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References

1. ISO New England Tariff Attachment G – Procedure to Protect for the Loss of Phase II Imports
2. CROP.25007 – Manual Dispatch
3. CROP.27002 – Telemetry and Topology Problems
4. CROP.10004 – Implement Transmission Remedial Actions
5. CROP.27003 – Emergency Notification System
6. CROP.50006 – Alternate Access to Control Room Documents
7. M/LCC 6 Attachment B - Procedure for the Development of a New England Area Control Error (ACE) at CONVEX
8. M/LCC 21 – Total Failure of Energy Management System (EMS)

Procedure Background

After 3 consecutive mismatched solutions of RTNET, personnel shall receive a warning by pager notification.
If the error "RTNET Invalid, Solved with High Cost" is received, the Weight/Cost Initialization feature is used. The Weight/Cost Initialization feature resets all of the analog's weights and costs to their base.

Cold Initialization does **NOT** clear the State Estimator topology history, which is why it can be utilized by Control Room Operators.

The automatic adjustment of the company or station tolerances feature will change the "Max MW Mismatch" value by multiplying the current MW mismatch amount by 1.25. The value that is modified will be based on the "Max Mismatch based on" selection.

- If company is selected, the companies with mismatches exceeding the setpoint will have the "Max MW Mismatch" value adjusted when the automatic tolerance adjustment feature is used. Done by using the "Adjust CO MW Mismatch Tolerances" button on the Internal Network Quadrant display.
- If station is selected, the stations with mismatches exceeding the setpoint will have the "Max MW Mismatch" value adjusted when the automatic tolerance adjustment feature is used. Done by using the "Adjust ST MW Mismatch Tolerances" button on the Internal Network Quadrant display.

Common Procedure Information

A. Any ISO-NE qualified Control Room Operator has the authority to take actions required to comply with NERC Reliability Standards. A qualified ISO-NE Control Room Operator has met the following requirements:
   1. Have and maintain a NERC certification at the RC level (per R.1 of PER-003-2)
   2. Applicable Requirements of PER-005-2
   3. Approved to cover a Control Room Operator shift position by the Manager, Control Room Operations
   4. Is proficient at the current qualified level.

B. Real time operation is defined as the current hour and the current hour plus one.

C. Future hours are those beyond real time operation.

D. All verbal communications with Local Control Centers (LCC), neighboring Reliability Coordinators/Balancing Authorities (RC/BA), Designated Entities (DE), Demand Designated Entities (DDE) and/or SCADA centers shall be made on recorded phone lines unless otherwise noted.

E. For all communications
   1. Use the Basic Protocol for All Operational Communications as prescribed in M/LCC 13
   2. Use 'ISO New England' or 'New England'. Refrain from using 'ISO'.
   3. Use Asset ID's when communicating with DE/DDEs.
   4. Use three-part communication in all situations where its use will enhance communications.

F. Primary responsibilities are stated for each step within the procedure, but any ISO Control Room Operator qualified at that position or higher can perform the step. The Primary Responsibility may be delegated to an Operator in a lower qualified position, but the responsibility for its completion remains with the identified individual.

G. The use of “ensure” within this document means that a verification has been performed and if the item is not correct, corrective actions will be performed.

Procedure

Section 1 : Respond to a RTNET Quadrant Alarm

Step 1.1
Primary Responsibility: Security Operator

Determine what created the alarm by accessing the RTNET Quadrant display.

Instructions

- ❑ Use CROP.27002 Telemetry and Topology Problems for the following identified problems:
  - ❑ Generator/DARD telemetry problem
  - ❑ Internal Transmission Line telemetry problem
  - ❑ Transmission Equipment telemetry problem
- ❑ For an RTNET modeling issue: update the RTNET topology.

Step 1.2
Primary Responsibility: Security Operator

Determine if the Mismatch or Delta alarm is caused by a SCADA measurement that is NOT relevant for the current system model.

Instructions

- ❑ Access RTNET
- ❑ Click Telemetered Analogs button “TELE ANLG”.
- ❑ Click the View Telemetered Analog Directory button (file folder tree).
- ❑ Click on the EMS Station name.
- ❑ Determine if SCADA Analog is enabled.

Step 1.3
Primary Responsibility: Security Operator

Condition(s) to perform this step:

- **A SCADA Analog measurement was determined to NOT be relevant for the current system model.**

Notify the Operations Shift Supervisor and Senior System Operator that the cause of the RTNET Quadrant alarm is from a SCADA Analog that is NOT relevant for the current system model.

Step 1.4
Primary Responsibility: Senior System Operator

Condition(s) to perform this step:

- **A SCADA Analog measurement was determined to NOT be relevant for the current system model.**

Determine if the SCADA Analog measurement needs to be disabled.

Step 1.5
Primary Responsibility: Senior System Operator

Notify the Security Operator whether or NOT the SCADA Analog measurement can be disabled.

Step 1.6 Primary Responsibility: Security Operator

Condition(s) to perform this step:

- **Disabling the SCADA Analog measurement has been authorized.**

Disable the SCADA Analog measurement.

Instructions

Perform the following to disable a SCADA Analog measurement:

- ❑ Access RTNET
- ❑ Click Telemetered Analogs button "TELE ANLG".
- ❑ Click the View Telemetered Analog Directory button (file folder tree).
- ❑ Click on the EMS Station name.
- ❑ Click the Enable box, to remove the flag, associated with the SCADA Analog measurement to be disabled.

