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References

1. ISO New England Manual for the Regulation Market Manual M-REG
2. ISO New England Tariff Section III - Market Rule 1
3. CROP.25007 Manual Dispatch
4. CROP.27002 Telemetry and Topology Problems
5. CROP.25003 Select and Frequency Source

Procedure Background

The Regulation Status display will be used to place resources on regulation.

The Reg Capacity value for a regulation resource is the lesser of the following:

- Reg Capacity = 5*ARR; Or
- Reg Capacity = (Reg High - Reg Low)/2

Estimated Regulation Service (Est. Reg. Service) is the estimate of the resource's expected MW movement in tracking the AGC setpoint for an AGC Service period. The value is calculated by Reg Capacity * a multiplying factor.

Normally Tie Line Bias Control (TLBC) is the recommended mode of operation for regulation. However, based on system conditions, either Flat Tie Line Control (CNIC) or Flat Frequency Control (CFC) may be the mode of operation for regulation used in an islanding condition.

Self-dispatch MW (SDMW) and regulation notes for energy storage devices (ESD):

1. ESDs with SDMW may be selected by the Regulation Selector

Self-Dispatch MW (SDMW) and Regulation notes for non-ESD resources:

1. SDMW has no impact on the Regulation range of a generator
2. It is expected that, due to the potential for high lost opportunity cost payments, generators with SDMW values will **NOT** normally be selected by the Regulation Selector, however a generator with an SDMW is allowed to be placed on Regulation
3. Generators that are on Regulation and request a SDMW value for the current hour will normally be removed from UCM6 prior to entering an approved SDMW value to allow for a manual execution of the Regulation Selector which will make an economic determination of whether that generator should be placed back on Regulation for the current hour.

The sorting logic on the Regulation Status display will display eligible regulation resources in the following order:

- Generators Selected for Regulation
- ATRRs Selected for Regulation
- Generators **NOT** selected for Regulation by Regulation rank price
- ATRRs **NOT** selected for Regulation

Resources on the Regulation Status display are assigned a setpoint "Type". The available setpoint types are: "Unit", "ATRR", "ENT", or "ENC". These setpoint types are as follows:

- Unit: Regulation Capable generator that receives a conventional AGC Setpoint
- ATRR: a non-ESD ATRR that has opted for receiving a conventional AGC Setpoint
- ENT: an ESD_{ATRR} or a non-ESD ATRR that has opted for an Energy Neutral Trinary AGC Setpoint
  - Trinary means that the dispatch and expected response is full power charge, full power discharge, or midpoint.
  - All ENT dispatched resources will simultaneously be sent to their Regulation High Limits, Regulation Low Limits, or Regulation midpoints
- ENC: an ESD_{ATRR} or a non-ESD ATRR that has opted for an Energy Neutral Continuous AGC Setpoint
  - The Energy Neutral fleet AGC target is distributed by participation factors (which includes offered Automatic Ramp Rate (ARR) in MW/minute).
  - Dispatch is then apportioned across ENC dispatched resources.

The sum of the AGC setpoints of the Energy Neutral regulation resources modifies the AGC setpoints for conventionally dispatched resources. When the Regulation Selector has been executed the following will happen:

- "Last Calc Time:" date and time updates
- "Last Case Run:" number updates
- "Approve Case" button turns red and is selectable (becomes available)
- "Last Case Approved:" number turns pinkish (no longer black)
- Ineligible reasons are assessed
- Selected resource flags are displayed for the resources selected in the last case run

When a Regulation Selector case has been approved the following will happen:

- "Last Approval Time:" date and time updates to the time at which the case was approved
- "Last Case Approved:" number turns black and matches the "Last Case Run:" number
- ATRRs selected for regulation are placed in UCM 6 and "ATRR On Reg" flag shown. This UCM change happens in the background and is not visible to the control room operator
- ATRRs on regulation but no longer selected by the Regulation Selector are removed from regulation. This UCM change happens in the background and is not visible to the control room operator
- "Approve Case" button becomes grayed out and **NOT** selectable

The "ATRR Oper Off" flag (located on the Regulation Status display) and "Oper. Disable On" flag (located on the ATRR Summary display) perform the same function. They both immediately remove an ATRR that is providing regulation service from regulation and make that ATRR ineligible, due to wrong UCM, on the next Regulation Selector execution.

