Load Serving Entity Capacity Obligations

Determining the Amount of Capacity to Procure

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Session Objectives

At the conclusion of this module, participants will be able to:

- Describe the New York Control Area (NYCA) Installed Capacity Requirement
- Describe the Transmission District (TD) Capacity Requirements
- Describe the Locational Minimum Installed Capacity Requirement for a Locality
- Describe how to calculate an individual LSEs Unforced Capacity requirements
- Convert a Transmission District ICAP requirement to UCAP using the formula
- Understand LSEs Spot excess capacity purchase obligation

Capacity Requirements Overview

NYCA Capacity Requirements

Transmission District Capacity Requirements

ICAP and UCAP

Locational Capacity Requirements

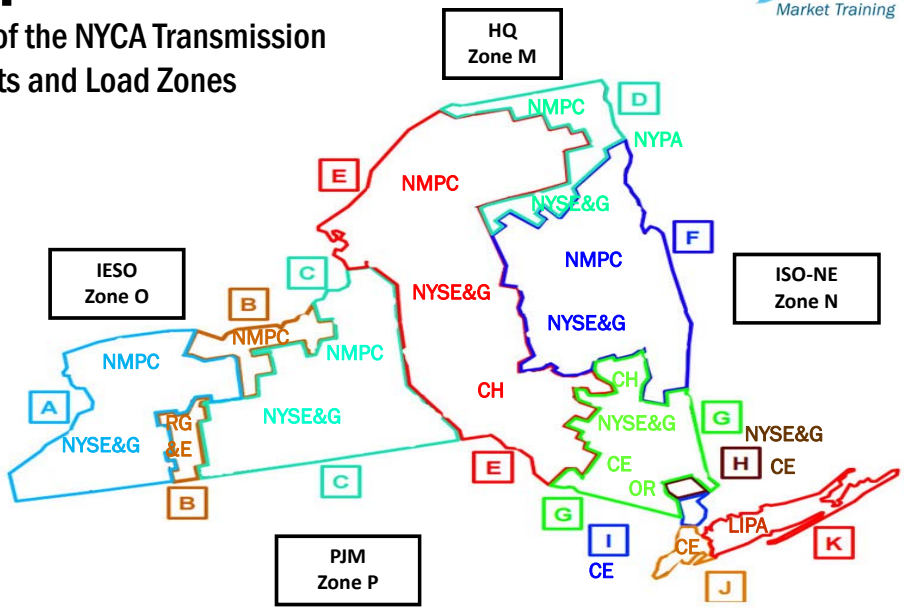
Load Serving Entity Capacity Requirements

Capacity Requirements Overview

NYCA Load Zones
A- West
B- Genesee
C- Central
D- North
E- Mohawk Valley
F- Capital
G- Hudson Valley
H- Millwood
I- Dunwoodie
J- NYC
K- Long Island

Transmission Districts
CE - Consolidated Edison Co. of NY
CH - Central Hudson Gas & Electric
LIPA - Long island Power Authority
NMPC - Niagara Mohawk Power Corp.
NYSE&G – New York State Electric & Gas Corp.
OR – Orange & Rockland Utilities
NYPA – New York Power Authority
RG&E – Rochester Gas & Electric Corp.

Maps of the NYCA Transmission Districts and Load Zones



Capacity Requirements and Obligation to Procure

- Requirements are set annually for each Capability Year
  - NYCA Capacity requirements
  - Transmission District Capacity requirements
  - Locational Capacity requirements
- UCAP requirements
  - Total UCAP requirements are determined each Capability Period
  - Individual LSE UCAP requirements determined monthly

Transmission District Capacity Requirements

Transmission District (TD) Capacity

TD Minimum ICAP Requirement Example for Con Edison

Summer 2019	
Con Ed Forecasted Peak Load	13,305.5 MW
IRM	17.0%
TD ICAP Requirement	= TD Forecasted Peak Load x (1 + IRM) =13,305.5 x (1 + 0.17) = 15,567.4

