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References

1. CROP.10002 Implement Capacity Remedial Actions
2. Market Rule 1 Section III.13 Forward Capacity Market
3. Market Rule 1 Section III.2 LMPs and Real-Time Reserve Clearing Prices Calculation
4. NPCC Regional Reliability Directory #5 Reserve
5. OP 8 - Operating Reserve and Regulation

Procedure Background

For the purposes of this procedure, the terms for the various system reserve requirements may be different depending on the reference document and software applications utilized. The following provides a summary of each reserve requirement and the similar terms used in this procedure from the ISO Tariff, OP-8, EMS, and the market software applications within APF/MOI, including UDS, CDSPD, and RTUC.

Following the summary below, within the remainder of this procedure, the reserve requirement terminology utilized in each step is in alignment with the terminology utilized in the applicable operator software application. Where the procedure is not referencing a software application the applicable ISO Tariff acronym is utilized (e.g. TMSR, TMNSR) where possible.

- Ten-Minute Spinning Reserve (TMSR), as defined in the ISO Tariff, Section 1:
  - TMSR (OP-8)
  - 10 Minute Sync (EMS Reserve Monitor)
  - 10_SYNC (EMS CLOGGER)
  - System 10 Min. Sync (UDS/CDSPD/RTUC)
- Ten-Minute Reserve (TMNSR), as defined in the ISO Tariff, Section 1:
  - TMNSR (OP-8)
  - 10 Minute Total (EMS Reserve Monitor)
  - 10_Total (EMS CLOGGER)
  - System 10 Min. Total (UDS/CDSPD/RTUC)
- Thirty-Minute Operating Reserve (TMOR), as defined in the ISO Tariff, Section 1:
  - TMOR (OP-8)
  - 30 Minute Total (EMS Reserve Monitor)
- Minimum Total Reserve (sum of system-wide TMSR, TMNSR, & TMOR), as defined in the ISO Tariff, Section 1:
  - Operating Reserve (OP-8)
  - Operating Total (EMS Reserve Monitor)
  - OP_TOTAL (EMS CLOGGER)
  - System 30 Min. Total (UDS/CDSPD/RTUC)

- Replacement Reserve:
  - Total Reserve, as defined in the ISO Tariff, Section 1 is inclusive of Replacement Reserve (defined as the sum of system-wide TMSR, TMNSR, TMOR & Replacement Reserve)
  - Replacement Reserve (OP-8)
  - Replacement Total (EMS Reserve Monitor)
  - Replacement Reserve is included in Biased OP-TOTAL (EMS CLOGGER)
  - Replacement Reserve (UDS/CDSPD only)

The 10 Minute Sync requirement is normally set between 25% and 50% percent of the 10 Minute Total Reserve requirement, however, per NPCC Regional Reliability Directory #5 Reserve, the 10 Minute Sync requirement will never be lowered less than 25% of the 10 Minute Total Reserve requirement. A minimum 10 Minute Sync requirement that is greater than 25% can be imposed as a result of a failure to meet criteria for restoration of ACE following an NPCC Reportable Event or can administratively be set by the Manager, Control Room Operations.

During periods when system conditions threaten to reduce actual quantity of Ten-Minute Reserve, 10 Minute Sync, or Operating Reserve below the currently prescribed levels, the applicable reserve requirement may be increased to a value greater than 100% of the current requirement in order to maintain system security. A minimum 10 Minute Total requirement of greater than 100% can be imposed as a result of the periodic review of aggregated resource performance which is performed in accordance with SOP – RTMKTS.0125.0090 Evaluate Resource Performance Post Disturbance.

Reserve Constraint Penalty Factors (RCPF) (reserve price violations) occur as follows:

- System 10 Min. Sync = $50
- System 10 Min. Total = $1500
- System 30 Min.Total = $1000
- Replacement Reserve = $250
- Local Reserve Zone 30 Min. Total = $250

EMS Reserve Monitor Down flags will affect the amount of reserve designated on a resource. If a resource has the Reserve Monitor Down flag set, the EMS Reserve Monitor and UDS software will **NOT** count that resource toward meeting reserve requirements.
When reserve capacity is insufficient for a Reserve Zone or a reserve price violation for a Reserve Zone occurs, UDS will **NO** longer continue to co-optimize dispatch for energy and reserves and will only dispatch for energy. Manual action such as manually starting additional resources may be required.

Capacity Scarcity Condition

A Capacity Scarcity Condition will be triggered by the approval of any ONE UDS or CDSPD case that is violating any one or more of the reserve constraints identified below for (1) five minute interval.