The "Must Reg" flag forces the Regulation Selector to select an eligible resource on the next execution.
The "Must Not Reg" flag forces the Regulation Selector **NOT** to select a resource on the next execution.

When Clogger has an active binding constraint, the Regulation Status display will provide the sensitivities for generators and ATRRs associated with that constraint.
The sensitivity value is determined by the following method:

- The sensitivity calculated by RTCA is used by Clogger and Clogger sends the value to a database.
- The database provides the sensitivity value to UDS.
- UDS uses that value to recalculate it using the distributed reference bus model; this is why the number in Clogger and UDS/Regulation Status display will be different.
- The sensitivity value from the last approved UDS case is provided to the Regulation Selector.
- The sensitivity value for a generator or ATRR at the time the Regulation Selector is executed is shown on the Regulation Status display when the case results are shown.

Notes:

- If multiple constraints are active in Clogger and a regulation resource has a sensitivity developed for more than one constraint, the most restrictive sensitivity will be used by the Regulation Selector and shown on the Regulation Status display.
- Constraints must be binding in order to be evaluated for elgibility in the Reg Selector.

The Regulation Selector does **NOT** assess the ineligible reasons until the Regulation Selector is run (See Attachment 1 - Ineligible for Regulation Reasons), i.e., a Generator or ATRR that is currently on regulation but has become ineligible for Regulation will **NOT** appear on the "Regulation Status" display as ineligible (violet highlight) until the Regulation Selector is run.

The transmission constraint (Xmis Constr.) criterion on the Units Ineligible or ATRRs Ineligible displays can be ignored by setting the Ignore Condition flag above the "Xmis Constr." Column of the Units Ineligible display. When the Xmis Constr. reason is ignored the sensitivities will still be displayed on the Regulation Status display but the Regulation Selector will **NOT** use that information when determining if resources should be marked as ineligible. If the Regulation Selector is **NOT** displaying any resources on the Regulation Status display due to Xmis. Constr. ineligible reason, the ignore condition flag for this criterion should be set.

The frequency deviation threshold for suspending AGC operation is set at 0.2 Hz. The frequency deviation is the difference between the current frequency and the nominal frequency. Nominal frequency is calculated as the average of the scheduled frequency minimum and maximum values from the AGC Parameter display. A deviation of 0.2 Hz or -0.2 Hz will result in suspension of AGC.

ESD_{ATRR} are not eligible to provide regulation service when the associated ESD_{gen}:

- Is not in UCM4 or;
- Is postured or;
- Has a manual DDP

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 System 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:

- **The Regulation Selector executed automatically based on the current time; Or**
- **A change to a Regulation parameter, availability status, or eligibility has occurred to a resource on Regulation; Or**
- **A resource on Regulation has tripped off line; Or**
- **A DE requested a SDMW value for a non-ESD generator that is currently on Regulation and the SDMW request has been approved; Or**
- **Determined that the Regulation Capacity or Service Requirement needs to be modified based on system conditions; Or**
- **Requested by Market Operations.**

Section 1 : Assign Regulation to meet the hourly Regulation Requirement.

Step 1.1 Primary Responsibility: Loader Operator

Access the Regulation Status display

Step 1.2 Primary Responsibility: Loader Operator

Determine if a Regulation Selector case has been executed.

Instructions

If the Regulation Selector has been executed but does **NOT** select any resources to provide regulation, assign Regulation using Section 4.

Step 1.3 Primary Responsibility: Loader Operator

Condition(s) to perform this step:

- **A "Must Reg" flag is set for a generator or ATRR; Or**
- **A "Must Not Reg" flag is set for a generator or ATRR.**

Determine if existing "Must Reg" /or "Must Not Reg" flags are still required.

Step 1.3.1 Primary Responsibility: Loader Operator

Condition(s) to perform this step:

- **Determined that a "Must Reg" /or "Must Not Reg" flag needs to be removed.**

Remove the "Must Reg" /or “Must Not Reg” flag.

Instructions

- ❑ For ATRRs access Alternative Technology Regulating Resource (ATRR) Summary display:
  - ❑ Click ATRRs from RTGEN menu;
  - ❑ Remove the “Must Reg” or “Must Not Reg” flag for applicable ATRR.