Step 1.7 Primary Responsibility: Security Operator

Condition(s) to perform this step:

- **A SCADA Analog measurement has been disabled.**

Notify the IT On Call Technician.

Step 1.8 Primary Responsibility: Security Operator

Condition(s) to perform this step:

- **A SCADA measurement needs to have a sign flip applied; Or**
- **A topology discrepancy is identified that is creating a mismatch in the RTNET Quadrant display.**

Recommend Changes to EMS using CROP.27002 Telemetry and Topology Problems.

Condition(s) to perform this section:

- **System Activity entry for "RTNET Invalid, Solved with High Cost" with an audible alarm.**

Section 2 : Respond to an RTNET High Cost Alarm

Notes

Actions are performed within 5 minutes of receiving the alarm.

Step 2.1

Primary Responsibility: Security Operator

Click the "Weight/Cost Init" button to perform a Weight/Cost Initialization.

Step 2.2

Primary Responsibility: Security Operator

Condition(s) to perform this step:

- **The “RTNET Invalid, Solved with High Cost” error was not resolved by the previous step.**

Notify the IT On-Call Technician.

Condition(s) to perform this section:

- **RTNET solved with excess mismatch; Or**
- **System Activity entry for an RTNET Unsolved: Excess Mismatch with an audible alarm; Or**
- **RTNET Error flashing on the Wall Board; Or**
- **System Activity entry for an RTNET "Sequence did NOT complete with in period"; Or**
- **System Activity entry for an RTNET Invalid Solution with an audible alarm.**

Section 3 : Respond to an RTNET Error

Notes

If the RTNET problem **cannot** be resolved within 5 minutes, perform Step 3.7 to notify PSMM On Call and IT On Call. The "Run RTNET Only" button on the RTNET Quadrant display can be used after taking actions to quickly run only RTNET to help debug, however once the error has been corrected a full network sequence should be executed.

Step 3.1 Primary Responsibility: Security Operator

Determine which RTNET Solution Mismatch is causing the RTNET Error.

Instructions

To get RTNET to solve, ignore the external mismatch by clicking the "External Mismatch" button.

Notes

- The Solution Mismatch area of the RTNET Quadrant shows actual mismatches that the State Estimator could **NOT** solve or account for in the final solution.
- The Solution Mismatch can be shown on either the Internal Network Quadrant or the External Network Quadrant. If the State Estimator solved with excess mismatch and nothing is shown on the Internal Network Quadrant check the External Network Quadrant. An external mismatch can cause RTNET to **NOT** solve.

Step 3.2 Primary Responsibility: Security Operator

Condition(s) to perform this step:

- **Invalid Solution Data is shown.**

Click on the identified station and correct the issue.

Instructions

- ❑ Potential actions for correcting the Invalid Solution Data issues are as follows.
  - ❑ Use CROP.27002 Telemetry and Topology Problems for the following identified problems:
    - ❑ A Generator/DARD telemetry problem
    - ❑ An Internal Transmission Line telemetry problem
    - ❑ A Transmission Equipment telemetry problem
  - ❑ For an RTNET modeling issue: update the RTNET topology

Step 3.3 Primary Responsibility: Security Operator

Condition(s) to perform this step:

- **Tolerance needs to be adjusted to allow RTNET to run while tracking down the problem.**

Modify the Company or Station MW Mismatch Tolerance to allow RTNET to solve.

Instructions

- ❑ If the Mismatch is occurring over a large area modify the Company Max MW Mismatch tolerance.

- ❑ Use automatic tolerance adjust feature by:
  - ❑ Modify the "Max Mismatch based on" selection, if applicable
  - ❑ Click the applicable "Adjust CO/ST MW Mismatch Tolerances" button

- ❑ To modify a Company Max MW Mismatch tolerance, perform the following:
  - ❑ Click the Company Tolerances button on the RTNET Quadrant.
  - ❑ Find the Company to be adjusted (default settings are: 35 MW and 500 MVAr).
  - ❑ Enter the new tolerance to be used that will allow RTNET to solve.

- ❑ To modify a Station Max MW Mismatch tolerance, perform the following:
  - ❑ Click the Station Tolerances button on the RTNET Quadrant.
  - ❑ Enter the EMS Station name in the box next to the Find Station button (if the station is **NOT** displayed on the first page).
  - ❑ Click the Find Station button.
  - ❑ Enter the new tolerance to be used that will allow RTNET to solve (default settings are: 35 MW and 500 MVAr).

Notes

The tolerance is modified to allow RTNET and downstream applications to run while attempting to correct the RTNET issue.

Step 3.4 Primary Responsibility: Security Operator

Condition(s) to perform this step:

- **Previous actions have NOT corrected the problem causing the RTNET Error.**

Determine and correct the cause of the RTNET issue.

Instructions

- ❑ Potential actions for correcting the Invalid Solution Data issues are as follows.
  - ❑ Use CROP.27002 Telemetry and Topology Problems for the following identified problems:
    - ❑ A Generator/DARD telemetry problem
    - ❑ An Internal Transmission Line telemetry problem
    - ❑ A Transmission Equipment telemetry problem
  - ❑ For an RTNET modeling issue: update the RTNET topology

Step 3.5 Primary Responsibility: Security Operator

Condition(s) to perform this step:

- **The cause of the RTNET Error cannot be determined or corrected.**

Notify the Operations Shift Supervisor and Senior System Operator that the cause of the RTNET Error cannot be determined and/or corrected.