- System 10 Minute Total Reserve – RCPF of $1,500/MWh
- System 30 Minute Total Reserve – RCPF of $1,000/MWh
- Local Reserve Zone 30 Minute Total – RCPF of $250/MWh. Local Reserve Zones are:
  - NEMA-Boston
  - CT
  - SWCT

- Management Expectation:
  - Upon indication of a UDS (or CDSPD) case violating System TMNSR, System TMOR, or Local Reserve Zone TMOR requirement, management expectation is that the Loader Operator communicates the condition to the Shift Supervisor and Senior System Operator for further discussion prior to approval.
    - If the conditions forecasted by UDS (or CDSPD) are as expected and approval of the UDS (or CDSPD) case is required, then the case may be approved.
    - If the conditions forecasted by UDS (or CDSPD) are not as expected, or if approval of the UDS (or CDSPD) case is not required, then adjustments should be made to the case and it should be re-executed as necessary
  - Upon indication that a Local Reserve Zone is approaching a Capacity Scarcity Condition, the Local Reserve constraint should be allowed to bind allowing any resources to be dispatched to a point where they are 30 minutes away from the EcoMax or Max Reduction.
    - The Local Reserve Zone transfer limit should be re-evaluated using STE limits.
    - When a deficiency occurs using the new transfer limit and while ensuring the resources dispatched remain at 30 minutes from the EcoMax or Max Reduction it is acceptable to allow violation of the Local Reserve Zone constraint if post 1st contingency load shed is required.
    - If load shed is NOT required post 1st contingency, then violation of the Local Reserve Zone constraint should NOT be allowed.

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

Condition(s) to perform this section:

- **Reliability concerns warrant the 10 Minute Sync requirement to be raised to 50%; Or**
- **10 Minute Sync is > 25% and UDS cases are binding on 10 Minute Sync; Or**
- **10 Minute Sync is > 25% and 10 Minute Sync surplus is approaching zero.**

Section 1 : Adjust the 10 Minute Sync Requirement

Step 1.1
Primary Responsibility: Operations Shift Supervisor

Determine if system conditions require the 10 Minute Sync requirement to be adjusted and the value to use.

Step 1.2
Primary Responsibility: Operations Shift Supervisor

Authorize an adjustment to the 10 Minute Sync requirement.

Step 1.3
Primary Responsibility: Senior System Operator

Enter the determined value in the "Percent must be synchronized" field on the NEPEX Reserve Monitor display.

Step 1.4
Primary Responsibility: Senior System Operator

Notify the Control Room Personnel that the 10 Minute Sync requirement has been modified.

Step 1.5
Primary Responsibility: Senior System Operator

Log the change to the 10 Minute Sync requirement.

Instructions

Use log entry: > GENERATION > RESERVES > Change to 10 Minute Sync % [E]

Notes

This log entry generates an e-mail and sends it to the "TMSR Change Notification List" distribution group.

Step 1.6
Primary Responsibility: Operations Shift Supervisor

Verify the automatic notification e-mail has been generated and sent.

Instructions

The verification can be accomplished by checking the Shift Supervisor email account.

Notes

Allow about 5 minutes for the Control Room Event Log Server to generate and send the notification.

Step 1.6.1
Primary Responsibility: Operations Shift Supervisor

Condition(s) to perform this step:

- **The Shift Supervisor e-mail account did NOT receive the automatic notification generated by the Control Room Event Log Server.**

Notify ISO personnel via e-mail using the “TMSR Change Notification List” distribution group.

Condition(s) to perform this section:

- **A Reserve Zone needs to be adjusted due to a Double C actual or potential limit exceedance.**

Section 2 : Perform adjustment of a Reserve Zone Bias

Notes

- **CAUTION** Use of a Reserve Zone Bias value > 100% **WILL** impact the Local Reserve Zone reserve requirement that is utilized to trigger a Capacity Scarcity Condition.
- A Capacity Scarcity Condition will be triggered for a Local Reserve Zone upon approval of any ONE UDS or CDSPD case with a Local Reserve Zone 30 Min. Total RCPF violation for (1) five minute interval.
- The % Bias rating applied to the Adjusted Local Reserve Requirement (ALRR) for each Reserve Zone will determine the requirements passed to UDS (BIAS ALRR). The default Bias values for all areas will be 100% and are shown in the "Reserve Zone Requirements" section of the ACTIVE UDS Constraints page in CLOGGER.
- The Bias percentages can be raised to activate the reserves in a zone that is approaching its External Limit (DOUBLC). In the Reserve Zone Requirements section there is a column labeled "(30min + ERS) / ALRR [%]" which provides the Real-Time percentage that can be used as a guideline in determining a BIAS value that will cause UDS to bind. Some key differences between this Real-Time percentage and the percentage needed for a UDS case to bind are:
  - UDS assumes 100% availability of Hydro/ICU/DRR; DOUBLC assumes 100% of Hydro, 80%* of ICUs, and 80%* of DRRs.
  - The 80% for ICUs and 80% for DRRs is a default value and can be adjusted within DOUBLC
  - UDS assumes 100% availability of ICU/Hydro that are IGNORED within DOUBLC; DOUBLC assumes 0%
  - UDS credits the available 30 min response of the largest Generator (unless the area's largest Generator is also the system's largest generation contingency). DOUBLC does **NOT** credit the available 30 min response if limited by the Line-Generator Contingency (Line-Gen)
  - UDS is solving based on future conditions (Look Ahead value, typically 15 minutes), DOUBLC is using Real-Time

Step 2.1 Primary Responsibility: Security Operator

Inform the Loader Operator, Senior System Operator and Operations Shift Supervisor that the Reserve Zone bias needs to be adjusted to activate reserve in an area.