Step 1.4

Primary Responsibility: Loader Operator

Condition(s) to perform this step:

- **Regulation Selector fails to run automatically; Or**
- **A change to a Regulation parameter, availability status, or eligibility has occurred to a resource on Regulation; Or**
- **A resource on Regulation has tripped off line; Or**
- **A DE requested a SDMW value for a non-ESD generator that is currently on Regulation and the SDMW request has been approved; Or**
- **Determined that the Regulation Capacity or Service Requirement needs to be modified based on system conditions; Or**
- **A currently set "Must Reg" or "Must Not Reg" flag is modified.**

Manually run the Regulation Selector.

Instructions

The Regulation Selector is manually run by clicking the "Run Selector" button and “Yes” on the pop up confirmation window.

Notes

****CAUTION**** If the Regulation Selector is being manually run for the approval of a non-ESD generator Self-Dispatch request and the generator was on regulation, do the following before manually running the Regulation Selector:

- ❑ Take the generator with the requested self-dispatch off regulation
- ❑ Execute and approve a UDS case

Step 1.5

Primary Responsibility: Loader Operator

Condition(s) to perform this step:

- **A Fast Start generator is on regulation and NOT SS to be on line.**

Determine if a Fast Start resource currently on regulation would be shut down.

Instructions

- ❑ If UDS is connected to RTUC:
  - ❑ Use RTUC to determine if the Fast Start generator is recommended for shut down during that hour
  - ❑ If the generator is recommended for shut down in economics, set the "Must Not Reg" flag and perform Step 1.4

- ❑ If UDS is **NOT** connected to RTUC (Use RTUC Recommendations is **NOT** checked), to test a Fast Start Generator for shut down perform the following:
  - ❑ Place the generator in UCM 4;
  - ❑ Run a sequence to ensure the market database is updated with the UCM change;
  - ❑ Execute a UDS case and determine if the Fast Start generator should be shut down in economics;
  - ❑ If the generator is recommended for shut down in economics, set the "Must Not Reg" flag and perform Step 1.4;
  - ❑ If the generator is **NOT** recommended for shut down in economics, place it back into a UCM 6.

Notes

- Fast Start Generators shall **NOT** be de-selected for shut down or have their FSR flag set for the purpose of providing regulation unless other on-line Generators **cannot** meet regulation requirements.
- AGC will pause if there are **no** other generators or any ATRRs in UCM 6 when the Fast Start Generator is placed in a UCM 4 for the test.

Step 1.6 Primary Responsibility: Loader Operator

Condition(s) to perform this step:

- **A reliability concern exists that requires the deviation from Regulation Selector selections (economics) to maintain system reliability; Or**
- **A system wide event currently exists (OP-4, Minimum Generation, system restoration, etc.); Or**
- **Transmission constraint(s) are active in Clogger; Or**
- **Local area constraint that is NOT modeled in EMS.**

Review the Regulation Selector results and coordinate with the Operations Shift Supervisor and Senior System Operator to determine if modifications are required for Regulation Selector case solution.

Instructions

Resources being dispatched for an active transmission constraint, or have the capability to affect an active constraint while operating freely in their regulation range, should be removed from the Reg Selector case solution. The exception to this would be generation on the eastern side of an active West-East constraint.

Notes

- The "Regulation Capacity Requirement" and the "Regulation Service Requirements" values are suggestions. Typically the results of the Regulation Selector will be followed even if it does **NOT** meet the suggested values.
  - If the Regulation Selector does **NOT** select enough resources to meet the "Regulation Capacity Requirement", "Regulation Service Requirements", or both values, that is an indication internal logic has stopped selecting resource (e.g., Regulation Constraint Penalty Price has been reached), this is **NOT** an indication of a Regulation Selector failure.
- Modifications to the case solution are required to be done if the suggestions will **NOT** be followed.
- The Operations Shift Supervisor may deviate from the Regulation Selector suggestions (economics) to maintain system reliability.

Step 1.6.1 Primary Responsibility: Operations Shift Supervisor

Determine if the "Regulation Capacity Requirement" needs to be modified.

Instructions

The Regulation Capacity Requirement can be raised or lowered to have the Regulation Selector suggest that more or less be placed on AGC.

