

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.

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. Fourth posting of draft standards.	October 2008
2. Standards posted for first ballot.	December 2008
3. Standards posted for second ballot.	February 2009
4. Standards sent to BOT for approval.	March 2009
5. File with regulatory authorities	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 ~~generation Facility~~ 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 are established,~~ and personnel are prepared to enable System restoration from Blackstart Resources to ~~ensure~~ 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 Operator's restoration plan.
 - 4.4. Distribution Providers identified in the Transmission Operator's restoration plan.
5. **Proposed Effective Date:** ~~TBD~~ In those jurisdictions where regulatory approval is required, all requirements go into effect the first day of the first calendar quarter twenty-four months after applicable regulatory approval. In those jurisdictions where no regulatory approval is required, all requirements go into effect the first day of the first calendar quarter 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.** 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 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 ~~the integrity of the Interconnection~~ 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 ~~Procedures~~ Processes to reestablish connections within the Transmission Operator's System for areas that have ~~become separated~~ been restored and are prepared for reconnection.
- R1.8.** Operating ~~Procedures~~ 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 ~~for restoring the System~~.
- R1.9.** Criteria for transferring operations and authority back to the Balancing Authority.
- R2.** ~~Each Transmission Operator shall distribute its approved restoration plan to the reliability related operational entities identified in its restoration plan within thirty calendar days of having received approval from its Reliability Coordinator.~~ 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 ~~it's~~ the Transmission Operator's 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 calendar days after identifying any unplanned permanent System modifications, or prior to implementing a planned System 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 calendar day period.
- R5.** Each Transmission Operator shall have a copy of its latest Reliability Coordinator approved restoration plan within ~~each of its~~ primary and backup control ~~centers~~ rooms and available to all of its ~~control room personnel~~ 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 ~~documented~~ restoration plan accomplishes its intended function. This shall be completed every five years at a minimum. Such analysis, simulations or testing shall ~~analyze~~ 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 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*]
- ~~**R7.1.** Each affected Transmission Operator shall work in conjunction with its Reliability Coordinator to determine the extent and condition of the isolated area(s).~~
- ~~**R7.2.** Each affected Transmission Operator shall notify its Reliability Coordinator of restoration progress as required in the Reliability Coordinator's restoration plan.~~
- ~~**R7.3.** If the restoration plan cannot be completed as expected because actual conditions do not match the studied conditions, the Transmission Operator shall utilize its restoration plan philosophies to implement alternative measures for achieving System restoration.~~
- 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 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.

R9.3. The minimum duration of each of the required tests.

~~R10.~~ Each Transmission Operator shall post its Blackstart Resource testing requirements in a freely accessible public forum. *[Violation Risk Factor = Lower] [Time Horizon = Operations Planning]*

R11.R10. Each Transmission Operator shall include within its operations training program, annual System restoration training to its System Operators to ~~ensure~~ 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]*

~~R11.1.~~**R10.1.** System restoration ~~philosophy~~ plan including coordination with the Reliability Coordinator and Generator Operators included in the restoration plan.

~~R11.2.~~**R10.2.** Restoration priorities.

~~R11.3.~~**R10.3.** Building of cranking paths.

~~R11.4.~~**R10.4.** Synchronizing (re-energized sections of the System).

~~R11.5.~~ Review of the restoration plan.

~~R12.~~**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 years to their field switching personnel identified as performing unique tasks associated with ~~it's~~ the Transmission Operator's restoration plan that are outside of their normal tasks. *[Violation Risk Factor = Lower] [Time Horizon = Operations Planning]*

R13.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]*

R14.R13. Each Transmission Operator and Generator Operator with a Blackstart Resource shall have ~~a~~ 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~~ Blackstart Resource testing requirements. *[Violation Risk Factor = Medium] [Time Horizon = Operations Planning]*

R15.R14. Each Generator Operator with a Blackstart Resource shall have documented procedures for starting ~~the~~ each Blackstart Resource and energizing a bus. *[Violation Risk Factor = Medium] [Time Horizon = Operations Planning]*

~~R16.~~**R15.** Each Generator Operator ~~of~~ with a Blackstart Resource shall notify its Transmission Operator of any known changes to the capabilities of that Blackstart Resource within twenty-four hours following such change. *[Violation Risk Factor = Medium] [Time Horizon = Operations Planning]*

~~R17.~~**R16.** Each Generator Operator ~~of~~ 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]*

~~R17.1.~~**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.

~~R17.2.~~**R16.2.** Each Generator Operator shall provide the blackstart test results within thirty calendar days following a request from its Reliability Coordinator or Transmission Operator.

