

Transmission Interface Transfer Capabilities: 2015 Regional System Plan Assumptions, Presentation 2 – Internal Constraints



Planning Advisory Committee

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Agenda

- Describe the Forward Capacity Market (FCM) Capacity Zone modeling process
- Discuss the significant constraints that will be considered in the 2015 Regional System Plan (RSP15)

MODELING CAPACITY ZONES IN FCM

Transfer Capabilities and Zones in the FCM

- Attachment K:*
 - The RSP shall include the results of the annual assessment of transmission transfer capability, conducted pursuant to applicable NERC, NPCC and ISO New England standards and criteria and the identification of potential future transmission system weaknesses and limiting facilities that could impact the transmission system's ability to reliably transfer energy in the planning horizon
 - Each annual assessment will identify those portions of the New England system, along with the associated interface boundaries, that should be considered in the assessment of Capacity Zones to be modeled in the Forward Capacity Market pursuant to ISO Tariff Section III.12

**Compliance Filing of ISO New England Inc., Docket No. ER12-953-002,
http://www.iso-ne.com/regulatory/ferc/filings/2014/jan/er12-953-004_1-31-2014_comp_12-953-002.pdf*

Treatment of Retirements and De-lists

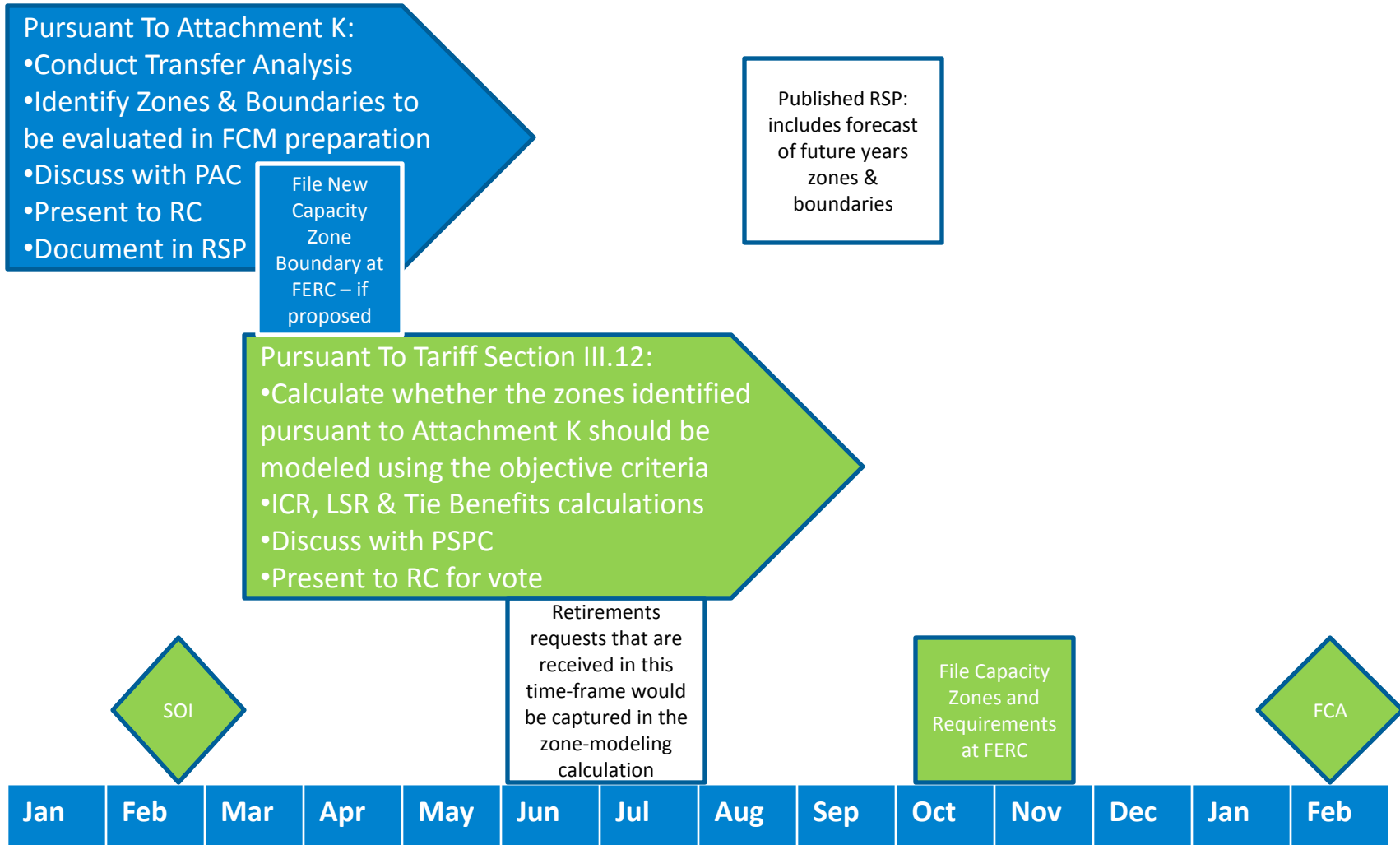
- Each annual transmission transfer capability assessment will model out-of-service all Non-Price Retirement Requests and Permanent De-List Bids as well as rejected for reliability Static De-List Bids and rejected for reliability Dynamic De-List Bids from the most recent Forward Capacity Auction



