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| ISO new england | CROP.10004 Implement Transmission Remedial Actions | |
| © 2024 | Approved By: Director, Operations | Effective Date: 09/17/2024 |
| Rev #43 | Procedure Owner: Manager, Control Room Operations | Valid Through: 09/17/2025 |

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References

1. CROP.10001 Load Shed
2. CROP.31001 Scheduling External Transactions
3. CROP.31002 Curtailing External Transactions
4. CROP.27002 Telemetry and Topology Problems
5. CROP.25011 Implement Operations During Abnormal Conditions
6. CROP.34010 Transmission Limits
7. M/LCC2 – Abnormal Conditions Alert
8. M/LCC8 – Coordination of Generator Voltage Regulator and Power System Stabilizer Outages
9. M/LCC 13 - ISO and LCC Communication Practices
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11. M/LCC 15 - System Operating Limits Methodology
12. M/LCC 15 Attachment H – Voltage SOL Identification Procedure
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Procedure Background

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The term “Exceedance” is defined as exceeding a limit, which can be a thermal, voltage or stability, for less than a predetermined amount of time.

The term “Violation” is defined as exceeding a limit beyond a predetermined amount of time.

The most limiting time for the start of an exceedance is used when determining the time remaining to mitigate.

The most limiting solution value is used when determining the actions to take and when the exceedance has been cleared.

If there is a discrepancy in the limits being used, the most limiting limit will be used.

ISO and each LCC are responsible for gathering and providing complete and accurate information during operational communications. This can be accomplished through verbal or electronic ICCP telemetry. In the case of SOL and IROL Interface exceedances, ICCP will be utilized to confirm when an exceedance occurs and when it is cleared.

TOG (Transmission Operating Guide) is an all-inclusive term for: TOG Stability, TOG Text, TOG SPS, and TOG temporary.

The Network Sequence has two modes of operation, “Normal” and “Fast”. Setting the Network Sequence to “Fast” will cause RTNET, Losses and ILC to run every 90 seconds while RTCA & CAJR will still run every other execution. When in Fast Mode do NOT click any “Run Sequence” buttons as doing so could cause database writing backups or collisions. If a manual execution of a Network Sequence is required, place the Network Sequence in Normal Mode. It will be at the discretion of the Operations Shift Supervisor on when Fast Mode will be utilized.

The Security Operator uses the following criteria to evaluate transmission contingencies and to determine if remedial actions are needed:


- OP-19 and Appendices
- MLCC 15 and Attachments
- TOGs
- EMS results from but **NOT** limited to the following:
 - Real-Time Network (RTNET)
 - Real-Time Contingency Analysis (RTCA)
 - Powerflow
 - Study Time Contingency Analysis (STCA)
 - Interface Limits Calculator (ILC)
 - Double C
 - Constraints Logger (Clogger)
 - Interconnection Monitor (ICM)

Normal Actions:

- Adjusting Phase Shifting Transformers
- Adjusting reactive flow
- Utilizing weather sensitive transmission facility limits
- Deviations from economic dispatch
- Use of an RAS/SPS or preplanned opening of a circuit breaker
- Switching of transmission circuits that have been documented in studies
- OP-4 Actions 1-5
- Utilizing enhanced facility limits for SOLs ONLY

Emergency Actions:

- Switching of transmission circuits that have **NOT** been documented in studies
- OP-4 Actions 6-11
- OP-7 – Load shedding
- Post-contingent emergency action plan
- Utilizing enhanced facility limits for SOLs ONLY

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Logic for determining if external transactions can be curtailed:

NOTE: Marginal capability includes what is available in on-line resources and in Fast-Start resources.

- If an internal transmission constraint is impacted by External Transactions ensure priced transactions are not scheduled to a point where they could fall out of rate during the scheduling period. Day ahead transactions may be scheduled to a point where **no** marginal capability is available to offload the internal transmission constraint, at that time reduce the applicable Total Transfer Capability (TTC) to a level that alleviates the internal transmission constraint and allows for a dispatchable margin on the interface.
- If a contingency creates or worsens energy transfer on an internal interface to a level that exceeds the transfer limit, and the only mitigating action available to alleviate the overload is curtailment of External Transactions (all marginal internal capability in this example is dispatched), reduce applicable TTC to a level that alleviates the internal constraint.
 - In this case, ISO is **NOT** required to implement OP-4

See [Attachment 1](#) for monitoring system voltage, reactive resource and the OP12B tool

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.

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Procedure

Condition(s) to perform this section:

- An unplanned change in topology occurs.

Section 1 : Initial Operator response for an unplanned change in topology

Step 1.1 Primary Responsibility: Security Operator
Run a Network Sequence.

Step 1.2 Primary Responsibility: Security Operator
Access the one-line display(s) associated with the topology change.

Step 1.2.1 Primary Responsibility: Security Operator
Determine if there are any notes on the one-line display that are applicable.

Notes

The notes on the one-line display can contain guidance for modifying RTNET under specific situations.

Step 1.2.2 Primary Responsibility: Security Operator
Ensure RTNET topology updated for the event.

Notes

RTNET topology may need to be modified based on devices without SCADA or notes on the one-line display.

Step 1.3 Primary Responsibility: Security Operator

Condition(s) to perform this step:

- A line that directly affects a Double C interface went out-of-service unplanned.

Enter manual limit values of "9999" into the affected area's Proxy Limit Summary page until new limits are calculated.

Instructions

New limits will need to be recalculated for the Double C area. It is expected that new limits should be calculated and implemented within 30 minutes of the event, following implementation of any necessary post contingent actions.

Step 1.4 Primary Responsibility: Security Operator

Condition(s) to perform this step:

- An element that directly affects the Double C NE-NB Voltage calculator went out-of-service unplanned.

Evaluate NB to NE minimum flow requirements and perform necessary actions using CROP.31002 Curtailing External Transactions or CROP.31001 Scheduling External Transactions.

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Step 1.4.1 Primary Responsibility: Security Operator

Condition(s) to perform this step:

- NE-NB Voltage calculator V/R Limit Status says “**ERROR**”; Or
- NE-NB Voltage calculator V/R Limit Status says “**OK**” with a “RT Limit:” of either “-99999” or “99999” WITHOUT a corresponding indication of a “**Minimum NB-NE Requirement:**” value.

Contact the RTS On-Call Engineer to provide a limit or course of action.

Notes

- Too many facilities out-of-service may inhibit the voltage calculator from providing a limit and RTS guidance will be needed in order to provide a limit or directions to make the voltage calculator function properly.
- As a backup, there is an off-line version of the NE-NB Voltage calculator in ODMS that may also be used as a backup or if the EMS version is not available.

Step 1.4.2 Primary Responsibility: Security Operator

Condition(s) to perform this step:

- Offline NE-NB VR Calculator is being used and is displaying “Too many facilities are out of service. Needs voltage / reactive special study”.

Contact the RTS On-Call Engineer to provide a limit or course of action.

Step 1.5 Primary Responsibility: Security Operator

Determine if any TOGs or specific actions from an outage application or Real Time Studies (RTS) Group are applicable and take those immediate actions.

Notes

If operation of transmission equipment is required, direct the Operating Instruction using [Attachment 2](#).

Step 1.5.1 Primary Responsibility: Security Operator

Condition(s) to perform this step:

- Backdown of a nuclear generator is required.

Issue the backdown order for the nuclear generator using [Attachment 3](#).

Step 1.5.1.1 Primary Responsibility: Security Operator

Log the backdown order for the nuclear generator.

Instructions

Use log entry: > GENERATION > NUCLEAR > Ordered Backdown of Nuclear Station

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Step 1.6 Primary Responsibility: Security Operator

Determine if an actual or potential exceedance exists.

Instructions

Perform the following:

- ☐ Check RTNET “Network Basecase Violations”
- ☐ Check ILC
- ☐ Check RTCA
 - This includes Unsolved Contingencies that may require the IROL/SOL start time to be updated once discovered in RTCA.
- ☐ Verify TOGs vs Calculated limits in ILC
 - If a limit needs to be manually updated, the IROL/SOL start time will be based off of the topology change time

Notes

For unsolved contingencies, the start time will be the RTCA completion time in which the unsolved contingency was identified.

Step 1.7 Primary Responsibility: Security Operator

Condition(s) to perform this step:

- A tie line to a neighboring RCA/BAA trips or trips and re-closes; Or
- A tie line between LCCs trips or trips and re-closes.

Ensure the applicable parties (RCA/BAA, LCC) are aware of the event.

Step 1.8 Primary Responsibility: Security Operator

Condition(s) to perform this step:

- The transmission element trip requires notification per M/LCC1 for a nuclear generator.

Notify Seabrook or Millstone 2 of the transmission element trip.

Notes

Millstone 2 is the point of contact for MIL2/3 notifications per M/LCC1 Attachment C.

Step 1.9 Primary Responsibility: Security Operator

Condition(s) to perform this step:

- Post first contingency backdown is required for a nuclear plant due to the transmission element trip.

Notify Seabrook or Millstone 2 of any post first contingency backdown requirement.

Notes


- The lowest value that the nuclear generator could potentially be dispatched to.
- Millstone 2 is the point of contact for MIL2/3 combined backdowns as well as MIL3 individual backdowns per M/LCC 1 Attachment C.

Step 1.9.1 Primary Responsibility: Security Operator

Log the notification to the DE for post first backdown.