Step 2.2 Primary Responsibility: Operations Shift Supervisor

Authorize the use of a Local Reserve Zone Bias.

Step 2.3 Primary Responsibility: Loader Operator

Determine the Bias % value needed for the applicable Reserve Zone to bind in UDS with the desired response.

Instructions

- ❑ A "quick" method to determine a reasonable BIAS setting to use is:
  - ❑ If Bias ALRR = UDS Local Reserve Zone Cleared Reserve then Local Reserve Zone is binding.
  - ❑ Solution: Bias percentage = (UDS Local Reserve Zone Cleared Reserve / ALRR)
- ❑ To calculate a Bias Percentage:
  - ❑ Right Click on a recent UDS Case
  - ❑ Select SOLUTION DATA
  - ❑ Select RESERVE ZONE tab
  - ❑ In the CLEARED RESERVE section, find the value under the "30-Min Total" column for the associated Local Reserve Zone
  - ❑ Divide the "30-Min Total" value by the ALRR (found on the CLOGGER UDS Constraints page OR DOUBLC page), **do NOT** divide by the Bias ALRR.

Notes

The result will be a useful percentage that can be entered in CLOGGER. UDS will **NOT** account for Bias changes until the UDS case is executed and approved.

Step 2.3 Primary Responsibility: Loader Operator

Enter the Bias % on the Active Constraint display in CLOGGER and inform the Security Operator.

Notes

The Bias % value entered shall be greater than 100.

Step 2.5 Primary Responsibility: Loader Operator

Execute a UDS case.

Step 2.6 Primary Responsibility: Loader Operator

Determine the effect of the Reserve Zone Bias adjustment on the UDS case.

Notes

The goal is to get UDS to bind on the Local Reserve Zone.

Step 2.6.1 Primary Responsibility: Loader Operator

Condition(s) to perform this step:

- **If the Local Reserve Zone is violating due to resource ramp constraints.**

Adjust the Look-Ahead parameter to aid in getting a successful UDS solution and return to Step 2.5.

Notes

Adjusting the Look-Ahead will allow UDS to utilize more MWs from resources with restrictive MRRs.

Step 2.6.2 Primary Responsibility: Loader Operator

Condition(s) to perform this step:

- **The UDS case is violating the Local Reserve Zone 30 Min. Total RCPF.**

Coordinate with the Operations Shift Supervisor and Senior System Operator to determine if it is appropriate to approve a UDS case with a RCPF violated.

Notes

- Approval of a UDS case with the violation of the 30 Min. Total RCPF will trigger a Capacity Scarcity Condition.
- Refer to CROP.34001 Double C when a Local Reserve Zone will be violated to ensure the appropriate limit is being utilized.

Step 2.7 Primary Responsibility: Loader Operator

Condition(s) to perform this step:

- **The Bias adjustment has the desired effect.**

Perform normal dispatch with a Reserve Zone Bias increased.

Step 2.8 Primary Responsibility: Loader Operator

Adjust the Reserve Zone bias as needed to maintain binding cases in UDS.

Step 2.9 Primary Responsibility: Loader Operator

Condition(s) to perform this step:

- **A UDS case is approved with a Local Reserve Zone Bias greater than 100%.**

Notify the Control Room Personnel that the specific Local Reserve Zone Bias has been adjusted.

Step 2.10 Primary Responsibility: Loader Operator

Condition(s) to perform this step:

- **A UDS case is approved with a Local Reserve Zone Bias greater than 100%.**

Log the use of a Local Reserve Zone Bias.

Instructions

Use log entry: > GENERATION > RESERVES > Reserve Zone Bias Changed

Step 2.11 Primary Responsibility: Loader Operator

Condition(s) to perform this step:

- **UDS case is violating for a Local Reserve Zone and adjusting the Bias and Look-Ahead are NOT providing relief.**

Determine if the Local Reserve Zone will remain in Violation.

Notes

A 30 Min. Total RCPF value of $250 indicates a Local Reserve Zone violation.

Step 2.11.1 Primary Responsibility: Loader Operator

Condition(s) to perform this step:

- **It was determined that the Local Reserve Zone will remain in violation.**

Inform the Security Operator and Operations Shift Supervisor that the Reserve Zone will remain in violation.

Step 2.11.2 Primary Responsibility: Security Operator

Activate the applicable ILC constraint in CLOGGER.