~~R18.~~**R17.** Each Generator Operator ~~of~~ with a Blackstart Resource shall provide a minimum of two hours of training every two years to each of its operating personnel responsible for the startup ~~and synchronization~~ 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]*

~~R18.1.~~**R17.1.** System restoration ~~philosophy~~ plan including coordination with the Transmission Operator.

~~R18.2.~~**R17.2.** ~~Special actions required to enable blackstart and synchronization to the System.~~ The procedures documented in Requirement R14.

~~R19.~~**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 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 ~~distributed its approved restoration plan to the appropriate entities~~ 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 ~~its~~ 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 ~~with~~ and submitted it to its Reliability Coordinator in accordance with Requirement R4.
- M5.** Each Transmission Operator shall have documentation ~~such as e-mail receipts~~ that it has made the latest Reliability Coordinator approved copy of its restoration plan available in ~~each of its~~ primary and backup control rooms and to each of its ~~control room personnel~~ 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 ~~accomplishes~~ 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 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 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 evidence that it has posted its Blackstart Resource testing requirements in accordance with Requirement R10.~~
- ~~**M11.**~~**M10.** Each Transmission Operator shall have an electronic or hard copy of the training program material provided to its System Operators for System restoration training in accordance with Requirement ~~R11~~R10.
- ~~**M12.**~~**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 ~~its~~ their field switching personnel for System restoration training and the corresponding training records including training dates and duration in accordance with Requirement ~~R12~~R11.
- ~~**M13.**~~**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 ~~R13~~R12.
- ~~**M14.**~~**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 ~~with all Generator Operators with Blackstart Resources included in its restoration plan~~ in accordance with Requirement ~~R14~~R13.

~~M15.~~M14. Each Generator Operator with a Blackstart Resource shall have dated documented procedures on file for starting ~~the~~ each unit and energizing a bus in accordance with Requirement ~~R15~~R14.

~~M16.~~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 ~~R16~~R15.

~~M17.~~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 ~~R17~~R16.

~~M18.~~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 ~~R18~~R17.

~~M19.~~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 ~~R19~~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.
- ~~Distribution of its approved restoration plan and any restoration plans in force~~ 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 year and three prior calendar years for Requirement R2, Measure M2.
- Submission of ~~its~~ the Transmission Operator's annually reviewed restoration plan to its Reliability Coordinator for the current 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 year and the prior three years for Requirement R4, Measure M4.
- The current, approved by the Reliability Coordinator restoration plan and any restoration plans in force for the last three calendar years 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 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 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.
- ~~Posting of its current Blackstart Resource testing requirements and any Blackstart Resource testing requirements in force during the last three years for Requirement R10, Measure M10.~~
- Actual training program materials or descriptions for three calendar years for Requirement ~~R11~~R10, Measure ~~M11~~M10.
- ~~Actual training program materials or descriptions and actual training records for three calendar years for Requirement R12, Measure M12.~~
- 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 ~~R13~~R11, Measure ~~M13~~M11.

- ~~Current Blackstart Resource Agreements and any Blackstart Resource Agreements in force since its last compliance audit for Requirement R14, Measure M14.~~

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 R12, Measure M12.

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 ~~its~~ each Blackstart Resources and for energizing a bus for Requirement ~~R15~~R14, Measure ~~M15~~M14.
- Notification to its Transmission Operator of any known changes to its Blackstart Resource capabilities over the last three years for Requirement ~~R16~~R15, Measure ~~M16~~M15.
- The verification test results for the current set of requirements and one previous set for its Blackstart Resources for Requirement ~~R17~~R16, Measure ~~M17~~M16.
- Actual training program materials ~~or descriptions~~ and actual training records for three calendar years for Requirement ~~R18~~R17, Measure ~~M18~~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 ~~R19~~R18, Measure ~~M19~~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 failed to comply with less than 25% of the number <u>one of the sub-components requirements</u> within the requirement.	The Transmission Operator failed to comply with 25% or more and less than 50% of the number <u>two of the sub-components requirements</u> within the requirement.	The Transmission Operator has failed to comply with 50% or more and less than 75% of the number <u>three of the sub-components requirements</u> within the requirement.	The Transmission Operator has failed to comply with 75% of the number <u>four or more of the sub-components requirements</u> within the requirement.
R2.	The Transmission Operator failed to distribute the information to an entity identified within the restoration plan within the required timeframe <u>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.</u> Or, t <u>The Transmission Operator distributed provided the information to all entities but was thirty calendar days late in doing so.</u>	The Transmission Operator failed to distribute the information to two entities identified within the restoration plan within the required timeframe <u>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.</u> Or, t <u>The Transmission Operator distributed provided the information to all entities but was sixty calendar days or more late in doing so.</u>	The Transmission Operator failed to distribute the information to three entities identified within the restoration plan within the required timeframe <u>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.</u> Or, t <u>The Transmission Operator distributed provided the information to all entities but was ninety calendar days or more late in doing so.</u>	The Transmission Operator failed to distribute the information to four or more entities identified within the restoration plan within the required timeframe <u>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.</u> Or, t <u>The Transmission Operator distributed provided the information to all entities but was 120 calendar days or more late in doing so.</u>
R3.	The Transmission Operator did not submit the required information <u>reviewed restoration plan or confirmation of no change</u> within twenty-nine <u>calendar</u>	The Transmission Operator did not submit the required information <u>reviewed restoration plan or confirmation of no change</u> within thirty <u>to fifty-nine</u>	The Transmission Operator did not submit the required information <u>reviewed restoration plan or confirmation of no change</u> within sixty <u>to eighty-nine</u>	The Transmission Operator did not submit the required information <u>reviewed restoration plan or confirmation of no change</u> within ninety <u>calendar days of</u>