Step 1.6.2 Primary Responsibility: Operations Shift Supervisor

Inform the Loader Operator of the required Regulation modifications.

Step 1.6.3 Primary Responsibility: Loader Operator

Condition(s) to perform this step:

- **Determined that the Regulation Capacity or Regulation Service requirement needed to be modified.**

Modify the "Regulation Capacity Requirement" and the "Regulation Service Requirement" values.

Instruction

The Regulation Service Requirement is determined by multiplying the Regulation Capacity Requirement by 10.

Notes

If a modification is made to the "Regulation Capacity Requirement", the "Regulation Service Requirement" will need to be updated based on the new "Regulation Capacity Requirement" since the Regulation Selector will attempt to solve to meet the more demanding requirement.

Step 1.6.4 Primary Responsibility: Loader Operator

Determine if a "Must Reg" or "Must Not Reg" flag needs to be set.

Notes

- "Must Reg" flag would be set if the Regulation Selector did **NOT** suggest a specific generator or ATRR for regulation and system conditions warrant the generator or ATRR be placed on Regulation.
- "Must Not Reg" flag would be set if the Regulation Selector did suggest a specific generator or ATRR for regulation but system conditions do **NOT** allow the generator or ATRR to be placed on Regulation. An example would be a local area issue that is **NOT** modeled in EMS.

Step 1.6.4.1 Primary Responsibility: Loader Operator

Condition(s) to perform this step:

- **Determined that a "Must Reg" or "Must Not Reg" flag needed to be set.**

Set the applicable “Must Reg” or Must Not Reg” flag.

Step 1.6.5 Primary Responsibility: Loader Operator

Condition(s) to perform this step:

- **No resources are shown on the Regulation Status display after a case has been executed.**

Modify the "Ignore Condition" flag for transmission constraint.

Instructions

- ❑ From the Regulation display:
  - ❑ Click on the "Regulation Ineligible" tab;
  - ❑ Modify the "Ignore Condition" flag for "Xmis. Constraint".

Notes

Flag is **NOT** normally set. The Ignore flag for Xmis. Constraint would be set to have the Regulation Selector **NOT** evaluate resource eligibility based on sensitivity value.

Step 1.6.6 Primary Responsibility: Loader Operator

Condition(s) to perform this step:

- **Modification or flagging changes were made.**

Log the changes to Regulation.

Instructions

- ❑ Use log entry: > GENERATION > REGULATION > Reg. Selector Modification
- ❑ Select the applicable modification and provide a reason in the comments section. Include generator and/or ATRR EMS names in the comments section.Applicable modifications are:
  - ❑ Regulation Capacity Requirement
  - ❑ Regulation Service Requirement
  - ❑ Must Reg
  - ❑ Must Not Reg
  - ❑ Ignore Transmission Constraints
  - ❑ Ignore "Planned Shutdown"

Step 1.6.7 Primary Responsibility: Loader Operator

Condition(s) to perform this step:

- **Modifications or flagging changes were made.**

Return to Step 1.4 and manually execute the Regulation Selector.

Instructions

The Regulation Selector is manually executed by clicking the "Run Selector" button and “Yes” on the pop up confirmation window.

Step 1.7 Primary Responsibility: Loader Operator

Approve the Regulation Selector Case.

Instructions

Approve the Regulation Case by clicking the “Approve Case” button.

Notes

- If the Regulation Selector selects an ATRR to provide regulation, the ATRR will be automatically placed on regulation when the case is approved.
- If an ATRR is currently providing regulation and that ATRR is **NOT** selected for regulation in the case that gets approved, the ATRR will be automatically removed from regulation when the case is approved.
- Once the case is approved any deviation from the approved set of resources requires a new case to be executed and approved.

Step 1.8 Primary Responsibility: Loader Operator

Condition(s) to perform this step:

- **A regulation-eligible generator is not within its regulating range.**

Dispatch the generator into the Regulation range using a manual DDP per CROP.25007 Manual Dispatch

Step 1.9 Primary Responsibility: Loader Operator

Place a non-ATRR resource on Regulation

Step 1.9.1 Primary Responsibility: Loader Operator

Instruct the DE to place the resource on regulation

Standard(s) for completion:

- Asset ID is used.

