Managing Transmission Line Ratings

Technical Rating Communication implementation workshop

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MTLR Limit Exchange Portal(LEP) External Milestones

	Key Dates	Functionality
LEP Operation(UI/API)	Oct. 2, 2024	Sandbox available with APIs, AARs, Seasonal Ratings, Temporary Ratings exceptions Note: Security Administrator need to identify roles in CAMS for LEP
LEP Operation	Dec. 4, 2024	Sandbox update to include Local Transmission feature and bug fixes, if needed
NX	March 19, 2025	Sandbox available
LEP Historical(Cloud)	March 31, 2025	Sandbox available
FERC 881 deadline	July 12, 2025	

WEATHER VENDORS

Weather Providers

- ISO-NE has a list of known weather vendors that is available on the [FERC Order No. 881: Managing Transmission Line Ratings (MTLR) project page](#) under the Required Participant Actions section.

SUBMISSION TIMING CONSIDERATIONS

Information

- ISO-NE does not have all of the software in house
  - Since we do not have all of software in house, we cannot define a time line at this point.

- On a later slide the data flow for ISO-NE will be shown to indicate what needs to be determined before we start working on timing requirements.
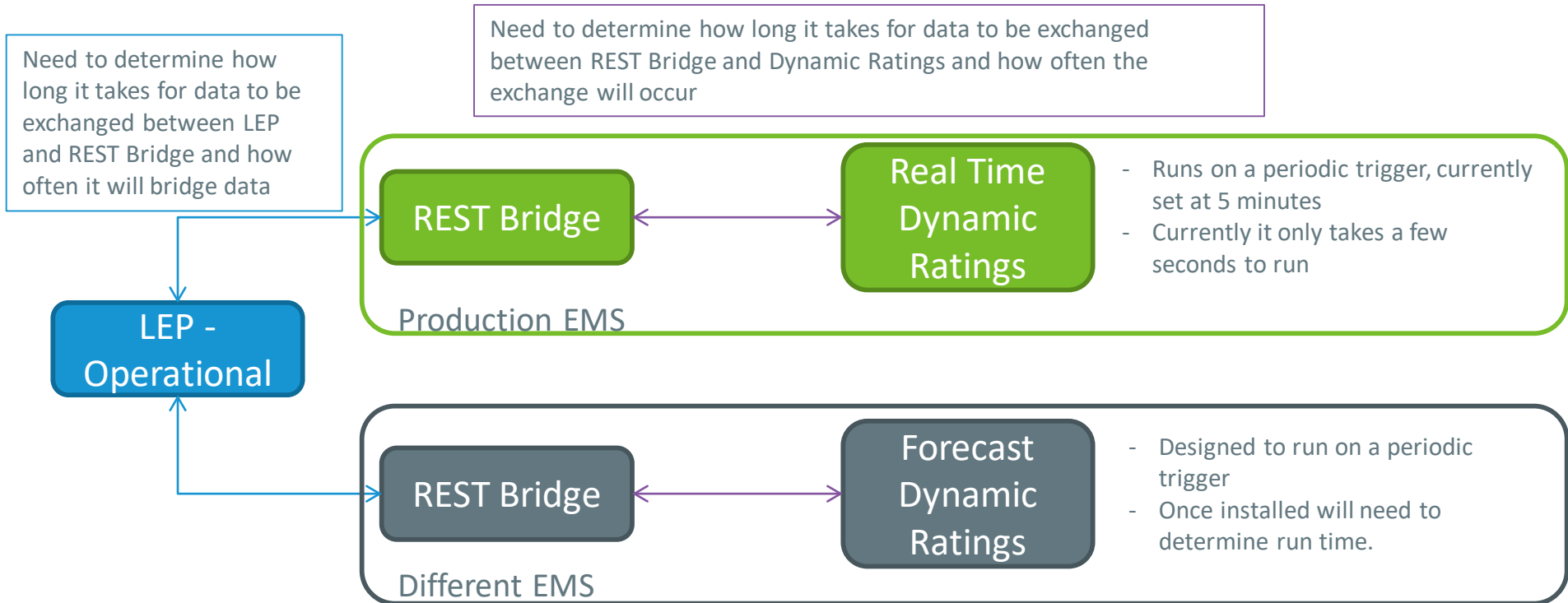
Assumption about Rating Provider process

- Get Forecast weather data for applicable time points to the needed environment

- Calculate/determine the ratings for each piece of equipment

- Time it takes the ratings to get written to the correct place to create the upload file

- Time it takes to create the upload file

- Time it takes for the file to get uploaded to LEP-Operational

Timing items that need to be determined by ISO-NE

Need to determine how long it takes for data to be exchanged between REST Bridge and Dynamic Ratings and how often the exchange will occur

Need to determine how long it takes for data to be exchanged between LEP and REST Bridge and how often it will bridge data

LEP - Operational

Production EMS

REST Bridge ←→ Real Time Dynamic Ratings

- Runs on a periodic trigger, currently set at 5 minutes
- Currently it only takes a few seconds to run

Different EMS

REST Bridge ←→ Forecast Dynamic Ratings

- Designed to run on a periodic trigger
- Once installed will need to determine run time.