A Two Step Process

- **Step 1:** Identify the potential zonal boundaries and associated transfer limits to be tested for modeling in the FCM
- **Step 2:** Use objective criteria to determine whether or not the zone should be modeled for the Capacity Commitment Period
 - Import-constrained zone: trigger to model the zone is based on the quantity of surplus resources in the zone above the zonal requirement
 - Export-constrained zone: trigger to model the zone is based on the quantity of existing and proposed new resources in the zone
 - Zones that are neither import- or export-constrained are collapsed into the rest-of-pool zone

Zonal Modeling Timeline



METHODOLOGIES TO IDENTIFY IMPORT AND EXPORT CONSTRAINED ZONES

What is the Trigger to Model an Import-Constrained Zone?

- An import-constrained zone will be modeled when there is insufficient surplus of Existing Qualified Capacity above the line-line TSA Requirement in the zone to allow for the removal of the largest station from the zone



Calculating a Transmission Security Requirement

- A “line-line” TSA Requirement is calculated as follows (simplified):

$$\text{TSA Requirement} = \frac{(90/10 \text{ Load} - \text{Import Limit})}{1 - (\text{resource unavailability factor})}$$

- Assume resource unavailability of 5%

$$\text{TSA Requirement} = \frac{(9,000 - 4,000)}{1 - (0.05)}$$

- TSA Requirement = 5,263 MW

- Simplified Example Zone

N-1-1 Import Capability = 4,000 MW

90/10 Load = 9,000 MW



Trigger to Model Import Constrained Zones

- TSA Requirement = 5,263 MW
- The largest station in the zone is 1,000 MW
- If there are more than $5,263 + 1,000 = \underline{6,263 \text{ MW}}$ of Existing Resources in the zone, then the zone would not be separately modeled in the FCA

- Simplified Example Zone

N-1-1 Import Capability = 4,000 MW

90/10 Load = 9,000 MW

TSA = 5,263 MW



The largest Station is 1,000 MW

What is the Trigger to Model an Export-Constrained Zone?

- The ISO shall model in the Forward Capacity Auction, as separate export-constrained Capacity Zones, those zones identified in the most recent annual assessment of transmission transfer capability pursuant to ISO Tariff Section II, Attachment K, for which the Maximum Capacity Limit is less than sum of the existing qualified capacity and proposed new capacity that could qualify to be procured in the export constrained Capacity Zone, including existing and proposed new Import Capacity Resources on the export-constrained side of the interface



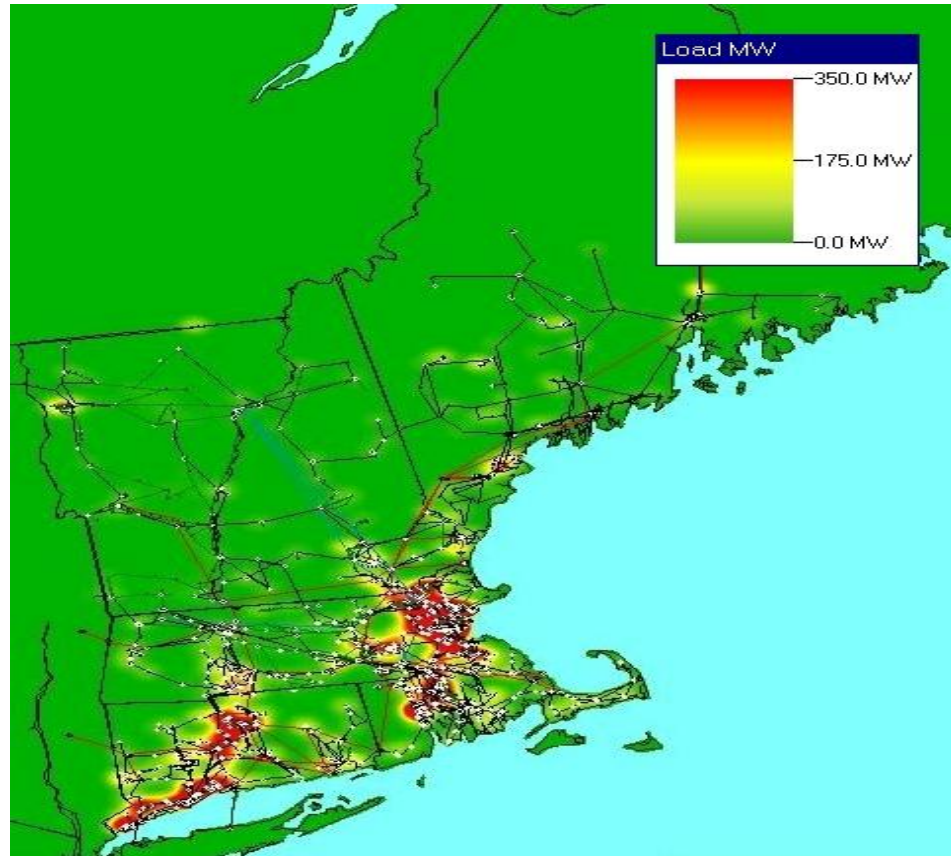
DISCUSSION OF TRANSMISSION CONSTRAINTS TO BE CONSIDERED IN RSP15