Step 1.9.2 Primary Responsibility: Loader Operator

Change the UCM to UCM6

Notes

Only non-ATRR resources are manually placed on Regulation. ATRRs are automatically placed on Regulation when the case is approved.

Step 1.9.3 Primary Responsibility: Loader Operator

Condition(s) to perform this step:

- **Manual DDP was used to dispatch the generator into the Regulation range.**

Remove the manual DDP per CROP.25007 Manual Dispatch.

Step 1.10 Primary Responsibility: Loader Operator

Remove non-ESD resources from Regulation

Step 1.10.1 Primary Responsibility: Loader Operator

Instruct the DE to take the resource off regulation

Standard(s) for completion:

- Asset ID is used.

Notes

- Indications used on the Regulation Status display are:
  - A violet highlight means a resource is in UCM 6, but is ineligible for regulation; the reason for ineligibility will be shown on the "Ineligible for Regulation" display once the resource is removed from regulation. Ineligibility reasons are listed in Attachment 1.
  - A teal highlight means a resource is currently a limited energy generator (LEG).
  - An orange highlight signifies a generator is in UCM 6 but **NOT** suggested for current hour regulation.

Step 1.10.2 Primary Responsibility: Loader Operator

Update the resource's UCM

Condition(s) to perform this section:

- **DE requests to redeclare a Regulation parameter; Or**
- **DE redeclares the available status of an ATRR.**

Section 2 : Regulation Redeclarations

Notes

- The DE of an ATRR and ESD_{ATRR} can only redeclare the available for regulation status in Real-Time.
- The other parameters like the regulation high limit, regulation low limit, and automatic response rate for ATRRs are redeclared in e-Market system.
- If the Economic Maximum or Economic Minimum is more restrictive than the Regulation High or Regulation Low limit respectively, the more restrictive limit will be displayed on the Regulation Limits display in the "From Eco" column in a magenta color.

Step 2.1

Primary Responsibility: Any Control Room Operator

Condition(s) to perform this step:

- **DE requests to modify a Regulation parameter for a generator.**

Enter a redeclaration for the applicable generator Regulation Parameter(s): Reg High Limit, Reg Low Limit, ARR, or Availability Status.

Step 2.1.1

Primary Responsibility: Any Control Room Operator

Condition(s) to perform this step:

- **A redeclaration has been entered by an operator other than the loader operator.**

Notify the Loader Operator that a regulating resource has been redeclared.

Step 2.1.2

Primary Responsibility: Loader Operator

Condition(s) to perform this step:

- **Redeclaration was performed.**

Assign Regulation to meet the hourly Regulation Requirement using Section 1.

Step 2.1.3

Primary Responsibility: Loader Operator

Condition(s) to perform this step:

- **A generator redeclared its regulation availability status.**

Log the change in generator regulation availability.

Instructions

- ❑ Make the appropriate log entry
  - ❑ GENERATION > REGULATION > Available For Regulation
  - ❑ GENERATION > REGULATION > Unavailable For Regulation

Step 2.2 Primary Responsibility: Any Control Room Operator

Condition(s) to perform this step:

- **An ATRR has redeclared its regulation availability status.**

Redeclare the status of an ATRR.

Instructions

- ❑ Remove an unavailable ATRR from Regulation by perfoming the following steps in the order written:
  - ❑ Navigate to the RTGEN section by clicking the RTG button
  - ❑ Access the ATRR summary display, by clicking the "ATRRS" button
  - ❑ Select a reason code other than “ESD AUTO REDEC” for setting the "Oper Disable Reason" flag.
  - ❑ Click the checkbox for "Oper Disable On" to for applicable ATRR.
- ❑ Restore available status of an ATRR:
  - ❑ Navigate to the RTGEN section by clicking the RTG button
  - ❑ Access the ATRR Summary display by clicking the "ATRRS" button
  - ❑ Remove the “Oper. Disable On” flag
  - ❑ Assign Regulation to meet the hourly Regulation Requirement using Section 1

Notes

Prior to setting one or more of the “Must Not Reg”, “Oper Disable”, or “Oper Off” flags, a reason code other than “ESD AUTO REDEC” must be selected, or the asset will be considered for regulation the next time the Reg Selector runs.