TD Minimum UCAP Requirement

Based on the forecasted annual NYCA peak Load and the TD forecasted TD coincident peak Load

$$TD\ Min\ UCAP\ Req'm't = NYCA\ Min\ UCAP\ Req'm't * \frac{TD\ Forecasted\ Coincident\ Peak\ Load}{\sum Forecasted\ Coincident\ Peak\ Loads\ for\ All\ TDs}$$

Con Ed Values - Summer 2019	
Con Ed Forecasted Peak Load	13,305.5 MW
NYCA Min UCAP Reqm't	34,558.0 MW
Sum of Forecasted Coincident Peak Loads for All TDs	32,383.2 MW

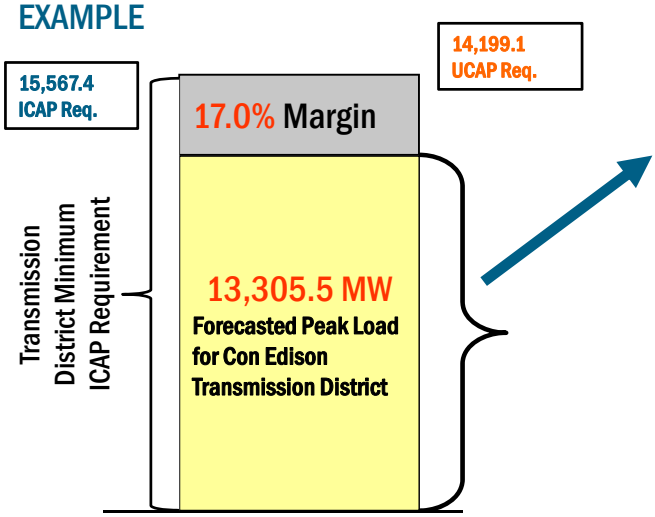
34,558.0 x (13,305.5 / 32,383.2) = 14,199.1

***Refer to Section 3.3 of the ICAP Manual

TD Minimum ICAP and UCAP Requirements

(Summer 2019 values)