Instructions

Use log entry: > GENERATION > NUCLEAR > Nuclear Plant Informed of Possible Backdown

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Step 1.10 Primary Responsibility: Operations Shift Supervisor

Condition(s) to perform this step:

- When a defined interface has a voltage/stability limit for one or more elements out-of-service and then an additional element on the specified interface is removed from service; Or
- When a defined interface has a voltage/stability limit for one or more elements out-of-service and then the limiting contingency for which the interface limit is based occurs.

Notify the Real Time Studies On-Call Engineer of the transmission element trip using [Section 6](#).

Step 1.11 Primary Responsibility: Security Operator

Condition(s) to perform this step:

- A line trips and re-closes.

Log the trip and reclose.

Instructions

Use log entry: > TRANSMISSION > Transmission Element Trip/Reclose [E]

Items that should be noted in Log:

- ☐ Start and End Time
 - ☐ This would be the same for a single Trip/Reclose Event
 - ☐ If multiple Trip/Reclose events are being logged in the same entry, Start and End Time for the covered period should be entered.
- ☐ Relay Protection operated as designed; Yes/No
- ☐ Cause if known

Notes

- Multiple events within a 60-minute period can be logged in the same entry (log limited to 10 entries)
- Log entry will generate an email to “OPER Real Time Studies”

Step 1.12 Primary Responsibility: Security Operator

Condition(s) to perform this step:

- A transmission element trips and remains out-of-service.

Log the trip.

Instructions

For the transmission element trip:


- ☐ Use log entry: > TRANSMISSION > Transmission Element Trip [E]

Items that should be noted in Log:

- ☐ Date and Time of Trip
- ☐ Estimated Time of Return
 - ☐ Select “ETR Unknown” if appropriate
- ☐ Relay Protection operated as designed; Yes / No / Unknown / N/A
- ☐ Is the facility on the NPCC Facilities for Notification List; Yes/No
- ☐ Select applicable Notified entities

Notes

Log entry for the transmission element trip will generate an email to “OPER Real Time Studies”

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Step 1.13 Primary Responsibility: Security Operator

Condition(s) to perform this step:

- A transmission element trips and remains out-of-service for greater than 60 minutes.

Contact the applicable LCC and request an outage be created in the ISO Outage Scheduling Software.

Step 1.14 Primary Responsibility: Security Operator

Condition(s) to perform this step:

- The equipment is out-of-service and has a NB-NE Minimum flow requirement per a TOG.

Enter the Minimum Flow Limit in the NB to NE Minimum flow display.

Instructions

- ☐ Navigate to the ICM display to access the NB to NE Minimum Flow display;
- ☐ Click “NB-NE MIN FLOW”;
- ☐ Toggle the “Suspend” button to enable the well for “Manually entered Minimum Flow Limit.”;
- ☐ Enter the applicable value per the TOG in the “Manually entered Minimum Flow Limit.” well;
- ☐ Verify the “Most Restrictive Limit” is being properly populated by the most restrictive of both:
 - ☐ “DOUBLEC V/R calculator Minimum Flow Limit.”; Or
 - ☐ “Manually entered Minimum Flow Limit.”
- ☐ Enter a value in the “Warning Alarm Margin.” well as determined by the Operator;
- ☐ Verify the “Warning Alarm Limit.” value displayed is the total of the “Most Restrictive Limit.” plus “Warning Alarm Margin.”.

Notes

- Manually entered Minimum Flow Limits may need to be updated based on adders that may/may not be available per the facility out TOG.
- The maximum Warning Alarm Margin value enterable is 50MW.

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Condition(s) to perform this section:

- RTNET or SCADA indicates transmission equipment is trending towards or has exceeded a thermal limit; Or
- Notified of a limit exceedance by an outside entity.

Section 2 : Respond to indications of a Real-Time Thermal exceedance

Step 2.1 Primary Responsibility: Security Operator

Notify the Operations Shift Supervisor or Senior System Operator of the issue.

Step 2.2 Primary Responsibility: Security Operator

Ensure the SCADA and RTNET values are consistent and of good quality.

Instructions

If the RTNET or SCADA values are **NOT** consistent, determine what is causing the issue and correct it using CROP.27002 Telemetry and Topology Problems.

Step 2.3 Primary Responsibility: Security Operator

Determine if any TOGs or specific actions from an outage application or RTS Group are applicable and take those immediate actions.

Notes

If operation of transmission equipment is required, direct the Operating Instruction using [Attachment 2](#).

Step 2.4 Primary Responsibility: Security Operator

Determine the type of exceedance and time requirement for mitigation.

Step 2.5 Primary Responsibility: Operations Shift Supervisor

Condition(s) to perform this step:

- Exceedance of the STE of an IROL in real time.

Notify the Control Room Operators of the start of M/LCC 13 Operating Emergency Conditions.

Step 2.5.1 Primary Responsibility: Any Control Room Operator

Perform notifications for the declaration of an M/LCC 13 Operating Emergency Condition.

Instructions

Notify the following of the M/LCC 13 Operating Emergency Condition declaration:


- ☐ Known impacted LCCs;
- ☐ Known impacted RC/BAs;
- ☐ Resource DEs verbally dispatched to correct the Operating Emergency.

Notes

M/LCC 13 Operating Emergencies require the proper use of three-part communications.

Step 2.6 Primary Responsibility: Security Operator

Validate the required information with the applicable LCC or RC/BA Operator per M/LCC13 Attachment C.

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Step 2.7 Primary Responsibility: Security Operator

Determine the actions to take and implement.

Notes

- Typically, Normal Actions are used and exhausted before Emergency Actions are implemented. Based on time requirement for mitigation Emergency Actions may be implemented prior to or while Normal Actions are being taken and exhausted.
- If an internal transmission constraint is impacted by external transaction, determine if external transactions can be curtailed.
- If operation of transmission equipment is required, direct the Operating Instruction using [Attachment 2](#).
- If Load Shed is required, utilize CROP.10001 Load Shed.

Step 2.7.1 Primary Responsibility: Security Operator

Condition(s) to perform this step:

- If appropriate.

Perform a study to determine the effect of available actions.

Step 2.7.2 Primary Responsibility: Security Operator

Condition(s) to perform this step:

- The action to be implemented by the LCC Operator.

Instruct the associated LCC Operator to take the available actions.

Notes

If operation of transmission equipment is required, direct the Operating Instruction using [Attachment 2](#).

Step 2.8 Primary Responsibility: Security Operator

Determine if the actions taken are correcting the identified issue.

Instructions

Perform the following:

- ☐ Coordinate with the applicable LCC and review the applicable EMS applications to determine if the actions taken corrected the identified issue.
- ☐ If **NOT**, take further available actions as required to correct the identified issue.
 - ☐ If the exceedance is due to a resource not following dispatch, consider discussing switching actions with the applicable LCC that will remove the resource from service.

Step 2.9 Primary Responsibility: Operations Shift Supervisor


Condition(s) to perform this step:

- The IROL exceedance has been mitigated; And
- An M/LCC 13 Operating Emergency Condition was declared.

Notify the Control Room Operators the M/LCC 13 Operating Emergency Condition has ended.

Step 2.9.1 Primary Responsibility: Any Control Room Operator

Notify the LCCs, RCs/BAs and any DEs that were previously notified that the IROL exceedance has been mitigated and the M/LCC 13 Operating Emergency Condition has ended.

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Step 2.10 Primary Responsibility: Security Operator

Condition(s) to perform this step:

- The SOL or IROL exceedance has been mitigated.

Notify the impacted LCCs and RCs/BAs that the SOL or IROL exceedance has been mitigated.

Step 2.11 Primary Responsibility: Operations Shift Supervisor

Condition(s) to perform this step:

- Time associated with the applicable real time limit (LTE, STE, or DAL) has been exceeded.

Log the potential violation.

Instructions

Use log entry: > REPORTING > Potential SOL Violation [E]

Step 2.12 Primary Responsibility: Operations Shift Supervisor

Condition(s) to perform this step:

- RTS has reported the results of the Potential SOL Violation.

Update the previously made log entry with the SOL determination.

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Condition(s) to perform this section:

- RTCA indicates transmission equipment is trending towards or has exceeded a thermal limit; Or
- An Interface is trending towards or has exceeded an ILC limit; Or
- Notified of a post contingent limit exceedance by an outside entity.

Section 3 : Respond to indications of an Interface or Post Contingent thermal exceedance

Notes

Interface exceedances may be: Thermal, Stability, Proxy, External or Override.

Step 3.1 Primary Responsibility: Security Operator

Notify the Operations Shift Supervisor or Senior System Operator of the issue.

Step 3.2 Primary Responsibility: Security Operator

Ensure the “Current Transfer” or “Pre CTG Value” shown is consistent with SCADA and RTNET values and are of good quality.

Instructions

If the Current Transfer or Pre CTG Value is **NOT** consistent with RTNET or SCADA values, determine what is causing the issue and correct it using CROP.27002 Telemetry and Topology Problems.

Notes

The SCADA value shown within RTCA is the SCADA value at the time of the Network Sequence execution.

Step 3.3 Primary Responsibility: Security Operator

Determine if any TOGs or specific actions from an outage application or RTS Group are applicable and take any required immediate actions.

Notes

If operation of transmission equipment is required, direct the Operating Instruction using [Attachment 2](#).

Step 3.3.1 Primary Responsibility: Security Operator

Condition(s) to perform this step:

- Backdown of a nuclear generator is required.

Issue the backdown order for the nuclear generator using [Attachment 3](#).

Step 3.3.1.1 Primary Responsibility: Security Operator

Log the backdown order of the nuclear generator.

