National Grid Methodology for Estimating Upstate New York ICAP for NYISO Reporting

Overview:

National Grid's Meter Data Services (MDS) department reports the Installed Capacity (ICAP) for each Load Serving Entity (LSE) to the NYISO on a monthly basis for their use in determining the LSE's monthly ICAP obligation. The reported ICAP value for each LSE (AKA Energy Service Company or ESCo, AKA Supplier) is the aggregation of all customer ICAP Tags (derived annually) that each LSE supplies power to. Changes to an LSE's monthly ICAP obligation are determined by tracking customer LSE enrollment changes and shifting load between LSEs as necessary.

Each customer's ICAP Tag is determined from either their actual peak hour use (if the customer is Mandatory Hourly Priced (MHP) billed from an Interval Meter) or from a combination of Load Profiles and the average billed usage during the time of the New York Control Area (NYCA) Peak Date and Hour from the previous year (for customers billed from Non-Interval Meters). For customer accounts with NYPA program allocations, the total ICAP Tag is apportioned between NYPA and the LSE per contract terms.

For each customer, an ICAP tag is calculated by multiplying the Peak Hour Use (actual or load profiled) by the Weather Sensitivity* Factor, Niagara Mohawk's distribution and transmission losses, and a System Peak Factor.

*The Weather Sensitivity Factor is applied to adjust the customers Peak Hour Use per the new Weather Sensitivity Distribution Methodology that was developed in response to a ***regulatory finding*** by the New York State DPS (Case -17-E-028) in 2017. The purpose of this new factor was to distribute ICAP obligation more heavily towards weather sensitive rate classes in the event an established trigger is reached. The term coined to designate that "Factor" was the Weather Normalization Factor or WNF. This name has caused some confusion over the intervening years and so it was changed to the "Weather Sensitivity Factor" or WSF, which better describes its function. Otherwise, there has been no change to the established methodology.

The System Peak Factor is applied to adjust each individual customer's ICAP Tag (adjusting it up or down) such that the sum of all Tags reconciles with the NYISO Peak Load Forecast value. The System Peak Factor accounts for the following:

1. Allocation of NYISO high voltage transmission losses, load modifiers and Demand Side Management (DSM) impacts.
2. Load growth factors, which are used in converting the previous year's actual Peak Load value into a Peak Load Forecast Value for the forthcoming year.

Peak Load Year 2023:

For the reporting year beginning on May 1, 2024, the ICAP obligations are based on loads at the time of the **2023 NYISO NYCA Peak**, which occurred on **July 28, 2023, at hour ending 18:00**.

Detailed Description of Method:

ICAP estimation is an annual process which calculates each customer's ICAP tag. Once all individual customer's ICAP tags are determined, the forecasting of monthly estimates, load shifting, and true ups is performed by assigning customers to LSE's, aggregating those tags for each LSE, and then reporting those aggregated ICAP totals to the NYISO for each LSE.

A. Estimation of Customer ICAP Tags:

There are three steps required to estimate a customer's ICAP tag:

1) Calculate the Usage Factor for each Non-Interval Metered (Load Profiled) customer as follows:

   a) Obtain the customer's total metered usage for the "Billing Period" containing the NYCA Peak day.
   b) Calculate the customer's average daily usage by dividing the customer's total metered usage for the Billing Period, by the number of days in the Billing Period.
   c) Determine the appropriate "Class Average Daily Usage" from Reference Table A on Pg. 6.
   d) Calculate the Usage Factor by dividing the customer's "Average Daily Usage" (using the value from A1b above) by the "Class Average Daily Usage" (using the value from A1c above).

2) Estimate each customer's Peak Hour Use:

   a) For Interval-Metered Customers, determine the customer's hourly usage at the time of the NYISO NYCA Peak Date and Hour.
   b) For Load-Profiled customers, calculate the "Peak Hour Use" as the product of each customer's Usage Factor (from A1d above), and the appropriate "Class Average Hourly Load at Peak" from Reference Table A on Pg. 6.