Step 3.6 Primary Responsibility: Security Operator

Condition(s) to perform this step:

- **The cause of the RTNET Error cannot be determined or corrected.**

Perform further actions to correct the RTNET issue.

Instructions

- ❑ The following further actions are available to the Operator when the cause of the issue cannot be determined or corrected:
  - ❑ Perform a cold initialization of RTNET by clicking the "Cold Initialization" button;
  - ❑ Completely rebuild RTNET topology and impedances by clicking the "Initialize Topology" button;
  - ❑ Resets all of the analog's weights and costs to their base by clicking the "Weight/Cost Init" button.

Step 3.7 Primary Responsibility: Security Operator

Condition(s) to perform this step:

- **Reason for RTNET Error cannot be determined within 5 minutes.**

Perform notifications to required personnel that RTNET has a problem that cannot be corrected.

Standard(s) for completion:

- Notification is performed within 5 minutes if the problem **cannot** be determined.

Instructions

Notify the following:

- ❑ PSM On Call Engineer;
- ❑ IT On Call Technician

Step 3.8 Primary Responsibility: Security Operator

Condition(s) to perform this step:

- **The cause of the RTNET Error has been determined and corrected and a tolerance adjustment is no longer required.**

Return the MW or MVAr tolerance to default.

Instructions

- ❑ To reset all MW and MVAr tolerance modifications to default by performing the following:
  - ❑ Access RTNET;
  - ❑ Click the “Reset Mismatch Tolerances to Defaults” button.

- ❑ To return a Company Max MW or MVAr tolerance to default perform the following:
  - ❑ Access RTNET;
  - ❑ Click the "Company Tolerances" button;
  - ❑ Find the Company to be returned to normal;
  - ❑ Enter the default tolerance value.

- ❑ To return a Station Max MW or MVAr tolerance to default perform the following:
  - ❑ Access RTNET;
  - ❑ Click the "Station Tolerances" button;
  - ❑ Enter the EMS Station name in the box next to the Find Station button (if the station is **NOT** displayed on the first page);
  - ❑ Click the Find Station button;
  - ❑ Enter the default tolerance value.

Condition(s) to perform this section:

- **RTNET problem could NOT be resolved.**

Section 4 : Respond to an RTNET Failure

Step 4.1 Primary Responsibility: Security Operator

Condition(s) to perform this step:

- **RTNET has Failed.**

Notify each LCC of the required information.

Instructions

- ❑ The following is required to be communicated to each LCC:
  - ❑ ISO-NE's RTNET has failed with estimated start time;
  - ❑ Cause of failure, if known;
  - ❑ Provide time of ISO-NE last Real-Time Assessment (RTA);
  - ❑ Expected duration of failure, if known;
  - ❑ Request each LCC to perform a RTA and continue to perform RTAs on ISO-NE's behalf at least once every 30 minutes until further notice.

Step 4.2 Primary Responsibility: Security Operator

Perform a Real-Time Assessment using Powerflow, ILC Powerflow and STCA.

Notes

- A Real-Time Assessment (RTA) shall be performed at least once every 30 minutes to meet the NERC requirement.
- ISO System Operators will continue to perform RTAs, in conjunction with the LCCs, in order to maintain an accurate Powerflow case. This case will be used as the input information to the official RTA should one or more LCCs lose the ability to perform a RTA on our behalf.
- As long as all LCCs are performing RTAs on behalf of the ISO, these ISO RTAs are not required to be logged.

Step 4.2.1 Primary Responsibility: Security Operator

Retrieve an RTNET Auto Save case.

Instructions

- ❑ Perform the following to retrieve the Auto Save Case:
  - ❑ Click the "Update Auto Save Case List" button
  - ❑ Select the last known valid save case
  - ❑ Select RTNET Powerflow Options, if **NOT** currently selected

Notes

- The list of auto save cases will only update when the "Update Auto Save Case List" button is clicked.
- The naming convention of the save is YYYYMMDDHHMMSS
  Example: 20210224090439 (2021is the year, 02 is the month, 24 is the day, 09 is the hour, 04 is the minutes, and 39 is the seconds)
- RTNET Options are used when working with an Auto Save Case.
- The Auto Save Case list does **NOT** refresh. After retrieving the Auto Save Case the "Reset" button can be used to clear the stale case list.

Step 4.2.2 Primary Responsibility: Security Operator

Update the RTNET Auto Save case in Powerflow to match system conditions.

Instructions

If a line is restored that has load directly off of it, the load will have to be manually returned to service.

Step 4.2.2.1 Primary Responsibility: Security Operator

Check the Powerflow base case for potential Real Time exceedances.

Step 4.2.2.2 Primary Responsibility: Security Operator

Run ILC Powerflow.

Step 4.2.2.3 Primary Responsibility: Security Operator

Check the ILC Powerflow results for potential Interface Limit exceedances.

Step 4.2.2.4 Primary Responsibility: Security Operator

Rename and Save Powerflow case in the "CTRLROOM" directory.

