Managing Transmission Line Ratings

Technical Rating Communication implementation workshop

Various

HIGH-LEVEL PROJECT MILESTONES

MTLR Limit Exchange Portal (LEP) External Milestones

	Key Dates	Functionality
NX	12/1/2025	Fully functional Sandbox
NX production data	July 2026	Request for data from Participants to support migration to MTLR NX App i.e. Nominal and conditional ratings
LEP Operation production data	Sept 2026	Rating Providers enter data and ratings into Production LEP-Operational; Note LEP Historian will be available at this same time.
FERC 881 deadline	November 2026	Filing date is December 15, 2026

FUNCTIONALITY

Review of functionality in LEP Operations

LEP Sandbox environment

- Update to 25R05 Vendor release in July – this addressed all significant issues that impacted Rating Providers ability to interact with the software
  - All major functionality is available in LEP Sandbox with this release.

- The UI display bug was recently addressed

Network Segment Property changes

- AAR Exemption status & reason via UI or API PATCH {{lep-url}}/reference-data/network-segments/:id

- Enter Reasonability Limits via UI or API PATCH {{lep-url}}/reference-data/network-segments/:id
  - both Low and High have to be entered at the same time

- Updated Nominal Ratings via UI or API PATCH {{lep-url}}/reference-data/network-segments/:id

Proposal submissions

- Current hour ratings via API POST {{lep-url}}/rating-proposals/realtime

- Future hour ratings via UI or API PATCH {{lep-url}}/rating-proposals/forecast
  - For initial entry, all 72 hours must be submitted at the same time

- Seasonal ratings via UI or API PATCH {{lep-url}}/rating-proposals/seasonal
  - For Initial entry, all Seasonal Ratings must be submitted at the same time

Effective Rating snapshots

- Current hour effective ratings via GET {{lep-url}}/limits/realtime-snapshot
    - Since Sandbox LEP Operations is not connected to an EMS, this snapshot is getting auto-generated by LEP every 10 minutes

- Future hour effective ratings via GET {{lep-url}}/limits/forecast-snapshot
    - Since Sandbox LEP Operations is not connected to an EMS, this snapshot is getting auto-generated by LEP once an hour

- Seasonal effective ratings via GET {{lep-url}}/seasonal-ratings/snapshot

KNOWN ISSUES

These are some of the issues ISO-NE is aware of and GE is working to correct

Issues being addressed by Vendor

- Cannot submit Scenario Proposals for Network Segments with Altering Conditions (i.e., companion cables)

- When updating a Temporary Rating entry, the rating values are not checked against Reasonability Limits

- The ability to bulk update: AAR Exemption status & reason, enter Reasonability Limits, and enter Nominal Rating updates cannot be used.

- How a Seasonal Effective Rating is determined when a Transmission Facility has terminal breaker Topology modeled

EXPECTATIONS

AAR Exemption

- By default, all Network Segments are set to "not-exempt".

- If the Ratings Provider identifies that a Network Segment is **not** applicable to the AAR requirements of FERC Order 881, they will:
  - set the Network Segment as "exempt"
  - provide a reason why it is exempt, has a 1000-character limit

- If a Network Segment is marked as "exempt", the AAR Exempt status will need to be evaluated at least every 5 years.
  - A "re-evaluation" date is automatically generated for a Network Segment upon being set as "exempt" or "re-approved"

Reasonability Limits

- High & Low Reasonability Limits are entered into LEP by the Ratings Provider
  - They are used to perform an automatic validation of all rating data entered
  - Determined by the Ratings Provider to represent the upper and lower ratings that ISO-Ne should accept for that Network Segment.

- The High and Low Reasonability Limits must be entered before any ratings are entered.

Nominal Ratings

- Within the ISO-NE software this is the last recourse rating and would be used if no other ratings are provided for that Network Segment.
  - These would represent the ratings that the Ratings Provider would want ISO-NE to use if the Ratings Provider does not provide any other ratings for that Network Segment.

- Initial values are submitted via NX9 form.