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R#	Lower VSL	Moderate VSL	High VSL	Severe VSL
	days of the pre-determined schedule. Or, the Transmission Operator did not complete the review within thirty days of the pre-determined schedule.	calendar days of the pre-determined schedule. Or, the Transmission Operator did not complete the review within sixty days of the pre-determined schedule.	calendar days of the pre-determined schedule. Or, the Transmission Operator did not complete the review within ninety days of the pre-determined schedule.	the pre-determined schedule. Or, the Transmission Operator did not complete the review within 120 days of the pre-determined schedule.
R4.	The Transmission Operator failed to <u>comply update and submit its restoration plan to the Reliability Coordinator</u> within ninety calendar days <u>of the change.</u>	The Transmission Operator failed to <u>comply update and submit its restoration plan to the Reliability Coordinator</u> within 120 calendar days of the change.	The Transmission Operator has failed to <u>comply update and submit its restoration plan to the Reliability Coordinator</u> within 150 calendar days of the change.	The Transmission Operator has failed to <u>comply update and submit its restoration plan to the Reliability Coordinator</u> within 180 calendar days of the change.
R5.	The Transmission Operator did not make the latest approved restoration plan available in its control rooms within fifteen calendar days of its approval. <u>N/A</u>	The Transmission Operator did not make the latest approved restoration plan available in its control rooms within twenty calendar days of its approval. <u>N/A</u>	The Transmission Operator did not make the latest approved restoration plan available in its control rooms within twenty-five calendar days of its approval. <u>N/A</u>	The Transmission Operator did not make the latest <u>Reliability Coordinator</u> approved restoration plan available in its <u>primary and backup</u> control rooms within <u>thirty calendar days of its approval, and available to all of its System Operators prior to its implementation date.</u>
R6.	N/A <u>The Transmission Operator performed the verification but did not complete it within the five year period.</u>	N/A	N/A	The Transmission Operator did not perform the verification within the prescribed timeframe <u>or it took more than six years to complete the verification.</u>
R7.	N/A	N/A	N/A	The Transmission Operator did not implement its restoration plan following a Disturbance in

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R#	Lower VSL	Moderate VSL	High VSL	Severe VSL
				<p>which Blackstart Resources have been utilized in restoring the shut down area of the System. <u>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.</u></p>
R8.	N/A	N/A	N/A	<p>The Transmission Operator resynchronized without approval of the Reliability Coordinator or <u>not</u> 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 System to service.</p>
R9.	<p>The Transmission Operator's testing requirements do not address one of the subrequirements. <u>N/A</u></p>	N/A.	<p>The Transmission Operator's testing requirements do not address two of the subrequirements. <u>N/A</u></p>	<p>The Transmission Operator does not have the testing requirements. <u>The Transmission Operator's Blackstart Resource testing requirements do not address one or more of the sub-requirements of Requirement R9.</u></p>