Notes

Utilize a naming convention that identifies the date and Real Time Assessments. Ex: 07_15_23_RTA.

Step 4.2.2.5 Primary Responsibility: Security Operator

Click both "RTCA Copy Control" buttons in STCA.

Instructions

- ❑ Click both of the following buttons:
  - ❑ Copy Clone of RTCA CTGS; and
  - ❑ Copy Clone of RTCA RASMOM.

Notes

- This is done to modify the STCA to align with what RTCA would be processing.
- The latest version of STCA CTGS and RASMOM can be retrieved from STCA Case Directory when RTNET has been restored.

Step 4.2.2.6 Primary Responsibility: Security Operator

Perform a post contingent security analysis on the updated Powerflow save case using STCA.

Instructions

Use the STCA Mode: Default mode - Unit MVAr, Shunt Switching and Xfmr Tapping.

Step 4.2.2.7 Primary Responsibility: Security Operator

Check the STCA Contingency Violation Summary for potential post contingent exceedances.

Step 4.2.2.8 Primary Responsibility: Security Operator

Condition(s) to perform this step:

- **A potential pre contingent exceedance is identified; Or**
- **A potential post contingent exceedance is identified.**

Contact the LCC Operator to determine the validity of the potential exceedance.

Step 4.2.2.9 Primary Responsibility: Security Operator

Condition(s) to perform this step:

- **A potential pre contingent or post contingent exceedance exists.**

Determine and implement required corrective remedial action for identified exceedances using CROP.10004 Implement Transmission Remedial Actions.

Step 4.2.3 Primary Responsibility: Security Operator

Condition(s) to perform this step:

- **One or more LCCs are NOT performing the Real-Time Assessment for ISO-NE.**

Log completion of Real-Time Assessment at least once every 30 minutes.

Instructions

- ❑ Use Entry: > EQUIPMENT Failures > Real-Time Assessment Completed
  - ❑ Include the following in the log entry:
    - ❑ The naming convention of the case used in Step 4.2.2.4
    - ❑ Time assessment was completed

Notes

Multiple Real-Time Assessments can be logged in a single log entry.

Step 4.3 Primary Responsibility: Senior System Operator

Notify the required RC/BAs of the required information.

Instructions

- ❑ Notify the following RC/BAs:
  - ❑ NYISO
  - ❑ NBP-SO
  - ❑ HQTE
- ❑ The following is required to be communicated to the applicable RC/BAs:
  - ❑ ISO-NE has lost automated contingency monitoring capability;
  - ❑ Manual contingency analysis **IS** / **IS NOT** being conducted;
  - ❑ Be diligent in monitoring ISO-NE contingencies that can impact their area;
  - ❑ Notify ISO-NE of any schedule deviations;
  - ❑ Notify ISO-NE of any reliability concerns.

Step 4.4 Primary Responsibility: Security Operator

Log the RTNET failure.

Instructions

- ❑ Use entry: > EQUIPMENT FAILURES > EMS Failure
- ❑ The following log entry fields should be completed:
  - ❑ Select RTNET in the "Failed EMS Tool" dropdown;
  - ❑ Enter the time for "Time of last RTCA completion";
  - ❑ Identify, "LCCs requested to perform Real-Time Assessment at least every 30 minutes";
  - ❑ Identify RC/BAs that were notified

Step 4.5 Primary Responsibility: Loader Operator

Consider the use of manual dispatch using CROP.25007 Manual Dispatch.

Notes

SE files may not be transferring to the APF-MOI software which could result in solution results that differ from current resource output. Last SE time and case solution results should be checked against actual / expected resource output to determine if manual dispatch is necessary.

Step 4.6 Primary Responsibility: Security Operator

Condition(s) to perform this step:

- **RTNET functionality has been restored.**

Retrieve the latest STCA CTGS and RASMOM versions from the STCA Case Directory.

Condition(s) to perform this section:

- **RTCA failed to complete successfully; Or**
- **RTCA Error flashing on the wallboard; Or**
- **CAJR failed to complete successfully; Or**
- **RTCA is displaying exceedances that have been verified to be incorrect.**

Section 5 : Respond to RTCA or CAJR problems

Notes

If the RTCA problem **cannot** be resolved within 5 minutes, perform Step 5.3 to notify PSM On Call Engineer and IT On Call.
CAJR is an independent application and can be turned off.

Step 5.1 Primary Responsibility: Security Operator

Perform a Cold Initialization.

Step 5.2 Primary Responsibility: Security Operator

Condition(s) to perform this step:

- **Cold Initialization did NOT correct the problem; Or**
- **RTCA is displaying exceedances that have been verified to be incorrect.**

Initialize topology.

Notes

- The Initialize Topology button is located on the RTNET Quadrant display.
- When initialize topology is utilized it will completely rebuild topology, even impedances.

Step 5.3 Primary Responsibility: Security Operator

Condition(s) to perform this step:

- **Reason for RTCA or CAJR problem cannot be determined within 5 minutes.**

Perform notifications to the required personnel that RTCA or CAJR has a problem that cannot be corrected.

Standard(s) for completion:

- Notification is performed within 5 minutes if the problem **cannot** be determined.

Instructions

Notify the following:

- ❑ PSM On Call Engineer;
- ❑ IT On Call Technician

Step 5.4 Primary Responsibility: Security Operator

Condition(s) to perform this step:

- **RTCA has failed.**

Notify each LCC of the required information.