RSP15 Transmission Transfer Capabilities

- RSP15 will include the latest values for all of the transmission transfer capabilities that have historically been published for the RSP
 - External Interfaces, Orrington South, Maine-New Hampshire, North-South, West-East, Boston Import, Connecticut Import, etc.
- As required by Attachment K and NERC standards, the transfer capability assessment will identify:
 - *“future transmission system weaknesses and limiting facilities that could impact the transmission system’s ability to reliably transfer energy in the planning horizon”*



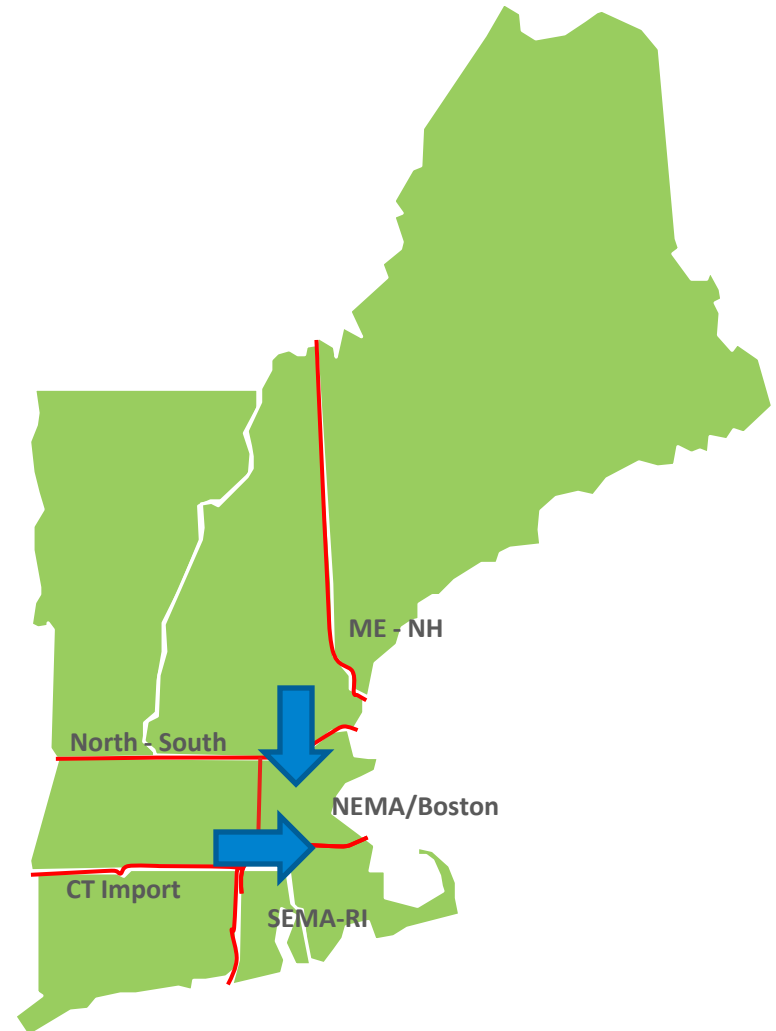
Load Distribution within New England



Representative Summer Peak - New England Load Density

Bulk Constraints - 2019

- North-South
 - The retirements of Vermont Yankee and Brayton Point will have the effect of concentrating the North-South interface flow on to the lines connecting Southeast New Hampshire to Eastern Massachusetts
- Various constraints are forecast to limit flows into Eastern Massachusetts and Rhode Island from the west



New Hampshire, Vermont and West Central Massachusetts

- It continues to be the case that a single transmission interface is not expected to be deployed to manage transfers into/out of the:
 - New Hampshire Load Zone
 - Vermont Load Zone
 - West Central Massachusetts Load Zone
- In the RSP14 review, it was identified that these zones each have sufficient surplus of Existing Qualified Capacity above the line-line TSA Requirement in the zone to allow for the removal of the largest station from the zone
- It is not expected that these zones will be separately modeled as individual import or export constrained Capacity Zones in FCA-10



Next Steps

- Present RSP15 transfer capabilities for relevant interfaces
- Identify those boundaries to be considered in the assessment of Capacity Zones for FCA-10



Questions

