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Via E-mail

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Re: 2024 Demand Curve Reset Period (DCRP) Process
Net E&AS Model Deficiencies and Need to Revise 2-Hour BESS Net CONE

Gentlemen:

Given the Net E&AS model was published one day before the comment due date, Independent Power Producers of New York, Inc. (“IPPNY”) submits the following Supplemental Comments on the *Independent Consultant Study to Establish New York ICAP Demand Curve Parameters for the 2025/2026 through 2028/2029 Capability Years – Initial Draft Report* (the “Draft Report”) prepared by Analysis Group Inc. (“AG”) and 1898 and Co. (“1898” and collectively, the “Consultants”) for the instant Demand Curve Reset (“DCR”) process to identify deficiencies therein.¹ These comments focus on the 2-hour BESS Day Ahead Net Energy and Ancillary Services model (“DAM BESS Net E&AS Model”) and the Real Time Dispatch (RTD) interval real time model (“RTD BESS Net E&AS Model” and, collectively with DAM BESS Net

¹ IPPNY reserved the right to supplement its initial comments to address this model once a meaningful review could be undertaken and provides these Supplemental Comments at this time to ensure there is adequate time for the errors identified herein to be corrected.

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E&AS Model, “Net E&AS modeling”).² The hourly real time market model has significantly more deficiencies, and presumably the NYISO will not switch to using it now that the specifications for the RTD BESS Net E&AS Model have been developed in detail.³ Given the limited time afforded for evaluation, our analysis is limited to the New York City market results but, importantly, the issues identified herein pervade across all Localities. The concerns also apply to the BESS with other durations, but they may not be as significant for longer duration BESS.

As IPPNY has established, the 2-hour BESS does not meet the tariff requirements to be designated a proxy unit in any capacity Locality. If arguendo, however, the NYISO nevertheless continues to allow its consideration, the NYISO must, at a minimum, direct the consultants to correct the various inputs and assumptions previously identified, as well as the Net E&AS modeling errors identified in these supplemental comments, and accurately reflect the 2-hour BESS Net CONE. Only then can the NYISO compare the technologies under review in this DCRP process and accurately determine which technology must be selected to be the proxy unit in each Locality. Some issues identified herein are highly technical. IPPNY will thus make the analysts who worked on this evaluation available to the NYISO and Analysis Group if further explanation would be helpful.

IPPNY initially notes that for the Net E&AS modeling estimates the 2-hour BESS in New York City provides reserves 95.15% of the time in the RTM and has 200 MW or more of reserves 94.89% of the time during the 3-year period modeled. Whether the model results produce outcomes a BESS could reasonably replicate must be analyzed given these estimated

² In the working group meetings, the RTD model was referred to as the 5-minute model. We refer herein to it as the RTD BESS Net E&AS Model to accurately reflect the fact that 5 minutes is the normal interval of an RTD dispatch but there are instances, such as during an RTD – Corrective Action Mode dispatch that the interval is less than 5 minutes.

³ In general, the hourly model has the same errors we have identified for the RTD BESS Net E&AS Model but additionally sets the real-time schedule based upon perfect foresight of real time prices. Several of the errors we have identified for the RTD BESS Net E&AS model have more significant impacts with the hourly model than the RTD model errors because they incorrectly establish estimates for an entire hour rather than a single RTD cycle.

obligations, especially the obligation that the unit would be a reserve provider during virtually all hours.

The modeling issues below are divided into three categories and presented by severity of their impact: a) Most Impactful; b) Impactful; and c) Errors that should be fixed for model precision. While IPPNY advocates that all be fixed, given the timing, the first issues must, at a minimum, be corrected.

a. Most Impactful

i. Large Event Reserve Pickup Obligation

As noted above, the Net E&AS model schedules the 2-hour BESS to be a reserve provider more than 95% of all hours. However, the model wholly fails to address the obligation of a reserve provider to respond to reserve pickup events, and thus, effectively assigns the BESS all the economic rewards of being a reserve provider without accounting for any of its associated performance obligations.