Instructions

- ❑ The following is required to be communicated to each LCC:
  - ❑ ISO-NE's RTCA has failed with estimated start time;
  - ❑ Cause of failure, if known;
  - ❑ Provide time of ISO-NE last Real-Time Assessment (RTA);
  - ❑ Expected duration of failure, if known;
  - ❑ Request each LCC to perform a RTA and continue to perform RTAs on ISO-NE's behalf at least once every 30 minutes until further notice.

Step 5.4.1 Primary Responsibility: Security Operator

Log the RTCA failure.

Instructions

- ❑ Use entry: > EQUIPMENT FAILURES > EMS Failure
- ❑ The following log entry fields should be completed:
  - ❑ Select RTCA in the "Failed EMS Tool" dropdown;
  - ❑ Enter the time for "Time of last RTCA completion";
  - ❑ Identify, "LCCs requested to perform Real-Time Assessment at least every 30 minutes";

Step 5.5 Primary Responsibility: Security Operator

Utilize STCA to perform contingency analysis.

Instructions

Use the STCA Mode: Default mode - Unit MVAr, Shunt Switching and Xfmr Tapping.

Notes

- A Real-Time Assessment shall be performed at least once every 30 minutes to meet the NERC requirement.
- As long as all LCCs are performing RTAs on behalf of the ISO, these ISO RTAs are not required to be logged.

Step 5.5.1 Primary Responsibility: Security Operator

Condition(s) to perform this step:

- **One or more LCCs are NOT performing the Real-Time Assessment for ISO-NE.**

Log completion of Real-Time Assessment at least once every 30 minutes.

Instructions

- ❑ Use Entry: > EQUIPMENT FAILURES > Real-Time Assessment Completed
- ❑ Include the following in the log entry:
  - ❑ Powerflow Save Case used or Real Time snapshot;
  - ❑ Time assessment was completed

Step 5.6 Primary Responsibility: Senior System Operator

Condition(s) to perform this step:

- **RTCA and STCA have failed concurrently.**

Notify the required RC/BAs of the required information.

Instructions

- ❑ Notify the following RC/BAs:
  - ❑ NYISO
  - ❑ NBP-SO
  - ❑ HQTE
- ❑ The following is required to be communicated to the applicable RC/BAs:
  - ❑ ISO-NE has lost contingency monitoring capability;
  - ❑ Be diligent in monitoring ISO-NE contingencies that can impact their area;
  - ❑ Notify ISO-NE of any schedule deviations;
  - ❑ Notify ISO-NE of any reliability concerns.

Step 5.6.1 Primary Responsibility: Security Operator

Update the RTCA failure log entry with the RC/BA notifications.

Step 5.7 Primary Responsibility: Operations Shift Supervisor

Condition(s) to perform this step:

- **RTCA failed for 30 minutes or greater.**

Notify the Manager, Control Room Operations, using the "Control Room Mgmnt" distribution list, and ROC, using the “ROC Event” distribution list.

Step 5.8 Primary Responsibility: Security Operator

Condition(s) to perform this step:

- **Loss of RTCA and STCA for 30 minutes or longer and SCADA remained operational.**

Proceed to Section 6 - Respond to a Failure of EMS.

Condition(s) to perform this section:

- **EMS is inoperable.**

Section 6 : Respond to a Failure of EMS

Step 6.1

Primary Responsibility: Any Control Room Operator

Perform internal notifications for the EMS failure.

Instructions

Notify the following:

- ❑ PSM On Call Engineer;
- ❑ IT On Call Technician;
- ❑ Security Operations Center (SOC).

Step 6.2

Primary Responsibility: Senior System Operator

Condition(s) to perform this step:

- **If Phase II is operating above 1,320 MW.**

Instruct the Generation Operator to reduce Phase II to 1,320 MW.

Step 6.3

Primary Responsibility: Security Operator

Notify each LCC of the required information.

Instructions

- ❑ The following is required to be communicated to each LCC:
  - ❑ ISO-NE has lost the ability to perform RTAs with estimated start time;
  - ❑ Cause of failure, if known;
  - ❑ Provide time of ISO-NE last Real-Time Assessment (RTA);
  - ❑ Expected duration of failure, if known;
  - ❑ Request each LCC to perform a RTA and continue to perform RTAs on ISO-NE's behalf at least once every 30 minutes until further notice.

Step 6.4

Primary Responsibility: Senior System Operator

Notify the required RC/BA's of the required information.

Instructions

- ❑ Notify the following RC/BAs:
  - ❑ NYISO
  - ❑ NBP-SO
  - ❑ HQTE
- ❑ The following is required to be communicated to the applicable RC/BAs:
  - ❑ ISO-NE's EMS has failed;
  - ❑ ISO-NE does **NOT** have contingency monitoring capability;
  - ❑ Be diligent in monitoring ISO-NE contingencies that can impact their area;
  - ❑ Notify ISO-NE of schedule deviations or other reliability concerns.

Step 6.5

Primary Responsibility: Loader Operator

Condition(s) to perform this step:

- **Complete failures of ISO-NE EMS and an associated LCC's EMS have occurred at the same time.**

Notify the affected Nuclear Generator's DE.

Step 6.6 Primary Responsibility: Security Operator

Log the failure of EMS.

