

November 8, 2019

Hon. Michelle L. Phillips
Secretary to the Commission
New York State Public Service Commission
Three Empire State Plaza
Albany, New York 12223-1350

RE: Case 19-E-0530 – Proceeding on Motion of the Commission to Consider Resource Adequacy Matters

Dear Secretary Phillips:

Pursuant to the August 8, 2019 Order Instituting Proceeding and Soliciting Comments, the U.S. Energy Storage Association (“ESA”) respectfully submits these comments.

ESA is the national trade association dedicated to energy storage, working toward a more resilient, efficient, sustainable and affordable electricity grid – as is uniquely enabled by energy storage. With more than 190 members, ESA represents a diverse group of companies, including independent power producers, electric utilities, energy service companies, financiers, insurers, law firms, installers, manufacturers, component suppliers, and integrators involved in deploying energy storage systems around the globe. Further, our members work with all types of energy storage technologies and chemistries, including lithium-ion, advanced lead-acid, flow batteries, zinc-air, compressed air, and pumped hydro among others.

In our comments below, ESA outlines deficiencies in existing system planning and wholesale market design that will prevent the State of New York from achieving its aggressive environmental and energy policy objectives. ESA’s comments also provide initial recommendations for wholesale market reform that would remove those hurdles.

Respectfully,



Jason Burwen
Vice President of Policy
Energy Storage Association

STATE OF NEW YORK
PUBLIC SERVICE COMMISSION

**Case 19-E-0530 – Proceeding on Motion of the Commission to
Consider Resource Adequacy Matters**

I. INTRODUCTION

Pursuant to the New York Public Service Commission’s (“Commission”) August 8, 2019 Order Instituting Proceeding and Soliciting Comments in Case 19-E-0530 (“RA Order”), The U.S. Energy Storage Association (“ESA”) respectfully submits these comments for the Commission’s consideration. ESA commends the Commission for embarking on the important discussion of whether existing wholesale market rules and design will enable the deployment of resources that support the State’s aggressive energy and environmental goals.

ESA is the national trade association dedicated to energy storage, working toward a more resilient, efficient, sustainable and affordable electricity grid – as is uniquely enabled by energy storage. With more than 190 members, ESA represents a diverse group of companies, including independent power producers, electric utilities, energy service companies, financiers, insurers, law firms, installers, manufacturers, component suppliers, and integrators involved in deploying energy storage systems around the globe. Further, our members work with all types of energy storage technologies and chemistries, including lithium-ion, advanced lead-acid, flow batteries, zinc-air, compressed air, and pumped hydro among others.

In our comments below, ESA provides a perspective on resource adequacy intended to widen the aperture to include resources as flexible as energy storage. Specifically, ESA notes that the existing planning and market rules are insufficient to deploy the types and quantities of greenhouse gas-reducing resources, like energy storage, needed to support the State’s energy and environmental policy objectives,

including its renewable energy deployment goals. Resources that provide flexibility without use of fuels, like energy storage, have costs that are largely incurred upfront and few variable costs, which makes longer-term markets critical. Within this filing, ESA outlines deficiencies in existing system planning and wholesale market design and lays out initial recommendations for wholesale market reform that would remediate those deficiencies.

II. COMMENTS ON ENERGY STORAGE AND RESOURCE ADEQUACY

A. Existing market rules will not drive necessary storage deployment to reach state's energy and environmental goals

Energy storage is necessary to enable a supply mix with more renewable energy and to allow states like New York to reach their aggressive energy and environmental goals. Energy storage is a cost-effective solution for integrating growing levels of large-scale renewable energy and reducing greenhouse gas emissions with minimal environmental impact. Storage reduces curtailment of renewable energy and other clean energy resources during periods when supply exceeds demand, helpfully redelivering that clean energy later when it is most needed. Additionally, storage provides fast response times and flexibility needed to keep the grid stable with higher levels of asynchronous renewable generation without burning fuel. Finally, storage can enhance the capability of existing transmission infrastructure to enable higher renewables deployment.

As states like New York enact public policies that seek higher levels of clean energy generation and storage, an increasing potential for conflict exists between wholesale market design and state policy goals, particularly in ensuring resource adequacy (“RA”). Energy storage does not fit neatly into the conventional capacity market construct that wholesale market operators like the New York Independent System Operator (“NYISO”) use to ensure RA. As such, there is a risk that these capacity markets will fail to drive investment in cost-effective storage as an alternative to fuel-based generation. Moreover, the inability of present capacity markets to effectively include energy storage will surely impede New York from reaching its state energy storage target.

