New York Battery and Energy Storage Technology Consortium, Inc.

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Ms. Debbie Eckels
BIC Liaison
New York Independent System Operator
10 Krey Boulevard, Rensselaer, NY 12144

(Submitted electronically)

NY-BEST comments on NYISO Reliability and Market Considerations for a Grid in Transition Whitepaper

Dear Ms. Eckels:

The New York Battery and Energy Storage Technology Consortium ("NY-BEST") respectfully submits these comments on the *NYISO Reliability and Market Considerations for a Grid in Transition Whitepaper* (Whitepaper*).*

Background

The New York Battery and Energy Storage Technology Consortium ("NY-BEST") is a not-for profit industry trade association that serves as a voice of the energy storage industry for more than 180 member organizations on matters related to advanced batteries and energy storage technologies. Our membership covers the full span of activities related to research, development, production and deployment of energy storage devices, and currently includes: battery manufacturers, technology developers, global industry corporations, project developers, project integrators, engineering firms, law firms, leading research institutions and universities, national labs and numerous companies involved in the electricity and transportation sectors.

General Comments on Whitepaper – NYISO's Grid in Transition Work Should Analyze and Plan for Future Grid Needs

NY-BEST commends NYISO for its efforts in initiating a process for evolving NYISO's markets and operations to reflect an ever increasingly renewable and ultimately decarbonized power sector. We

greatly appreciate NYISO's recognition of its instrumental role in achieving the State's climate and clean energy goals while maintaining reliability and for involving stakeholders in this important process.

As NYISO is likely aware, since the Whitepaper was released in May 2019, the New York State Legislature passed ground-breaking legislation, which Governor Cuomo is expected to sign, to enact the "New York State Climate Leadership and Community Protection Act,"[1] a comprehensive bill codifying the State's aggressive greenhouse gas reduction and clean energy goals. The legislation specifically:

- establishes statewide greenhouse gas reduction goals to achieve net zero greenhouse gas emissions economy-wide by 2050; 85% below 1990 levels by 2050 (with remaining 15% percent from offsets); 40% reduction by 2030;
- codifies the requirement to deploy 3 GW of energy storage capacity on the electric grid by 2030; 6 GW of distributed solar by 2025 and 9 GW of off-shore wind by 2035; and
- requires the Public Service Commission to establish new Statewide renewable energy targets of 70 percent renewable energy by 2030 and zero emissions by 2040.

Although the Whitepaper references many of Governor Cuomo's clean energy goals, once the bill is signed, these goals will no longer be aspirational policy and regulatory objectives but rather, embodied in statute and as such, it will be even more imperative for NYISO's Grid in Transition efforts to ensure alignment with these requirements.

To that end, NY-BEST recommends that the NYISO's Grid in Transition efforts focus first on assessing what the needs of the future grid will be in 2030 and work backwards from there. By keeping that future state as the central focus of this work, we can collectively identify the challenges and needs the grid will face and then begin to develop solutions and take appropriate actions to address these challenges. If NYISO chooses instead to focus on a shorter-term horizon and select pre-determined market approaches to the Grid in Transition effort, it risks choosing the wrong approach which could lead us far astray from achieving the mandated greenhouse gas reductions and clean energy goals, as well as create avoidable costs.

We believe two of the central questions to the Grid in Transition effort are:

1) How will the market function when high variable cost assets, upon which the current market is based, become a small portion of the generation mix and are eliminated entirely; and
2) How will resource adequacy be conducted and assured?

While the Whitepaper begins to identify some of the issues associated with these questions, there are still several gaps and it ultimately stops short of taking on these core questions—choosing instead to take a shorter-term focus.

[1] NYS Legislature S.6599/A.8429

As a case in point, the Whitepaper focuses heavily on the assumption that the State must continue to rely on combined cycle generation in a high renewables scenario and then proposes mechanisms to support this assumption. We recommend that the NYISO instead focus this effort on closely analyzing the specific needs that will likely be present in a high renewables scenario, i.e., duration requirements, response times, flexibility, etc., and then identify the technologies, solutions and market products that could fill these needs, recognizing that ultimately it should be the role of developers and investors to identify and deploy the most beneficial technology choices in response to market price signals.

