SOP- RTMKTS.0180.0080
Process Designated Blackstart Resource Testing

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1. Objective

This procedure documents the internal ISO New England (ISO) process within System Operations for Blackstart Capability Testing.

2. Background

The Open Access Transmission Tariff (OATT) Schedule 16- Blackstart Service (Schedule 16) and ISO New England Operating Procedure No. 11 - Blackstart Resource Administration (OP-11) govern the processing and reporting of Blackstart Capability Testing.

Each Designated Blackstart Resource (DBR) performs an actual start of the DBR without dependency on the interconnected system or other DBR support as described in OP-11 at least once every 12 months. Each DBR receives a monthly Blackstart Service Credit (Blackstart Payment). This Blackstart Payment is based upon the proxy rate in Schedule 16.

3. Responsibilities

1. Using the ISO Outage Scheduling software, the Lead Market Participant (MP) is responsible for requesting the Blackstart Capability Test (Test).

2. The ISO Blackstart Administrator (Administrator) is responsible for:
   A. Reviewing the Test documentation.
   B. Entering Test results received from any Lead MP (or designee) into the Power System User Interface (UI).
   C. Communicating Test results, “Failure to Maintain” status and commitment status to the SRWG through monthly testing updates.
   D. Reviewing North American Electric Reliability Corporation (NERC) Critical Infrastructure Protection (CIP) documentation and entering data into the UI.
4. Controls

- The Administrator (or designee) processes the Testing documents.
- The Test Log received from each Lead MP is archived by the Administrator in accordance with the ISO data retention policies.

NOTE

This procedure contains control steps {i.e., applicable to the American Institute of Certified Public Accountants (AICPA) Standard [Statement on Standards for Attestation Engagements (SSAE)] that are defined as Control Activities (CA) and are included in the SSAE 18 Audit Report [(i.e., identified in the Annual Service Organization Control 1 (SOC 1) Controls Monitoring Form)] that require identification per RSKMGT.0060.0010 - Manage Business Process Documentation Changes.

- Each procedure step that is a Control Activity is identified with “CA” and is highlighted in yellow.
  - Each specific CA included in the SOC 1 report is identified using the following format, **CA: [Control Activity step]**.
5. Instructions

5.1 Request to Become a DBR

5.1.1 Enter New DBR Data

A Lead MP typically submits a request for selection to become a DBR through Customer Support and processing of each request is tracked through the Customer Support Tracking Process.

Customer Support forwards each request for selection as a DBR to the SRWG Chair for evaluation.

Certain fields in the UI are “single-versioned” and can only be entered on a future date (e.g., Blackstart Station Effective Date). When entering data, it is an expectation that all “single-versioned” fields are entered at least one day prior to the effective date of the change. For a list of these fields check the Power System User Interface User’s Guide.

1. CA:

When a Generator has been given provisional DBR status, the SRWG Chair (or designee) shall NOTIFY the Administrator.

2. When notified that a Generator has been given provisional DBR status, the Administrator shall perform the following:

A. If a Standard Blackstart Station for the provisional DBR does not exist, CREATE a new Standard Blackstart Station in the UI by performing the following:

(1) OPEN SMS UI
(2) SELECT Power System
(3) SELECT a System Date
(4) SELECT the “Blackstart Stations” folder
(5) SELECT “Add” at the bottom of the UI

NOTE
A Standard Station name should be descriptive of the electrical station to which the DBR is connected and end in “Standard Station”.

(6) ENTER the station name in the “Description” box
(7) On the “Standard” tab, SELECT the “Blackstart Standard Type Station” check box
(8) VERIFY the “Effective Date” is the current date + 1
(9) VERIFY that the “Operating Status” is “Active”

(10) SELECT “Save”

B. ENTER the details of the provisional DBR into the UI as follows:

1. In the “NEPOOL Network Model: Network Areas: NEPOOL AREA” folder, SEARCH for the “Asset ID” of the prospective DBR.

2. In the “Generating Units” folder under the “Asset Node”, SELECT the “Generating Units” folder.

3. In the “Asset” folder under the “Generating Units” folder:
   a. SELECT “Blackstart Machines”
   b. At the bottom of the UI screen, SELECT “Add”

