## A. Introduction

1. **Title:** **System Restoration Coordination**
2. **Number:** EOP-006-2
3. **Purpose:** Ensure plans are established and personnel are prepared to enable effective coordination of the System restoration process to ensure reliability is maintained during restoration and priority is placed on restoring the Interconnection.
4. **Applicability:**

   **4.1.** Reliability Coordinators.
5. **Proposed Effective Date:** 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 Reliability Coordinator shall ~~have~~ develop, maintain, and implement a Reliability Coordinator Area restoration plan. The scope of the Reliability Coordinator's restoration plan starts when Blackstart Resources are utilized to re-energize a shut down area of the Bulk Electric System (BES), or separation has occurred between neighboring Reliability Coordinators, or an energized island has been formed on the BES within the Reliability Coordinator Area. The scope of the Reliability Coordinator's restoration plan ends when all of its Transmission Operators are interconnected and ~~it~~ its Reliability Coordinator Area is connected to all of its neighboring Reliability Coordinator Areas. The restoration plan shall include: *[Violation Risk Factor = High] [Time Horizon = Operations Planning, Real-time Operations]*

**R1.1.** A description of the high level strategy to be employed during restoration events for restoring the Interconnection including minimum criteria for meeting the objectives of the Reliability Coordinator's restoration plan.

~~**R1.2.** Operating Processes for restoring the Interconnection.~~

~~**R1.3.** Descriptions of the elements of coordination between individual Transmission Operator restoration plans.~~

~~**R1.4.** Descriptions of the elements of coordination of restoration plans with neighboring Reliability Coordinators.~~

~~**R1.5.**~~**R1.2.** Criteria and conditions for reestablishing interconnections with other Transmission Operators within its Reliability Coordinator Area, with adjacent or neighboring Transmission Operators in other Reliability Coordinator Areas, and with ~~other~~ adjacent or neighboring Reliability Coordinators.

~~**R1.6.**~~**R1.3.** Reporting requirements for the entities within the Reliability Coordinator Area during a restoration event.

**Formatted:** Indent: Left: 1.2", No bullets or numbering

**Formatted:** Bullets and Numbering

~~R1.7.~~R1.4. Criteria for sharing information regarding restoration with neighboring Reliability Coordinators and with Transmission Operators and Balancing Authorities within its Reliability Coordinator Area.

~~R1.8.~~R1.5. Identification of the Reliability Coordinator as the primary contact for disseminating information regarding restoration to neighboring Reliability Coordinators, and to Transmission Operators, and Balancing Authorities within its Reliability Coordinator Area.

~~R1.9.~~R1.6. Criteria for transferring operations and authority back to the Balancing Authority.

**R1.7.** Each Reliability Coordinator shall work with its affected Generator Operators~~,~~ and Transmission Operators as well as neighboring Reliability Coordinators to monitor restoration progress, coordinate restoration, and take actions to restore the BES frequency within acceptable operating limits. If the restoration plan cannot be completed as expected the Reliability Coordinator shall utilize its restoration plan strategies to facilitate System restoration.

~~R1.9.~~R1.8. The Reliability Coordinator shall coordinate or authorize resynchronizing islanded areas that bridge boundaries between Transmission Operators or Reliability Coordinators. If the resynchronization cannot be completed as expected the Reliability Coordinator shall utilize its restoration plan strategies to facilitate resynchronization.

**Formatted:** Bullets and Numbering

**R2.** The Reliability Coordinator shall distribute its most recent Reliability Coordinator Area restoration plan to each of its Transmission Operators and neighboring Reliability Coordinators within 30 calendar days of creation or revision. *[Violation Risk Factor = Lower] [Time Horizon = Operations Planning]*

**R3.** Each Reliability Coordinator shall review its restoration plan within 13 calendar months of the last review. *[Violation Risk Factor = Medium] [Time Horizon = Operations Planning]*

**R4.** Each Reliability Coordinator shall review their neighboring Reliability Coordinator's restoration plans within 60 days of receipt. *[Violation Risk Factor = Medium] [Time Horizon = Operations Planning]*

**R4.1.** If the Reliability Coordinator finds conflicts between its restoration plans and any of its neighbors, the conflicts shall be resolved in 30 calendar days.