Based on Vendor delivery schedule the above will not be in place for testing until late 2024/early 2025

Guess at timing for Forecasted ratings

1. Time to get updated forecasted weather data for the applicable time points: Seconds?

2. Time associated with the calculation/determination of temperature based ratings: Minutes?

3. Time to transfer ratings file to the needed location: Seconds?

4. Time to create the upload file: Seconds?

5. Time it takes to upload to LEP: Minute?

6. Time it takes LEP to process upload: **Unknown**

7. How often the LEP to REST bridge occurs: **Unknown**

8. Time for bridging (LEP to REST): Minutes (looking at the bridging of market data, minutes is believable)

9. Time for bridging (REST to DYN): Minutes (looking at the bridging of market data, minutes is believable)

10. Time for FRCSTDYN to run: Minutes (GE's initial test was greater than 3 minutes with a simple ISO-NE model)

Clock time: XX30										XX50
#	1	2	3	4	5	6	7	8	9	10
Time	<10	3	<10	<10	1	1	5	2	2	5
Unit	Sec	Min	Sec	Sec	Min	Min	Min	Min	Min	Min

Total: Just less than 20 minutes

Times are for illistration purposes. Many items are unknown at this time.

POSSIBLE LEP EQUIPMENT

Based on the current submitted NX 9 Forms that identify conditional rating situations

Conditional Rating Situations

- Ratings change if a terminal breaker is opened

- Ratings change based on the status of a companion cable

- Ratings change based on the direction of flow

Ratings based on Terminal Breaker status

- ISO-NE will use topology processing to determine the applicable ratings for base case and post contingent processing.

- Trigger used to identify these
  - The NX 9 Form it says something like "Station1 21T or 22T open"

- ISO-NE will need to include all applicable branches and devices in LEP-Operational
  - Example on next slide

Example for terminal breaker
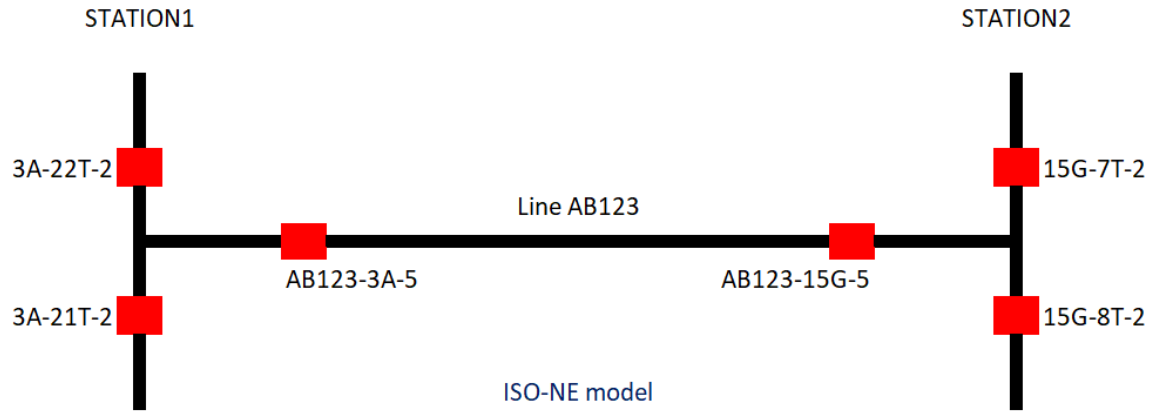
STATION1

STATION2

3A-22T-2

Line AB123

15G-7T-2

AB123-3A-5

AB123-15G-5

3A-21T-2

15G-8T-2

ISO-NE model

What would be in LEP Operational based on this example

NX9ERN	Segment ID	Device Type	From Station	To Station	From kV	To kV
10770	AB123	LN	STATION1	STATION2	345	345
10770	STATION1_MOD_AB123-3A-5	CB	STATION1	STATION1	345	345
10770	STATION1_CB_3A-21T-2	CB	STATION1	STATION1	345	345
10770	STATION1_CB_3A-22T-2	CB	STATION1	STATION1	345	345

Ratings based on companion cable

- ISO-NE will use custom processing to determine the applicable ratings based on the status of the identified companion cable for base case and post contingent processing

- Trigger used to identify these:
  - The NX 9 Form for CD142 says something like "EF143 IN" and "EF143 OUT"
    - Example on next slide

Example for companion cable

What would be in LEP Operational based on this example

NX9ERN	Segment ID	Device Type	From Station	To Station	From kV	To Kv	Description for Companion Cable
1412040012	CD142	LN	STATION5	STATION7	115	115	CD142 with EF143 In Service
1412040012	CD142	LN	STATION5	STATION7	115	115	CD142 with EF143 Out of Service

Below is the logic that will be used to determine In Service and Out of Service status

In Service or Out of Service	End 1	End 2	status
In Service	Closed	Closed	energized
In Service	Open	Closed	open-ended energized
In Service	Closed	Open	open-ended energized
Out of Service	Open	Open	dead

Ratings based on Direction of Flow

- ISO-NE is going to attempt to use built in features of our EMS to model directional ratings.
  - This will require extra modeling within multiple EMS applications.
  - Only basic testing has been performed on implementing this in the ISO-NE EMS.
    - Testing has been based around using a constant station and modifying the direction flagging (In/Out)

- Trigger used to identify these:
  - The NX 9 Form says something like "Flow from Station3 to Station4"

- This would be 2 different items in the LEP. No examples at this time.