- Updates are entered into LEP

Seasonal Ratings

- There are 12 Seasons, one per month

- Default or Conditional:
  - If a Network Segment does not have altering conditions (i.e., companion cable modeled), then Default Seasonal Rating Proposals are submitted
  - If a Network Segment does have altering conditions (i.e., companion cable modeled), then Conditional Seasonal Rating Proposals are submitted

Scenario Ratings

- PP7 defines the 2 Scenario Ratings:
  - Study Case 1
  - Study Case 2

- Default or Conditional:
  - If a Network Segment does not have altering conditions (i.e., companion cable modeled), then Default Scenario Rating Proposals are submitted
  - If a Network Segment does have altering conditions (i.e., companion cable modeled), then Conditional Scenario Rating Proposals are submitted

Forecast Ratings

- Refers to the 72-hour-ahead forecasted AAR data set mandated by FERC Order 881 for Network Segments that have an AAR Exemptions status of "Not-exempt"

- The ratings provided for each hour are based on the expected ambient temperature and expected system conditions (e.g., equipment status based on approved outages).

- Shall be provided for all 72 hours even if a Temporary Rating is in effect.

Current hour ratings

- The ratings provide for the current hour that are based on the ambient temperature and actual system conditions.

Temporary Ratings

- Provided when a condition arises that requires the use of a rating that is not an AAR or seasonal rating.

- Examples of conditions that could warrant the entry of a Temporary Rating:
  - A de-rate is required due to an issue identified
  - A cable has a Heat Exchanger placed in service
  - A change in flow speed/GMP
  - For an outage with a change in topology that impacts the ratings that should be used (e.g., a terminal breaker is opened, a companion cable is out of service, a device by-pass is being used)

HOW ISO-NE WILL USE LEP DATA

Data written to EMS Rating software from LEP

- Time based ratings:
  - Temporary Ratings
  - Real Time Proposal ratings
  - Forecast Proposal ratings

- Seasonal Ratings

- Reasonability Limits

- Nominal Ratings

Rating Priority

- EMS Rating software evaluates ratings at the Network Segment level starting with the 1st option below and stops evaluating once it has identified a usable rating set.
  - ISO-NE Manual Override
  - Ratings via ICCP – Only used in Real Time software
  - Time Based Ratings from LEP (i.e., Temporary Ratings, Real Time Proposal for current hour, Forecast Proposal)
  - Seasonal Ratings (Default or Conditional) for the applicable season
  - Nominal Ratings

Usage in ISO-NE Real Time Ratings software

- EMS Real Time Ratings software will perform a special API query, to get:
  - Updated Reasonability Limits, Default Seasonal Ratings, Conditional Seasonal Ratings, and Nominal Ratings
  - Time-based ratings

- Apply the data retrieved to each Network Segment

- Determine the rating for each Network Segment based on Priority
  - If a Network Segment has Conditional Seasonal Ratings modeled, it will evaluate current system conditions apply the appropriate Conditional Seasonal Rating.

Usage in ISO-NE Real Time Ratings software

- Determine the Effective Rating for all Elements

- Write the Effective Ratings for all Elements to Network Application for use in State Estimator and Contingency Analysis.
  - NOTE: Real Time Contingency Analysis while evaluating Contingencies it will reprocess ratings based on topology to determine if
    - Breaker out ratings apply
    - Companion Cable Out Seasonal Ratings apply (similar to what is done today)

- Create a Ratings Report and POST it to LEP
  - This posted report drives what is available via GET {{lep-url}}/limits/realtime-snapshot

Usage in ISO-NE Forecast Ratings software

- Forecast Ratings software **cannot** evaluate topology. If there is an approved outage that impacts ratings, then either:
  - If not AAR exempt and AAR ratings for the expected condition exist, the Forecast Ratings provided need to reflect the expected system condition
  - If AAR exempt or there are no AAR ratings for the expected condition, then a Temporary Rating would need to be provided for the duration of the approved outage.

- EMS Forecast Ratings software will:
  - Get updated Reasonability Limits, Default Seasonal Ratings, Conditional Seasonal Ratings, and Nominal Ratings
  - Perform an API query to get Time-based ratings

- Apply the data retrieved to each Network Segment

Usage in ISO-NE Forecast Ratings software

- Determine the rating for each Network Segment based on Priority.

- Determine the Effective Rating for all Elements

- Create a Ratings Report and POST it to LEP
  - This posted report drives what is available via GET {{lep-url}}/limits/forecast-snapshot

- The Forecast Effective Ratings posted to LEP are used in Market Software runs, like the Day Ahead Market.

Questions