**R5.** Each Reliability Coordinator shall review the restoration plans required by EOP-005 of the Transmission Operators within its Reliability Coordinator Area. *[Violation Risk Factor = Medium] [Time Horizon = Operations Planning]*

**R5.1.** The Reliability Coordinator shall determine whether the Transmission Operator's restoration plan is coordinated and compatible with the Reliability Coordinator's restoration plan and other Transmission Operators' restoration plans within its Reliability Coordinator Area. The Reliability Coordinator shall approve or disapprove, with stated reasons, the Transmission Operator's submitted restoration plan within 30 calendar days following the receipt of the restoration plan from the Transmission Operator.

**R6.** Each Reliability Coordinator shall have a copy of its latest restoration plan and copies of the latest approved restoration plan of each Transmission Operator in its Reliability Coordinator Area within its primary and backup control rooms so that it is available to all of its System Operators prior to the implementation date. *[Violation Risk Factor = Lower] [Time Horizon = Operations Planning]*

~~**R7.** Each Reliability Coordinator shall work with its affected Generator Operators, and Transmission Operators as well as neighboring Reliability Coordinators to monitor restoration progress, coordinate restoration, and take actions to restore the BES frequency within acceptable operating limits. If the restoration plan cannot be completed as expected the Reliability Coordinator shall utilize its restoration plan strategies to facilitate System restoration. *[Violation Risk Factor = High] [Time Horizon = Real-time Operations]*~~

~~**R8.** The Reliability Coordinator shall coordinate or authorize resynchronizing islanded areas that bridge boundaries between Transmission Operators or Reliability Coordinators. If the resynchronization cannot be completed as expected the Reliability Coordinator shall utilize its restoration plan strategies to facilitate resynchronization. *[Violation Risk Factor = High] [Time Horizon = Real-time Operations]*~~

**Formatted:** Indent: Left: 0.65", No bullets or numbering

~~**R9.**~~**R7.** Each Reliability Coordinator shall include within its operations training program, annual System restoration training for its System Operators to assure the proper execution of its restoration plan. This training program shall address the following: *[Violation Risk Factor = Medium] [Time Horizon = Operations Planning]*

~~**R9.1.**~~**R7.1.** The coordination role of the Reliability Coordinator.

**Formatted:** Bullets and Numbering

~~**R9.2.**~~**R7.2.** Reestablishing the Interconnection.

~~**R10.**~~**R8.** Each Reliability Coordinator shall conduct two System restoration drills, exercises, or simulations per calendar year, which shall include the Transmission Operators and Generator Operators as dictated by the particular scope of the drill, exercise, or simulation that is being conducted. *[Violation Risk Factor = Medium] [Time Horizon = Operations Planning]*

~~**R10.1.**~~**R8.1.** Each Reliability Coordinator shall request each Transmission Operator identified in its restoration plan and each Generator Operator identified in the Transmission Operators' restoration plans to participate in a drill, exercise, or simulation at least every two calendar years.

**Formatted:** Bullets and Numbering

## C. Measures

**M1.** Each Reliability Coordinator shall have available a dated copy of its restoration plan in accordance with Requirement R1.

**M2.** Each Reliability Coordinator shall provide evidence such as e-mails with receipts, posting to a secure web site with notification to affected entities, or registered mail receipts, that its most recent restoration plan has been distributed in accordance with Requirement R2.

**M3.** Each Reliability Coordinator shall provide evidence such as a review signature sheet, or revision histories, that it has reviewed its restoration plan within 13 calendar months of the last review in accordance with Requirement R3.

**M4.** Each Reliability Coordinator shall provide evidence such as dated review signature sheets that it has reviewed its neighboring Reliability Coordinator's restoration plans and resolved any conflicts within 30 calendar days in accordance with Requirement R4.

**M5.** Each Reliability Coordinator shall provide evidence, such as a review signature sheet or emails, that it has reviewed, approved or disapproved, and notified its Transmission Operator's within 30 calendar days following the receipt of the restoration plan from the Transmission Operator -in accordance with Requirement R5.

**M6.** Each Reliability Coordinator shall have documentation such as e-mail receipts that it has made the latest copy of its restoration plan and copies of the latest approved restoration plan of each Transmission Operator in its Reliability Coordinator Area available in its primary and backup control rooms and to each of its System Operators prior to the implementation date in accordance with Requirement R6.