The model should be revised to track reserve pickups and halt BESS charges and discharges consistent with its reserve obligations. Specifically, the model should enforce the fact that the unit must provide energy during the duration of reserve pickups as designated by the start and end times provided in the monthly operations report to the Systems Operation and Advisory Subcommittee. Relatedly, the model results must necessarily reflect the cost of including the 2-hour BESS' obligation to buy out of its DAM schedules when required during reserve pick-up and subsequent periods.

ii. Energy Level Availability Must Be Tracked and Must Be Captured in Unit UCAP Ratings

The NYISO energy storage rules require BESS and other storage resources to manage their energy levels to ensure that the unit can meet its DAM obligations in the real time Peak Load Window hours. Failure to do so results in a derate of the unit's UCAP rating. The RTD BESS Net E&AS Model has numerous instances where the scheduled BESS fails to meet its

Peak Load Window obligation. The unit's UCAP derates must be captured to accurately select the Proxy Unit and set the resultant UCAP demand curve. If a BESS unit is chosen as the Proxy Unit, its UCAP rating also must be updated in the Annual Updates to the Demand Curve.

iii. Step 2 of the BESS DAM Net E&AS Model Misrepresents the Capability of the NYISO DAM Software

As IPPNY addressed in its initial comments, the BESS DAM Net E&AS model operates in two steps. The first step is mostly consistent with how the NYISO's Day Ahead Security Constrained Unit Commitment ("SCUC") software would set the DAM schedule.⁴ However, the BESS DAM Net E&AS model then includes a second step that revises the DAM schedule to determine the most profitable operation based upon perfect knowledge of the DAM prices two days ahead.

The DAM software does not produce these prices for the day after the DAM commitment day (Day 2) and the nonexistent prices are not used in any way to set schedules for the DAM commitment day (Day 1). The ability of a BESS owner to optimize its Day 1 DAM commitment based on perfect knowledge of Day 2 DAM prices is thus complete fiction and must be rectified.

b. Impactful

i. End of Period Charge as the Basis for Schedules

In most cases, the BESS DAM Net E&AS Model uses the beginning of period charge as the basis for determining the schedules the 2-hour BESS can meet. For example, if it has 100 MW energy stored and is withdrawing 200 MW, it can either sell 100 MW in energy or 300 MW in reserves (100 from injection and 200 MW from ceasing to charge). However, in a limited number of intervals, the schedules have been set based on the end of period energy level.

⁴ Step 1 of the BESS DAM Net E&AS Model also deviates from the NYISO modeling by scheduling the unit based on a 10 PM to 10 PM day rather than from midnight to midnight as addressed below.

While only significant when the unit is charging, it results in the unit getting schedules that it cannot physically meet.

For example, at times at the beginning of the period (e.g. beginning of the hour in the DAM schedule), the unit has 170 MW of energy stored and is withdrawing 35 MW. The model gives the unit a 235 MW reserve schedule. However, the unit can only meet a 205 MW reserve schedule (inject 170 MW and cease to withdraw 35 MW).

This same flaw is also manifested occasionally in the BESS RTD Net E&AS Model. For example, a 0 MW starting energy level plus a 200 MW withdrawal is assigned revenues for selling 214 MW of reserves because at the end of the interval the 200 MW of withdrawal would have charged the battery by 14 MWh. Adding to the severity of the error, the same treatment understates the need to buy back DAM positions.

The models must thus be revised to ensure schedules are based on the beginning of period energy level in all instances.

ii. Inaccurate Representation of the Day Ahead Timeline

The DAM BESS DAM Net E&AS Model sets the DAM schedule based on an evaluation of the period from 10 PM to 10 PM. However, the NYISO DAM operates from midnight to midnight. Correction is required to accurately reflect BESS bidding requirements, SCUC capability and DAM performance.

c. Modeling Precision

i. Daylight Savings Time Treatment

The model is not correctly accounting for daylight savings time (“DST”) changes. For example, in the RTD Net E&AS Model, the interval during the changeover from DST to Standard Time (“ST”) results in a negative interval length and the spring changeover from ST to DST results in an interval exceeding one hour.

ii. Target Storage Level at the End of the Day

The model targets a 200 MWh state of charge at the end of the day. However, in some cases, the model is allowing the units' energy withdrawal schedule to exceed the 200 MW injection limit for the unit.

As noted above, IPPNY remains available to provide further information or clarification and is committed to engaging its members to support such efforts. Thank you for your ongoing consideration of these issues.

Respectfully submitted,

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