Instructions


Use log entry: > GENERATION > NUCLEAR > Ordered Backdown Of Nuclear Station

Step 3.4 Primary Responsibility: Security Operator

Condition(s) to perform this step:

- Indications of a post contingent exceedance of an STE limit.

Determine if the contingency can have inter-area impact using the guidance in M/LCC 15 Attachment C.

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Step 3.5 Primary Responsibility: Security Operator
Determine the type of exceedance and time requirement for mitigation.

Step 3.5.1 Primary Responsibility: Security Operator

Condition(s) to perform this step:

- The selection needs to be modified.

Set the "Timer Type" flag in RTCA.

Notes

- IROL will be automatically selected within 60 seconds of the population of the STE Timer.
- For IROLs consider setting the Network Sequence mode to "Fast".

Step 3.6 Primary Responsibility: Security Operator
Validate the required information with the applicable LCC or RC/BA Operator per M/LCC13 Attachment C.

Step 3.6.1 Primary Responsibility: Security Operator

Condition(s) to perform this step:

- A more restrictive event start time was identified; Or
- System conditions warrant a different start time be entered.

Set the "In Use" flag and enter the identified event start time.

Notes

- This start time entered will be used to determine the elapsed time.
- The Initial Alarm time in RTCA is based off of the time RTCA completed with that contingency having an element \geq STE limit.

Step 3.7 Primary Responsibility: Security Operator
Determine if pre- or post-contingent actions are required to mitigate the post-contingent thermal exceedance and implement.

Notes

- Typically Normal Actions are used and exhausted before Emergency Actions are implemented. Based on time requirement for mitigation Emergency Actions may be implemented prior to or while Normal Actions are being taken and exhausted.
- If an internal transmission constraint is impacted by external transaction, determine if external transactions can be curtailed.
- If operation of transmission equipment is required, direct the Operating Instruction using [Attachment 2](#).
- If Load Shed is required, utilize CROP.10001 Load Shed.

Step 3.7.1 Primary Responsibility: Security Operator


Condition(s) to perform this step:

- If appropriate.

Perform a study to determine the effect of available actions.

Step 3.7.1.1 Primary Responsibility: Security Operator

Contact the associated LCC Operator and determine if the available action(s) can be utilized and do NOT create or worsen a local limit exceedance.

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Step 3.7.1.2 Primary Responsibility: Security Operator

Condition(s) to perform this step:

- Pre-contingent actions are required to be implemented by the LCC Operator.

Instruct the associated LCC Operator to take the available actions.

Notes

If operation of transmission equipment is required, direct the Operating Instruction using [Attachment 2](#).

Step 3.8 Primary Responsibility: Security Operator

Determine if the actions taken are correcting the identified issue.

Instructions

Perform the following:

- ☐ Coordinate with the applicable LCC and review the applicable EMS applications to determine if the actions taken corrected the identified issue.
- ☐ If **NOT**, take further available actions as required to correct the identified issue.
 - ☐ If the exceedance is due to a resource not following dispatch, consider discussing switching actions with the applicable LCC that will remove the resource from service.

Step 3.9 Primary Responsibility: Operations Shift Supervisor

Consider implementing M/LCC 2 using CROP.25011 Implement Operations During Abnormal Conditions.

Step 3.10 Primary Responsibility: Operations Shift Supervisor

Condition(s) to perform this step:

- A restrictive interface stability limit requires implementation of OP-7.

Request Real Time Studies Group to evaluate relaxing restrictive interface stability limit(s) to prevent or minimize OP-7.

Step 3.11 Primary Responsibility: Operations Shift Supervisor

Consider recalling scheduled outages to improve or maintain reliability.

Step 3.12 Primary Responsibility: Security Operator

Condition(s) to perform this step:

- Post-contingent actions are required.

Develop a plan for post contingent action with the LCC.

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Step 3.12.1 Primary Responsibility: Security Operator

Condition(s) to perform this step:

- RTCA results are \geq STE and $<$ DAL; And
- A post-contingent action plan has been developed and agreed to.

Exclude the RTCA Contingency timer.

Instructions

Perform the following:

- ☐ Click “STE Timer Flags”
- ☐ Set the “Exclude” Checkbox

Step 3.13 Primary Responsibility: Operations Shift Supervisor

Condition(s) to perform this step:

- An IROL exceedance has exceeded 20 minutes and has NOT been mitigated.

Notify the Control Room Operators of the start of M/LCC 13 Operating Emergency Conditions.

Step 3.13.1 Primary Responsibility: Any Control Room Operator

Perform notifications for the declaration of an M/LCC 13 Operating Emergency Condition.

Instructions

Notify the following of the M/LCC 13 Operating Emergency Condition declaration:

- ☐ Known impacted LCCs;
- ☐ Known impacted RC/BAs;
- ☐ Resource DEs verbally dispatched to correct the Operating Emergency.

Notes

M/LCC 13 Operating Emergencies require the proper use of three-part communications.

Step 3.13.2 Primary Responsibility: Security Operator

Log the IROL Interface Exceedance.

Instructions

Use the applicable log entry:

- ☐ > TRANSMISSION > ILC Limit Exceedance > 20 Min
- ☐ > TRANSMISSION > RTCA Limit Exceedance > 20 Min

Items that should be noted in Log:


- ☐ Cause of Limit Exceedance
- ☐ Actions Taken
- ☐ Results of Actions

Step 3.14 Primary Responsibility: Operations Shift Supervisor

Condition(s) to perform this step:

- An IROL exceedance has been mitigated; And
- An M/LCC 13 Operating Emergency Condition was declared.

Notify the Control Room Operators the M/LCC 13 Operating Emergency Condition has ended.

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Step 3.14.1 Primary Responsibility: Any Control Room Operator

Notify the LCCs, RCs/BAs and any DEs that were previously notified that the IROL exceedance has been mitigated and the M/LCC 13 Operating Emergency Condition has ended.

Step 3.15 Primary Responsibility: Security Operator

Condition(s) to perform this step:

- The SOL or IROL exceedance has been mitigated.

Notify the impacted LCCs and RCs/BAs that the SOL or IROL exceedance has been mitigated.

Notes

For an ILC interface exceedance, this can be accomplished through verbal or electronic ICCP telemetry.

Step 3.16 Primary Responsibility: Operations Shift Supervisor

Condition(s) to perform this step:

- An IROL has exceeded 30 minutes in duration; Or
- An SOL has exceeded 120 minutes in duration.

Log the potential violation.

Instructions

Use the applicable log entry:

- ☐ > REPORTING > Potential SOL Violation [E]
- ☐ > REPORTING > Potential IROL Violation [E]

Step 3.17 Primary Responsibility: Operations Shift Supervisor

Condition(s) to perform this step:

- RTS has reported the results of the Potential SOL or IROL Violation.

Update the previously made log entry with the SOL or IROL determination.

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Condition(s) to perform this section:

- RTNET, MLCC15H tool, or SCADA indicates transmission equipment is trending towards or has exceeded a voltage limit; Or
- Identified that a dynamic reactive resource has limited ability to respond due to current output; Or
- The OP12B tool indicates an alarm; Or
- LCC Operator requests assistance managing a real time voltage issue; Or
- Notified of a voltage issue by an outside entity.

Section 4 : Respond to indications of a real time voltage exceedance

Step 4.1 Primary Responsibility: Security Operator

Notify the Operations Shift Supervisor or Senior System Operator of the exceedance.

Step 4.2 Primary Responsibility: Security Operator

Ensure the SCADA and RTNET values are consistent and of good quality.

Instructions

If the RTNET or SCADA values are **NOT** consistent, determine what is causing the issue and correct it using CROP.27002 Telemetry and Topology Problems.

Notes

The SCADA value shown in the MLCC15H tool is the SCADA value at the time of the Network Sequence execution.

Step 4.2.1 Primary Responsibility: Security Operator

Condition(s) to perform this step:

- Issue with a monitoring point in the OP12B or MLCC15H tool.

Modify the monitoring point using CROP.27002 Telemetry and Topology Problems section “Transmission Equipment Telemetry Problem”.

Step 4.3 Primary Responsibility: Security Operator

Determine if any TOGs or specific actions from an outage application or RTS Group are applicable and take any required immediate actions.

Notes


If operation of transmission equipment is required, direct the Operating Instruction using [Attachment 2](#).

Step 4.4 Primary Responsibility: Security Operator

Determine if a voltage limit exceedance has occurred.

Instructions

Access the MLCC15H tool in RTNET to determine the voltage exceedance

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Step 4.4.1 Primary Responsibility: Security Operator

Condition(s) to perform this step:

- Determined it is a potential voltage exceedance.

Determine the type of exceedance and applicable time requirements.

Instructions

Access MLCC 15 Attachment H to determine the type of exceedance (SOL or IROL).
The applicable time requirements are:

- ☐ When Action Plan Needed & Pre-Contingent Actions Taken
- ☐ Time Allowed in This State (with Action Plan)

Step 4.4.1.1 Primary Responsibility: Security Operator

Condition(s) to perform this step:

- The selection needs to be modified.

Set the "Timer Type" flag in MLCC15H tool.

Notes

- SOL will be automatically selected for high voltages.
- For IROLs consider changing the Network Sequence mode to "Fast".

Step 4.4.2 Primary Responsibility: Operations Shift Supervisor

Condition(s) to perform this step:

- Exceedance of the STEVL of an IROL in real time.

Notify the Control Room Operators of the start of M/LCC 13 Operating Emergency Conditions.

Step 4.4.2.1 Primary Responsibility: Any Control Room Operator

Perform notifications for the declarations of an M/LCC 13 Operating Emergency Condition.