4. ENTER the following information on the “Machine” page:
   a. Description: Machine Name from the DBR Application
   b. Machine Type: Machine Type from the DBR Application
   c. Generating Unit: VERIFY that the Generating Unit is the correct associated Asset for the DBR machine
   d. Nameplate MVA: Nameplate MVA from the DBR Application
   e. In Service Date: In Service date from the most recent Capacity, Energy, Loads, and Transmission (CELT) report found on the external website
   f. On the Program tab: SELECT “Conversion/Testing Pending”
   g. SAVE the record in the UI

C. ASSOCIATE the DBR with the Standard Blackstart Station in the UI by performing on the appropriate Standard Blackstart Station:

1. SELECT the “Machines” tab

2. SELECT “Add”

3. SEARCH for the appropriate “Machine Name”

4. SELECT the “Begin Date” that the DBR will be associated to the Standard Station

5. SAVE the record
5.2 Designated Blackstart Resource Testing

5.2.1 Review Required Testing

NOTE
In order to maintain compensation and compliance, each DBR is required to conduct a successful Test at least once in each rolling 12-month period which begins on the last day of the month in which the previous Test was conducted.

1. At the beginning of each month, the Administrator shall:

   A. REVIEW the automatically created “Blackstart Failure Monthly Report” in Oracle Business Intelligence (BI)

   B. CA:

      DETERMINE which DBRs failed to perform a Test in the previous month that were required to do so

   C. CA:

      For each DBR that failed to test:

      (1) ENTER “Failure to Maintain Blackstart Capability” data into the “Machine Failures” tab.

      (2) EMAIL the following information to the Lead MP:

          a. DBR name

          b. Asset Name

          c. Asset ID

          d. DBR is in a Failure to Maintain Blackstart Capability status

          e. Date of Failure as the last day of the previous month

          f. Compensation will be affected if the Failure to Maintain Blackstart Capability lasts longer than 30 days.

NOTE
Each Test request is submitted in accordance with ISO New England Operating Procedure No. 5 - Resource Maintenance and Outage Scheduling (OP-5).

Each Test request is processed through the Generator outage scheduling request process. Depending upon switching requirements, a separate transmission outage scheduling application may need to be submitted.

D. CA:
(1) For each DBR that is required to test that month, EMAIL the following information to the Lead MP:

a. The name of each DBR that is required to perform the Test.

b. References to the applicable procedures to follow during the Test.

2. At the end of each year, the Administrator shall:

A. COMPARE the Reactive Capability Tests performed to the required testing dates in ISO New England Operating Procedure No. 23 Appendix G - Generators Required to Perform Reactive Capability Testing.

B. DETERMINE which DBRs failed to perform a Reactive Capability Test.

C. For each DBR that failed to perform the required Reactive Capability Testing:

   (1) ENTER “Failure to Maintain Blackstart Capability” data into the “Machine Failures” tab.

   (2) EMAIL the following information to the Lead MP:

      a. DBR is in a Failure to Maintain Blackstart Capability status
      b. Date of failure as the last day of the previous year
      c. Reactive Capability Test must be conducted within 30 days of the failure date in order to maintain Blackstart Compensation

5.2.2 Process and Provide Notification of Test Results

NOTE

In order to continue receipt of Blackstart payments, each DBR that fails a Test is required to perform a successful retest within 30 days of the date of failure.

Within 30 days of a DBR performing the Test the Lead MP completes OP-11, Appendix E - Designated Blackstart Resource Test Log (Test Log) and submits the Test Log to the Administrator for review. Each DBR Test Log will include a description of any problems that were encountered and the remedial actions, if any, that are needed to correct those problems.

1. When a new DBR Test Log is received, the Administrator shall:

   A. SAVE the DBR Test Log to the DBR Administration SharePoint site (SharePoint):

      http://moss/sites/dbra/SitePages/Home.aspx

   B. CA:
REVISE the Test Log for completeness and accuracy.

C. CA:

If the Test Log is **not** complete and accurate, WORK with the Lead MP and REVISE the Test Log.