Instructions

- ❑ Use entry: > EQUIPMENT FAILURES > EMS Failure
- ❑ The following log entry fields should be completed:
  - ❑ Select RTNET in the "Failed EMS Tool" dropdown;
  - ❑ Enter the time for "Time of last RTCA completion";
  - ❑ Identify, "LCCs requested to perform Real-Time Assessment at least every 30 minutes";
  - ❑ Identify RC/BAs that were notified;
  - ❑ Identify "Nuclear Stations Notified as applicable"

Step 6.7 Primary Responsibility: Loader Operator

Contact NYISO and determine if the PCEC ACE is operating correctly.

Instructions

Verify the ACE value with NYISO.

Step 6.7.1 Primary Responsibility: Loader Operator

Condition(s) to perform this step:

- **The PCEC ACE value was NOT consistent with NYISO.**

Contact NYISO and validate the PCEC information to determine what is causing the ACE value issue.

Instructions

- ❑ Validate the backup ACE by verifying the following with NYISO:
  - ❑ Frequency Schedule;
  - ❑ Actual Frequency;
  - ❑ Current NY ac tie line schedule(s);
  - ❑ Current NY ac tie line flow(s); and
  - ❑ ACE value.

Step 6.7.2 Primary Responsibility: Loader Operator

Condition(s) to perform this step:

- **The PCEC ACE value was NOT consistent with NYISO.**

Contact NBP-SO and validate the PCEC information to determine what is causing the ACE value issue.

Instructions

- ❑ Validate the backup ACE by verifying the following with NBP-SO:
  - ❑ Current tie line schedule;
  - ❑ Current tie line flow(s).

Step 6.8 Primary Responsibility: Loader Operator

Request CONVEX begin developing an ACE, provide the net Interchange schedule and Scheduled Frequency.

Notes

M/LCC 6 Attachment B - Procedure for the Development of a New England Area Control Error (ACE) at CONVEX provides the actions that CONVEX will perform.

Step 6.9 Primary Responsibility: Loader Operator

Condition(s) to perform this step:

- **UDS has failed concurrently with EMS.**

Perform manual dispatch verbally.

Instructions

Utilize the M/LCC 6 Attachment F - Significant Unit List or the M/LCC 21 Spreadsheet to determine the asset ID and to assist with manual dispatch.

Step 6.9.1 Primary Responsibility: Senior System Operator

Condition(s) to perform this step:

- **UDS and electronic dispatch have failed.**

Consider using ENS to notify the DEs and DDEs that electronic dispatch has failed and verbal dispatch is being utilized.

Notes

The Electronic Dispatch System is the process in which DDPs/DNEs are sent to the resource RTUs through the CFE at the following intervals:

- Automatically every 5 minutes,
- With each UDS case approval,
- Startups via the Fast Start Manual Dispatch display, or
- Manual DDPs/DNEs.

Step 6.9.2 Primary Responsibility: Senior System Operator

Condition(s) to perform this step:

- **UDS, electronic dispatch, and internet based ENS have failed.**

Refer to CROP.27003 Emergency Notification System for Failure of ENS software.

Step 6.10 Primary Responsibility: Operations Shift Supervisor

Condition(s) to perform this step:

- **Interchange Scheduling software has failed concurrently with EMS.**

Determine if the current interchange schedules should be maintained for the next hour or ramped to adjacent RC/BA agreed schedule.

Step 6.10.1 Primary Responsibility: Operations Shift Supervisor

Condition(s) to perform this step:

- **It was determined that a current schedule should be maintained or ramped to an adjacent RC/BA agreed schedule.**

Inform the Generation Operator of the determination.

Step 6.11 Primary Responsibility: Operations Shift Supervisor

Condition(s) to perform this step:

- **Loss of EMS for 30 minutes or greater.**

Notify the Manager, Control Room Operations, using the "Control Room Mgmnt" distribution list, and ROC, using the "ROC Event" distribution list.

Step 6.12 Primary Responsibility: Operations Shift Supervisor

Condition(s) to perform this step:

- **Loss of EMS for 30 minutes or greater; And**
- **The cause of EMS failure has not been identified by subject matter experts**

Consider making an RCIS posting using the "Free Form" posting category.

Instructions

- ❑ Select ONLY the following in the "Send to" field
  - ❑ Regions
  - ❑ Reliability Coordinators

Notes

An RCIS posting may contribute to better coordination with areas that may be experiencing similar problems, and will allow for a broader view of issues that are occurring on the interconnected transmission system.

Step 6.13 Primary Responsibility: Operations Shift Supervisor

Condition(s) to perform this step:

- **Complete failure of ISO EMS coincident with complete failure of EMS of multiple LCCs.**

Consider implementing actions of M/LCC 21 Total Failure of Energy Management System (EMS).

Condition(s) to perform this section:

- **RTNET and/or RTCA functionality has been restored.**

Section 7 : Respond to the restoration of RTNET and/or RTCA functionality

Step 7.1

Primary Responsibility: Any Control Room Operator

Make notifications of the restoration of ISO EMS functionality.

Instructions

- ❑ Notify the following entities:
  - ❑ All LCCs;
  - ❑ RC/BAs notified previously;
  - ❑ Nuclear generating stations if previously notified.

Step 7.2

Primary Responsibility: Security Operator

Log the restoration of RTNET and/or RTCA functionality.