Notes

Do **NOT** adjust the Local Reserve Zone Bias. The Local Reserve Zone Bias will be adjusted back to 100% when the ILC Constraint is closed.

Step 2.12 Primary Responsibility: Loader Operator

Condition(s) to perform this step:

- **The ILC Constraint in CLOGGER is closed and the Local Reserve Zone Bias adjustment is NO longer required.**

Return the Local Reserve Zone Bias to 100%

Step 2.12.1 Primary Responsibility: Loader Operator

Log the return of the Local Reserve Zone Bias to 100%.

Instructions

Use log entry: > GENERATION > RESERVES > Reserve Zone Bias Changed

Condition(s) to perform this section:

- **When system conditions threaten to reduce the actual quantity of System Wide 10 Minute Total reserve, 10 Minute Sync or Operating Total reserve below the required amount and ECO surplus is available to reallocate 10/30 minute reserve.**

Section 3 : Perform adjustments to the System-Wide Reserve Bias

Notes

- **CAUTION** Use of a System-Wide Reserve Bias >100% **WILL** impact the **10 Minute Total** or **30 Min. Total** requirement that is utilized to trigger a Capacity Scarcity Condition.
- A Capacity Scarcity Condition will be triggered upon approval of any ONE UDS or CDSPD case with a System-**10 Min. Total** or System **30 Min. Total** RCPF violation for (1) five minute interval.

Step 3.1 Primary Responsibility: Operations Shift Supervisor

Determine which of the System-Wide Reserve Bias settings to adjust.

Step 3.2 Primary Responsibility: Loader Operator

Adjust the applicable System-Wide Reserve Bias in CLOGGER.

Step 3.3 Primary Responsibility: Loader Operator

Execute a new UDS case.

Notes

Adjustments to a reserve bias will **NOT** be reflected in UDS until a new UDS case has been executed.

Step 3.4 Primary Responsibility: Loader Operator

Review the UDS case to determine if the bias adjustment had the desired effect on dispatch.

Step 3.4.1 Primary Responsibility: Loader Operator

Condition(s) to perform this step:

- **The UDS case is violating on a System 10 Min. Sync, 10 Min. Total, or 30 Min. Total RCPF.**

Coordinate with the Operations Shift Supervisor and Senior System Operator to determine if it is appropriate to approve a UDS case with a RCPF violated.

Notes

Approval of a UDS case with the violation of a System 10 Min. Total or System 30 Min. Total RCPF will trigger a Capacity Scarcity Condition.

Step 3.4.1.1 Primary Responsibility: Operations Shift Supervisor

Condition(s) to perform this step:

- **A UDS case is approved that is violating on a System 10 Min. Total or 30 Min. Total RCPF.**

Declare OP-4 Actions 1 & 2 and perform Actions of CROP.10002 Implement Capacity Remedial Actions.

Step 3.5 Primary Responsibility: Loader Operator

Condition(s) to perform this step:

- **The desired results were NOT achieved.**

Adjust the applicable Reserve Bias% to attempt to achieve the desired output and execute a new UDS case.

Step 3.5.1 Primary Responsibility: Loader Operator

Review the UDS case to determine if the bias adjustment had the desired effect on dispatch.

Step 3.5.1.1 Primary Responsibility: Loader Operator

Condition(s) to perform this step:

- **The UDS case is violating on a System (10 Min. Sync, 10 Min. Total, or 30 Min. Total) RCPF.**

Coordinate with the Operations Shift Supervisor and Senior System Operator to determine if it is appropriate to approve a UDS case with a RCPF violated.

Notes

Approval of a UDS case with the violation of a System 10 Min. Total or System 30 Min. Total RCPF will trigger a Capacity Scarcity Condition.

Step 3.5.1.2 Primary Responsibility: Operations Shift Supervisor

Condition(s) to perform this step:

- **A UDS case is approved that is violating on a System 10 Min. Total or 30 Min. Total RCPF.**

Declare OP-4 Actions 1 & 2 and perform Actions of CROP.10002 Implement Capacity Remedial Actions.

Step 3.6 Primary Responsibility: Loader Operator

Condition(s) to perform this step:

- **The Bias adjustment has the desired effect.**

Notify the Control Room Personnel that the specific System-Wide Reserve Bias has been adjusted.

Step 3.7 Primary Responsibility: Loader Operator

Condition(s) to perform this step:

- **The Bias adjustment has the desired effect.**

Perform normal dispatch with a System-Wide Reserve Bias increased.

Step 3.7.1 Primary Responsibility: Loader Operator

Condition(s) to perform this step:

- **A UDS case was approved with a reserve bias greater than 100%.**

Log the change to the applicable System-Wide Reserve Bias.

