



# Zonal Modeling For FCA-11

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*Power Supply Planning Committee*

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# Purpose

- Provide the results of the Capacity Zone modeling calculations for the eleventh Forward Capacity Auction (FCA-11)



# Capacity Zone Boundary Definitions: Objective Criteria Testing for FCA-11

- The following boundaries are evaluated using the import-constrained zonal modeling objective criteria
  - Connecticut import
  - Southeast New England import
- The following boundary is evaluated using the export-constrained zonal modeling objective criteria
  - Northern New England export
- The remaining Load Zones are not evaluated using the zonal modeling objective criteria
  - These will be merged into the Rest-of-Pool Capacity zone



# Timeline

- Reliability Committee
  - Reviewed and voted on the zonal boundaries to be evaluated (March 2016)
- **Power Supply Planning Committee**
  - **Conduct the calculations of the objective criteria using the latest FCA-11 data**
    - Identify those zones that will be separately modeled in FCA-11
  - **Calculate LSR/MCL requirements for separately modeled zones**
- Reliability Committee
  - Review and vote on the zonal modeling and requirements calculations (in August or September 2016)
- File at FERC the modeled zones and associated requirements in the Installed Capacity Requirements filing (in November 2016)

# IMPORT CONSTRAINED ZONE MODELING CALCULATIONS

# Market Rule 1, Section III.12.4(b)

- The ISO shall model in the Forward Capacity Auction, as separate import-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 second contingency transmission capability results in a line-line Transmission Security Analysis (TSA) requirement, calculated pursuant to Section III.12.2.1.2 and pursuant to ISO New England Planning Procedures, that is greater than the Existing Qualified Capacity in the zone, with the largest generating station in the zone modeled as out-of-service
- Each assessment will model out-of-service all Retirement De-List Bids and Permanent De-List Bids (including any received for the current FCA at the time of this calculation) as well as rejected for reliability Static De-List Bids from the most recent previous Forward Capacity Auction and rejected for reliability Dynamic De-List Bids from the most recent previous Forward Capacity Auction

# Objective Criteria Testing of Connecticut as an Import-Constrained Capacity Zone

FCA #11 TSA Requirement for Connecticut

2016 Sub-area 90/10 Load (including BTM PV forecast)
Reserves (Loss of import capability – line-line calculation)
<b>Sub-area Transmission Security Need</b>
Existing Resources (not including Millstone Station)
Assumed Unavailable Capacity (see below)
Sub-area N-1 Import Limit
<b>Sub-area Available Resources</b>

Line-Line TSA Values  
(Milestone 2&3 Out-of-Service) MW

8267
1200
<b>9467</b>
8360
-851
3400
<b>10908</b>

**TSA "Requirement" with Millstone Station out-of-service**

**6755**

Existing Capacity Details	2016 Derating Factors (%)	2020-2021 MW Amounts
Regular Generation (not including Millstone Station)	8.927	6043.515
Intermittent ICUs	0	166.590
Active DR (Excluding RT-EG)	8.6	59.951
Passive DR	0	515.741
RT-EG	6.4	59.097

**TSA "Requirement" (6,755 MW) < Existing Capacity (8,360 MW) with Millstone Station out-of-service**

# Objective Criteria Testing of Southeast New England as an Import-Constrained Capacity Zone

FCA #11 TSA Requirement for Southeast New England

Sub-area 2016 90/10 Load (including BTM PV forecast)
Reserves (Loss of import capability – line-line calculation)
<b>Sub-area Transmission Security Need</b>
Existing Resources (not including Mystic station)
Assumed Unavailable Capacity (see below)
Sub-area N-1 Import Limit
<b>Sub-area Available Resources</b>

Line-Line TSA Values (MW)  
(Mystic 7, 8, 9 & Jet Out-of-Service)

13190
1100
<b>14290</b>
9417
-890
5700
<b>14227</b>

**TSA "Requirement" with Mystic Station out-of-service**

**9487**

Existing Capacity Details	2016 Derating Factors (%)	2020-2021 MW Amounts
Regular Generation (not including Mystic Station)	10.201	7421.249
Intermittent	0	181.393
Peaking	20	516.108
NEMA Active DR (Excluding RT-EG)	14.06	62.097
RI Active DR (Excluding RT-EG)	21.24	42.213
SEMA Active DR (Excluding RT-EG)	19.81	46.340
Passive DR	0	1109.771
NEMA RT-EG	5.04	9.430
RI RT-EG	4.58	15.720
SEMA RT-EG	12.89	12.722

**TSA "Requirement" (9,487 MW) > Existing Capacity (9,417 MW) with Mystic Station out-of-service**





# Import-Constrained Zones - Conclusion

- The Southeast New England zone has less Existing Qualified Capacity than the line-line TSA with the largest station out of service
  - This zone will be modeled as an import-constrained Capacity Zone for FCA-11
- The Connecticut zone has more Existing Qualified Capacity than the line-line TSA with the largest station out of service
  - The Connecticut zone will not be modeled as an import-constrained Capacity Zone for FCA-11
  - This zone will be merged into the Rest-of-Pool Capacity Zone for FCA-11

# EXPORT CONSTRAINED ZONE CALCULATIONS

# Market Rule 1, Section III.12.4(a)

- 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 the 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



# Objective Criteria Testing of Northern New England as an Export-Constrained Capacity Zone

FCA-11 Northern New England	MW
Indicative Maximum Capacity Limit <sup>1</sup>	8,980

FCA-11 Northern New England	MW
Existing Resources	8,257
New Resources in New England that could qualify	<i>Redacted</i>
Available import capability for new imports from New Brunswick and Highgate (after accounting for tie benefits)	245 <sup>2</sup>
<b>Total sum of the Existing Qualified Capacity and proposed new capacity that could qualify</b>	<b>Greater than 8,980</b>

1. The final MCL calculation will be presented at an upcoming PSC meeting.

2. [Capacity Import Transfer Capability – Tie Benefits – Existing Imports]: New Brunswick [700 – 509 – 0] + Highgate [200 – 140 – 6] – FCA-10 Values.



# Export-Constrained Zone - Conclusion

- The indicative MCL for the Northern New England zone is less than the sum of the Existing Qualified Capacity and the proposed new capacity that could qualify for FCA-11, therefore, Northern New England will be modeled as an export-constrained Capacity Zone for FCA-11



# Capacity Zones to be Modeled in FCA-11

- There will be three Capacity Zones modeled for FCA-11
  - Import-constrained Capacity Zone of Southeast New England (NEMA/Boston/SEMA/RI)
  - Export-constrained Capacity Zone of Northern New England (Maine/New Hampshire/Vermont)
  - Rest-of-Pool Capacity Zone (Connecticut and WMA)



# Next Steps

- Reliability Committee
  - Review and vote on the zonal modeling and requirements calculations (in August or September 2016)
- File at FERC the modeled zones and associated requirements in the Installed Capacity Requirements filing (in November 2016)



# Questions

