New York ISO
Independent System Operator

Expanding Application of Peak Hour Forecasts

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Purpose

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- The purpose of this presentation is to:
  - Clarify the scope of Expanding Application of Peak Hour Forecasts
  - Discuss how peak load hours could be identified
  - Request stakeholder feedback on a proposed analysis

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Background

Date	Working Group	Discussion Points and Links to Materials
February 25, 2021	ICAPWG/MIWG	Kick-off presentation discussing the current process: https://www.nyiso.com/documents/20142/19520392/Expanding%20Application%20of%20Peak%20Hour%20Forecasts%202.25.2021%20ICAPWG%20FINAL.pdf/800c1e4b-6169-7e31-3647-ad417a236221

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2021 Approved Market Project

- The 2021 Expanding Application of Peak Hour Forecasts project deliverable is a Q3 Market Design Concept Proposal (MDCP).
- 2021 Project Schedule Milestone Update
- 2021 Approved Market Projects Product and Project Management
  - See description for Project 7 (Page 10 of 26)*

*Note that the project is referred to as “Expanding Peak Hour Forecasts” in the project candidate descriptions.

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Background

- **Revisions to the ICAP load forecast or Installed Reserve Margin (IRM) processes are not under consideration as part of this project.**
- **The NYISO and its stakeholders will consider providing additional information to the Transmission Owners (TOs) and Load Serving Entities (LSEs) as part of Expanding Application of Peak Hour Forecasts.**
  - First, identifying more peak load hours (*e.g.*, the top 3 peak load hours in the year) is under consideration.
  - Second, whether the load considered for these hours should have additional production added back before identifying peak hours, after identifying peak hours, or not at all is under consideration.

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Identifying Peak Load Hours

Identifying more Peak Load Hours

- **The NYISO could provide peak load hour data for more hours than the single hour that is identified today.**
  - The purpose of this would be to allow the TOs to incorporate this information when they allocate load obligations to the LSEs for the capacity market.
    - Currently, the TOs allocate load obligations based on the single peak load hour identified by the NYISO.
- **Any benefit(s) from providing additional peak load hours would have to be weighed against the feasibility and usefulness of providing this data.**
  - As more peak load hours are considered, the characteristics of a peak load hour can be lost.
  - Additionally, many peak load hours may occur during the same peak load day.

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Reconstituting Load

- **Today, production from ICAP resources that are not visible to the NYISO in Real Time is added back into the peak load hour (i.e., "reconstituted") as part of the NYISO's ICAP load forecast process.**
  - The load could be reconstituted in a similar manner before or after identifying the peak load hours for the TOs.
  - Providing this information to the TOs would not change the NYISO's ICAP load forecast, which reconstitutes the load *after* the peak load hour is identified.
- **The NYISO could:**
  - Identify the peak load hours for the TOs and provide them this data without reconstituting the load.
  - Reconstitute the load, then identify the peak load hours for the TOs.
  - Identify the peak load hours, then reconstitute the load and provide this information to the TOs.

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Identification of Peak Load Hours*

- The purpose of the following example is to consider how reconstituting load before identifying the peak load hours could change which hours are identified.
- Consider the following original load and reconstituted load values.
  - These values are sorted from the highest original load to the lowest.

Peak Hour(s)	Load	Non-Metered ICAP Suppliers	Reconstituted Load
1	31,140	232	31,372
2	31,060	133	31,193
3	31,010	778	31,788
4	30,975	167	31,142
5	30,940	240	31,180

- Sorting instead by the reconstituted load shows that the order of the peak hours has changed.
  - Furthermore, if reconstituted load is used, then load outside of the top five load hours may become part of the top five load hours by displacing other load hours that were formerly in the top five.

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*These examples are for illustrative purposes only.

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Future Analysis

Future Analysis

- **The NYISO is planning to provide a load duration curve to stakeholders in order to identify the appropriate number of peak load hours.**
  - Top load hours as a percentage of the ICAP Peak Load Forecast for the same capability year could be identified for this analysis.

- **The NYISO is interested in stakeholder feedback on this and other analyses that could be conducted.**

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Next Steps

Timeline

- **Q2 2021**
  - Continue stakeholder discussions.
- **Q3 2021**
  - Continue stakeholder discussions.
  - Present MDCP at BIC.

Appendix I: Peak Hour Forecast Process

Peak Load Date and Hour

- **Each September, NYISO identifies the NYCA peak load date and hour for the current capability year (for example, this September 2021, the NYISO will provide this information for the 2021 Capability Year).**
  - The locality non-coincident peak load dates and hours are also identified.
  - The TOs report meter data for these peak load hours to the NYISO.
    - The data is submitted to the NYISO in multiple data files, and compiled by the NYISO in a single file.
  - TO load data is then compared to NYISO Decision Support System (DSS) data, to ensure that the actual loads match within a 1% tolerance.

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Net Load vs. Gross Load

- **The peak hour load received from the TOs is net of certain production.**
  - Demand reductions during the peak load hour from all Special Case Resources (SCRs), which are Demand Response (DR) resources participating in the Capacity Market, are added back into the peak hour load.
    - The TOs choose whether their own load reduction programs that do not overlap with SCRs should be added back into the load.
  - Specific municipal generating units that participate in the NYISO Capacity Market are also added back into the load.
  - There is currently no adjustment to add back generation from resources not participating in the wholesale markets.
    - For example, there is no adjustment to the load for rooftop solar outside of the wholesale markets.

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Weather Normalized Load

- **The TOs and the NYISO each weather normalize the peak load hour data.**
  - Models are developed by the NYISO and reviewed by the LFTF to weather normalize the data. Examples from 2020 include:
    - Single year model for the current year
    - Pool model including the current year and selected previous years.
  - The TO weather normalized load data is accepted if either:
    - The TO and NYISO adjusted loads are within 25% of each other, OR
    - The TO and NYISO weather normalized loads are within 1% of each other

Example Data*	NYISO	TO
Peak Hour Load	32,000	32,100
Weather Normalized Load	33,000	33,250
Adjusted Load	1,000	1,150

Must be within 25%

Must be within 1%

- **The ratio of coincident to non-coincident peak load is calculated in order to weather-adjust the peak load for each locality.**
- **A regional load growth factor is applied to the weather adjusted load, and this becomes the forecasted peak load**

*Data in this table is for example purposes only

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ICAP Forecast

- **The forecasted peak load is communicated to the ICAP marketplace.**
- **The forecasted peak load is assigned to each TO.**
  - Each TO then assigns the forecasted peak load MW to each LSE.
- **These assigned peak load values are converted to ICAP MW, and then to UCAP values.**
  - These UCAP values become purchase requirements for each LSE.

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Our mission, in collaboration with our stakeholders, is to serve the public interest and provide benefit to consumers by:

- Maintaining and enhancing regional reliability
- Operating open, fair and competitive wholesale electricity markets
- Planning the power system for the future
- Providing factual information to policymakers, stakeholders and investors in the power system

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