Instructions

Use the applicable log entry > GENERATION > RESERVES >

- 10 SYNC Bias Changed [E]
- 10 TOTAL Bias Changed [E]
- OP TOTAL Bias Changed [E]

Step 3.8 Primary Responsibility: Loader Operator

Condition(s) to perform this step:

- **The desired effect was NOT achieved; Or**
- **System conditions no longer require the Bias be adjusted.**

Return the applicable System-Wide Reserve Bias to 100%.

Step 3.8.1 Primary Responsibility: Loader Operator

Condition(s) to perform this step:

- **A UDS case was approved with a reserve bias greater than 100% and the bias has been returned to 100%.**

Log returning the specific System-Wide Reserve Bias to 100%.

Instructions

Use the applicable log entry > GENERATION > RESERVES >:

- 10 SYNC Bias Returned to 100% [E]
- 10 TOTAL Bias Returned to 100% [E]
- OP TOTAL Bias Returned to 100% [E]

Step 3.9 Primary Responsibility: Operations Shift Supervisor

Condition(s) to perform this step:

- **A Control Room Log Server entry was made for raising a System-Wide Reserve Bias; Or**
- **Control Room Log Server entry was made for returning a System-Wide Reserve Bias to 100%.**

Verify the automatic notification e-mail has been generated and sent.

Instructions

The verification can be accomplished by checking the Shift Supervisor email account.

Notes

Allow about 5 minutes for the Control Room Event Log Server to generate and send the notification.

Step 3.9.1 Primary Responsibility: Operations Shift Supervisor

Condition(s) to perform this step:

- **The Shift Supervisor e-mail account did NOT receive the automatic notification generated by the Control Room Event Log Server.**

Notify ISO personnel via e-mail using the "TMSR Change Notification List" distribution group.

Condition(s) to perform this section:

- **Instructed by the Manager, Control Room Operations to adjust the Ten-Minute Reserve requirement to a specific percentage.**

Section 4 : Perform an adjustment to the Total Ten Minute Reserve Requirement

Notes

- The ISO Director, Operations has the authority to adjust the Ten-Minute Reserve Requirement, based on system concerns and past evaluated unit performance, in accordance with OP-8 - Operating Reserve and Regulation.
- A periodic review of aggregated resource performance is performed in accordance with SOP-RTMKTS.0125.0090 Evaluate Resource Performance Post Disturbance and may result in the adjustment of the Ten-Minute Reserve requirement.

Step 4.1 Primary Responsibility: Operations Shift Supervisor

Access the NEPEX Reserve Monitor Auto Mode Requirement Calculation Details display.

Instructions

Access the NEPEX Reserve Monitor Auto Mode Requirement Calculation Details display by:

- ❑ Clicking RTG button (NEPEX System Summary)
- ❑ Clicking the RES button (NEPEX Reserve Monitor)
- ❑ Clicking the Details button next to the text "Required"

Step 4.2 Primary Responsibility: Operations Shift Supervisor

Enter the specified value into the "% of Largest Contingency Loss for 10 Min Total Reserve Req" well.

Notes

Only the Operations Shift Supervisor console has the permissions to adjust this number.

Step 4.3 Primary Responsibility: Operations Shift Supervisor

Condition(s) to perform this step:

- **If the 10 Minute Sync requirement is to be based off of the new 10 Minute Total Reserve Requirement.**

Set the "TMSR Calculated by SYNC% Only" toggle to off (toggle NOT depressed).

Notes

- If the "TMSR Calculated by SYNC% Only" is toggled the TMSR requirement will be based off of the largest contingency loss MW amount multiplied by the TMSR requirement percentage.
- If the "TMSR Calculated by SYNC% Only" is **NOT** toggled the TMSR requirement will be based off of the adjusted 10 Minute Total Reserve requirement value multiplied by the TMSR requirement percentage.

Step 4.4 Primary Responsibility: Operations Shift Supervisor

Manually execute an RTNET sequence.

Step 4.5 Primary Responsibility: Operations Shift Supervisor

Verify EMS accepted the reserve requirement adjustment.

Instructions

Verify the following "Required" values change:

- ❑ 10 Minute Total
- ❑ 10 Minute Sync
- ❑ Operating Total

Verify the following "Required" value did **NOT** change:

- ❑ 30 Minute Total

Step 4.5.1 Primary Responsibility: Operations Shift Supervisor

Condition(s) to perform this step:

- **EMS does NOT reflect the adjustment to the Ten-Minute Reserve requirement; Or**
- **EMS does NOT correctly reflect the adjustment to the Ten-Minute Reserve requirement.**

Notify the IT On Call Technician.

Step 4.6 Primary Responsibility: Operations Shift Supervisor

Instruct the Loader Operator to execute a new UDS case and to verify the requirement adjustment is reflected in UDS.

Step 4.7 Primary Responsibility: Loader Operator

Verify the reserve requirement in the new UDS solution reflects the adjusted reserve requirement.