B. NYISO market products are not aligned with the State's public policy goals

The conventional RA construct addresses the period of highest system peak load expected over a planning horizon. As such, capacity markets are designed to reserve spare generating capacity that can deliver and uninterrupted supply of electricity at a future time. While this may continue to be a component of meeting system reliability, the increasing deployment of non-dispatchable renewable resources will drive system changes not addressed by conventional capacity markets. More wind and solar power are likely to lead to greater system ramping (i.e., rates of change in net load in a single time period) and produce more frequent, potentially short-notice and short-run peaking conditions, even if such peaks are not the single greatest annual peak.¹ In essence, “flexible resource adequacy” will become increasingly important relative to conventional resource adequacy.

Such anticipated changes in New York’s supply mix underscore the need for an additional market product(s) to support system flexibility, driven similarly by long-term price signals. NYISO has taken important initial steps to break down the barriers for market participation of energy storage, including developing rules that permit storage to qualify as a capacity resource. However, current market rules and design continue to work contrary to the State of New York’s policy goals. Below ESA outlines the key challenges to deploying resources to support the State’s goals.

- **Capacity Market Outlook Is Too Short:** The current capacity market only looks one year out. Without longer time horizons in the capacity markets, resources with low variable costs but higher upfront fixed-costs, particularly energy storage, are at a disadvantage to participate to provide RA relative to variable-cost driven resources like fuel-burning generators.
- **Buyer Side Mitigation for Storage Prohibits Storage Participation:** The current application of BSM to energy storage creates an ever-increasing disconnect between the amount of available capacity and the amount of capacity that clears on the demand curve—meaning clearing prices remain artificially high, signaling the need for additions even when a surplus exists. Due to the artificially high prices, existing traditional resources effectively have a preferred compensation relative to the new clean resources that are mitigated.
- **Resource Adequacy Does Not Capture Flexibility Needs:** The current capacity construct does not encourage resources that are able to provide flexibility to the system in order to address

¹ See National Renewable Energy Laboratory, *Advancing System Flexibility for High Penetration Renewable Integration*, Oct 2015, available at <https://www.nrel.gov/docs/fy16osti/64864.pdf>.

periods of peak change in load. In a system with increasing levels of renewable energy, fast ramping resources are needed during the morning and afternoon hours to accommodate intermittent resources coming online and offline. The current RA construct does not send a market signal for those products.

- **Must-Offer Obligation Requirements Can Limit Multiple-Use Storage:** Market rules that require resources to be available for RA service for extended periods can prevent resources providing retail or distribution services from competing in the NYISO. By preventing those resources from being able to participate, resources must choose between markets rather than optimizing multiple potential benefits at the lowest cost to the State.
- **Energy and Ancillary Service Markets Offer Flexibility:** Spinning and non-spinning reserves that might supply flexibility to the electric system are designed to be available only in the case of a system contingency. Additionally, the existence of a capacity market dampens energy price formation to reflect scarcity. Therefore, there is a gap in market design and products to incent the retention and addition of flexible operating resources in the amounts and locations needed to support increasing intermittency of the system.

C. The RA construct needs to be revised for a supply mix with significant renewable and energy storage deployment

ESA acknowledges that NYISO's reforms providing time differentiation of the value of energy storage are an important first step in driving energy storage deployment in the State. ESA also recognizes that there are several ongoing reviews of the existing rules that could impact the outlook for energy storage in New York. The Commission and the New York State Energy and Development Authority have filed a complaint with the Federal Energy Regulatory Commission over mitigation measures at the NYISO that impact energy storage, and the NYISO has issued an Intermittency White Paper. However, ESA argues that the State's energy policy and goals require additional capacity market changes to more appropriately accommodate renewables and storage. These reforms include:

- **Provide Longer-Term Outlook and Certainty in the Capacity Market:** The outlook for capacity need should be revised to look more than one year out and provide resources with a longer contract length. NY-BEST's comment in the instant docket on reforms to planning and outlook period are instructive, and ESA supports their recommendations. Examples of the principles undergirding a longer-term market that meets environmental and energy goals, while complementing a short-term energy market have been described in recent reports.² Doing so will