EXAMPLE

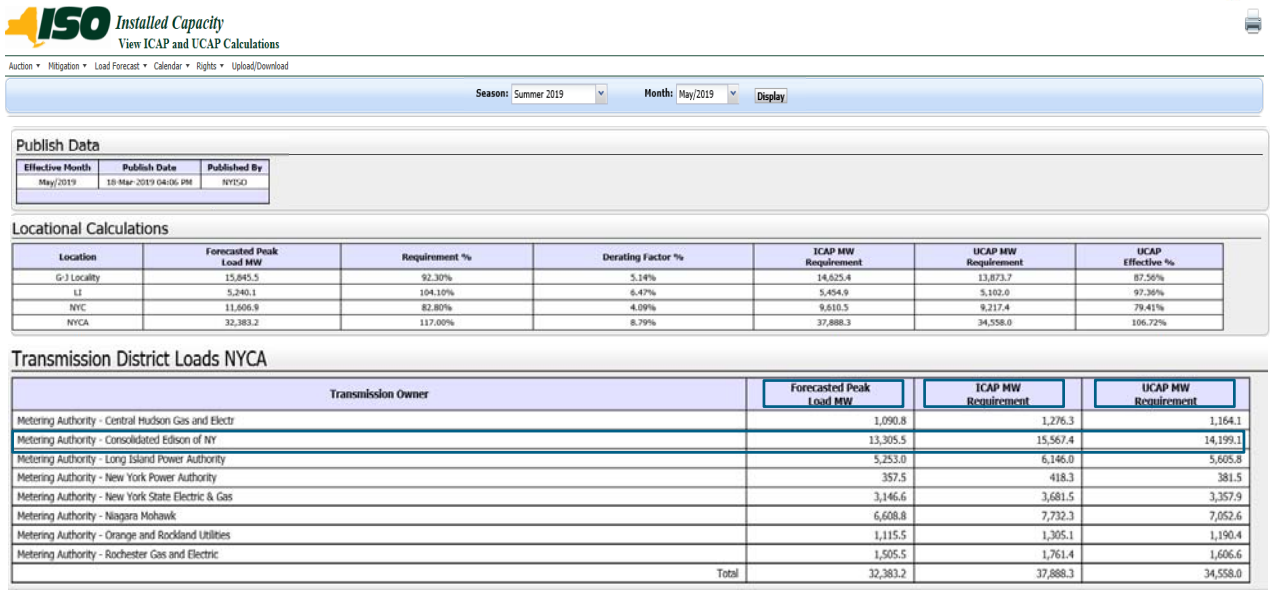


Minimum ICAP Requirement for the ConEdison TD

- Forecasted Peak Load for TD Con Edison is 13,305.5 MW
- NYCA IRM is 17.0%
- TD ICAP Requirement = TD Forecasted Peak Load x (1 + IRM)
  (Calculated on Slide #7)
- TD UCAP Requirement = NYCA UCAP Requirement x (TD FPL / Sum of TD FPL)
- 34,558.0 x (13,305.5 / 32,383.2) = 14,199.1

* FPL = Forecasted Peak Load

ICAP and UCAP Values



Installed Capacity
View ICAP and UCAP Calculations

Auction ▾ Mitigation ▾ Load Forecast ▾ Calendar ▾ Rights ▾ Upload/Download

Season: Summer 2019 Month: May/2019 Display

Publish Data

Effective Month	Publish Date	Published By
May/2019	18-Mar-2019 04:06 PM	NYISO

Locational Calculations

Location	Forecasted Peak Load MW	Requirement %	Derating Factor %	ICAP MW Requirement	UCAP MW Requirement	UCAP Effective %
G-J Locality	15,845.5	92.30%	5.14%	14,625.4	13,873.7	87.56%
LI	5,240.1	104.10%	6.47%	5,454.9	5,102.0	97.36%
NYC	11,606.9	82.80%	4.09%	9,610.5	9,217.4	79.41%
NYCA	32,383.2	117.00%	8.79%	37,888.3	34,558.0	106.72%

Transmission District Loads NYCA

Transmission Owner	Forecasted Peak Load MW	ICAP MW Requirement	UCAP MW Requirement
Metering Authority - Central Hudson Gas and Electr	1,090.8	1,276.3	1,164.1
Metering Authority - Consolidated Edison of NY	13,305.5	15,567.4	14,199.1
Metering Authority - Long Island Power Authority	5,253.0	6,146.0	5,605.8
Metering Authority - New York Power Authority	357.5	418.3	381.5
Metering Authority - New York State Electric & Gas	3,146.6	3,681.5	3,357.9
Metering Authority - Niagara Mohawk	6,608.8	7,732.3	7,052.6
Metering Authority - Orange and Rockland Utilities	1,115.5	1,305.1	1,190.4
Metering Authority - Rochester Gas and Electric	1,505.5	1,761.4	1,606.6
Total	32,383.2	37,888.3	34,558.0

LSEs' Capacity Requirements

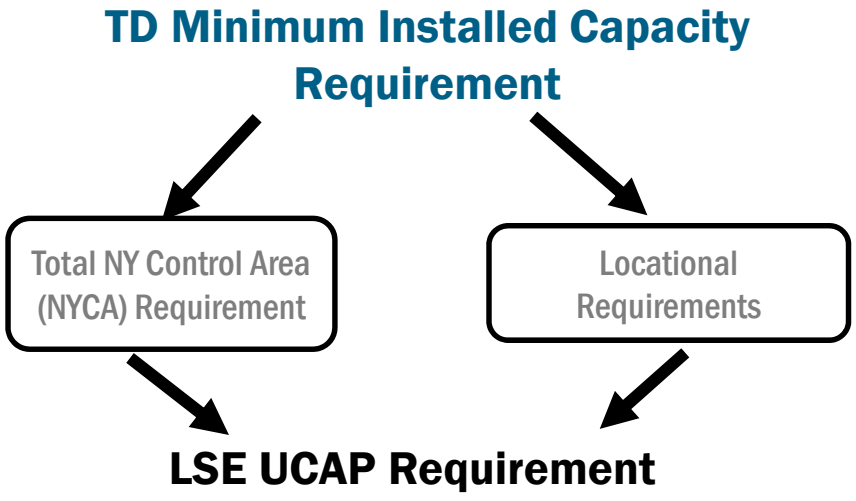
Load Serving Entity (LSE) Obligation to Procure