Notes

- UDS reserve requirement values can be found on the following displays:
  - Reserve Zone
  - Case Output

Step 4.7.1 Primary Responsibility: Loader Operator

Condition(s) to perform this step:

- **UDS reflects the adjustment to the reserve requirement.**

Notify the Operations Shift Supervisor that UDS reflects the adjustment.

Step 4.7.2 Primary Responsibility: Operations Shift Supervisor

Condition(s) to perform this step:

- **UDS reflects the adjustment to the reserve requirement.**

Instruct the Loader Operator to perform Normal Dispatch using UDS.

Step 4.7.3 Primary Responsibility: Operations Shift Supervisor

Condition(s) to perform this step:

- **UDS reflects the adjustment to the reserve requirement.**

Log the Ten-Minute Reserve requirement change.

Instructions

Use log entry: > GENERATION > RESERVES > Change to Total 10 Min Reserve Requirement [E]

Step 4.7.4 Primary Responsibility: Operations Shift Supervisor

Condition(s) to perform this step:

- **UDS reflects the adjustment to the reserve requirement.**

Create an email that specifies that new requirement value and send it to the following distribution lists "Control Room Mgmnt", "Market Admin Grp" and "TMSR Change Notification".

Step 4.7.5 Primary Responsibility: Loader Operator

Condition(s) to perform this step:

- **UDS does NOT reflect the adjustment to the reserve requirement.**

Notify the Operations Shift Supervisor that UDS does NOT reflect the adjustment.

Step 4.7.6 Primary Responsibility: Operations Shift Supervisor

Condition(s) to perform this step:

- **UDS does NOT reflect the adjustment to the reserve requirement.**

Notify the IT On Call Technician.

Condition(s) to perform this section:

- **Shift to Daylight Savings Time (summer); Or**
- **Shift to Eastern Standard Time (winter).**

Section 5 : Perform an adjustment to the Replacement Reserve requirement base value

Notes

- Replacement Reserve is a quantity of reserve that is additional to the 30 Minute Total requirement for the purpose of meeting the NPCC requirement to restore Ten-Minute Reserve.
- ISO will **NOT** activate emergency procedures, such as OP-4 or OP-7 to maintain the Replacement Reserve requirement.
- Replacement Reserve will have an RCPF of $250. UDS dispatch will try to maintain the Replacement Reserve requirement up to $250 cap. After the Replacement Reserve requirement is violated, UDS will continue to dispatch System 30 Min. Total up to the $1000 System 30 Min. Total RCPF.
- While the official time change occurs at 0200, Day Ahead Markets can only apply one replacement reserve value for the entire day, therefore the change in replacement reserve in EMS will be performed at 0001 to align with the DAM.

Step 5.1 Primary Responsibility: Operations Shift Supervisor

Access the NEPEX Reserve Monitor Auto Mode Requirement Calculation Details display.

Instructions

Access the NEPEX Reserve Monitor Auto Mode Requirement Calculation Details display by:

- ❑ Clicking RTG button (NEPEX System Summary);
- ❑ Clicking the RES button (NEPEX Reserve Monitor);
- ❑ Clicking the Details button next to the text "Required".

Step 5.2 Primary Responsibility: Operations Shift Supervisor

Enter the specified value into the "Replacement Reserves Requirement" well.

Standard(s) for Completion:

- Performed at 0001 on the day of the time change.

Notes

- 160 MW is the base requirement used during daylight savings time (summer);
- 180 MW is the base requirement used during eastern standard time (winter)

Notes

Only the Operations Shift Supervisor console has the permissions to adjust this number.

Step 5.2.1 Primary Responsibility: Operations Shift Supervisor

Log the base Replacement Reserves change.

Instructions

Use log entry: > GENERATION > RESERVES > Replacement Reserve Requirement Changed

Step 5.3 Primary Responsibility: Operations Shift Supervisor

Manually execute an RTNET Sequence.

Notes

For UDS to use an active value, CLOGGER has to run therfore an RTNET Sequence must be run.

Step 5.4 Primary Responsibility: Operations Shift Supervisor

Verify EMS accepted the reserve requirement adjustment.

Instructions

Verify the following value change:

- ❑ Replacement "Required"

Verify the following "Required" values did **NOT** change:

- ❑ 10 Minute Total;
- ❑ 10 Minute Sync;
- ❑ 30 Minute Total;
- ❑ Operating Total

Step 5.4.1 Primary Responsibility: Operations Shift Supervisor

Condition(s) to perform this step:

- **EMS does NOT reflect the adjustment to the replacement reserve requirement; Or**
- **EMS does NOT correctly reflect the adjustment to the reserve requirement.**

Notify the IT On Call Technician.

Step 5.5 Primary Responsibility: Operations Shift Supervisor

Instruct the Loader Operator to execute a new UDS case and to verify the requirement adjustment is reflected in UDS.

Step 5.6 Primary Responsibility: Loader Operator

Verify the reserve requirement in the new UDS solution reflects the adjusted reserve requirement.