² For example, see S. Corneli, E. Gimon, & B. Pierpont, *Wholesale Electricity Market Design For Rapid Decarbonization: Long-Term Markets, Working With Short-Term Energy Markets*, June 2019, available at: <https://energyinnovation.org/wp-content/uploads/2019/07/Wholesale-Electricity-Market-Design-For-Rapid-Decarbonization-Long-Term-Markets-Working-With-Short-Term-Energy-Markets.pdf>.

reduce investment bias against non-emitting, fixed-cost driven flexible resources and ensure more cost-effective financing for them.

- **Exempt Energy Storage from Market Mitigation:** Exemption of energy storage from buyer-side mitigation is appropriate at this time. NYISO should accelerate its comprehensive buyer-side mitigation review (currently slated for 2020) to determine how buyer-side mitigation should treat energy storage. The current review timeline would not address the important barriers facing energy storage in time for the State to achieve its energy storage target of 1,500 MW by 2025. This is aligned with the Commission and NYSERDA’s complaint filed at FERC.
- **Create a Flexible RA Product:** A method to incorporate flexibility into resource adequacy construct is to use a Loss of Load Expectation (“LOLE”) measure geared toward peak rates of change in supply, not simply peak periods themselves. This concept was pioneered by the New Mexico utility, PNM, in their 2017 Integrated Resource Plan (“IRP”),³ which used two complementary measures: LOLE_{CAP}, the conventional reliability standard for events caused by insufficient resource capacity to meet peak demands, and LOLE_{FLEX}, a new reliability standard for events caused by insufficient resources to respond quickly to meet the volatile nature of renewable resources. Since New Mexico’s utilities are required to meet a Renewable Portfolio Standard, PNM modeled the reliability contributions of various capacity options under scenarios with higher renewable shares in generation, using both LOLE_{CAP} and LOLE_{FLEX}. A Flexible RA product based around attributes of short-run flexibility would complement traditional RA based on attributes of long-run firm delivery.
- **Must-Offer Obligation Should Be Revised:** The must-offer obligation for energy limited resources should be reviewed and revised so that storage resources can participate in the NYISO as well as the distribution level services they may be providing. New participation rules and penalties for non-performance are needed in light of the changing technologies participating in the market. Energy storage assets should be able to participate in multiple domains so long as they are available when the system needs them.

ESA notes any major shifts in market design should include a robust stakeholder process, and that complementary state efforts to harmonize rules at the NERC, NPCC, and NYSRC are needed to make the outcomes more effective.

D. If market reform fails, New York should consider alternatives to ensuring energy storage is deployed

ESA supports the State’s ongoing efforts at the NYISO and FERC to drive the necessary reforms to market rules to better align resource procurement with the State’s energy and environmental goals.

ESA hopes the additional recommendations on market reforms described above help with engaging the

³ See pages 121-127 in *PNM 2017-2036 Integrated Resources Plan*, 13 July 2017, available at <https://www.pnm.com/irp>.

NYISO in order to ensure alignment between wholesale market products and the State's energy and environmental objectives. ESA recognizes that in the Commission's RA Order, the Commission sought recommendations from stakeholders on alternative proposals. In particular, if wholesale market rules cannot be reformed effectively, there is a risk that a high level of renewable energy deployment may not be complemented by an appropriate portfolio of balancing resources to enable New York to meet its environmental goals.⁴ ESA would appreciate the opportunity to provide such recommendations at a later date if it becomes apparent that the wholesale market rules continue to be misaligned with facilitating a decarbonized electric system.

III. CONCLUSION

ESA appreciates the opportunity to provide these initial comments and looks forward to working with the Commission and other stakeholders to address this important issue. Reform of the existing market rules and resource adequacy construct is needed to drive the deployment of flexible, fast ramping resources such as energy storage to support the State's policy objectives. If alternative solutions are needed, ESA welcomes the opportunity to support the Commission, along with other stakeholders, in exploring the most effective path forward.

Respectfully submitted this 8th day of November 2019.



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⁴ See pages 2-6 of the aforementioned *Wholesale Electricity Market Design for Rapid Decarbonization: Long-Term Markets, Working With Short-Term Energy Market*.