Instructions

Notify the following of the M/LCC 13 Operating Emergency Condition declaration:

- ☐ Known impacted LCCs;
- ☐ Known impacted RC/BAs;
- ☐ Resource DEs verbally dispatched to correct the Operating Emergency.

Notes

M/LCC 13 Operating Emergencies require the proper use of three-part communications.

Step 4.4.3 Primary Responsibility: Security Operator

Condition(s) to perform this step:

- Determined it is a potential voltage exceedance.

Validate the required information with the applicable LCC or RC/BA Operator per M/LCC13 Attachment C.

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Step 4.4.3.1 Primary Responsibility: Security Operator

Condition(s) to perform this step:

- A more restrictive event start time was identified; Or
- System conditions warrant a different start time be entered.

Set the "In Use" flag and enter the identified event start time.

Notes

- This start time entered will be used to determine the elapsed time.
- The Initial Alarm time is based off of the time the Network Sequence completed with that voltage limit exceedance.

Step 4.4.4 Primary Responsibility: Security Operator

Condition(s) to perform this step:

- Determined it is a potential voltage exceedance.

Notify the Operations Shift Supervisor, Senior System Operator, and impacted LCCs or RC/BAs of potential exceedance and the applicable time requirements.

Instructions

The applicable time requirements are:

- ☐ When Action Plan Needed & Pre-Contingent Actions Taken
- ☐ Time Allowed in This State (with Action Plan)

Step 4.5 Primary Responsibility: Security Operator

Determine if there are any available reactive resources using the Mvar Reserve Summary "ISO RRM" tool.

Notes

For shunt devices:

- An offline device is highlighted in gray and if it does **NOT** have the ignore flag set, should be available for use.
- An in service device is **NOT** highlighted. Consider switching offline.

Step 4.6 Primary Responsibility: Security Operator

Determine the Voltage Schedule and Tolerance Band for a generator using the OP12B tool.

Notes

OP12B TOG field is meant to identify a unit that has a TOG associated with it, and should **NOT** be dispatched outside their voltage tolerance band if a calculated **STABILITY** limit is present (that is not +/- 99999) unless authorized by the Real Time Studies Group, for example:

- A unit that is associated with a TOG that is an 'adder' for the TOG located within an all lines in area, or
- A unit that is an 'adder' for a line out condition, or
- A unit that is behind an interface that has an active stability configuration, or
- The unit is currently restricted by an associated TOG.

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Step 4.7 Primary Responsibility: Security Operator

Determine the actions to take and implement.

Notes

- Typically, Normal Actions are used and exhausted before Emergency Actions are implemented. Based on time requirement for mitigation Emergency Actions may be implemented prior to or while Normal Actions are being taken and exhausted.
- If an internal transmission constraint is impacted by external transaction, determine if external transactions can be curtailed.
- If operation of transmission equipment is required, direct the Operating Instruction using [Attachment 2](#).

Step 4.8 Primary Responsibility: Security Operator

Condition(s) to perform this step:

- If appropriate.

Perform a study to determine the effect of the available reactive resource.

Instructions

Detailed instructions for Powerflow modifications can be found in [Attachment 1](#) of this procedure.

Step 4.9 Primary Responsibility: Security Operator

Condition(s) to perform this step:

- If appropriate.

Instruct the associated LCC Operator to take the available actions.

Notes

If operation of transmission equipment is required, direct the Operating Instruction using [Attachment 2](#).

Step 4.9.1 Primary Responsibility: Security Operator

Condition(s) to perform this step:

- LCC Operator has been instructed to modify or has modified a voltage schedule for a generator.

Modify a voltage schedule using CROP.34010 Transmission Limits section “Modifying a kV schedule in OP-12B tool”.

Notes

OP12B TOG field is meant to identify a unit that has a TOG associated with it, and should **NOT** be dispatched outside their voltage tolerance band if a calculated **STABILITY** limit is present (that is not +/- 99999) unless authorized by the Real Time Studies Group, for example:

- A unit that is associated with a TOG that is an ‘adder’ for the TOG located within an all lines in area, or
- A unit that is an ‘adder’ for a line out condition, or
- A unit that is behind an interface that has an active stability configuration, or
- The unit is currently restricted by an associated TOG.

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Step 4.10 Primary Responsibility: Security Operator

Determine if the actions taken are correcting the identified voltage issue.

Instructions

Perform the following:

- ☐ Coordinate with the applicable LCC and review the applicable EMS applications to determine if the actions taken corrected the identified issue.
- ☐ If **NOT**, take further available actions as required to correct the identified issue.
 - ☐ If the exceedance is due to a resource not following dispatch, consider discussing switching actions with the applicable LCC that will remove the resource from service.

Step 4.10.1 Primary Responsibility: Security Operator

Condition(s) to perform this step:

- Further action is required.

Notify the Operations Shift Supervisor and Senior System Operator that all available previous actions have been taken and are insufficient.

Step 4.10.1.1 Primary Responsibility: Senior System Operator

Determine what action(s) need to be taken.

Instructions

The following are available actions:

- ☐ Manually re-dispatch generation
- ☐ Commit generation or DARD pumps to provide reactive support
- ☐ Implement OP-4 Actions
- ☐ Shed load (Low Voltage)

Notes

- Do **NOT** posture a DARD pump on-line for voltage, it will be flagged as VSUH.
- If Load Shed is required, utilize CROP.10001 Load Shed

Step 4.11 Primary Responsibility: Operations Shift Supervisor

Condition(s) to perform this step:

- The STEVL IROL exceedance has been mitigated; And
- An M/LCC 13 Operating Emergency Condition was declared.

Notify the Control Room Operators the M/LCC 13 Operating Emergency Condition has ended.

Step 4.11.1 Primary Responsibility: Any Control Room Operator


Notify the LCCs, RCs/BAs and any DE's that were previously notified that the IROL exceedance has been mitigated and the M/LCC 13 Operating Emergency Condition has ended.

Step 4.12 Primary Responsibility: Security Operator

Condition(s) to perform this step:

- The SOL or IROL exceedance has been mitigated.

Notify the impacted LCCs and RCs/BAs that the SOL or IROL exceedance has been mitigated.

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Step 4.13 Primary Responsibility: Operations Shift Supervisor

Condition(s) to perform this step:

- An exceedance has exceeded the applicable time in M/LCC 15 Attachment H.

Log the potential violation.

Instructions

Use the applicable log entry:


- ☐ > REPORTING > Potential SOL Violation [E]
- ☐ > REPORTING > Potential IROL Violation [E]

Step 4.14 Primary Responsibility: Operations Shift Supervisor

Condition(s) to perform this step:

- RTS has reported the results of the Potential SOL or IROL Violation.

Update the previously made log entry with the SOL or IROL determination.

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Condition(s) to perform this section:

- RTCA or CAJR indicates transmission equipment is trending towards or has exceeded a voltage limit; Or
- A deviation between the RTCA and CAJR voltage solutions is shown; Or
- LCC Operator requests assistance managing a post contingent voltage issue; Or
- Notified of a post contingent voltage issue by an outside entity.

Section 5 : Respond to indications of a Post Contingent voltage exceedance

Step 5.1 Primary Responsibility: Security Operator

Notify the Operations Shift Supervisor or Senior System Operator of the issue.

Step 5.2 Primary Responsibility: Security Operator

Ensure the "Pre CTG Value" shown in the CA software is consistent with SCADA and RTNET values and are of good quality.

Instructions

If the "Pre CTG Value" is **NOT** consistent with RTNET or SCADA values, determine what is causing the issue and correct it using CROP.27002 Telemetry and Topology Problems.

Step 5.3 Primary Responsibility: Security Operator

Determine if any TOGs or specific actions from an outage application or RTS Group are applicable and take any required immediate actions.

Notes

If operation of transmission equipment is required, direct the Operating Instruction using Attachment 3.

Step 5.4 Primary Responsibility: Security Operator

Determine if a voltage limit exceedance has occurred.

Instructions

Access M/LCC 15 Attachment H to determine the voltage exceedance

Step 5.4.1 Primary Responsibility: Security Operator

Validate the required information with the applicable LCC or RC/BA Operator per M/LCC13 Attachment C.

Step 5.4.2 Primary Responsibility: Security Operator

Condition(s) to perform this step:

- Determined it is a potential voltage exceedance.

Notify the Operations Shift Supervisor, Senior System Operator, and impacted LCCs or RC/BAs of potential exceedance and the applicable time requirements.

Instructions

The applicable time requirements are:

- ☐ When Action Plan Needed & Pre-Contingent Actions Taken
- ☐ Time Allowed in This State (with Action Plan)

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Step 5.4.3 Primary Responsibility: Operations Shift Supervisor

Condition(s) to perform this step:

- Determined the exceedance is a potential IROL.

Contact the ISO Real Time Studies On-Call Engineer.

Notes

The on-call engineer will be contacted in order to obtain confirmation or correction to any low voltage IROL identification.

Step 5.5 Primary Responsibility: Security Operator

Determine if there are any available reactive resources using the Mvar Reserve Summary “ISO RRM” tool.

Notes

For shunt devices:

- An offline device is highlighted in gray and if it does **NOT** have the ignore flag set, should be available for use.
- An in service device is **NOT** highlighted. Consider switching offline.

Step 5.6 Primary Responsibility: Security Operator

Condition(s) to perform this step:

- If modifying a generator's reactive output is an option.

Determine the Voltage Schedule and Tolerance Band for a generator using the OP12B tool.