~~**M7.**Each Reliability Coordinator involved shall have evidence such as voice recordings, e-mail, dated computer printouts, or operator logs, that it monitored and coordinated restoration progress in accordance with Requirement R7.~~

~~**M8.**If there has been a resynchronizing of an islanded area, each Reliability Coordinator involved shall have evidence such as voice recordings, e-mail, or operator logs, that it coordinated or authorized resynchronizing in accordance with Requirement R8.~~

~~**M9.**~~**M7.** Each Reliability Coordinator shall have an electronic or hard copy of its training records available showing that it has provided training in accordance with Requirement R~~7~~9.

~~**M10.**~~**M8.** Each Reliability Coordinator shall have evidence that it conducted two System restoration drills, exercises, or simulations per calendar year and that Transmission Operators and Generator Operators included in the Reliability Coordinator's restoration plan were invited in accordance with Requirement R~~8~~10.

Formatted: Bullets and Numbering

## 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 Reliability Coordinator 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:

- The current restoration plan and any restoration plans in force since the last compliance audit for Requirement R1, Measure M1.
- Distribution of its most recent restoration plan and any restoration plans in force for the current calendar year and three prior calendar years for Requirement R2, Measure M2.
- It's reviewed restoration plan for the current review period and the last three prior review periods for Requirement R3, Measure M3.
- Reviewed copies of neighboring Reliability Coordinator restoration plans for the current calendar year and the three prior calendar years for Requirement R4, Measure M4.
- The reviewed restoration plans for the current calendar year and the last three prior calendar years for Requirement R5, Measure M5.
- The current, approved restoration plan and any restoration plans in force for the last three calendar years was made available in its control rooms for Requirement R6, Measure M6.
- ~~If there has been a restoration event, implementation of its restoration plan on any occasion over a rolling 12 month period for Requirement R7, Measure M7.~~
- ~~If there has been a resynchronization of an islanded area, implementation of its restoration plan on any occasion over a rolling 12 month period for Requirement R8, Measure M8.~~
- Actual training program materials or descriptions for three calendar years for Requirements R9, Measure M9.
- Records of all Reliability Coordinator restoration drills, exercises, or simulations since its last compliance audit as well as one previous compliance audit period for Requirement R10, Measure M10.

If a Reliability Coordinator is found non-compliant, 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 Reliability Coordinator failed to include one sub-requirement of Requirement R1 within its restoration plan. | The Reliability Coordinator failed to include two sub-requirements of Requirement R1 within its restoration plan. | The Reliability Coordinator failed to include three of the sub-requirements of Requirement R1 within its restoration plan. | The Reliability Coordinator failed to include four or more of the sub-requirements within its restoration plan. |
| **R2.** | The Reliability Coordinator distributed the most recent Reliability Coordinator Area restoration plan to the entities identified in Requirement R2 but was more than 30 calendar days late but less than 60 calendar days late. | The Reliability Coordinator distributed the most recent Reliability Coordinator Area restoration plan to the entities identified in Requirement R2 but was 60 calendar days or more late, but less than 90 calendar days late. | The Reliability Coordinator distributed the most recent Reliability Coordinator Area restoration plan to the entities identified in Requirement R2 but was 90 or more calendar days late but less than 120 calendar days late. | The Reliability Coordinator distributed the most recent Reliability Coordinator Area restoration plan to entities identified in Requirement R2 but was 120 calendar days or more late. |
| **R3.** | N/A | N/A | N/A | The Reliability Coordinator did not review its restoration plan within 13 calendar months of the last review. |
| **R4.** | The Reliability Coordinator did not review and resolve conflicts with the submitted restoration plans from its neighboring Reliability Coordinators within 30 calendar days but did resolve conflicts within 60 calendar days. | The Reliability Coordinator did not review and resolve conflicts with the submitted restoration plans from its neighboring Reliability Coordinators within 30 calendar days but did resolve conflicts within 90 calendar days. | –The Reliability Coordinator did not review and resolve conflicts with the submitted restoration plans from its neighboring Reliability Coordinators within 30 calendar days but did resolve conflicts within 120 calendar days. | The Reliability Coordinator did not review and resolve conflicts with the submitted restoration plans from its neighboring Reliability Coordinators within 120 calendar days. |