Instructions

Verify that the System 30 Min Total has been adjusted to reflect the new replacement reserve requirement.

Notes

- UDS reserve requirement values can be found on the following displays:
  - Reserve Zone
  - Case Output
- UDS will take the EMS Operating Total reserve requirement and add the Replacement Reserve requirement and populate it as the System 30 Min Total requirement.

Step 5.6.1 Primary Responsibility: Loader Operator

Condition(s) to perform this step:

- **UDS reflects the adjustment to the reserve requirement.**

Notify the Operations Shift Supervisor that UDS reflects the adjustment.

Step 5.6.2 Primary Responsibility: Operations Shift Supervisor

Condition(s) to perform this step:

- **UDS reflects the adjustment to the reserve requirement.**

Instruct the Loader Operator to perform normal dispatch using UDS.

Step 5.6.3 Primary Responsibility: Loader Operator

Condition(s) to perform this step:

- **UDS does NOT reflect the adjustment to the reserve requirement.**

Notify the Operations Shift Supervisor that UDS does NOT reflect the adjustment.

Step 5.6.4 Primary Responsibility: Operations Shift Supervisor

Condition(s) to perform this step:

- **UDS does NOT reflect the adjustment to the reserve requirement.**

Notify the IT On Call Technician.

Condition(s) to perform this section:

- **Supplemental commitment of additional resources required.**

Section 6 : Additional Replacement Reserve adjustments

Notes

- Only the Operations Shift Supervisor workstation has permission to Create/Modify the Additional Replacement Reserve schedule.
- Additional Replacement Reserves are utilized to provide New England system wide capacity for reasons other than major weather events such as hurricanes or blizzards.
- Increasing the Replacement Reserve commitment should occur after consultation with the Manager, Forecasting & Scheduling and the Manager, Control Room Operations.
- Additional Replacement Reserve requirements are only in effect for the hours in which generators are supplementally committed between 0600 and 2300 and from Released for dispatch to Released for shutdown time.
- Use the release for dispatch time that was communicated with the DE, **NOT** the actual release for dispatch time.

Step 6.1

Primary Responsibility: Operations Shift Supervisor

Condition(s) to perform this step:

- **Additional Replacement Reserves will be utilized.**

Determine the value to use and the applicable hours.

Instructions

For each resource supplementally committed, the Adder used will be the larger of either the:

- ❑ Calculated 30 minute response from Eco Min to Eco Max or Min Red to Max Red; or
- ❑ Eco Min or Min Red as applicable

Step 6.2

Primary Responsibility: Operations Shift Supervisor

Access the Area Reserve Requirements display.

Instructions

Perform the following to access the display:

- ❑ Click RTG button (NEPEX System Summary);
- ❑ Click the RES button (NEPEX Reserve Monitor);
- ❑ Click the Details button next to the text "Required";
- ❑ Click RSched button

Step 6.3

Primary Responsibility: Operations Shift Supervisor

Add Additional Replacement Reserve schedule(s) for each resource.

Instructions

Add (a) record(s) by:

1. Clicking the Create/Modify Schedule button
2. Right clicking on the +/- symbol on the record after which the record will be added;
3. Clicking Insert reserve record;
4. Modifing the time if needed (use format HHMM:SS 24 hour clock);
5. Entering the Additional Replacement Reserve value in the Adder column;
6. Repeat 2-5 above for adding additional records.

Notes

- **Example**:
  The Replacement Reserve requirement base value is 180 MW. Generator A is supplementally committed from 0600-2200 and has a 30 minute response from Eco Min (Adder) of 50 MW. Generator B is supplementally committed from 0800-1800 and has a 30 minute response from Eco Min (Adder) of 50 MW.

  The first schedule entered is for Generator A only starting at 0600 with an Adder of 50.
  The second schedule entered is for Generator A and Generator B starting at 0800 and would have an Adder of 100 [this is the combination of Generator A's and B's 30 minute response from Eco Min (Adder) values].

  At 0600 the requirement goes from 180 MW to 230 MW.
  At 0800 the requirement goes from 230 MW to 280 MW.

- Only the Operations Shift Supervisor workstation has permission to Create/Modify the Additional Replacement Reserve schedule.
- The replacement reserve total is additive for each resource.

Step 6.4 Primary Responsibility: Operations Shift Supervisor

Condition(s) to perform this step:

- **All applicable resource adders have been entered using Step 6.3.**

Enter the applicable schedules to return the Adder to zero.

Instructions

Add a record by:

1. Right click on the +/- symbol on the record after which the record will be added;
2. Click Insert reserve record;
3. Modify the time if needed (use format HHMM:SS 24 hour clock);
4. Enter the applicable value in the Adder column.

Notes

Example:

Continuing the example from Step 6.3 above.

The third schedule entered is for Generator A only starting at 1800 with an Adder of 50 MW.
The fourth schedule entered is for returning to zero starting at 2200 with an Adder of 0 MW.