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R#	Lower VSL	Moderate VSL	High VSL	Severe VSL
R10.	N/A	N/A	N/A	The Transmission Operator failed to post the Blackstart Resource testing requirements.
R11 <u>R10.</u>	The Transmission Operator's training is missing <u>does not address</u> one of the topics mentioned in the sub-requirements <u>of Requirement R10.</u>	The Transmission Operator's training is missing <u>does not address</u> two of the topics mentioned in the sub-requirements <u>of Requirement R10.</u>	The Transmission Operator's training is missing <u>does not address</u> three or more of the topics mentioned in the sub-requirements <u>of Requirement R10.</u>	The Transmission Operator has not included System restoration training in its operations training program.
R12 <u>R11.</u>	The Transmission Operator only supplied 1.5 hours of training within a two year period. N/A	N/A	The Transmission Operator only supplied one hour of training within a two year period. N/A	The Transmission Operator, <u>applicable Transmission Owner, or applicable Distribution Provider</u> did not supply any training <u>to the personnel required by Requirement R11</u> within a two year period.
R13 <u>R12.</u>	N/A.	N/A	N/A	The Transmission Operator has failed to comply with a request for their participation from the Reliability Coordinator.
R14 <u>R13.</u>	The Transmission Operator does not have a Blackstart Resource Agreement for one of its Blackstart Resources. N/A	The Transmission Operator does not have Blackstart Resource Agreements for 25% of Blackstart Resources. <u>The Transmission Operator and Generator Operator with a Blackstart Resource do not reference Blackstart Resource Testing requirements in their</u>	The Transmission Operator does not have Blackstart Resource Agreements for 50% of Blackstart Resources. N/A	The Transmission Operator does not have Blackstart Resource Agreements for more than 50% of Blackstart Resources. <u>The Transmission Operator and Generator Operator with a Blackstart resource do not have a written Blackstart Resource</u>

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R#	Lower VSL	Moderate VSL	High VSL	Severe VSL
		<u>written Blackstart Resource Agreements or mutually agreed upon procedures or protocols.</u>		<u>Agreement or mutually agreed upon procedure or protocol.</u>
R15 <u>R14.</u>	The Generator Operator does not have dated documented procedures for one Blackstart Resource or the procedures do not contain both elements specified in the requirement. <u>N/A</u>	The Generator Operator does not have dated documented procedures for two Blackstart Resources. <u>N/A</u>	The Generator Operator does not have dated documented procedures for three Blackstart Resources. <u>N/A</u>	The Generator Operator does not have dated documented starting and bus energizing procedures for any of its each Blackstart Resources.
R16 <u>R15.</u>	The Generator Operator with a Blackstart Resource did not notify the Transmission Operator of a change in Blackstart Resource capability within twenty-four hours.	The Generator Operator with a Blackstart Resource did not notify the Transmission Operator of a change in Blackstart Resource capability within three days seventy-two hours.	The Generator Operator with a Blackstart Resource did not notify the Transmission Operator of a change in Blackstart Resource capability within four days ninety-six hours.	The Generator Operator with a Blackstart Resource did not notify the Transmission Operator of a change in Blackstart Resource capability for more than four days ninety-six hours.
R17 <u>R16.</u>	The Generator Operator with a Blackstart Resource did not maintain testing records for one of the requirements for a Blackstart Resource. <u>⊖</u> <u>Or</u> The Generator Operator with a Blackstart Resource did not supply them the Blackstart Resource testing records as requested within fifty-nine calendar days of the request the required timeframe.	The Generator Operator with a Blackstart Resource did not maintain testing records for two of the requirements for a Blackstart Resource. <u>⊖</u> <u>Or</u> The Generator Operator with a Blackstart Resource did not supply them the Blackstart Resource testing records as requested for sixty days to eighty-nine calendar days after the request required timeframe.	The Generator Operator with a Blackstart Resource did not maintain testing records for three of the requirements for a Blackstart Resource. <u>⊖</u> <u>Or</u> The Generator Operator with a Blackstart Resource did not supply them the Blackstart Resource testing records as requested for ninety to 119 calendar days after the request required timeframe.	The Generator Operator with a Blackstart Resource did not maintain testing records for a Blackstart Resource. <u>⊖</u> <u>Or</u> The Generator Operator with a Blackstart Resource did not supply them the Blackstart Resource testing records as requested for 120 days or more after the request required timeframe.
R18 <u>R17.</u>	The Generator Operator only supplied 1.5 hours of training	<u>N/A</u>	The Generator Operator only supplied one hour of training	The Generator Operator with a Blackstart Resource did not

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

R#	Lower VSL	Moderate VSL	High VSL	Severe VSL
	within a two year period. <u>N/A</u>		within a two year period. <u>N/A</u>	supply any <u>of the</u> training <u>required by Requirement R17</u> within a two year period <u>to each operator responsible for startup of its Blackstart Resource generation units and energizing a bus.</u>
R19 R18 .	N/A.	N/A	N/A	The Generator Operator has failed to comply with a request for their <u>its</u> 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