**3.**

| | | | | |
|---|---|---|---|---|
| **R5.** | The Reliability Coordinator did not review and approve/disapprove the submitted restoration plans from its Transmission Operators and neighboring Reliability Coordinators within 30 calendar days of receipt but did review and approve/disapprove the plans within 45 calendar days of receipt.<br><br>OR<br><br>The Reliability Coordinator failed to notify the Transmission Operator of its approval or disapproval with stated reasons for disapproval within 30 calendar days of receipt but did notify the Transmission Operator of its approval or disapproval with reasons within 45 calendar days of receipt. | The Reliability Coordinator did not review and approve/disapprove the submitted restoration plans from its Transmission Operators and neighboring Reliability Coordinators within 30 calendar days of receipt but did review and approve/disapprove the plans within 60 calendar days of receipt.<br><br>OR<br><br>The Reliability Coordinator failed to notify the Transmission Operator of its approval or disapproval with stated reasons for disapproval within 30 calendar days of receipt, but did notify the Transmission Operator of its approval or disapproval with reasons within 60 calendar days of receipt | The Reliability Coordinator did not review and approve/disapprove the submitted restoration plans from its Transmission Operators and neighboring Reliability Coordinators within 30 calendar days of receipt but did review and approve/disapprove the plans within 90 calendar days of receipt.<br><br>OR<br><br>The Reliability Coordinator failed to notify the Transmission Operator of its approval or disapproval with stated reasons for disapproval within 30 calendar days of receipt but did notify the Transmission Operator of its approval or disapproval with reasons within 90 calendar days of receipt. | The Reliability Coordinator did not review and approve/disapprove the submitted restoration plans from its Transmission Operators and neighboring Reliability Coordinators for more than 90 calendar days of receipt.<br><br>OR<br><br>The Reliability Coordinator failed to notify the Transmission Operator of its approval or disapproval with stated reasons for disapproval for more than 90 calendar days of receipt. . |
| **R6.** | N/A | N/A | The Reliability Coordinator did not have a copy of the latest approved restoration plan of all Transmission Operators in its Reliability Coordinator Area within its primary and backup control rooms prior to the | The Reliability Coordinator did not have a copy of its latest restoration plan within its primary and backup control rooms prior to the implementation date. |

| | | | | |
|---|---|---|---|---|
| | | | implementation date. | |
| ~~R7.~~ | ~~N/A~~ | ~~N/A~~ | ~~N/A~~ | ~~The Reliability Coordinator did not work with its affected Generator Operators and Transmission Operators as well as neighboring Reliability Coordinators to monitor restoration progress, coordinate restoration, and take actions to restore the BES frequency within acceptable operating limits.~~<br><br>~~OR~~<br><br>~~When the restoration plan cannot be completed as expected, the Reliability Coordinator did not utilize its restoration plan strategies to facilitate System restoration.~~ |
| ~~R8.~~ | ~~N/A~~ | ~~N/A~~ | ~~N/A~~ | ~~The Reliability Coordinator did not coordinate or authorize resynchronizing islanded areas that bridge boundaries between Transmission Operators or Reliability Coordinators.~~<br><br>~~OR~~<br><br>~~If the resynchronization could not be completed as expected, the Reliability Coordinator did~~ |

| | | | | |
|---|---|---|---|---|
| | | | | ~~not utilize its restoration plan strategies to facilitate resynchronization.~~ |
| ~~R9~~R7. | N/A | N/A | The Reliability Coordinator included the annual System restoration training within its operations training program, but did not address both of the sub-requirements. | The Reliability Coordinator did not include the annual System restoration training within its operations training program. |
| ~~R10~~R8. | The Reliability Coordinator only held one restoration drill, exercise, or simulation during the calendar year. | The Reliability Coordinator did not invite a Transmission Operator or Generator Operator identified in its restoration plan to participate in a drill, exercise, or simulation within two calendar years. | N/A | The Reliability Coordinator did not hold a restoration drill, exercise, or simulation during the calendar year. |

## 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 | November 1, 2006 | Adopted by Board of Trustees | Revised |
| 2 | TBD | Revisions pursuant to Project 2006-03 | Updated Measures and Compliance to match new Requirements |
| 2 | August 5, 2009 | Adopted by Board of Trustees | Revised |
| 2 | March 17, 2011 | Order issued by FERC approving EOP-006-2 (approval effective 5/23/11) | |
| 2 | July 1, 2013 | Updated VRFs and VSLs based on June 24, 2013 approval. | |