3) Apply the Weather Sensitivity Factor (for Interval Meter Data customers only), the Voltage Level Loss Factor, and the System Peak Factor (all found on Pg. 6):

   NOTE: A regulatory, mandated change made to the methodology used for distributing ICAP obligation to more weather-sensitive rate classes once an established trigger has been reached, started on May 1, 2018. Implementation of this new methodology required some manual adjustments to the settlement data, as described in A3a and A3b.

   a) For Interval-Metered MHP customers only: multiply the customer's Peak Hour Use (PHU) by the appropriate Weather Sensitivity Factor (WSF) from the First Table on Pg. 6. These factors are dependent on the customer's Rate Class.

      For Load-Profiled customers: the Weather Sensitivity Factor (WSF) has been integrated into the "Class Average Hourly Load at Peak" value from Reference Table A on page 6.

   b) Multiply the result of A3a (above) by Niagara Mohawk's Local Transmission Efficiency Loss Factors (found on Pg. 6). These factors are dependent on customer's Interconnection Voltage Level:

   c) Multiply the result of A3b (above) by the System Peak Factor (found on Pg. 6).

In mathematical terms:

For Interval-Metered MHP Customers:

Total ICAP Tag = (Peak Hour Use) x (Weather Sensitivity Factor) x (Loss Factor) x (System Peak Factor).

For Load-Profiled Customers:

Total ICAP Tag = (Peak Hour Use) x (Loss Factor) x (System Peak Factor)

Where:

Peak Hour Use = (Usage Factor) x (Class Average Hourly Load at Peak)

And

Usage Factor = [(Total Metered usage for the Billing Period containing the NYCA Peak day) / (# of Days in the billing period)] / (Class Average Daily Usage)

B. Examples of Customer ICAP Tag Calculation:

Example #1: ICAP Tag calculation for an Interval-Metered customer.

For an SC3A customer served at the sub-transmission voltage level, who's peak hour usage was 3,000 kW:

ICAP Tag = (Peak Hour Use) x (Weather Sensitivity Factor) x (Loss Factor) x (System Peak Factor)
= 3,000 kW x 1.0100 x 1.047 x 0.979429
= 3,107.15 kW

Example #2: ICAP Tag calculation for a load profiled customer.

For an SC2 Demand customer served at the secondary voltage level, who's total usage for a 31-day billing period containing the NYISO NYCA Peak Date and Hour was 15,000 kWh:

Usage Factor = [(Metered usage) / (Days in bill period)] / (Class Average Daily Usage)
= [15,000 kWh / 31 days] / (253.73 kWh/day)
= 1.91

Peak Hour Use = (Usage Factor) x (Class Average Hourly Load at Peak)
= 1.91 x 14.29 kW
= 27.29 kW

NOTE: The "Weather Sensitivity Factor" has been integrated into the "Class Average Hourly Load at Peak" Values.

ICAP Tag = (Peak Hour Use) x (Loss Factor) x (System Peak Factor)
= 27.29 kW x 1.084 x 0.979429
= 28.97 kW

C. Monthly Reporting to NYISO

The forecast of monthly estimates, load shifting, and true ups for each LSE are submitted to the NYISO. To prepare each forecast, the ICAP tags for customers enrolled with each LSE are:

1. Adjusted for any applicable NYPA programs
2. Aggregated
3. Scaled to megawatts from kilowatts by dividing by 1,000
4. Formatted into NYISO files
5. Uploaded to the NYISO ICAP Automated Market System ("AMS")

NYPA ICAP Allocations:

The portion of a customer's ICAP Tag, which is allocated to NYPA, is determined after customer ICAP tags are established. NYPA program allocations are established by contract terms and can change over the course of the year. Since all participants in NYPA programs are MHP customers with interval metering, it's not necessary to rely on class averages to compute ICAP amounts.

