



Report on
CURRENT MARKET INITIATIVES RELEVANT TO RELIABILITY

January 10, 2019

The guiding principle for development of market rules at the NYISO is that Markets are consistent with and reinforce Reliability rules. The following current market design activities provide opportunities for application of this principle and may be of interest to the NYSRC.

1) Market Assessment for Accommodating Public Policy

The NYISO will assess the impacts of de-carbonization goals on the current NYISO energy and capacity markets from the high penetration of low carbon or carbon-free resources and consider whether new market products or changes to the existing market structure will be necessary to meet the anticipated reliability needs.

Key areas for consideration:

- a) Understanding the additional resource flexibility that will be necessary to balance the intermittent nature of weather dependent resources;
- b) Modeling intermittent resources in IRM and long term planning studies;
- c) Ensuring resources are responsive to operational instructions.

Update: The NYISO is considering a broad spectrum of market product and structural enhancements that may be necessary to incent market participants to meet the reliability needs anticipated with the Climate Leadership and Community Protection Act (CLCPA). The CLCPA includes 70% renewable generation by 2030 and carbon neutral electricity by 2040, 6000MWs of solar by 2025, 3000MWs of energy storage by 2030, 9000MWs of offshore wind by 2035, and 185 trillion BTU electricity reduction through energy efficiency. The NYISO has completed its simulation of potential market conditions and initiated discussions on possible reforms with stakeholders. Based upon these discussions, and input from the stakeholders, the NYISO has identified a series of initiatives to continue pursuing in 2020, including: Reserve Procurement for Flexibility, Ancillary Shortage Pricing, and Tailored Availability Metric. The NYISO is continuing efforts to define expectations for external resource deliverability and eligibility obligations. The NYISO has produced a whitepaper on “Reliability and Market Considerations for a Grid in Transition,” which identifies the needs for additional resource flexibility and responsiveness to balance the output from large penetrations of weather dependent resources. The paper provides a starting point for the discussions over how competitive markets must evolve in order to continue to provide reliable, economically efficient electricity to all New Yorkers as the resource fleet transitions to new cleaner energy technologies. The NYISO released the updated paper on December 20, 2019, incorporating feedback received from stakeholders, and additional thinking and analysis on reliability considerations and the need for market advancements.

Three specific projects in this area is included in the NYISO 2020 Project Plan.

Ancillary Services Shortage Pricing: The relative value of the NYISO's ancillary service shortage prices will be assessed in a 2019 study. The study will determine whether potential changes to the current shortage pricing mechanisms intended to strengthen incentives for flexibility, reliability and resilience in light of the grid in transition should be pursued. Depending on the results of the study, potential market design enhancements will need to appropriately consider the interactions between Operating Reserves, Regulation Service, and transmission shortage cost pricing levels.

Reserves for Resource Flexibility: As load forecast uncertainty increases, it will become more important to ensure that adequate load following capability is available to instantaneously balance load and generation. The NYISO currently procures the minimum amount of operating reserve required to meet applicable reliability requirements. With this project, the NYISO proposes to examine the potential to increase the amount of reserves procured, thus incentivizing resource availability and flexibility to support grid reliability and improve grid resilience.

Tailored Availability Metric: The Tailored Availability Metric project looks to align the availability and performance of capacity suppliers with reliability needs of the system by incentivizing resources to be available and perform during critical operating periods. Analysis for this project will reassess the current metrics of the de-rating factors of all capacity resources in order to more accurately reflect performance or availability.

2) Distributed Energy Resources

To ensure NYISO markets are capable of integrating Distributed Energy Resources (DERs) in greater numbers and to provide clarity as to how they can realize value for their services, NYISO staff has engaged Market Participants in the development of a DER program.

Key areas for consideration:

- a) Managing the volume of resources interacting with the NYISO;
- b) Modeling distributed resources in IRM and long term planning studies;
- c) Evaluating limited duration resources ability to satisfy resource adequacy needs;
- d) Capturing the impact of behind the meter resources in Load Forecasting and other system models;
- e) Ensuring resources are responsive to operational instructions.
- f) Establishing requirements and expectations in the NYISO wholesale markets for resources that wish to simultaneously participate in retail market programs.