Notes

- The OP12B tool indicates what the voltage schedule and available range is for a generator during On-Peak or Off-Peak load periods.
- OP12B TOG field is meant to identify a unit that has a TOG associated with it, and should **NOT** be dispatched outside their voltage tolerance band if a calculated **STABILITY** limit is present (that is not +/- 99999) unless authorized by the Real Time Studies Group, for example:
 - A unit that is associated with a TOG that is an ‘adder’ for the TOG located within an all lines in area, or
 - A unit that is an ‘adder’ for a line out condition, or
 - A unit that is behind an interface that has an active stability configuration, or
 - The unit is currently restricted by an associated TOG.

Step 5.7 Primary Responsibility: Security Operator

Determine the actions to take and implement.

Notes

- Typically, Normal Actions are used and exhausted before Emergency Actions are implemented. Based on time requirement for mitigation Emergency Actions may be implemented prior to or while Normal Actions are being taken and exhausted.
- If an internal transmission constraint is impacted by external transaction, determine if external transactions can be curtailed.
- If operation of transmission equipment is required, direct the Operating Instruction using [Attachment 2](#).

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Step 5.8 Primary Responsibility: Security Operator

Condition(s) to perform this step:

- If appropriate.

Perform a study to determine the effect of the available reactive resource.

Instructions

Detailed instructions for Powerflow modifications can be found the [Attachment 1](#) of this procedure.

Step 5.9 Primary Responsibility: Security Operator

Condition(s) to perform this step:

- If appropriate.

Contact the associated LCC Operator and determine if the available action(s) can be utilized and do NOT create or worsen a local limit exceedance.

Step 5.10 Primary Responsibility: Security Operator

Condition(s) to perform this step:

- If pre contingent action is required to be taken.

Instruct the associated LCC Operator to take the available actions.

Notes

If operation of transmission equipment is required, direct the Operating Instruction using [Attachment 2](#).

Step 5.10.1 Primary Responsibility: Security Operator

Condition(s) to perform this step:

- LCC Operator has been instructed to modify or has modified a voltage schedule for a generator.

Modify a voltage schedule using CROP.34010 Transmission Limits section “Modifying a kV schedule in OP-12B tool”.

Notes

OP12B TOG field is meant to identify a unit that has a TOG associated with it, and should **NOT** be dispatched outside their voltage tolerance band if a calculated **STABILITY** limit is present (that is not +/- 99999) unless authorized by the Real Time Studies Group, for example:

- A unit that is associated with a TOG that is an ‘adder’ for the TOG located within an all lines in area, or
- A unit that is an ‘adder’ for a line out condition, or
- A unit that is behind an interface that has an active stability configuration, or
- The unit is currently restricted by an associated TOG.

Step 5.11 Primary Responsibility: Security Operator

Determine if the actions taken are correcting the identified voltage issue.

Instructions

Perform the following:

- ☐ Coordinate with the applicable LCC and review the applicable EMS applications to determine if the actions taken corrected the identified issue.
- ☐ If **NOT**, take further available actions as required to correct the identified issue.
 - ☐ If the exceedance is due to a resource not following dispatch, consider discussing switching actions with the applicable LCC that will remove the resource from service.

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Step 5.11.1 Primary Responsibility: Security Operator

Condition(s) to perform this step:

- Further action is required.

Notify the Operations Shift Supervisor and Senior System Operator that all available previous actions have been taken and are insufficient.

Step 5.11.1.1 Primary Responsibility: Senior System Operator

Determine what action(s) need to be taken.

Instructions

The following are available actions:

- ☐ Manually re-dispatch generation
- ☐ Commit generation or DARD pumps to provide reactive support
- ☐ Implement OP-4 Actions
- ☐ Shed load (Low Voltage)

Notes

- Do **NOT** posture a DARD pump on-line for voltage, it will be flagged as VSUH.
- If Load Shed is required, utilize CROP.10001 Load Shed

Step 5.11.2 Primary Responsibility: Security Operator

Condition(s) to perform this step:

- If post contingent action is required.

Develop a post contingent plan with the LCC Operator.

Instructions

Review the applicable application(s) (RTNET, RTCA, or CAJR) to determine if the actions taken corrected the identified issue.

Step 5.11.2.1 Primary Responsibility: Security Operator

Inform the Senior System Operator and Operations Shift Supervisor of the post contingent action plan.

Step 5.11.2.2 Primary Responsibility: Security Operator

Set the “Have Action Plan” checkbox in RTCA.

Instructions

Access the “Have Action Plan” checkbox by clicking “kV Timer Flags”.

Step 5.12 Primary Responsibility: Operations Shift Supervisor

Condition(s) to perform this step:

- An IROL exceedance has exceeded 20 minutes and has NOT been mitigated.

Notify the Control Room Operators of the start of M/LCC 13 Operating Emergency Conditions.

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Step 5.12.1 Primary Responsibility: Any Control Room Operator

Perform notifications for the declarations of an M/LCC 13 Operating Emergency Condition.

Instructions

Notify the following of the M/LCC 13 Operating Emergency Condition declaration:

- ☐ Known impacted LCCs;
- ☐ Known impacted RC/BAs;
- ☐ Resource DEs verbally dispatched to correct the Operating Emergency.

Notes

M/LCC 13 Operating Emergencies require the proper use of three-part communications.

Step 5.13 Primary Responsibility: Operations Shift Supervisor

Condition(s) to perform this step:

- The IROL exceedance has been mitigated; And
- An M/LCC 13 Operating Emergency Condition was declared.

Notify the Control Room Operators the M/LCC 13 Operating Emergency Condition has ended.

Step 5.13.1 Primary Responsibility: Any Control Room Operator

Notify the LCCs, RCs/BAs and any DEs that were previously notified that the IROL exceedance has been mitigated and the M/LCC 13 Operating Emergency Condition has ended.

Step 5.14 Primary Responsibility: Security Operator

Condition(s) to perform this step:

- The SOL or IROL exceedance has been mitigated.

Notify the impacted LCCs and RCs/BAs that the SOL or IROL exceedance has been mitigated.

Step 5.15 Primary Responsibility: Operations Shift Supervisor

Condition(s) to perform this step:

- A post contingent exceedance has exceeded the applicable time in M/LCC 15 Attachment H.

Log the potential violation.

Instructions

Use the applicable log entry:

- ☐ > REPORTING > Potential SOL Violation [E]
- ☐ > REPORTING > Potential IROL Violation [E]

Step 5.15 Primary Responsibility: Operations Shift Supervisor

Condition(s) to perform this step:

- RTS has reported the results of the Potential SOL or IROL Violation.

Update the previously made log entry with the SOL or IROL determination.

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Condition(s) to perform this section:

- When a defined interface has a voltage/stability limit for one or more elements out-of-service and then an additional element on the specified interface is removed from service; Or
- When a defined interface has a voltage/stability limit for one or more elements out-of-service and then the limiting contingency for which the interface limit is based occurs.

Section 6 : Respond to indications of being in an unknown operating state

Notes

- If ISO New England or an LCC enters an unknown operating state (i.e., any state for which valid operating limits have **NOT** been determined), they will restore operations to respect limits within 30 minutes.
- The clock starts as soon the unknown operating state is identified.

Step 6.1 Primary Responsibility: Operations Shift Supervisor

Contact the Real Time Studies On-Call Engineer.

Notes

The expectation is that a revised limit would be provided during this call.

Step 6.2 Primary Responsibility: Security Operator

Perform actions to reduce the flow on the affected interface using [Section 3](#).

Instructions

- ☐ Actions will be taken to reduce the Interface flow below the revised limit.
- ☐ If a revised limit is **NOT** provided in Step 6.1, take actions to reduce the Interface flow to the lowest practical level.

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Condition(s) to perform this section:

- A transmission element cannot be closed.

Section 7 : Check Phase Angle difference

Step 7.1 Primary Responsibility: Security Operator

Determine the phase angle difference.

Instructions

Perform the following:

- ☐ Click “RTN”
- ☐ Click “BUS”
- ☐ To view station, click on file folder for “View Station Directory”
- ☐ Select desired station
- ☐ Select the “To Station” and view the bus angle

Notes

- The bus angle is displayed at top center of bus in “DEG”
- A phase angle exceedance of the 398, 312/393, 354, & 381 lines will be shown on the RTNET “Network Basecase Violations” display, under the “summary” and “angle” tabs. Phase angle exceedances are listed below any branch or voltage violation on the “summary” tab, so if multiple basecase violations are present, the angle violation may not be on the first page.

Step 7.2 Primary Responsibility: Security Operator

Verify with the LCC the allowable Phase Angle difference has NOT been exceeded.

Step 7.3 Primary Responsibility: Security Operator

Condition(s) to perform this step:

- Current Phase Angle difference exceeds the value allowed by the synch-check relays.

Coordinate the reduction of the Phase Angle difference with the applicable LCC(s).

Instructions

Reduce the Phase Angle difference by re-dispatching the power system or adjusting interchange schedules in order to reduce power transfer across the element to be closed.

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Condition(s) to perform this section:

- A contingency has occurred which disables automatic control of a tie-line Phase Shifting Transformer (PST).

Section 8 : Respond to a tie-line PST that has automatic control disabled

Notes

This procedural guidance shall not change without agreement from NYISO.

Step 8.1 Primary Responsibility: Security Operator

Condition(s) to perform this step:

- A contingency has occurred and VELCO reports automatic control has been disabled for the Sandbar (PV20) PST or Blissville (K7) PST.

Determine if the applicable PST can be returned to automatic control or if tap adjustments can be made.