Step 2.2.1 Primary Responsibility: Any Control Room Operator

Log the removal of an ATRR from Regulation.

Instructions

Use log entry: > GENERATION > REGULATION > Remove From Reg. (Other Than Normal Dispatch)

Step 2.2.2 Primary Responsibility: Any Control Room Operator

Condition(s) to perform this step:

- **An ATRR was removed from Regulation and it was NOT performed by the Loader Operator.**

Notify the Loader Operator that an ATRR was removed from Regulation.

Step 2.2.3 Primary Responsibility: Loader Operator

Condition(s) to perform this step:

- **Redeclaration was performed.**

Assign Regulation to meet the hourly Regulation Requirement using Section 1.

Condition(s) to perform this section:

- **A displayed message in the EMS System Activity Log of "AGC Paused" and/or a displayed message on the Wall Board of "AGC Paused"; Or**
- **A displayed message in the EMS System Activity Log of "AGC Suspended due to Freq Deviation Exceeds Suspend Threshold".**

Section 3 : Respond to Regulation Problems or Failures

Step 3.1 Primary Responsibility: Loader Operator

Access the AGC Pause/Suspend Matrix display.

Instructions

- ❑ Access the AGC Pause/Suspend Matrix display by performing the following:
  - ❑ Click RTGEN;
  - ❑ Open the Related Displays menu;
  - ❑ Open the Gen Monitoring Displays menu;
  - ❑ Click on AGC Pause/Suspend Matrix.

Step 3.2 Primary Responsibility: Loader Operator

Determine why AGC is Paused or Suspended.

Notes

- Items on the AGC Pause/Suspend Matrix that are being used at ISO-NE:
  - Frequency Telemetry Failed - This will be caused by the failure of the currently selected frequency source and it **NOT** automatically failing over to another source.
  - No Ties in Telemetered Mode - If no Tie Lines are in the Telemetered mode, AGC will pause.
  - Tie MW Telemetry Failed - One of the NE tie lines has failed telemetry.
  - No Units (generators or ATRRs) on Automatic Control - No Units (generators or ATRRs) are in UCM 6
  - FREQ Deviation Exceeds Suspend Threshold - Deviation of the current frequency and the nominal frequency exceeds 0.2 Hz. The deviation can be either high (60.20 Hz) or low (59.80 Hz).

- Items on the AGC Pause/Suspend Matrix that are **NOT** currently used at ISO-NE (informational only):
  - External ACE Telemetry Failed
  - Scheduled Interchange Telemetry Failed
  - ACE Exceeds Pause Threshold
  - ICHG Deviation Exceeds Pause Threshold
  - FREQ Deviation Exceeds Pause Threshold
  - Multiple Islands Detected
  - ICHG Deviation Exceeds Suspend Threshold
  - Suspend due to Paused too long
  - ACE Unchanged for too long

Step 3.3 Primary Responsibility: Loader Operator

Condition(s) to perform this step:

- **AGC is Suspended due to a frequency deviation that exceeds the suspend threshold.**

Reset AGC from a suspended state

Instructions

- ❑ Access the Regulation Status display;
- ❑ Right click on the AGC Status;
- ❑ Select "RESET - Reset from suspend".

Notes

Toggling AGC from ON to OFF will create the following message in the System Activity Logs: NEPEX AGC Manually Cleared From Suspended".

Step 3.4 Primary Responsibility: Loader Operator

Condition(s) to perform this step:

- **Ac Tie Line telemetry has failed.**

Respond to an ac Tie Line Telemetry Problems in EMS using CROP.27002 Telemetry and Topology Problems.

Step 3.5 Primary Responsibility: Loader Operator

Condition(s) to perform this step:

- **Dc Tie Line telemetry has failed.**

Respond to a dc Tie Line Telemetry Problems in EMS using CROP.27002 Telemetry and Topology Problems.

Step 3.6 Primary Responsibility: Loader Operator

Condition(s) to perform this step:

- **Failed frequency source caused AGC to pause.**

Select a frequency source using CROP.25003 Select a Frequency Source.

Step 3.7 Primary Responsibility: Loader Operator

Condition(s) to perform this step:

- **AGC is paused for "No Ties in Telemetered Mode" reason; Or**
- **AGC is NOT operating and the reason cannot be determined.**

Notify the IT On Call Technician of the problem with AGC.