D. PERFORM the steps in Attachment F - DBR Test Log Evaluation Checklist.

E. DETERMINE if the DBR passed or failed the Test.

F. SAVE the completed Attachment F checklist to SharePoint

2. If a Test Log is received for an initial Blackstart Test prior to Commitment, the Administrator shall perform the following applicable Test-Pass or Test-Fail actions:

A. Test-Pass actions:

(1) CA:

VERIFY an OP-11, Appendix G - Designated Blackstart Resource Commitment (Commitment) has been completed appropriately by ISO and the Blackstart Owner in accordance with Schedule 16 and OP-11.

(2) ENTER the details of the DBR Commitment into the UI by performing the following:

a. OPEN SMS UI

b. SELECT “Power System”

c. Under the appropriate “Blackstart Station”, SELECT the “Machine”

d. On the Machine “Program” tab,

   (i) ENTER “Designated Blackstart Resource” as the “Program Type”

   (ii) ENTER the appropriate “Begin Date” (typically the first of the month following the successful Test)

e. On the Machine “Commitment” tab

   (i) ENTER the type of Commitment as indicated on the DBR Application
(ii) ENTER the “Begin Date” as the first day of the month following the successful Test.

f. On the “Testing” tab, ENTER the Testing data for the completed Test

g. SAVE the record

h. On the appropriate Standard Blackstart Station:

(i) SELECT the “Machines” tab

(ii) SELECT “Add”

(iii) SEARCH for the appropriate “Machine Name”

(iv) SELECT the “Begin Date” that the DBR will be associated to the Standard Station

(v) SAVE the record

(3) EMAIL Settlements the new DBR status.

B. Test-Fail actions:

(1) RECORD the Test failure date in the UI.

(2) NOTIFY the Lead MP of the prospective DBR that the prospective DBR must perform a successful Test in order to start a Blackstart Commitment.

(3) NOTIFY the SWRG Chair that the prospective DBR failed the Initial Test.

3. If a Test Log is received for an existing DBR, the Administrator shall perform the following applicable Test-Pass or Test-Fail actions:

A. Test-Pass actions:

(1) Using the UI:

a. SELECT the “Blackstart Station”

b. SELECT the “Machine”

(1) CA:

ENTER the Test data into the “Testing” Tab.

(2) NOTIFY the Lead MP that the DBR has passed the Blackstart Capability Test.
(3) If the DBR was in “Failure to Maintain Blackstart Capability” and the Test is the final corrective action for the Failure, PERFORM the following:

a. Using the UI, TERMINATE the “Failure to Maintain Blackstart Capability”

b. NOTIFY the following the DBR is no longer in a “Failure to Maintain Blackstart Capability” status.
   - Lead MP
   - Settlements
   - SRWG Chair

B. Test-Fail actions:

(1) Using the UI:

a. ENTER the Test data into the “Testing” tab.

b. ENTER “Failure to Maintain Blackstart Capability” data into the “Machine Failures” tab.

NOTE
“Failure to Maintain Blackstart Capability” is defined in OATT Schedule 16.

(2) CA:

NOTIFY the Lead MP that the DBR is in a “Failure to Maintain Blackstart Capability” and that the DBR has 30 days from the date of failure to pass a Test in order to continue receipt of Blackstart Payments.

(3) NOTIFY the following the DBR is in a “Failure to Maintain Blackstart Capability” status.

- Settlements
- SRWG Chair
- Lead MP
5.2.3 Verify Failure to Maintain Blackstart Capability and Notify Lead MP

1. If an existing DBR has been in a “Failure to Maintain Blackstart Capability” status for longer than 30 days, the Administrator shall:

   A. DETERMINE if a correction plan has been provided and approved by ISO.

   B. If a correction plan detailing the steps to remedy the “Failure to Maintain Blackstart Capability” has not been provided to ISO, REQUEST the Lead MP provide a correction plan.

   C. NOTIFY the Lead MP of the following:

      (1) The monthly Blackstart Operation and Maintenance (O & M) Payments have been stopped until notification has been received and accepted by ISO that the cause of the Failure to Maintain Blackstart Capability has been rectified.

      (2) Blackstart Capital Payments will continue until 60 days after the “Failure to Maintain Blackstart Capability” date or the date established by ISO based on the ISO-approved DBR correction plan (whichever is later).