At 1800 the requirement goes from 280 MW to 230 MW.
At 2200 the requirement goes from 230 MW to 180 MW.

Step 6.5 Primary Responsibility: Operations Shift Supervisor

Click the "Implement" button to implement the Additional Replacement Reserve schedule.

Step 6.6 Primary Responsibility: Operations Shift Supervisor

Log the Additional Replacement Reserves schedule.

Instructions

Use log entry: > GENERATION > RESERVES > Additional Replacement Reserve Schedule

The following information is entered for each resource:

- ❑ Resource name
- ❑ Adder value
- ❑ Start time
- ❑ End time.

Step 6.7 Primary Responsibility: Operations Shift Supervisor

Manually execute an RTNET sequence.

Notes

For UDS to use an active value, CLOGGER has to run therefore a RTNET Sequence must be run.

Step 6.8 Primary Responsibility: Operations Shift Supervisor

Verify EMS accepted the reserve requirement adjustment.

Instructions

- ❑ Verify the following value change:
  - Replacement "Required"
- ❑ Verify the following "Required" values did **NOT** change:
  - 10 Minute Total;
  - 10 Minute Sync;
  - 30 Minute Total;
  - Operating Total

Step 6.8.1 Primary Responsibility: Operations Shift Supervisor

Condition(s) to perform this step:

- **EMS does NOT reflect the adjustment to the replacement reserve requirement; Or**
- **EMS does NOT correctly reflect the adjustment to the reserve requirement.**

Notify the IT On Call Technician.

Step 6.9 Primary Responsibility: Operations Shift Supervisor

Instruct the Loader Operator to execute a new UDS case and to verify the requirement adjustment is reflected in UDS.

Step 6.10 Primary Responsibility: Loader Operator

Verify the reserve requirement in the new UDS solution reflects the adjusted reserve requirement.

Instructions

Verify the System 30 Min Total has been adjusted to reflect the new replacement reserve requirement.

Notes

- UDS reserve requirement values can be found on the following displays:
  - Reserve Zone
  - Case Output
- UDS will take the EMS Operating Total reserve requirement and add the Replacement Reserve requirement and populate it as the System 30 Min Total requirement.

Step 6.10.1 Primary Responsibility: Loader Operator

Condition(s) to perform this step:

- **UDS reflects the adjustment to the reserve requirement.**

Notify the Operations Shift Supervisor that UDS reflects the adjustment.

Step 6.10.2 Primary Responsibility: Operations Shift Supervisor

Condition(s) to perform this step:

- **UDS reflects the adjustment to the reserve requirement.**

Instruct the Loader Operator to perform normal dispatch using UDS.

Step 6.10.3 Primary Responsibility: Loader Operator

Condition(s) to perform this step:

- **UDS does NOT reflect the adjustment to the reserve requirement.**

Notify the Operations Shift Supervisor that UDS does NOT reflect the adjustment.

Step 6.10.4 Primary Responsibility: Operations Shift Supervisor

Condition(s) to perform this step:

- **UDS does NOT reflect the adjustment to the reserve requirement.**

Notify the IT On Call Technician.

Revision History

Rev. No.	Date (MM/DD/YY)	Reason	Contact
--	05/18/18	For previous revision history, refer to Rev 14 available through Ask ISO	Steven Gould
15	08/27/18	Changed the minimum threshold for spinning reserve requirement from 37% to 31%.	Steven Gould
16	01/11/19	Modified background for Ten-Minute Reserve Requirement; Changed Spinning Reserve to Ten-Minute Spinning Reserve (TMSR) globally.	Steven Gould
17	06/05/19	SWCT Local Reserve Zone TMOR – RCPF is in effect	Steven Gould
18	07/01/20	Added background information for various reserve requirements; Globally modified the reserve terms to line up with the tools (EMS, UDS, etc.); Evaluated Notes and Instructions	Steven Gould
19	05/27/22	Formatted Table of Contents, Updated Common Procedure Information, Changed 10 Minute Sync requirement back to 25% throughout procedure; Deleted Step 1.1, Deleted Instruction in Stp 1.3, Changed Responsibility for Step 1.1 & 1.2, Added Steps 3.4.1.1 & 3.5.1.2, Deleted the following steps as they were condition to enter steps that were already identified in the subsequent steps: Step 4.8, 4.9, 5.7, 5.8, 6.11, 6.12; Moved Step 2.8 as a substep of Step 2.6 when evaluating the UDS case, Added Step 2.7; Deleted Attachment 1	Jonathan Gravelin
20	11/18/22	Deleted Section 7, no longer applicable; Changed Responsibility in Steps 3.2, 3.5, 3.8 & 3.8.1	Jonathan Gravelin
21	10/27/23	Added Notes to Section 5, Added Standard for completion in Step 5.2	Jonathan Gravelin