- How much must be procured?
  - All LSEs are required to purchase a portion to satisfy the NYCA UCAP requirement
  - LSEs with Load in a Locality also have a requirement to purchase a portion to satisfy the Locational UCAP requirement
    - (G-J Locality, LI and NYC)
  - Purchase obligation is adjusted for Locality Exchange MW and Spot excess purchase obligations

LSE Obligation to Procure - Minimum Requirements

- Each LSE is required to obtain a certain amount of MW of UCAP to satisfy the NYCA Minimum UCAP Requirement
- Based on the contribution of the sum of the LSE's customers to the forecasted TD coincident peak Load calculated each Capability Period
  - For customer switching, the LSE's contribution could change from month to month

LSE Obligation to Procure



LSE Obligation to Procure

LSEs are required to procure the Minimum UCAP Requirement

- Why UCAP and not ICAP?
  - Adjust requirement for historical availability of supply, incorporating derating factors

LSE Obligation to Procure

LSEs are required to procure the Minimum UCAP Requirement

- How much?
  - Calculated by NYISO based on TO LSE load share data
  - Based on TD ICAP Requirement and accounts for supply derating factors
  - NYCA and Locational (G-J Locality, LI and NYC) UCAP requirements are calculated each month

Locational Capacity Requirements

LSE Obligation to Procure

Locational Minimum Requirements

- Locational Minimum Installed Capacity Requirement ("LCR")
  - Established for G-J Locality, NYC & LI
- Can change each Capability Year due to, for example
  - Locational Load forecast
  - Generating units' derating factors
  - Performance factor changes of Special Case Resources
  - System changes due to transmission capability
- Locational Minimum ICAP Requirement (MW) = Locality Forecasted Peak Load x Locality Requirement %

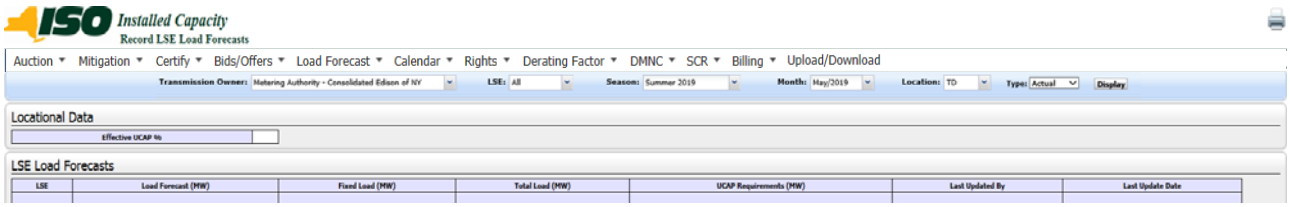
Capacity Requirement Percentages

2019/2020 Capability Year *(May 2019-April 2020)*	
NYCA	117.0% [based on IRM*]
G-J Locality	92.3% [LCR**]
Long Island	104.1% [LCR**]
NYC	82.8% [LCR**]

**Note: The NYCA requirement is based on NYSRC/FERC approved IRM*

***Note: Locality requirements are calculated by NYISO*

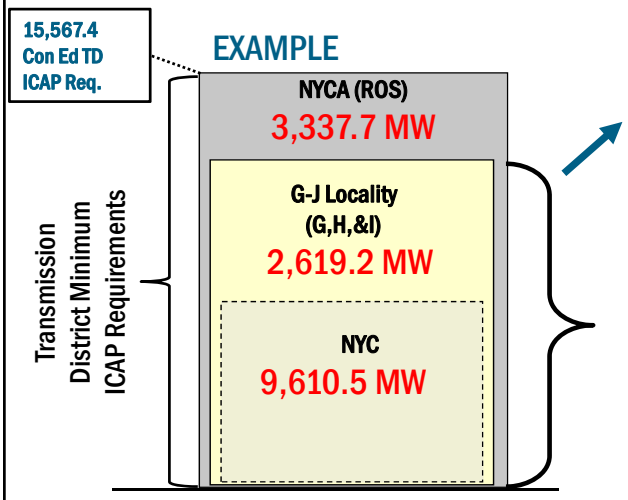
LSE ICAP and UCAP Values



- LSE Load Forecast in selected 'Location:' + Fixed Load = Total Load (ICAP)
- LSE Total Load is then converted to LSE UCAP Requirements
  - ICAP AMS screens described in the ICAP Automated Market System User's Guide, available online