5.2.4 Terminate a Blackstart Commitment

1. When the Commitment between ISO and the DBR is to be terminated, the Administrator shall UPDATE the DBR status in the UI as follows:

   A. On the UI “Machine” page:

      (1) On the “Commitment” tab, ENTER a “Commitment End Date”

      (2) On the “Program” tab, CHANGE the “Program” status of the DBR to “Terminated” with appropriate “End Date”

      (3) Select “Add”

      (4) Select Program Type “Terminated”

      (5) Select the “Begin Date” of the termination

      (6) Select “Save”

   B. On the appropriate “Standard Station” “Machine” tab, ENTER an “End Date” for the appropriate “Machine”.

   C. On the appropriate “CIP Station” tab, ENTER an “End Date” for the appropriate “Machine”.

   D. NOTIFY the following the Commitment will be terminated.

      • Lead MP
- Settlemrents
- SRWG Chair
Performance Measures

This procedure is properly followed when all pertinent data is accurately maintained.

6. References

NERC Reliability Standard EOP-005 - System Restoration from Blackstart Resources
NPCC Directory #8 System Restoration
Open Access Transmission Tariff (OATT) Schedule 16 - Blackstart Service
ISO New England Operating Procedure No. 5 - Resource Maintenance and Outage Scheduling (OP-5)
ISO New England Operating Procedure No. 23 - Generator Resource Auditing (OP-23)
Master/Local Control Center Procedure No. 18 - System Restoration Plan (M/LCC 18)
SOP-RTMKTS.0210.0010 - Develop, Revise & Control SOP, OP, M/LCC Documents
IAUDITS.0030.0040 - Manage the SSAE 18 Report, SSAE 18 Audit Report (Annual Service Organization Control 1 (SOC 1) Controls Monitoring Form
RSKMGRT.0060.0010 - Manage Business Process Documentation Development Standard
American Institute of Certified Public Accounts (AICPA) Standard #18, [Statement on Standards for Attestation Engagements (SSAE 18)]
7. Revision History

<table>
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<th>Date</th>
<th>Reason</th>
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<tr>
<td>- -</td>
<td>11/15/16</td>
<td>For previous revision history, refer to Rev 10 available through Ask ISO;</td>
<td>Kory Haag</td>
</tr>
<tr>
<td>11</td>
<td>02/07/13</td>
<td>Biennial review by procedure owner; Full document re-write to support changes to OATT Schedule 16 and User Interface</td>
<td>Kory Haag</td>
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<tr>
<td>12</td>
<td>05/07/14</td>
<td>Biennial review completed by procedure owner (per Mgr, SOS); Replaced references to retired OP-11 Appendix A, with M/LCC 18, Attachment O (former OP-11, Att A content was moved to M/LCC 18, Att O); Added CAPA requirement to Section 5.1.1 NOTE. Added System Operator responsibilities to evaluate Blackstart Capability Tests outages</td>
<td>Kory Haag</td>
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<td>13</td>
<td>12/08/14</td>
<td>Biennial review by procedure owner completed; Added clarifying language throughout; Globally defined and replaced the term “Blackstart Administrator” with “Administrator”, the term “Blackstart Capability Testing” with “Testing”, the term “Designated Blackstart Commitment” with “Commitment”; Section 4, Per audit findings, added an explanation that this procedure contains control steps that are defined as Control Activities (CA) that are included in the SSAE 16 Audit Report [(i.e., identified in the Annual SOC 1 Controls Monitoring Form (SOC 1)] that are indicated per requirements of RSMKGT.0060.0010 and globally added the applicable “CA numbers” and yellow highlights where applicable; Globally removed “shall” per ROC directive and modified grammar as required; Section 3 deleted former 3.4, 3.5, 3.6 &amp; 3.7 steps and sub-steps, modified section last step and sub-steps; Section 7, added Manual 35 &amp; new reference documents for CA documentation and deleted RTMKTS.0060.0020; Section 9, retired Attachment C - Yearly Blackstart Log;</td>
<td>Kory Haag</td>
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<td>14</td>
<td>04/07/15</td>
<td>Updated Testing section for SharePoint site storage of DBR test logs; Updated CIP compensation section to differentiate between initial CIP compensation and yearly CIP affirmation process; Created new Attachment F and associated references to performance</td>
<td>Kory Haag</td>
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<tr>
<td>15</td>
<td>11/15/16</td>
<td>Biennial review by procedure owner, updated Process Owner; Added required corporate document identity to all footers; Globally, updated steps throughout procedure to add additional detail for inter-acting with the UI and made editorial, grammar and format changes required to be consistent with current practices and management expectations, updated reference documents; Truncated the Revision History per SOP-RTMKTS.0210.0010 Section 5.6;</td>
<td>Kory Haag</td>
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<td>16</td>
<td>10/26/18</td>
<td>Biennial review by procedure owner;</td>
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<td>5.2.1 Added Control Activity 50.4;</td>
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<td>5.2.2.3.B.(3) Added Lead MP as notification;</td>
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<td>5.2.5.1.A Added clarification steps to terminating DBR;</td>
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<td>5.2.5.1.D Added four month timeframe for submitting MLCC change request;</td>
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<td>Section 7, updated OP-5 title;</td>
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<tr>
<td>17</td>
<td>05/01/19</td>
<td>Update SOC 1 Control Activity numbering to reflect SOC 1 report.</td>
<td>Kory Haag</td>
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<tr>
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<td></td>
<td>Deleted sub-section 5.2.4 Monthly SRWG Update, renumbered</td>
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<tr>
<td></td>
<td></td>
<td>remaining sub-section for Termination;</td>
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<td>Remove Section 5.3 for CIP compensation which was removed</td>
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<td>from Schedule 16 of the Tariff as of 1/1/2019;</td>
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8. Attachments

