoration plan to the Reliability Coordinator prior to a planned BES modification.</u>
R5.	N/A	N/A	N/A	The Transmission Operator did not make the latest Reliability Coordinator approved restoration plan available in its primary and backup control rooms and available to all of its System Operators prior to its implementation date.
R6.	The Transmission Operator performed the verification but did not complete it within the five year period. <u>The Transmission Operator performed the verification within the required timeframe but did not comply with one of the sub-requirements.</u>	N/A <u>The Transmission Operator performed the verification within the required timeframe but did not comply with two of the sub-requirements.</u>	N/A <u>The Transmission Operator performed the verification but did not complete it within the five calendar year period.</u>	The Transmission Operator did not perform the verification or it took more than six <u>calendar</u> years to complete the verification. <u>OR:</u> <u>The Transmission Operator performed the verification within the required timeframe but did not comply with any of the sub-requirements.</u>
R7.	N/A	N/A	N/A	The Transmission Operator did

R#	Lower VSL	Moderate VSL	High VSL	Severe VSL
				<p>not implement its restoration plan following a Disturbance in which Blackstart Resources have been utilized in restoring the shut down area of the SystemBES. Or, if the restoration plan cannot be executed as expected because actual conditions do not match the studied conditions, the Transmission Operator did not utilize its restoration plan strategies to facilitate restoration.</p>
R8.	N/A	N/A	N/A	<p>The Transmission Operator resynchronized without approval of the Reliability Coordinator or not in accordance with the established procedures of the Reliability Coordinator following a Disturbance in which Blackstart Resources have been utilized in restoring the shut down area of the SystemBES to service.</p>
R9.	N/A	N/A	N/A	<p>The Transmission Operator's Blackstart Resource testing requirements do not address one or more of the sub-requirements of Requirement R9.</p>
R10.	The Transmission Operator's training does not address one of	The Transmission Operator's training does not address two of	The Transmission Operator's training does not address three	The Transmission Operator has not included System restoration

Standard EOP-005-2 — System Restoration from Blackstart Resources

R#	Lower VSL	Moderate VSL	High VSL	Severe VSL
	the sub-requirements of Requirement R10.	the sub-requirements of Requirement R10.	or more of the sub-requirements of Requirement R10.	training in its operations training program.
R11.	<u>The Transmission Operator, applicable Transmission Owner, or applicable Distribution Provider did not train less than or equal to 10% of the personnel required by Requirement R11 within a two calendar year period.</u> N/A	<u>The Transmission Operator, applicable Transmission Owner, or applicable Distribution Provider did not train more than 10% and less than or equal to 25% of the personnel required by Requirement R11 within a two calendar year period.</u> N/A	<u>The Transmission Operator, applicable Transmission Owner, or applicable Distribution Provider did not train more than 25% and less than or equal to 50% of the personnel required by Requirement R11 within a two calendar year period.</u> N/A	The Transmission Operator, applicable Transmission Owner, or applicable Distribution Provider did not supply any training more than 50 % or more of to the personnel required by Requirement R11 within a two <u>calendar</u> year period.
R12.	N/A.	N/A	N/A	The Transmission Operator has failed to comply with a request for their participation from the Reliability Coordinator.
R13.	N/A	The Transmission Operator and Generator Operator with a Blackstart Resource do not reference Blackstart Resource Testing requirements in their written Blackstart Resource Agreements or mutually agreed upon procedures or protocols.	N/A	The Transmission Operator and Generator Operator with a Blackstart resource do not have a written Blackstart Resource Agreement or mutually agreed upon procedure or protocol.
R14.	N/A	N/A	N/A	The Generator Operator does not have documented starting and bus energizing procedures for each Blackstart Resources.
R15.	The Generator Operator with a Blackstart Resource did not notify the Transmission Operator of a change in	The Generator Operator with a Blackstart Resource did not notify the Transmission Operator of a change in	The Generator Operator with a Blackstart Resource did not notify the Transmission Operator of a change in	The Generator Operator with a Blackstart Resource did not notify the Transmission Operator of a change in

Standard EOP-005-2 — System Restoration from Blackstart Resources

R#	Lower VSL	Moderate VSL	High VSL	Severe VSL
	Blackstart Resource capability <u>affecting the ability to meet the Transmission Operator’s restoration plan</u> within twenty-four 24 hours <u>but did make the notification within 48 hours.</u>	Blackstart Resource capability <u>affecting the ability to meet the Transmission Operator’s restoration plan</u> within seventy-two 72 hours <u>but did make the notification within 72 hours.</u>	Blackstart Resource capability <u>affecting the ability to meet the Transmission Operator’s restoration plan</u> within ninety-six 96 hours <u>but did make the notification within 96 hours.</u>	Blackstart Resource capability <u>affecting the ability to meet the Transmission Operator’s restoration plan</u> for more than ninety-six 96 hours.
R16.	The Generator Operator with a Blackstart Resource did not maintain testing records for one of the requirements for a Blackstart Resource. Or did not supply the Blackstart Resource testing records as requested within fifty-nine 59 calendar days of the request.	The Generator Operator with a Blackstart Resource did not maintain testing records for two of the requirements for a Blackstart Resource. Or did not supply the Blackstart Resource testing records as requested for sixty 60 days to eighty-nine 89 calendar days after the request.	The Generator Operator with a Blackstart Resource did not maintain testing records for three of the requirements for a Blackstart Resource. Or did not supply the Blackstart Resource testing records as requested for ninety 90 to 119 calendar days after the request.	The Generator Operator with a Blackstart Resource did not maintain testing records for a Blackstart Resource. Or did not supply the Blackstart Resource testing records as requested for 120 days or more after the request.
R17.	<u>The Generator Operator with a Blackstart Resource did not train less than or equal to 10% of the personnel required by Requirement R17 within a two calendar year period.</u> N/A	<u>The Generator Operator with a Blackstart Resource did not train more than 10% and less than or equal to 25% of the personnel required by Requirement R17 within a two calendar year period.</u> N/A	<u>The Generator Operator with a Blackstart Resource did not train more than 25% and less than or equal to 50% of the personnel required by Requirement R17 within a two calendar year period.</u> N/A	The Generator Operator with a Blackstart Resource did not supply any of the training <u>more than 50% or more of the personnel</u> required by Requirement R18 <u>R17</u> within a two <u>calendar</u> year period to each operator responsible for startup of its Blackstart Resource generation units and energizing a bus.
R18.	N/A.	N/A	N/A	The Generator Operator has failed to comply with a request for their participation from the Reliability Coordinator.

E. Regional Variances

None.

Version History

Version	Date	Action	Change Tracking
0	April 1, 2005	Effective Date	New
0	August 8, 2005	Removed “Proposed” from Effective Date	Errata
1	May 2, 2007	Approved by Board of Trustees	Revised
2	TBD	Revisions pursuant to Project 2006-03	Updated testing requirements Incorporated Attachment 1 into the requirements Updated Measures and Compliance to match new Requirements