

June 28, 2024

VIA EMAIL

To: New York Independent System Operator, Inc.
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10 Krey Boulevard
Rensselaer, NY 12144

Analysis Group
ATTN: Mr. Paul Hibbard
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Re: Comments on the Analysis Group 2025-2029 Demand Curve Reset Draft Report

Dear Colleagues,

Luminary Energy is providing these comments based on its founder's experience with New York's wholesale electricity market design and in support of its client, Hydrostor¹. Hydrostor is a leading global developer and operator of long-duration energy storage systems, specializing in delivering Advanced Compressed Air Energy Storage (A-CAES) long-duration energy storage resource of 8 hours or more to reliably power grids worldwide.

The 2025-2029 Demand Curve Reset process has been challenging since the request for proposals was drafted in early 2023. Many factors including "technological uncertainties, geopolitical issues, supply chain constraints, and volatile macroeconomic uncertainties are impacting the pace of investment in New York."² Therefore, it is more important than ever that the

¹ <https://hydrostor.ca/>

² June 10, 2024, NYISO, *Topic Background Information from the Annual Board of Directors & Management Committee Meeting*

NYISO-administered wholesale market continue to provide adequate incentives to attract and retain the necessary resources to maintain reliable grid operations.

Selection of a 2-hour BESS must be Re-evaluated

Luminary Energy is concerned with selecting a 2-hour battery energy storage system (BESS) for the reasons below. Luminary Energy recommends that the NYISO and the independent consultant, Analysis Group, consider no less than a 4-hour BESS or the simple cycle gas turbine (SCGT) as the proxy unit technology that is practicably constructible and capable of supporting grid operations.

The selection of proxy technology has been based on technology that is practicably constructible and meets the reliability needs of the New York Control Area as the power system resource supply reaches levels near or at the level of excess (LOE). At LOE conditions, the system resource supply exceeds demand by the size of the proxy technology project (400 MWs if a SCGT is selected, and 200 MW if a BESS is selected).

These are very tight conditions for a power system and a 2-hour BESS would not be able to mitigate the reliability risks and needs outlined by the NYISO's Comprehensive Reliability Planning processes, including the Q2 2023 Short Term Assessment of Reliability (STAR) and Reliability Needs Assessment studies. A 2-hour BESS would not provide sufficient energy optionality for grid operators to manage volatile and uncertain real-time conditions and presents a high risk to grid operators of depleting the energy from the asset before the most critical system conditions present themselves.

Although the wholesale market must provide non-discriminatory access to all technologies, the wholesale market design and underlying assumptions must work together to provide the necessary resource incentives to support a fleet of resources that allows the grid operator to meet all power system conditions reliably. This includes attracting and retaining adequate levels of capacity to meet resource adequacy with a fleet of resources that grid operators can depend on under the most stressful system conditions that increasingly include both supply and net load uncertainty caused by behind-the-meter solar, self-dispatched behind-the-meter resources for customer resiliency and manage growing electric retail rates, and large scale renewable deployments.

A 2-hour BESS energy capability is inconsistent with the SCGT requirement to have 96 hours of backup fuel to meet 16 hours of runtime per day for 6 days during a cold snap.

A 2-hour BESS technology is also inconsistent with New York State’s acknowledgment in their Energy Storage roadmap and recent New York State Public Service Commission order on establishing an updated energy storage goal and deployment policy which states³:

“The most valuable attribute for energy storage resources on the electric system is the ability to quickly provide energy to the grid when needed, including for periods over multiple hours. The Roadmap’s analysis indicates that over 4 GWs of 8-hour storage will be needed by 2035, with 70 percent of this sited in New York City and Long Island.”

Net Energy and Ancillary Service Dispatch Logic for BESS must be Updated

The Net Energy and Ancillary Service revenue modeling for BESS resources appears to be flawed based on statements in the report. Specifically, BESS Net Energy and Ancillary Service revenues could be overstated due to a flaw in the Day-Ahead Market (DAM) logic second step. The second step assumes that a BESS operator would have perfect foresight of day 2 prices in order to optimize the energy level of the BESS in day 1 and day 2. However, the sequential daily aspect of the NYISO’s Day-Ahead Market does not work this way and wrong guesses on future DAM prices would create opportunities to make or lose more revenue. This is particularly acute with a resource that only has 2 hours of energy where a wrong guess could greatly diminish its Net Energy and Ancillary Service revenues. Luminary Energy recommends that the logic be revised to align the Net Energy and Ancillary Service dispatch logic with the actual Day-Ahead Market operation.

Conclusion

It is strongly recommended that the NYISO and Analysis Group abandon the 2-hour BESS selection and select a proxy technology with duration capabilities long enough to positively support grid reliability and enable the wholesale market to incent technologies consistent with these grid reliability needs. Additionally, Analysis Group must revise the Day-Ahead Market dispatch logic used for BESS resources within its Net Energy and Ancillary Service revenue modeling.

³ June 20, 2024, New York State Public Service Commission, *Order Establishing Updated Energy Storage Goal and Deployment Policy*, pg. 30.



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Hydrostor and Luminary Energy look forward to continuing to work with the Analysis Group and the NYISO on developing a robust recommendation for the 2025-2029 Demand Curve Reset process. Please do not hesitate to reach out with any questions.

Best Regards,

Michael DeSocio

Michael DeSocio

Founder and CEO, Luminary Energy, LLC
Former Director of Market Design, NYISO