Step 8.1.1 Primary Responsibility: Security Operator

Inform NYISO that automatic control has been disabled for the applicable PST and request approval to place the PST in automatic control or to make tap adjustments.

Step 8.1.2 Primary Responsibility: Security Operator

Condition(s) to perform this step:

- NYISO has provided approval and system conditions allow the PST to be placed in automatic control or tap adjustments can be made.

Contact VELCO and provide an operating instruction to place PST in automatic control or to make tap adjustments.

Step 8.2 Primary Responsibility: Security Operator

Condition(s) to perform this step:

- A contingency has occurred and NYISO reports automatic control has been disabled for the Northport (NNC) PST.

Determine if the PST can be returned to automatic control or if tap adjustments can be made.

Notes

To avoid a public safety issue, prevent equipment damage or a real time exceedance of a thermal limit, the NYISO System Operator may take immediate action to reduce the flow to within acceptable limits prior to making notifications.

Step 8.2.1 Primary Responsibility: Security Operator

Condition(s) to perform this step:

- System conditions allow the PST to be placed in automatic control or tap adjustments to be made.

Contact NYISO and provide approval to place PST in automatic control or to make tap adjustments.

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Condition(s) to perform this section:

- System conditions are such that a resource is radially connected to a neighboring Reliability Coordinator Area (RCA).

Section 9 : Manage resources radially connected to a neighboring RCA

Notes

- This procedural guidance shall not change without agreement from NYISO.
- There are multiple resources that may become radially connected to ISO-NE or to a neighboring RCA. This situation could adversely affect system reliability in the RCA that remains connected to the radial resource.

Step 9.1 Primary Responsibility: Security Operator

Condition(s) to perform this step:

- A NYISO resource becomes radial on the ISO-NE RCA and is NOT causing a real time or post-contingent reliability issue.

Contact NYISO and inform them that the resource may remain tied to the ISO-NE RCA.

Step 9.2 Primary Responsibility: Security Operator

Condition(s) to perform this step:

- A NYISO resource becomes radial on the ISO-NE RCA and is causing a real time or post-contingent reliability issue.

Contact NYISO and request that the resource be dispatched to a level that maintains reliability.

Step 9.2.1 Primary Responsibility: Security Operator

Condition(s) to perform this step:

- The level of operation required to maintain reliability is such that the resource CANNOT remain on-line.

Request NYISO to shut down the resource complying with any applicable time requirements.

Step 9.3 Primary Responsibility: Security Operator

Condition(s) to perform this step:

- An ISO-NE resource becomes radial on the NYISO RCA.

Contact NYISO and confirm there are no reliability issues with the ISO-NE resource operating radial to the NYISO RCA.

Step 9.3.1 Primary Responsibility: Security Operator

Condition(s) to perform this step:

- The resource connected radially to the NYISO RCA is causing a real time or post-contingent reliability issue.


Dispatch the resource to a level that maintains reliability.

Step 9.3.2 Primary Responsibility: Security Operator

Condition(s) to perform this step:

- The level of operation required to maintain reliability is such that the resource cannot remain on-line.

Shut down the resource complying with any applicable time requirements.

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Condition(s) to perform this section:

- OSL PMU alarm received in the System Activity log.

Section 10: Respond to a PMU alarm notification

Step 10.1 Primary Responsibility: Operations Shift Supervisor

Review the information contained in the PMU alarm notification email.

Instructions

- ☐ Open the .jpg file that starts with "P"
- ☐ Review the graph of the signal in the .jpg file which triggered the oscillation alarm
 - ☐ If the oscillation dampens out quickly, wait until normal business hours to inform the RTS group for investigation.
 - ☐ If the oscillation is persistent or repeats numerous times during the period shown without a change in the underlying value, or there are multiple alarms in short succession, contact the RTS on-call engineer to investigate.
- ☐ If there is not an accompanying .jpg file to review; contact the RTS on-call engineer to investigate.

Step 10.2 Primary Responsibility: Operations Shift Supervisor

Condition(s) to perform this step:

- RTS On-Call Engineer reports back with actions to be taken.

Direct the actions identified by the Real Time Studies On-Call Engineer.

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Condition(s) to perform this section:

- Notified by an LCC that a breaker will not open as designed.

Section 11: Respond to a report of a breaker failure.

Notes

This section is intended to address problems, such as low SF6 or mechanical problems that would prevent a breaker from opening as expected.

Step 11.1 Primary Responsibility: Security Operator

Condition(s) to perform this step:

- Breaker malfunction has been reported by the LCC and will take longer than 60 minutes to resolve.

Request the LCC submit an outage application in the ISO Outage Scheduling Software.

Step 11.2 Primary Responsibility: Security Operator

Check RTCA to determine if an active stuck breaker contingency exists for the identified breaker.

Step 11.2.1 Primary Responsibility: Security Operator

Condition(s) to perform this step:

- Stuck breaker contingency exists and requires activation.

Activate Contingency Definition in RTCA using CROP.34007 Contingency Analysis.

Step 11.3 Primary Responsibility: Security Operator

Condition(s) to perform this step:

- Stuck breaker contingency does not exist in RTCA.

Perform a Real Time Assessment (RTA) and SOL / IROL determination of the stuck breaker contingency per M/LCC 15 Attachment C – Contingency Impact Evaluation.

Instructions

- ☐ Perform the SOL/IROL determination using a real time snapshot **AND** on peak study case;
- ☐ If determined to be an SOL:
 - ☐ Make adjustments to the Powerflow study case to determine if there is a point in which it may become an IROL, if probable.

Notes

Adjustments to the Powerflow case may consist of: Generation, Load and Interchange schedule adjustments. Reasonable consideration should be given to the amount in which load is increased by and the probability of reaching the studied load level.

Step 11.3.1 Primary Responsibility: Security Operator

Notify the Senior System Operator and Operations Shift Supervisor of the determination.

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Step 11.3.2 Primary Responsibility: Operations Shift Supervisor

Condition(s) to perform this step:

- Stuck breaker contingency is determined to be an SOL.

Contact the RTS On-Call Engineer for further evaluation.

Instructions

Request the RTS On-Call Engineer confirm the stuck breaker contingency is an SOL and if there is an IROL probability.

Step 11.3.3 Primary Responsibility: Operations Shift Supervisor

Condition(s) to perform this step:

- Stuck breaker contingency is determined to be an SOL.

Exclude the stuck breaker contingency from evaluation.

Notes

Per OP19 Appendix J – Contingency List and Criteria / Limits, stuck breaker contingencies that are SOLs are not required to be respected for Normal or Emergency System Conditions.

Step 11.3.3.1 Primary Responsibility: Security Operator

Log the completed Real-Time Assessment.

Instructions

- ☐ Use log entry: > EQUIPMENT FAILURE > Real-Time Assessment Completed;
- ☐ Update Assessment Time for the study
- ☐ Enter the breaker name in the Comment field
- ☐ In the “RTNET SaveCase ID” field, enter “RT Snapshot”;
- ☐ Update the comments field section with: “Contingency has been determined to be an SOL and will be excluded per OP19”.

Step 11.3.3.2 Primary Responsibility: Security Operator

Notify the affected LCCs of the SOL assessment.

Step 11.3.4 Primary Responsibility: Security Operator

Condition(s) to perform this step:

- Stuck breaker contingency is determined to be an SOL; And
- An unplanned change in topology or generation pattern has occurred.

Repeat the SOL / IROL determination process from Step 11.3.

Step 11.3.5 Primary Responsibility: Security Operator

Condition(s) to perform this step:

- Stuck breaker contingency is determined to be an IROL.

Perform a Real-Time Assessment at least once every 30 minutes of the expected breaker operating condition using Powerflow/STCA.

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Step 11.3.5.1 Primary Responsibility: Security Operator

Log the completed Real-Time Assessment.

Instructions

- ☐ Use log entry: > EQUIPMENT FAILURE > Real-Time Assessment Completed;
- ☐ Update Assessment Time for the study
- ☐ Enter the breaker name in the Comment field
- ☐ In the “RTNET SaveCase ID” field, enter “RT Snapshot”;
- ☐ Update the log entry with the completed assessment time for each study.

Step 11.3.5.2 Primary Responsibility: Security Operator

Notify the affected LCCs that ISO System Operators are performing manual Real-Time Assessments at least once every 30 minutes.

Instructions

- ☐ Make the following notifications:
 - ☐ Notify the affected LCCs that ISO System Operators are performing manual Real-Time Assessments at least once every 30 minutes.
 - ☐ Notify the RTS On-Call Engineer for further evaluation.

Step 11.4 Primary Responsibility: Operations Shift Supervisor

Condition(s) to perform this step:

- Breaker problem is expected to persist for more than 4hrs and does not have a contingency definition; And
- Is determined to be an IROL contingency.

Contact PSMM On-Call to build an RTCA Contingency.

Notes

The RTCA Contingency is to be used strictly for monitoring and evaluating system reliability. At no time should this constraint be activated to dispatch generation within the ISO dispatch software. Should generation dispatch become necessary, it will be performed manually, following direction in CROP.25007 Manual Dispatch.

Step 11.5 Primary Responsibility: Security Operator

Condition(s) to perform this step:

- Notified by PSMM that a RTCA Contingency has been deployed.

Verify the new contingency is active and stop performing manual Real-Time Assessments and log the use of the new Contingency Definition.

Instructions


- ☐ Use log entry: > TRANSMISSION > CONTINGENCY > Activated Contingency in CA
- ☐ Identify the following items in the entry:
 - ☐ Contingency ID
 - ☐ Reason for the activation or deactivation.