1. Process for Determining NYPA's portion of the ICAP Tag based on the NYPA Allocations for the account:

For the NYISO NYCA Peak Date and Hour, each customer's NYPA ICAP allocation is calculated as follows:

$ICAP_{TOTAL}$ = The Customer's Total ICAP requirement for the current capability year (May 1st through April 30th)

*$ICAP_{NYPA}$ = $ICAP_{TOTAL}$ * LSRICAP (but not to exceed T)*

Where:

LSRICAP (Load Split Ratio for ICAP) = T / [the greater of T or the NCP]

Where T = program participant's total takedown

And

NCP (non-coincident peak) = program participant's maximum metered usage which occurred during the NYISO NYCA Peak Month.

$ICAP_{SUPPLIER}$ = $ICAP_{TOTAL}$ - $ICAP_{NYPA}$

NOTE: $ICAP_{SUPPLIER}$ is also known as the Serviceable ICAP Tag.

2. Example of a Customer NYPA ICAP Allocation Calculation:

NYPA Example #1: ICAP Tag calculation for a customer with a NYPA allocation.

For an SC3A customer with a NYPA Recharge New York (RNY) allocation and who meets the following parameters:

1) The customer is served at the Sub-Transmission voltage level
2) The customer's total Peak Hour (or Coincident Peak) Use was 3,200 kW

3) The customer's total Takedown (T) was 1,500 kW
4) And the customer's Non-Coincident Peak (NCP) was 3,350 kW
NOTE: The NCP would also have to be adjusted by the Weather Sensitivity Factor for an SC3A Rate Class served at the Sub Transmission Voltage Level.

$ICAP_{TOTAL}$ = (Peak Hour Use) x (Weather Sensitivity Factor) x (Loss Factor) x (System Peak Factor)
= 3,200 kW x 1.0100 x 1.047 x 0.979429
= 3,314.29 kW

NCP = (NCP) x (Weather Sensitivity Factor)
= 3350 x 1.0100
= 3383.50

LSRICAP = T / [the greater of T or NCP]
= 1,500 kW / [greater of (1,500 kW, 3350.00 kW)
= 0.4478

$ICAP_{NYPA}$ = $ICAP_{TOTAL}$ x LSRICAP
= 3,314.29 kW x 0.4478
= 1,484.14 kW

$ICAP_{SUPPLIER}$ = $ICAP_{TOTAL}$ – $ICAP_{NYPA}$
= 3,314.29 kW – 1,484.14 kW
= 1830.15 kW

System Peak Factor for Peak Load Year 2023
0.979429

Rate Class	Weather Sensitivity Factor	Rate Class	Weather Sensitivity Factor
SC1Std	1.1029	**SC3MHP Sub**	1.0346
SC1C	1.1029	**SC3Tot Sub**	0.9466
SC2ND	1.1029	**SC3Std Tra**	0.9317
SC2D Sec	1.1029	**SC3MHP Tra**	1.0100
SC2D Pri	1.1029	**SC3A Sec**	1.1956
SC3Std Sec	0.9543	**SC3A Pri**	1.0100
SC3MHP Sec	1.0346	**SC3A Sub**	1.0100
SC3Std Pri	0.9543	**SC3A Tra**	1.0100
SC3MHP Pri	1.0346		
SC3Std Sub	0.9317		

Loss Factors (effective 02/01/2011)			
ID	Voltage level	kV	Losses
1	Secondary	0 – 2.2	1.084
2	Primary	2.2 – 15	1.061
3	Sub-Transmission	22 – 50	1.047
4	Transmission	Over 60	1.021

ICAP Tag Estimation: Reference Table A

Service Class		Class Average Hourly Load at Peak: Jul 28, 2023, Hour ended 18:00 PM (kW)	Class Average Daily Usage (kWh/day)
SC-1, SC1B	Standard Service	1.97	23.89
SC-1C	Optional Large Time of Use	10.40	185.20
SC-2	Demand Primary	52.27	642.47
	Demand Secondary	14.29	253.73
	Non-Demand	1.17	16.31
SC-3	Primary	370.16	7330.28
	Secondary	163.14	3221.28
SPAL	Private Area Lighting	0.00	130.58
SSTL	Street Lighting	0.00	28.33
STRA	Traffic Signals	0.31	7.97