Step 3.7.1 Primary Responsibility: Operations Shift Supervisor

Condition(s) to perform this step:

- **Complete failure of AGC for 30 continuous minutes or more [EA-1.h]**

Notify ISO Control Room Management via e-mail using the "Control Rm Mgmnt" distribution list that a NERC Event Analysis qualifying event has occurred and which entity will be performing the reporting.

Notes

Reporting is **NOT** required if AGC was Paused or Suspended because no units were assigned to Regulation intentionally for a reliability issue.

Step 3.8 Primary Responsibility: Loader Operator

Assign Regulation to meet the hourly Regulation Requirement using Section 1.

Notes

Once the case is approved, any deviation from the approved set of resources requires a new case to be executed and approved.

Condition(s) to perform this section:

- **If the Regulation Selector has been executed but does NOT select any resources to provide regulation.**

Section 4 : Assign Regulation when no resources are selected by the Regulation Selector

Notes

When the Regulation Selector does **NOT** select any resources the Regulation Status display will sort by units by price and then ATRRs at the bottom.

Step 4.1

Primary Responsibility: Loader Operator

Coordinate with the Operations Shift Supervisor and Senior System Operator to determine the resources to assign.

Instructions

- ❑ Resources will be selected in descending order to meet the Regulation Capacity Requirement.
- ❑ Resources being dispatched for an active transmission constraint, or have the capability to affect an active constraint while operating freely in their regulation range, should be removed from the Reg Selector case solution. The exception to this would be generation on the eastern side of an active West-East constraint.

Step 4.2

Primary Responsibility: Loader Operator

Set the applicable "Must Reg" flag.

Step 4.3

Primary Responsibility: Loader Operator

Manually run the Regulation Selector.

Instructions

The Regulation Selector is manually run by clicking the "Run Selector" button and "Yes" on the pop up confirmation window.

Step 4.4

Primary Responsibility: Loader Operator

Approve the Regulation Selector Case.

Instructions

Approve the Regulation Case by clicking the "Approve Case" button.

Notes

- If an ATRR is selected to provide regulation, the ATRR will be automatically placed on regulation when the case is approved.
- If an ATRR is currently providing regulation and that ATRR is **NOT** selected for regulation in the case that gets approved, the ATRR will be automatically removed from regulation when the case is approved.
- Once the case is approved, any deviation from the approved set of resources requires a new case to be executed and approved.

Step 4.5

Primary Responsibility: Loader Operator

Condition(s) to perform this step:

- **A regulation-eligible generator is not within its regulating range.**

Dispatch the generator into the Regulation range using a manual DDP per CROP.25007 Manual Dispatch.

Step 4.6 Primary Responsibility: Loader Operator

Place a Generator on Regulation

Step 4.6.1 Primary Responsibility: Loader Operator

Instruct the DE to place the resource on regulation.

Standard(s) for completion:

- Asset ID is used.

Step 4.6.2 Primary Responsibility: Loader Operator

Update the resource UCM to UCM 6.

Step 4.6.3 Primary Responsibility: Loader Operator

Condition(s) to perform this step:

- **Manual DDP was used to dispatch the generator into the Regulation range.**

Remove the manual DDP per CROP.25007 Manual Dispatch.

Step 4.7 Primary Responsibility: Loader Operator

Remove generators from Regulation that are NOT to be used to provide Regulation for the current hour by instructing the DE to take the generator off of regulation and change to the appropriate UCM.

Standard(s) for completion:

- Asset ID is used.

Notes

- The Regulation Selector does **NOT** assess the ineligible reasons until the Regulation Selector is run (See Attachment 1 - Ineligible for Regulation Reasons), i.e., a Generator or ATRR will **NOT** appear on the "Regulation Status" display as ineligible (violet highlight) until the Regulation Selector is run.
- Indications used on the Regulation Selector are:
  - A violet highlight, the reason for ineligibility is shown on the "Ineligible for Regulation" display and those reasons are listed in Attachment 1.
  - A teal highlight, signifies a LEG.
  - An orange highlight signifies a generator is in UCM 6 but **NOT** suggested for current hour regulation