Locational Minimum ICAP Requirements

(Summer 2019 values)



** FPL = Forecasted Peak Load*

For Con Ed's portion only:

- NYCA FPL = 13,305.5; G-J FPL = 13,250.0 and NYC FPL = 11,606.9
- Con Ed's TD ICAP Requirement = 15,567.4 MW
  (Calculated on Slide #7)
- G-J Locational ICAP Requirement is 92.30% of G-J Locality FPL: 13,250.0 x 92.30% = 12,229.7 MW
- NYC Locational ICAP Requirement is 82.8% of NYC FPL: 11,606.9 x 82.8% = 9,610.5 MW
- G-J Locational Requirement after meeting the NYC requirement: 12,229.7 – 9,610.5 = 2,619.2 MW
- Remaining NYCA requirement after meeting the G-J requirement: 15,567.4 – 12,229.7 = 3,337.7 MW

LSE Obligation to Procure

Locational Minimum UCAP Requirements

- ICAP requirement is translated to UCAP value

Locational Minimum UCAP =

(Locational Min ICAP – Locality Exchange MWs) x (1 - Avg. Derating Factor)

[Note: in ICAP AMS, Avg. Derating Factor is shown as Derating Factor %]

- LSE monthly UCAP requirement may change due to Locational Exports

Locality Exchange MW (LEM)

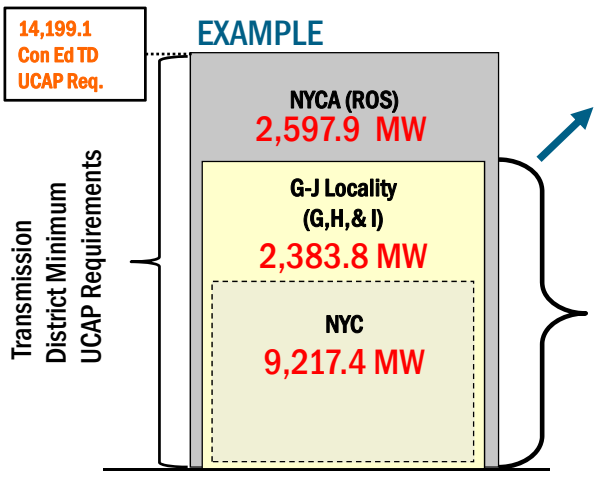
- Locality Exchange MWs (LEM) for an Import Constrained Locality = Locational Export Capacity x Locality Exchange Factor for Import Constrained Locality

$$LEM = LEC \times LEF$$

- LEFs for a Capability Year are posted at https://www.nyiso.com/installed-capacity-market in the Announcements folder under Information and Announcements

Locational Minimum UCAP Requirements

(Summer 2019 values)



For Con Ed's portion only:

- Con Ed's TD UCAP Requirement = 14,199.1 MW
  (Calculated on Slide #9)
- G-J Locational UCAP Requirement is:
  12,229.7 x (1 – 5.14%) = 11,601.2 MW
- NYC Locational UCAP Requirement is:
  9,610.5 x (1 – 4.09%) = 9,217.4 MW
- Remaining G-J Locational UCAP Requirement after meeting the NYC UCAP Requirement can be purchased in G, H, & I:
  11,601.2 – 9,217.4 = 2,383.8 MW
- Remaining NYCA UCAP Requirement after meeting the G-J Locational UCAP Requirement can be purchased in ROS:
  14,199.1 – 11,601.2 = 2,597.9 MW

**** Spot excess purchase obligation: details to follow.*

LSE Obligation Formula

Minimum Total UCAP Requirement =

Forecast Peak Load x (1 + IRM)

NYCA Minimum ICAP Requirement x (1 – NYCA Derating Factor)

Minimum Locational UCAP Requirement =

Forecast Peak Load x Loc. Req.