Additional Analysis and Reforms are Needed in Determining Resource Adequacy

NY-BEST urges NYISO to explore additional reforms beyond those discussed in the Whitepaper in relation to determining resource adequacy. Traditional measures of resource adequacy may not be appropriate or sufficient for a high renewable and/or a carbon-free grid. For example, loss-of-load risks will be different from those of our current grid. In the future, there may be less risk of the complete loss of single generation facilities and greater risk of the rapid collective reduction in the output of a group of generators. Also, the traditional process of using an Installed Reserve Margin (IRM), that is based on hourly granularity to drive capacity requirements with very slow response time requirements, will likely not be the most effective means of ensuring resource adequacy for a high renewable grid. We encourage NYISO to consider reforming the process for determining resource adequacy, including:

1. Incorporating sub-hourly modeling
2. Updating the load curves used (presently NYISO uses 2002, 2006 and 2007)
3. Utilizing more effective means of including weather uncertainty (see NY-BEST-Astrape report on ELR Capacity Values[2])
4. Incorporate the value of rapid response time as part of resource adequacy. Current capacity assets may take many hours to start and ramp up, and thus limit their effective capacity value in a high renewable grid scenario.
5. Update the evaluation of risks to be modeled. NYISO current modeling runs Monte Carlo simulations of complete loss of specific assets. We recommend reforms that consider collective reductions in asset classes in geographic sub-regions of the state.

Energy and Ancillary Services Need to be Strengthened and Improved

NY-BEST agrees that an increased focus on strengthening the energy and ancillary services markets is essential to enabling the renewable grid of the future. Ancillary services, currently a small part of the overall revenue landscape, will likely need to become far more substantial to support security and reliability in a high renewable future. For example, products that value flexibility and fast

[2] NY-BEST-Astrape Report on ELR Capacity Values https://www.ny-best.org/page/study-finds-valuable-role-energy-storage-and-demand-response-providing-reliability-new-york%E2%80%99s

responding resources will need to be strengthened and/or new products created to ensure that these values are properly and adequately monetized. Similarly, in a high renewable grid, energy will likely need to be valued at a sub-hourly increment. We also agree with NYISO that scarcity pricing can be an effective market signal, but this needs to be considered along with market mitigation reforms or it will not be effective.

Importantly, we urge NYISO to conduct a more in-depth evaluation of the functionality of the energy and ancillary markets in a high renewable or carbon free environment. The energy market relies on differential variable costs, with some significantly higher variable cost assets, to have efficient price formation in the market. This same market will likely not function efficiently when most or all of the market participants have very low marginal cost.

A Comprehensive Review and Overhaul of Market Mitigation is Needed and Near-Term Buyer-Side Mitigation Reforms are Imperative

NY-BEST strongly recommends a comprehensive review and overhaul of mitigation rules considering their near-term effects that could severely impede progress in achieving the State's climate and clean energy requirements, as well as to ensure the effectiveness of a future high-renewable future grid.

In the near term, the Buyer-Side Mitigation Rules should be fundamentally reformed to ensure that they align with the State's clean energy mandates and do not work in contravention of these requirements. NYISO must make the BSM process as transparent, straightforward, and expeditious as possible for project owners. Energy storage project owners and developers currently face a great deal of uncertainty in understanding how the Buyer-Side Mitigation test will be applied to projects currently in development and this is dampening the markets for these assets that are vital to the grid's future and to achieving the aggressive reductions in greenhouse gas emissions from the power sector.