Instructions

- ❑ Use entry: > EQUIPMENT FAILURES > EMS Restored
- ❑ The following log entry fields should be completed:
  - ❑ Select RTNET or RTCA in the “Failed EMS Tool” dropdown;
  - ❑ Identify LCCs notified;
  - ❑ Identify RC/BAs that were notified
  - ❑ Identify Nuclear generating stations notified

Condition(s) to perform this section:

- **LCC reports a persistent failure of their State Estimator (SE) or Contingency Analysis (CA); Or**
- **LCC reports a restoration of their State Estimator (SE) or Contingency Analysis (CA) after previously reporting a persistent failure**

Section 8 : Respond to an LCC State Estimator (SE) or Contingency Analysis (CA) Failure or Restoration

Step 8.1 Primary Responsibility: Any Control Room Operator

Notify the remaining LCCs and the impacted RCs/BAs of the failure or restoration.

Step 8.2 Primary Responsibility: Security Operator

Log the LCC State Estimator (SE) / Contingency Analysis (CA) failure or restoration.

Instructions

- ❑ Make the appropriate log entry:
  - ❑ EQUIPMENT FAILURES > LCC State Estimator / Contingency Analysis Failure
  - ❑ EQUIPMENT FAILURES > LCC State Estimator / Contingency Analysis Restored

Step 8.3 Primary Responsibility: Any Control Room Operator

Refer to M/LCC13 and notify the applicable entity of conditions identified in M/LCC13 "Communicating an Inability to Perform Real Time Assessments".

Condition(s) to perform this section:

- **LCC requests ISO perform Real-Time Assessments (RTAs) on their behalf and the cause is not due to a failure of EMS or EMS application; Or**
- **LCC notification that it is no longer necessary to perform Real-Time Assessments (RTAs) on their behalf.**

Section 9 : Respond to an LCC Request for Real-Time Assessments

Notes

An LCC may request ISO perform RTAs on their behalf while performing items such as routine EMS maintenance, EMS failovers or other situations not due to a failure of EMS or an EMS application. In these situations it is not necessary to perform notifications to all entities. Requests for a failure of EMS or an EMS application will be handled through Section 8 of this CROP.

Step 9.1 Primary Responsibility: Security Operator

Condition(s) to perform this step:

- **Requested by an LCC to perform RTAs on their behalf.**

Log the LCC request to perform RTA.

Instructions

- ❑ Use log entry: > COMMUNICATION > LCC Requests to perform RTA;
- ❑ Select the applicable LCC

Step 9.2 Primary Responsibility: Security Operator

Condition(s) to perform this step:

- **Notifed by an LCC that performing RTAs on their behalf is no longer required.**

Log the LCC request to cancel performing RTA.

Instructions

- ❑ Use log entry: > COMMUNICATION > RTA for LCC no longer required;
- ❑ Select the applicable LCC

Step 9.3 Primary Responsibility: Any Control Room Operator

Refer to M/LCC13 and notify the applicable entity of conditions identified in M/LCC13 "Communicating an Inability to Perform Real Time Assessments".

Section 10 : Testing of M/LCC 21 Spreadsheets and Evacuation Documents

Notes

- The M/LCC 21 spreadsheets on the evacuation laptops and the Control Room Market PCs are tested monthly, typically on the 4th Wednesday.
- The Real-Time data in the spreadsheets is automatically updated hourly.
- PMU data in the spreadsheet is updated either on-demand or every 30s depending on operator selection
- Evacuation Laptops receive a daily update of all TOGs, OPs, MLCCs, SOPs, and CROPs (Evacuation Documents) for use in the event of an evacuation from the MCC or if ODMS Search is **NOT** accessible for any reason.
- Tests should be performed on a Control Room Market PC and one Evacuation Laptop in a networked and non-networked configuration.

Step 10.1 Primary Responsibility: Any Control Room Operator

Prior to disconnecting the evacuation laptop for testing, send an email to dcso@iso-ne.com for notification that the laptop test will occur, which laptop is going to be disconnected if known.

Step 10.2 Primary Responsibility: Any Control Room Operator

Condition(s) to perform this step:

- **Control Room Market PC is being used to access the M/LCC 21 spreadsheet; Or**
- **An evacuation laptop is being used to access the M/LCC 21 spreadsheet and it is connected to the network.**

Verify the M/LCC 21 spreadsheet is updated with the most current Real-Time data and PMU data corresponds with EMS and SCADA information.

Instructions

- ❑ Login to evacuation laptop using Access Rights password
- ❑ Verify the following in the M/LCC 21 spreadsheet against Real-Time:
  - ❑ Generation status (UCM)
  - ❑ Generator Reserve Data (TMSR, TMNSR, TMOR);
  - ❑ Reserve Summary
    - ❑ Largest contingency
    - ❑ 2nd Largest Contingency
    - ❑ Reserve requirements
    - ❑ Actual reserve
- ❑ ACE
  - ❑ Bias setting
  - ❑ Frequency Schedule
  - ❑ Interchange Schedule
- ❑ PMU Data Sources
  - ❑ Test “Manual PMU Data Update” and “Start PMU Auto Update” features on both of the following tabs by comparing EMS Values and SCADA telemetry to the displayed PMU data and verify data updates approx. every 30s from the available sources when that feature is enabled:
    - ❑ “Ties” Tab
    - ❑ “Auto ACE Calculation” Tab
      - ❑ Select multiple random frequency sources to test functionality

Step 10.3 Primary Responsibility: Any Control Room Operator

Condition(s) to perform this step:

- **An evacuation laptop is being used to access the M/LCC 21 spreadsheet and it is NOT connected to the network.**

Verify the M/LCC 21 spreadsheet is updated with the most current Real-Time data.