(Minimum Locational ICAP Requirement – Locational Exchange MWs) x (1 - Locational Derating Factor)

Let's Review

The NYCA Minimum ICAP Requirement is established:

a) Every three years
b) Annually
c) Each Capability Period
d) Each month

Let's Review

Use the data table to answer the following questions.

EXAMPLE USING WINTER 2010-2011 DATA

Location	Forecasted Peak Load	Requirement %	Derating Factor %
LI	5,368.0	104.50%	9.55%

1. What is the Locational ICAP Requirement % for Long Island?
2. What number represents resource performance (outages & derates) for the LI Locality?
3. Calculate the minimum ICAP Requirement in MW for LI.
4. Convert the minimum ICAP Requirement for LI to UCAP.

Let's Review Cont'd

Season Winter 2010-2011 Display

Post Data

Posted Date	Posted By
17-Sep-2010 10:26 AM	

Locational Calculations

Location	Forecasted Peak Load	Requirement %	Derating Factor %	ICAP MW Requirement	UCAP MW Requirement	UCAP Effective %
LI	5,368.0	104.50%	9.55%	5,609.6	5,073.8	94.52%
NYC	11,725.0	80.00%	6.85%	9,380.0	8,737.5	74.52%
NYCA	33,025.0	118.00%	8.05%	38,969.5	35,832.5	108.50%

104.5% 9.55% 5,609.6

Transmission District Loads

Transmission District	Forecasted Peak Load	ICAP MW Requirement	UCAP MW Requirement
Metering Authority - Central Hudson Gas and Electr	1,172.3	1,383.3	1,272.0
Metering Authority - Consolidated Edison of NY	13,654.9	16,112.8	14,815.7
Metering Authority - Long Island Power Authority	5,286.0	6,237.5	5,735.4
Metering Authority - New York Power Authority	317.6	374.8	344.6
Metering Authority - New York State Electric & Gas	3,075.0	3,628.5	3,336.4
Metering Authority - Niagara Mohawk	6,732.1	7,943.9	7,304.4
Metering Authority - Orange and Rockland Utilities	1,157.4	1,365.7	1,255.8
Metering Authority - Rochester Gas and Electric	1,629.7	1,923.0	1,768.2
Total	33,025.0	38,969.5	35,832.5

Additional Purchase Obligation

LSE Additional Purchase Obligation

- Purchasing Spot Excess Capacity
  - Spot excess = MW offered above 100% Minimum UCAP Requirement and at a price under the Demand Curve in the ICAP Spot Market Auction
    - Increases reliability by valuing additional MW and lowers the total cost of the auction to LSEs
    - Spot excess can flow from nested locations to nesting locations
      - e.g., Spot excess purchases for NYCA can be from J, G-J, K, or ROS
    - Spot excess may be used to both:
      - Decrease LSE deficiencies in a nesting location and;
      - As additional UCAP offered under the Demand Curve in a nesting location
  - Other modules will cover the Demand Curve and ICAP Spot Market Auction in more detail
    - NYISO Administered ICAP Market Auctions and Demand Curve

LSE Additional Purchase Obligation

- Purchasing Excess Capacity
  - Determining amount of excess to be purchased in the ICAP Spot Market Auction and the LSE additional purchase obligation:
  - Step 1 – Identify total amount of UCAP that cleared above the required amount, and deficiency awards by location
  - Step 2 – Calculate portion attributed to an LSE for each location

    = Individual LSE Requirement / Total Locational Requirement
  - Step 3 – Calculate excess to be allocated to each LSE

    = Portion attributed to the LSE (by location) x Excess awards (by location)

LSE Obligation to Procure: Review

- LSEs are required to procure their portion of the Transmission District Minimum UCAP requirement
- NYISO calculates LSE minimum UCAP requirement based on TO load share data
- LSE UCAP requirement adjusted monthly for any customer switching, based on TO data and for Locality Exchange MW
- For LSEs serving load in G-J Locality, LI or NYC a specified amount of their UCAP Requirement must be purchased within the LSE's respective Locality, plus a NYCA portion
- All LSEs are obligated to purchase excess capacity that falls under the Demand Curve

Additional Resources

- NYISO Market Administration and Control Area Services Tariff
- ICAP Manual
- Automated Market System (ICAP AMS) User Guide