Step 11.5.1 Primary Responsibility: Security Operator

Condition(s) to perform this step:

- New Contingency requires activation.

Activate Contingency Definition in RTCA using CROP.34007 Contingency Analysis.

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Step 11.6 Primary Responsibility: Security Operator

Condition(s) to perform this step:

- Notified by the LCC operator that breaker problem has been corrected and it will function properly.

Return to normal operations.

Step 11.6.1 Primary Responsibility: Security Operator

Condition(s) to perform this step:

- Manual Real-Time Assessments were being performed at least every 30 min.

Stop performing manual Real-Time Assessments.

Step 11.6.2 Primary Responsibility: Security Operator

Condition(s) to perform this step:

- PSMM has deployed RTCA Contingency for monitoring system reliability.

Deactivate Contingency Definition in RTCA using CROP.34007 Contingency Analysis.

Instructions

Send email to networkmodel@iso-ne.com to inform PSMM that the RTCA Contingency Definition has been deactivated and is no longer necessary.

Step 11.6.3 Primary Responsibility: Security Operator

Condition(s) to perform this step:

- Existing Stuck breaker contingency was normally INACTIVE in RTCA.

Deactivate Contingency Definition in RTCA using CROP.34007 Contingency Analysis.

Step 11.6.4 Primary Responsibility: Security Operator

Condition(s) to perform this step:

- Informational outage application was created.

Enter the completion time for the outage in the ISO Outage Scheduling software.

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Condition(s) to perform this section:

- Abnormal AVR or PSS alarm indication on the MLCC8 monitoring tool; Or
- Notified by a DE that a resource AVR, PSS or RCS is going out-of-service unplanned.

Section 12: Respond to an AVR or PSS Change of Status.

Notes

- During certain conditions, it is **expected** to receive AVR and PSS change of state alarms. Examples may include but not be limited to: resource startup, shutdown, and approved testing.
- A Reactive Control System (RCS) status is represented by an Automatic Voltage Regulator (AVR) ON/OFF flag in EMS.
- In the event that an RCS is not fully functional, any identified impact of the AVR OFF flag will be indicated in applicable TOGs and may be reflected in any limits in ILC. The RTS On-call Engineer should be contacted if there are any concerns.

Step 12.1 Primary Responsibility: Security Operator

Condition(s) to perform this step:

- Abnormal AVR or PSS Alarm is not expected based on current system conditions.

Determine the status of the AVR or PSS by contacting the DE.

Step 12.2 Primary Responsibility: Security Operator

Condition(s) to perform this step:

- DE notifies ISO-NE of an AVR, PSS or RCS going out-of-service unplanned.

Determine if the resource is required to have an AVR, PSS or RCS in-service.

Instructions

Refer to M/LCC 8 for AVR, PSS and RCS requirements.

Step 12.3 Primary Responsibility: Security Operator

Inform the Senior System Operator and Operations Shift Supervisor of the abnormal AVR or PSS state.

Step 12.4 Primary Responsibility: Security Operator

Condition(s) to perform this step:

- The AVR or PSS required state needs to be modified.

Modify the required state of a Resource AVR or PSS.

Instructions

Perform the following to modify an AVR or PSS required state:

- ☐ Access RTNET;
- ☐ Click the "MLCC8" button to access the MLCC8 Unit Data;
- ☐ Locate the Resource;
- ☐ Click the grey "i" under the AVR/PSS Req State column;
- ☐ Set the Override flag for the applicable AVR or PSS;
- ☐ For an AVR:
 - ☐ Set the applicable "On", "Off" or "Exempt" flag.
- ☐ For a PSS
 - ☐ Set the applicable "In", "Out" or "None" flag
- ☐ Add an Operator Note if applicable.

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Step 12.5 Primary Responsibility: Security Operator
Determine if there are any applicable TOGs for the AVR or PSS condition.

Step 12.6 Primary Responsibility: Security Operator

Condition(s) to perform this step:

- DE confirms AVR, PSS or RCS is not in-service and cannot be placed back into the required status per MLCC8; And
- There is NOT an applicable TOG associated with the device.

Contact the ISO Real Time Studies On-Call Engineer for further guidance.

Step 12.7 Primary Responsibility: Security Operator

Notify the applicable LCC Operator of the abnormal AVR or PSS.

Instructions

Inform the LCC of the following:

- ☐ Actions taken per any applicable TOGs;
- ☐ Guidance provided by the RTS Group if applicable.

Step 12.8 Primary Responsibility: Security Operator

Condition(s) to perform this step:

- AVR is out-of-service unscheduled.

Perform a security assessment for the AVR.

Step 12.9 Primary Responsibility: Security Operator

Condition(s) to perform this step:

- An AVR or PSS is out-of-service.

Log the AVR or PSS out-of-service.

Instructions

Use log entry: > GENERATION > AVR/PSS Status

Step 12.10 Primary Responsibility: Security Operator

Condition(s) to perform this step:

- AVR, PSS or RCS system out-of-service for > 30 minutes.


Notify the Forecaster to create an Informational outage.

Step 12.10.1 Primary Responsibility: Security Operator

Add any clarifying information to the outage application.


Instructions

- ☐ In the "ISO Comments" box, enter:
 - ☐ The equipment NOT operating normally (i.e., AVR, PSS)
 - ☐ The reason for the malfunction
 - ☐ Any operating restrictions caused by the outage

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Revision History

| Rev. No. | Date (MM/DD/YY) | Reason | Contact |
|----------|--------------------|---|-------------------|
| -- | 09/22/21 | For previous revision history, refer to Rev 33 available through Ask ISO | Steven Gould |
| 34 | 05/26/22 | Updated References, Removed Transmart Language and aligned with REX2 language. Modified Sections 2,3,4,5 to include direction for M/LCC 13 Operating Emergencies; formatted Attachment 1. Moved Fast mode information to Background section and deleted Steps 3.5.2, 3.5.2.1, 4.4.1.2 and 4.4.1.2.1; New Sections 10 & 11, Added information to Attachment 1; Added new Attachment 3 and added notes to refer to Attachment 3 where applicable. | Jonathan Gravelin |
| 35 | 11/16/22 | Updated References; Added Step 1.8 & 1.9; Removed Attachment 1 with the implementation of new M/LCC13 Attachment C and updated references to other Attachments as needed; Added Section 12 | Jonathan Gravelin |
| 36 | 11/29/22 | Added clarification to Notes in Steps: 1.9, 4.6, 4.9.1, 5.6, 5.10.1. | Jonathan Gravelin |
| 37 | 01/19/23 | Added Step 1.9.1, Updated email address in Step 11.6.2; Added log entry in Step 3.14; Added condition to enter in Step 9.1 | Jonathan Gravelin |
| 38 | 02/07/23 | Removed Maine notification from Procedure Background and Step 3.16 due to software enhancement with EMS 3.2.7 release. Modified Condition to Enter for Step 3.15; Removed Note from Step 3.15.1 as it was not an accurate. Deleted requirement to log element returning from step 1.12 | Jonathan Gravelin |
| 39 | 05/15/23 | Added Steps 1.4.1, 1.4.2, 1.5.1; Modified Step 11.3; Added Steps 11.3.1, 11.3.2, 11.3.3, 11.3.3.1, 11.3.3.2, 11.3.4, 11.3.5 & 11.3.5.1 | Jonathan Gravelin |
| 40 | 06/13/23 | Administrative updated to review periodicity to 1 year | Jonathan Gravelin |
| 41 | 07/27/23 | Converted Step 3.14 into Substep of 3.13; Fixed Hyperlinks in 4.8 & 4.9; Added Steps 1.14, 2.12, 3.17, 4.14 & 5.15. | Jonathan Gravelin |
| 42 | 06/20/2024 | Added Attachment 3, Added Step 1.5.1, 1.5.1.1, 3.3.1 and 3.3.1.1. Added Note to Section 3, Added Instructions to Step 2.8, 3.8, 4.10 and 5.11 | Jonathan Gravelin |
| 43 | 09/17/24 | Updated entry condition for section 10, Updated Attachment 3 | Jonathan Gravelin |
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Attachment 1 - Voltage and Reactive Resources

- The word Unit is inclusive to all dynamic reactive equipment found under the “UNIT” display in EMS applications Powerflow, STCA, RTNET, RTCA and CAJR.
- The word Shunt is inclusive to all static reactive equipment **NOT** providing dynamic reactive reserve. E.g.: shunt capacitors, shunt reactors, variable reactors, and LTCs without automatic control
- When examining an area for voltage issues, assess the likely worst reactive contingencies for consideration. They typically will be:
 - Loss of largest shunt reactive devices (capacitors or reactors)
 - Loss of dynamic VAR device, if putting out reactive power near limit (lag or lead, and a significant amount)
 - Loss of very heavily loaded transmission elements (lines or transformers) in an export area or heavily loaded transmission corridor
 - Loss of the largest generator in an importing area near its import limit
 - Loss of a heavily loaded 345 to 115 kV transformer, if it is the only connection from 345 kV to 115 kV at that station
- Dynamic reactive reserve is used to automatically respond when contingencies occur.
- The proper use of Static devices allows dynamic reactive resources to have sufficient reactive reserves to respond during contingencies.
- If you are facing a post-contingent low voltage condition, maximize your pre-contingent lagging reserve in your dynamic devices. If you are facing a post-contingent high voltage condition, maximize your pre-contingent leading reserve in your dynamic devices.
- All situations are different and all available normal actions should be considered for responding to voltage issues. Using shunt devices will **NOT** always be the first action. In some situations, modifying a generator reactive output or voltage schedule is the correct action to take.
A deviation between the RTCA and CAJR voltage solution results is an indication that pre-contingent actions may be required.
- Capacitors provide lagging VAR support that will raise bus voltage.
- Reactors provide leading VAR support that will lower bus voltage.
- In EMS a lagging VAR value is positive and a leading VAR value is negative.

