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 Capacity Requirements. The reported ICAP value is the aggregation of all customer ICAP Tags (derived annually) that each LSE is responsible for. Changes to an LSE’s ICAP requirements are determined by tracking customer enrollment changes and shifting load accordingly.

Each customer’s ICAP Tag is determined from either their actual peak hour use, (if the customer is billed from an Interval Meter), or from Load Profiles (If the customer is billed from a Non-Interval Meter), at the time of the New York Control Area (NYCA) Peak Date and Hour from the previous year. For customers with NYPA program allocations, the Peak Hour Use is apportioned between NYPA and the LSE providing service, per contract terms.

For each customer, an ICAP tag is calculated from their Peak Hour Use (Actual or Load Profiled), by adjusting it for the Weather Normalization Factor, Niagara Mohawk’s distribution and transmission losses, and the System Peak Factor.

The Weather Normalization Factor is applied to adjust the customers Peak Hour Use per the new Weather Normalization Distribution Methodology.

The System Peak Factor is applied to adjust the sum total of individual customer ICAP Tags (up or down), in order to reconcile that total with the NYISO Peak Load Forecast. The System Peak Factor accounts for the following:

1. Allocation of NYISO high voltage transmission losses, load modifiers and DSM impacts.
2. Load growth factors, which are used in converting the previous year’s actual Peak Load value into a Peak Load forecast for the forthcoming year.

Peak Year 2018:

For the reporting year beginning on May 1, 2019, the ICAP obligations are based on loads at the time of the 2018 NYISO NYCA Peak, which occurred on August 29, 2018 at hour ending 17:00 pm.
Detailed Description of Method:

ICAP estimation begins with an annual process to calculate each customer’s ICAP tag. Once the individual customers’ ICAP tags are determined and stored, the forecasting of monthly estimates, load shifting, and true-ups, are determined/calculated by assigning customers to LSE’s, aggregating those tags for each LSE, and then reporting those total ICAP amounts 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) For each Non-Interval Metered (Load Profiled) customer, calculate the Usage Factor:
   a) Obtain the customer’s total metered usage for the “Billing Period” containing the NYCA Peak day.
   b) Calculate the customer’s 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 page 6.
   d) Calculate Usage Factor using the value from A1b) divided by the value from A1c).

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 customers Usage Factor (from A1d), and the appropriate “Class Average Hourly Load at Peak” from Reference Table A on page 6.

3) Apply the Weather Normalization Factor (for Interval Meter Data customers only), the Voltage Level Loss Factor and the System Peak Factor:

   NOTE: A regulatory mandated change made to the methodology used for distributing the weather normalization portion of the NYISO Peak Load Forecast, across the various weather sensitive rate classes, started on May 1st 2018. Implementation of this new methodology required some manual system adjustments to the settlement data as described in A3a and A3b.

   a) For Interval Metered customers only, multiply the customers Peak Hour Use (PHU) by the appropriate Weather Normalization Factor (WNF) from the First Table on Pg 3. These factors are dependent on the customers Rate Class.

For Load-Profiled customers, the Weather Normalization factor has been integrated into the “Class Average Hourly Load at Peak” value from Reference Table A on page 6.
<table>
<thead>
<tr>
<th>Rate Class</th>
<th>Weather Normalization Factor</th>
<th>Rate Class</th>
<th>Weather Normalization Factor</th>
</tr>
</thead>
<tbody>
<tr>
<td>SC1Std</td>
<td>0.9945</td>
<td>SC3Std Sub</td>
<td>0.9945</td>
</tr>
<tr>
<td>SC1C</td>
<td>0.9945</td>
<td>SC3MHP Sub</td>
<td>0.9945</td>
</tr>
<tr>
<td>SC2ND</td>
<td>0.9945</td>
<td>SC3Tot Sub</td>
<td>0.9919</td>
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<tr>
<td>SC2D Sec</td>
<td>0.9945</td>
<td>SC3Std Tra</td>
<td>N/A</td>
</tr>
<tr>
<td>SC2D Pri</td>
<td>0.9945</td>
<td>SC3MHP Tra</td>
<td>0.9945</td>
</tr>
<tr>
<td>SC3Std Sec</td>
<td>0.9945</td>
<td>SC3Tot Tra</td>
<td>0.9919</td>
</tr>
<tr>
<td>SC3MHP Sec</td>
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<td>Traffic</td>
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</tr>
<tr>
<td>SC3Tot Sec</td>
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<td>SC3A Sec</td>
<td>0.9945</td>
</tr>
<tr>
<td>SC3Std Pri</td>
<td>0.9945</td>
<td>SC3A Pri</td>
<td>0.9945</td>
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<tr>
<td>SC3MHP Pri</td>
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<td>SC3A Sub</td>
<td>0.9945</td>
</tr>
<tr>
<td>SC3Tot Pri</td>
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<td>SC3A Tra</td>
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</tbody>
</table>

b) Multiply the result of A3a by Niagara Mohawk’s Local Transmission Efficiency Loss Factors. These factors are dependent on customer’s Interconnection Voltage Level:

<table>
<thead>
<tr>
<th>Loss Factor</th>
<th>Actual</th>
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<tbody>
<tr>
<td>Transmission</td>
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</tr>
<tr>
<td>Sub-Transmission</td>
<td>1.047</td>
</tr>
<tr>
<td>Primary</td>
<td>1.061</td>
</tr>
<tr>
<td>Secondary</td>
<td>1.084</td>
</tr>
</tbody>
</table>

c) Multiply the result of A3b by the System Peak Factor, which is 1.007136 for Peak Load Year 2018.

In mathematical terms:

For Interval Metered Customers:

Total ICAP Tag = (Peak Hour Use) x (Weather Normalization 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, whose peak hour use was 3,000 kW:

ICAP Tag = (Peak Hour Use) x (Weather Normalization factor) x (Loss Factor) x (System Peak Factor)
= 3,000 kW x 0.9945 x 1.047 x 1.007136
= 3,146.02 kW

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

For an SC2 Demand customer served at the secondary voltage level, whose total usage for the 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] / (261.26 kWh/day)
= 1.85

Peak Hour Use = (Usage Factor) x (Class Average Hourly Load at Peak)
= 1.85 x 16.70 kW
= 30.90 kW

NOTE: The new “Weather Normalization 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)
= 30.90 kW x 1.084 x 1.007136
= 33.73 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 have interval metering, it is not necessary to rely on class averages to compute ICAP amounts.

1. Process for Determining Customer NYPA ICAP Allocations:

For the NYISO NYCA Peak Date and Hour, each customer’s NYPA ICAP allocation is calculated as follows:
$\text{ICAP}_{\text{TOTAL}} = \text{The Customers Total ICAP requirement for the current capability year (May 1}\text{st through April 30)\text{)}$ 

$\text{ICAP}_{\text{NYPA}} = \text{ICAP}_{\text{TOTAL}} \times \text{LSRICAP} \quad \text{(but not to exceed $T$)}$

Where:

$\text{LSRICAP (Load Split Ratio for ICAP)} = \frac{T}{\text{the greater of $T$ or NCP}}$

And

$T = \text{program participant’s total takedown}$

And

$NCP (\text{non-coincident peak}) = \text{program participant’s maximum metered usage which occurred during the NYISO NYCA Peak Month.}$

$\text{ICAP}_{\text{SUPPLIER}} = \text{ICAP}_{\text{TOTAL}} - \text{ICAP}_{\text{NYPA}}$

**NOTE:** $\text{ICAP}_{\text{SUPPLIER}}$ is also known as the serviceable ICAP Tag.

2. **Example of 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 having 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 Normalization Factor for an SC3A Rate Class served at the Sub Transmission Voltage Level.

\[\text{ICAP}_{\text{TOTAL}} = \text{(Peak Hour Use)} \times \text{(Weather Normalization Factor)} \times \text{(Loss Factor)} \times \text{(System Peak Factor)}\]
\[= 3,200\ kW \times 0.9945 \times 1.047 \times 1.007136\]
\[= 3,355.75\ kW\]

\[\text{NCP} = \text{(NCP)} \times \text{(Weather Normalization Factor)}\]
\[= 3350 \times 0.9945\]
\[= 3331.58\]

\[\text{LSRICAP} = \frac{T}{\text{the greater of $T$ or NCP}}\]
\[= 1,500\ kW / \text{[greater of (1,500 kW, 3,331.58 kW)]}\]
\[= 0.4502\]

\[\text{ICAP}_{\text{NYPA}} = \text{ICAP}_{\text{TOTAL}} \times \text{LSRICAP}\]
\[= 3,355.75\ kW \times 0.4502\]
\[= 1,510.76\ kW\]

\[\text{ICAP}_{\text{SUPPLIER}} = \text{ICAP}_{\text{TOTAL}} - \text{ICAP}_{\text{NYPA}}\]
\[= 3,355.75\ kW - 1,510.76\ kW\]
\[= 1,844.99\ kW\]
<table>
<thead>
<tr>
<th>Service Class</th>
<th>Class Average Hourly Load at Peak: August 29, 2018, Hour ended 17:00 PM (kW)</th>
<th>Class Average Daily Usage (kWh/day)</th>
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<tbody>
<tr>
<td>SC-1, SC1B</td>
<td>1.68</td>
<td>24.43</td>
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<td>SC-1C</td>
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<tr>
<td>SC-2</td>
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<tr>
<td>Demand Primary</td>
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<td>Demand Secondary</td>
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<td>Non-Demand</td>
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<td>Traffic Signals</td>
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