Update: The NYISO and stakeholders are engaged in the development of a DER Participation Model to support resource integration into the wholesale markets. NYISO and GE have developed an analytical assessment, based on the 2018 IRM base case, of the capacity value of resources with energy limitations. The model design is guided by the objective to encourage aggregation of smaller assets into qualified wholesale market participants, to manage the volume of resources scheduled and managed by the NYISO, and the development of requirements for sufficient measurement and verification protocols to enforce resource performance obligations. Stakeholders approved the market design in April and NYISO submitted its filing to FERC at the end of June.

3) Energy Storage Resources

As the grid evolves, Energy Storage Resources (ESRs) contribution to maintaining a reliable and cost effective grid is expected to grow. ESRs such as pumped hydroelectric generators, flywheels, and batteries can supply electricity to the grid to meet demand, and can withdraw electricity from the grid to alleviate excess supply. ESRs can promote more reliable and efficient operation of the electric grid, particularly when paired with intermittent renewable generation. The NYISO is currently engaged in developing a new market design concept that reflects ESR technological advancements and policy development to allow wholesale grid operators and ESR managers to take better advantage of ESR capabilities.

Key areas for consideration:

- a) Evaluating limited duration resources ability to satisfy resource adequacy needs;
- b) Modeling storage in IRM and long term planning studies;
- c) Fulfilling reserve schedule obligations and maintaining resource flexibility to meet dynamic real-time operating conditions.

Update: On February 15, 2018, the FERC issued Order No. 841, designed to facilitate greater participation by electric storage resources in organized wholesale electric markets. NYISO and stakeholders engaged in the development of an ESR participation model and filed tariff revisions on December 3, 2018. The rules will require telemetry of resources state-of-charge to allow the NYISO to effectively monitor the resources performance and align the scheduling decisions with the resources physical capabilities to respond. [FERC issued an order on December 20, 2019. Based on the recent FERC order,](#) the NYISO [continues to plan to](#) implement the ESR participation model by September 2020.

4) Demand Curve Reset

This periodic review of the ICAP Demand Curves, for use in May 2021 through August 2025, seeks to ensure that the capacity market continues to efficiently support reliability and send accurate, transparent price signals. Every four years, the NYISO, along with its stakeholder community, conducts a comprehensive review to determine the parameters used in establishing the Installed Capacity (ICAP) Demand Curves. This process is referred to as the demand curve reset (DCR). As required by the tariff, the study includes an examination of potential peaking unit technologies and the financial parameters assumed in the construction and operation of that unit, along with an estimate of the projected net revenue earned in the Energy and Ancillary Service markets, to determine unit with the “lowest fixed costs and highest variable costs among all other units’ technology that are economically viable” that serves in establishing values for each of the ICAP Demand Curves. The quadrennial DCR is mandated by the NYISO’s tariff. The DCR is a resource intensive process for both the NYISO and stakeholders that has a significant impact on the market as a whole.

Key areas for consideration:

- a) Choice of the Cost of New Entry (CONE) unit which determines the economic choice for capacity additions
- b) Consideration of renewable and/or storage technologies as a viable CONE unit
- c) Fuel, siting and permitting considerations in choosing the CONE unit

Update: The DCR update process started in September 2019. The review is performed by engaging an independent consultant to lead the DCR process. The Analysis Group was the chosen Consultant through a competitive bidding process. In addition to providing recommendations for the parameters and assumptions used in establishing the ICAP Demand

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Curves, the consultant's efforts include evaluating the shape, slope and zero crossing point for each ICAP Demand Curve. The 2020 objectives and deliverables for this project include a report by the DCR consultant and the NYISO recommendations addressing the ICAP Demand Curves for the 2021/2022 Capability Year, as well as the parameters and assumptions to be used in conducting the subsequent annual updates to derive the ICAP Demand Curves for the 2022/2023, 2023/2024, and 2024/2025 Capability Years. The process culminates in a filing on or before November 30, 2020 of the proposed curves for the first year of the reset period (i.e., the 2021/2022 Capability Year), along with the assumptions and methodology to be used to set demand curves for the subsequent three Capability Years of the reset period (i.e., the 2022/2023, 2023/2024 and 2024/2025 Capability Years).