In the ISO RRM tool:

The ISO RRM tool is accessed via RTNET by clicking the "ISO RRM" button

- Units
 - Generators are required to be on-line with >0 MW to have leading or lagging reserve calculated.
- Shunt Capacitors
 - When off-line, it will have a Lagging Capacity value equal to the nominal value.
 - When on-line, it will have a Leading Reserve value equal to the absolute value of the current MVAR output.
- Shunt Reactors
 - When off-line, it will have a Leading Capacity value equal to the nominal value.
 - When on-line, it will have a Lagging Reserve value equal to the absolute value of the current MVAR output.
- Variable Reactor
 - The Leading Reserve value is the difference between the MVAR output and the Leading Nominal MVAR value.
 - The Lagging Reserve value is the absolute value of the MVAR value or the nominal value, whichever is least.

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Powerflow modifications available for studying effects of reactive resources:

To place a shunt device in or out-of-service:

- ☐ Click the “CAP” button
- ☐ Locate the shunt device
- ☐ Modify the “Remove” flag to place the shunt device in-service or OOS.
- ☐ Toggle the breaker to the desired position on the one-line display.

To modify the AVR status of a shunt device:

- ☐ Click the "CAP" button
- ☐ Click the "Voltage Regulation Data" tab
- ☐ Locate the shunt device
- ☐ Modify the AVR flag to the desired status.

NOTE: **NOT** all shunt devices have the ability to be placed on AVR, refer to the NX9B information to verify equipment with “Voltage Sensing” capability.

Verify that the Transformer is an LTC. The top well is for the LTC setting, which is modifiable. The bottom is the fixed position setting in the field, **NOT** to be modified. Refer to the NX9B information to verify the transformer type, LTC transformers identified as “Fixed” cannot be tapped.

To modify the AVR status of an LTC or Variable Reactor:

- ☐ Click the "LINE" button
- ☐ Click the "Transformer Regulation" tab
- ☐ Locate the equipment
- ☐ Modify the AVR flag to the desired status.

To modify the tap position of an LTC or Variable Reactor:

- ☐ Click the "LINE" button
- ☐ Click the "Transformers" tab
- ☐ Locate the equipment
- ☐ If the “Tap” well is **NOT** enterable, remove the AVR flag as described above,
- ☐ Enter the desired tap position in the “Tap” well.


NOTE: For Powerflow to accept the tap position you must use the enter key. In some situations it is preferable to leave the AVR ON for those devices with the AVR flag normally set and modify the voltage schedule in order for STCA to utilize the AVR capability. The study should reflect how the LTC will be utilized in real time.

To modify the voltage schedule of a transformer:

- ☐ Click the “LINE” button
- ☐ Click the “Transformer Regulation” tab
- ☐ Locate the transformer
- ☐ Set the manual flag for “Regulation Target”
- ☐ Enter the target voltage in the “Voltage P.U.” column

To modify the AVR status of a dynamic reactive resource:

- ☐ Click the "UNIT" button
- ☐ Click the "MVAR and Voltage Regulation Data" tab
- ☐ Locate the dynamic reactive resource
- ☐ Modify the AVR flag to the desired status.

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To modify the MVAR output of a dynamic reactive resource:

- ☐ Click the "UNIT" button
- ☐ Click the "MVAR and Voltage Regulation Data" tab
- ☐ Locate the dynamic reactive resource
- ☐ If the AVR flag is set, remove the AVR flag
- ☐ Enter the MVAR value in the Output well. Ensure you enter a value that is within the Min and Max range indicated

NOTE: In some situations it is preferable to leave the AVR ON for dynamic reactive devices and modify the voltage schedule in order for STCA to utilize the AVR capability. The study should reflect how the dynamic reactive device will be utilized in real time.

To modify the voltage schedule of a dynamic reactive resource:

- ☐ Click the "UNIT" button
- ☐ Click the "MVAR and Voltage Regulation Data" tab
- ☐ Locate the dynamic reactive resource
- ☐ Set the flag for "Target Voltage Manual"
- ☐ Enter the target bus voltage in the "Target Bus Voltage P.U. V" column

NOTE: OP12B TOG field is meant to identify a unit that has a TOG associated with it, and should **NOT** be dispatched outside their voltage tolerance band if a calculated **STABILITY** limit is present (that is not +/- 99999) unless authorized by the Real Time Studies Group, for example:

- A unit that is associated with a TOG that is an 'adder' for the TOG located within an all lines in area, or
- A unit that is an 'adder' for a line out condition, or
- A unit that is behind an interface that has an active stability configuration, or
- The unit is currently restricted by an associated TOG.

To modify the voltage schedule at Sandy Pond:

NOTE: In order to accurately model MVar adjustments at Sandy Pond since the removal of the reactive devices in Powerflow, the HQP2 Unit MVar Output must be utilized.

- ☐ Contact NGrid to determine the availability of the Capacitor and Reactor Banks at Sandy Pond
- ☐ Click the "UNIT" button
- ☐ Click the "MVAR and Voltage Regulation Data" Tab
- ☐ Navigate to the "HQ_P1_P2" Station for the "HQP2" Unit
- ☐ Verify the AVR flag is NOT set
- ☐ Utilizing the "Sandy DC Overview" display in SCADA as a reference for Capacitor and Reactor capability:
 - ☐ Adjust the MVar output of the HQP2 Unit in step increments based on the reactive device chosen from the Sandy DC Overview.

In the OP12B Tool

The OP12B tool is accessed via RTNET by clicking the "OP12B" button.


Modifying the monitoring point for a kV Source – OP12B tools

Clicking the "i" in the gray circle in the "kV Sources" column will bring up the kV Sources display for an individual point.

Using this display the Control Room Operator can either modify the point in use or change the source of the value (RTNET or SCADA).

If the "In Use" flag is set for a source that is **NOT** the Primary Source, a PR indicator will be shown on the OP12B displays.

If the RTNET value is selected as the "kV source" and that source is "In Use", the Monitored kV RTNET value will highlight in yellow and a SE indicator will be shown on the OP12B or MLCC 15 H displays.

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Modifying a kV Schedule – OP12B tool

Clicking the “i” in the gray circle in the “kV Schedules” column will bring up the kV Schedules display for an individual point.

Using this display the Control Room Operator can modify the default kV schedule being used to an alternate schedule. The alternate value(s) are entered in the “Override” row and the “In Use” flag is set for the “Override” row.

When a kV schedule is overridden, an OR indicator will be displayed.

Modifying the monitoring period in effect (Off Peak or On Peak) – OP12B tool

The period in effect can be changed by clicking the applicable period in effect button and then:

- If the software is controlling the period in effect, the Control Room Operator will use the "Yes" button associated with the "Are you sure you want to override the OP12B schedule to On Peak (or Off Peak)?".
- If the period in effect has been changed manually, the Control Room Operator will be presented with two options. The two options are to override to the opposite period where it will remain until manually overridden or to return to normal (the software controlling the period in effect).
- To manually override to the opposite period: use the "Yes" button associated with "Are you sure you want to override the OP12B schedule to On Peak (or Off Peak)?"
- To return to normal operation: use the "Yes" button associated with "Are you sure you want to return the OP12B schedule to normal?"


Selecting “Supress Alarms” will disable alarming for that generator and the DS indicator will be displayed.

Generators with suspect “in use” SCADA kV source will display an SI indicator.

Modify the tolerance value for generators that have "Special Asset Tolerance MW" available – OP12B tool

NOTE: When the output of the generator is below the entered value **no** voltage alarms will be generated by the OP12B tool for that generator.

- ☐ Access the OP12B tool
- ☐ Locate generator
- ☐ Modify value

| | | |
|--|--|----------------------------|
|  | CROP.10004 Implement Transmission Remedial Actions | |
| © 2024 | Approved By: Director, Operations | Effective Date: 09/17/2024 |
| Rev #43 | Procedure Owner: Manager, Control Room Operations | Valid Through: 09/17/2025 |

Attachment 2 - Operation of Transmission Equipment

A controlled copy of this attachment is maintained in the control room to assist with meeting communication requirements

Items to be discussed by the System Operator:

LCC 3-Part Communication

| | | |
|-------------------------------|-------------------|--------------------------|
| Substation | Substation: | <input type="checkbox"/> |
| Equipment | Equipment: | <input type="checkbox"/> |
| Desired Position: OPEN /CLOSE | Desired Position: | <input type="checkbox"/> |

Items to be discussed by the System Operator:


LCC 3-Part Communication

| | | |
|-------------------------------|-------------------|--------------------------|
| Substation | Substation: | <input type="checkbox"/> |
| Equipment | Equipment: | <input type="checkbox"/> |
| Desired Position: OPEN /CLOSE | Desired Position: | <input type="checkbox"/> |

Items to be discussed by the System Operator:

LCC 3-Part Communication

| | | |
|-------------------------------|-------------------|--------------------------|
| Substation | Substation: | <input type="checkbox"/> |
| Equipment | Equipment: | <input type="checkbox"/> |
| Desired Position: OPEN /CLOSE | Desired Position: | <input type="checkbox"/> |

| | | |
|--|--|----------------------------|
|  | CROP.10004 Implement Transmission Remedial Actions | |
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Attachment 3 – Nuclear Station Backdown

Information redacted for public release