Attachment A - Retired (02/07/2013)
Attachment B - Retired (02/07/2013)
Attachment C - Retired (12/08/2014)
Attachment D - Retired (02/07/2013)
Attachment E - Retired (02/07/2013)
Attachment F - DBR Test Log Evaluation Checklist
Attachment A - Retired (02/07/2013)
Attachment C - Retired (12/08/2014)
<table>
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<tr>
<td>Procedure Number: RTMKTS.0180.0080</td>
<td>Revision Number: 17</td>
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<tr>
<td>Procedure Owner: Kory Haag</td>
<td>Effective Date: May 1, 2019</td>
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<tr>
<td>Approved By: Manager, Real-Time Studies</td>
<td>Valid Through: October 26, 2020</td>
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Attachment D - Retired (02/07/2013)
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Attachment E - Retired (02/07/2013)
Attachment F - DBR Test Log Evaluation Checklist

Attachment F - DBR Test Log Evaluation Checklist

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<thead>
<tr>
<th>DBR Name</th>
<th>Asset Name</th>
<th>Asset ID</th>
<th>Date of the Test</th>
<th>Date of Data Submittal</th>
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Task

**Data Retrieval**

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<th>Test Data moved into Blackstart SharePoint site</th>
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**DBR Test Log Validation**

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<th>Date of Data Submittal is within 30 days of Date of Test</th>
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<table>
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<th>All Data fields entered properly. In order for Test to pass, all following fields must be correct:</th>
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<tbody>
<tr>
<td>1) If Primary Fuel Type is Water then Minimum Amount of Fuel must be &gt;= 2 hours, else &gt;= 12 hours</td>
<td>Initial/Date</td>
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<tr>
<td>2) Started Without Assistance must be &quot;Y&quot;</td>
<td>Initial/Date</td>
</tr>
<tr>
<td>3) Amount of Time at Sync Speed Must be &gt;= 10 minutes</td>
<td>Initial/Date</td>
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<tr>
<td>4) Circuit Breaker Actual and Circuit Breaker Verified (at least one a &quot;Y&quot;. If both a &quot;Y&quot; Lead MP must explain)</td>
<td>Initial/Date</td>
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<tr>
<td>5) Voltage and Frequency must be &quot;Y&quot;</td>
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If Test failed:
- Enter Failure to Maintain Date in Power System UI
- Enter Test Fail Date in Power System UI
- Send Notification of Failure to Participant
- Verify that Test failure logged in OpraLog and CROW outage created

If Test passed:
- Enter Test Pass Date into Power System UI
- If DBR was in Failure to Maintain because of failure of or failure to test, end Failure to Maintain on Date of Test
- Test Completion Letter sent
- Test pass following Test failure ensure CROW application closed