Revision History

Rev. No.	Date (MM/DD/YY)	Reason	Contact
--	07/18/18	For previous revision history, refer to Rev 16 available through Ask ISO	Steven Gould
17	10/17/18	Modified step 1.5	Steven Gould
18	01/28/19	Added instructions for ATRRs in Step1.3.1	Steven Gould
19	03/28/19	Add clarifications for Energy Storage Devices (ESD). Added new section to Appendix for ESD	Steven Gould
20	11/06/19	Modified step 2.2 for redeclaring an ATRR Evaluated Notes and Instructions	Steven Gould
21	01/03/20	Added guidance to step 1.6.3	Steven Gould
22	10/27/20	Modifications made to address resources in constrained areas.	Steven Gould
23	09/22/21	Updated common procedure information and references. Added logging requirement to step 2.1.3. Added missing condition to enter to step 2.2	Steven Gould
24	11/24/21	Added clarity to step 2.2 to align with design of Reg Selector tool.	Steven Gould
25	12/07/21	Re-ordered actions of step 2.2 per EMS support guidance	Steven Gould
26	12/04/23	Biennial Review	

Attachment 1 - Ineligible for Regulation Reasons

There are two displays that show which resources are ineligible for regulation: Units Ineligible and ATRRs Ineligible.

Resources will appear on the "Units Ineligible" display for any of the following:

1.	Now Unavail:	A generator has been selected as Unavailable
2.	Wrong UCM:	A resource is **NOT** in UCM 4 or 6
3.	Paused/Suspended:	A resource has a telemetry failure
4.	Too Far from Low:	A resource's actual generation is below the regulation low setpoint limit and would take greater than 12 minutes at MRR to reach the setpoint
5.	Too Far from High:	A resource's actual generation is above the regulation high setpoint limit and would take greater than 12 minutes at MRR to reach the setpoint
6.	Range < 2*SP Deadband:	Regulation Range is less than (2 * AGC setpoint deadband +1)
7.	Range < Minimum:	Regulation Range is less than 10 MW
8.	ARR < Minimum:	Automatic Response Rate (ARR) is less than 1 MW/min
9.	Missing Input Data:	Any data inputs are missing
10.	Analyst Exclude:	Flag set based on analysis to prevent a resource from being eligible
11.	LEG'd:	Generator is currently LEG'd
12.	Xmis. Constr.:	If the resource meets or exceeds the sensitivity threshold and the constraint marginal value, the resource will be assessed as ineligible and **NOT** be used by the Regulation Selector. The factors are transmission sensitivity >= 0.5 and a constraint marginal value >= $10.
13.	Planned Shutdown	If there is no planned commitment for a given generator in the unit plan (RAA/SCRA) at the time for which regulation is being assigned, that generator will be considered ineligible for regulation. This is currently used only for generators that are **NOT** fast-start eligible (do **NOT** have the fast start flag set). The Ignore Condition flag for this reason is normally set.

Resources will appear on the "ATRRs Ineligible" display for any of the following:

1.	Now Unavail:	ATRR has offered as unavailable for regulation in the current hour
2.	Oper Disabled	ATRR disable by the system operator
3.	Paused/Suspended:	Resource has a telemetry failure
4.	Range < 2 × SP Deadband:	Regulation Range is less than (2 × AGC setpoint deadband +1)
5.	Range < Minimum:	Regulation Range is too small
6.	ARR < Minimum:	Automatic Response Rate (ARR) is less than 1 MW/min
7.	Missing Input Data:	Any data inputs are missing
8.	Xmis. Constr.:	ATRR contributes to a binding constraint
9.	Analyst Exclude:	Flag set based on analysis to prevent a resource from being eligible
	ESD ATRR Only	
10.	Gen/DARD Wrong UCM	Associated ESD Gen/DARD is not in UCM4
11.	Gen/DARD Postured	Associated ESD Gen/DARD is postured in the current hour
12.	Gen/DARD Manual Dispatch	Associated ESD Gen/DARD has a manual DDP
13.	Gen SD Out of Range	ESD_{gen} SDMW + regulation high limit > real-time high operating limit
13.	DARD SD Out of Range	ESD_{DARD} SDMW + regulation low limit > maximum consumption limit
14.	ESD Reg Midpoint > 0	(regulation high limit + regulation low limit) ÷ 2 > 0