To address this, NY-BEST encourages NYISO to explore the potential of creating a Part A Test "Blanket" Exemption for energy storage**.** NY-BEST believes a blanket exemption for storage through at least 2025 may be appropriate given the analysis of the NYISO Market Monitor. In the 2018 (issued in May 2019) Market Monitors Report ("MMU Report"), the MMU states "the current BSM rules provide a viable pathway for these resources (Energy Storage Resources – "ESR") to be exempt from mitigation, which is known as the "Part A Test."[3] The MMU goes on to lay out an analysis using "a realistic set of assumptions" that illustrates a very important point. It shows that new state-subsidized resources can avoid mitigation as long as existing resources retire in sufficient quantities to maintain a surplus capacity level less than approximately 600 MW in New York City.[4] These

[3] 2018 MMU Report, page 70
[4] 2018 MMU Report, page 73

retirement assumptions will essentially become mandated outcomes as they are driven by pending DEC NOx rules, state greenhouse gas emissions limitations and the planned retirement of Indian Point in 2020/2021. While this analysis is helpful for illustrating that ESR projects should based upon "realistic assumptions" pass BSM it is not a "predictable" or controllable window of BSM exemption for ESR developers. However, given that the NYISO MMU projects this as an expected outcome, NYISO should remove unnecessary and costly uncertainty from the storage market by granting a blanket exemption for storage projects through at least 2025 (and perhaps longer depending upon the timing of NYISO queue processes.)

NY-BEST proposes that NYISO explore establishing a BSM waiver for a specific amount of MWs of CRIS-eligible ESRs that will come online between 2020 and 2025, "up to" the MWs that the MMU illustrates as "likely to be exempt." The amount of exempt energy storage MWs could be determined, for example, after considering the amount of ICAP MWs impacted by the NOX rules, the Indian Point retirements, and the MWs that the MMU states may be needed for reliability.

Additional near-term measures NYISO should consider relate to the treatment of ESRs under 2 MW. As noted in Order 841, NY-BEST strongly objects to BSM being applied to resources that are < 2 MW. Should FERC agree with NYISO to apply BSM to these resources, we urge NYISO and the MMU to publicly recognize distribution-level programs in New York as legitimate sources of revenue and reduce the offer floor for energy storage accordingly. These programs include the Distribution Load Relief and Commercial System Relief programs, non-wholesale revenues provided through VDER, and Non-Wires Solutions. Similar to FERC's decision in New York State Public Service Commission, et al., 158 FERC ¶ 61,137, at ¶ 33 (2017), these programs are for incremental services to those provided in the wholesale market. This should hold true for resources greater than 2 MW as well as participating in distribution-level programs.

To address market mitigation in the future renewable grid, NY-BEST recommends a fresh look at market mitigation rules more generally. Existing NYISO markets have been built around assets that have high, quantifiable, variable costs and for a system with predictable non-responsive load and a limited number of large suppliers. Mitigation mechanisms that historically have worked in that type of market may not be effective for assets with low marginal costs, responsive loads and large numbers of suppliers. Notably, NYISO's proposal for energy scarcity pricing will not be effective without first reforming market mitigation rules. For these reasons, NY-BEST urges a comprehensive review and overhaul of NYISO's market mitigation rules.

Additional Recommendations

As part of this effort, we recommend NYISO create new market mechanisms to allow hybrid resources (e.g., solar and storage; wind and storage) to participate as a single asset in the NYISO market, rather than as separate assets, and qualify them as renewable resources. Hybrid solutions provide a dispatchable resource, increasing the asset's flexibility and responsiveness and its effectiveness in addressing challenges present in a high renewables grid. Accordingly, a hybrid

solution, such as wind+storage, acting as a single dispatchable resource will provide a very different capacity value than if it was treated solely as a renewable wind resource.

Similarly, we urge NYISO to incorporate additional analysis in the areas of DER aggregation, beneficial electrification of transportation, demand response and load following resources and their respective roles in addressing the challenges of a high renewable grid future.

Thank you for the opportunity to submit these comments. We look forward to continuing to work with NYISO on these improtant initiatives in the weeks and months ahead.

Respectfully Submitted,

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