Instructions

- ❑ Login to laptop using login information in the evacuation bags
- ❑ Verify the following in the M/LCC 21 spreadsheet against Real-Time:
  - ❑ Generation status (UCM)
  - ❑ Generator Reserve Data (TMSR, TMNSR, TMOR);
  - ❑ Reserve Summary
    - ❑ Largest contingency
    - ❑ 2nd Largest Contingency
    - ❑ Reserve requirements
    - ❑ Actual reserve
- ❑ ACE
  - ❑ Bias setting
  - ❑ Frequency Schedule
  - ❑ Interchange Schedule

Step 10.4 Primary Responsibility: Any Control Room Operator

Condition(s) to perform this step:

- **An evacuation laptop is being used to access the Evacuation Documents and it is NOT connected to the network.**

Access control room documents from an evacuation laptop.

Instructions

- ❑ Perform applicable section of CROP.50006 Alternate Access to Control Room Documents
- ❑ Verify "Date Modified" for the .zip file is the current day (file is typically updated at 0500-0600)

Step 10.5 Primary Responsibility: Operations Shift Supervisor

Condition(s) to perform this step:

- **Issue identified with testing of the M/LCC 21 spreadsheets.**

Notify the OPTI On Call.

Step 10.6 Primary Responsibility: Operations Shift Supervisor

Condition(s) to perform this step:

- **Issue identified with testing of the Evacuation Documents.**

Send an email to dcso@iso-ne.com.

Step 10.7 Primary Responsibility: Any Control Room Operator

Condition(s) to perform this step:

- **Notified by OPTI On Call that M/LCC 21 spreadsheet problem has been corrected.**

Repeat applicable portion of Step 10.2 and/or 10.3.

Step 10.8 Primary Responsibility: Any Control Room Operator

Condition(s) to perform this step:

- **Notified by DCSO that Evacuation Document problem has been corrected.**

Repeat Step 10.4.

Step 10.9 Primary Responsibility: Any Control Room Operator

Connect the laptop back to the network.

Instructions

- ❑ To connect the laptop back to the network perform the following:
  - ❑ Shutdown or power the laptop off;
  - ❑ Connect the power and Ethernet cables back to the laptop;
  - ❑ Power the laptop on.

Notes

By performing it in this order it ensures that the laptops are connected to the network and will receive the appropriate updates automatically.

Step 10.10 Primary Responsibility: Any Control Room Operator

Log Test Completion.

Instructions

- ❑ Use log entry: > TESTS AND AUDITS > CONTROL VERIFICATION > M/LCC 21 Spreadsheet and Evacuation Documents
- ❑ The following log entry fields should be completed:
  - ❑ Spreadsheet Data Verified
  - ❑ PMU Data Verified
  - ❑ Evacuation Documents Verified
  - ❑ Provide details for “Identified Issues” as applicable
- ❑ Enter any details of the failed items and actions taken in the comments field.

Revision History

Rev. No.	Date (MM/DD/YY)	Reason	Contact
--	11/03/20	For previous revision history, refer to Rev 23 available through Ask ISO	Steven Gould
24	12/07/20	Added new requirement in Section 8 to email DCSO prior to disconnect evacuation laptop from network. Reformat of Revision History Table	Steven Gould
25	01/04/21	Updated Section 8 for verification of Evacuation Documents	Steven Gould
26	03/04/21	Step 3.2.1 Modified the naming convention of Save Cases due to change in EMP 3.2.	Steven Gould
27	03/22/21	Updated Common Procedure Information item F; Modified the Condition to Perform 3.2.3 and 4.5.1. Added notes to Step 3.2.	Steven Gould
28	09/22/21	Updated common procedure information and references. Updated section 7 to include instructions for when an LCC reports a restored State Estimator or Contingency Analysis.	Steven Gould
29	02/03/22	Added step 5.12 for RCIS posting and updated step 8.1 with additional instructions.	Steven Gould
30	03/23/22	Changes to align with required communication with recent M/LCC13 revision, Added Step 8.9 with Note, Removed referenced Sections numbers from Step 2.2 & 2.4, Added Step 5.13, Added instruction to Step 3.2.2.6, Updated terminology for NBP-SO where applicable, truncated revision history	Jonathan Gravelin
31	04/04/23	Modified Step 2.7, 3.1, 4.3, 4.4, 5.1 & 5.3, Added Instruction to Step 8.10, Deleted Instructions in Step 4.6.1 and included it in the Step; Added Step 7.3.	Jonathan Gravelin
32	01/02/24	Created New Section 1; Added Notes to Step 6.9.1; Updated Instructions in Steps 4.2.3, 4.3, 5.5.1, 5.6 & 7.2; Deleted Step 5.3.1, Updated Step 4.2.2.4.	Jonathan Gravelin
33	04/23/24	Added Section 9, Added Step 4.5.	Jonathan Gravelin