March 20, 2023

VIA ELECTRONIC MAIL

Hon. Michelle L. Phillips
Secretary
New York State Public Service Commission
3 Empire State Plaza
Albany, New York 12223-1350
secretary@dps.ny.gov

Re: Case 18-E-0130

Dear Secretary Phillips:

The Alliance for Clean Energy New York, on behalf of our member companies, along with Advanced Energy United, American Clean Power Association and Solar Energy Industries Association submits for filing the attached comments in response to *New York's 6 GW Energy Storage Roadmap: Policy Options for Continued Growth in Energy Storage* filed with the New York State Public Service Commission on December 28, 2022 by the New York State Energy Research and Development Authority and the Department of Public Service Staff, in the above-referenced proceeding.

Respectfully submitted,

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State of New York
Public Service Commission

In the Matter of Energy Storage Deployment Program. Case 18-E-0130

Comments on New York's 6 GW Energy Storage Roadmap: Policy Options for Continued Growth in Energy Storage

March 20, 2023

I. Executive Summary

On December 28, 2022, the New York State Energy Research and Development Authority (NYSERDA) and Staff of the New York State Deparatment of Public Service (Staff) filed *New York's 6 GW Energy Storage Roadmap: Policy Options for Continued Growth in Energy Storage* (6 GW Roadmap) in the aboved referenced proceeding. In response to the *Notice Soliciting Comments* issued on January 18, 2023 in the same proceeding, the Alliance for Clean Energy New York (ACE NY), Advanced Energy United (United), American Clean Power Association (ACP) and Solar Energy Industries Association (SEIA) submits these Comments in support of the Roadmap's proposed framework for facilitating New York's deployment of 6 GW of energy storage.

ACE NY, United, ACP, and SEIA are referred to collectively in these comments as the "clean energy industry," "we," or "our."

The clean energy industry thanks NYSERDA and Staff for its continued support for the deployment of energy storage in New York State and the publication of the 6 Gigawatt Roadmap. The new 6 GW goal and the programs that support it will play an important role in allowing New York State to reach our ambitious decarbonization goals.

In these Comments, our organizations recommend that the New York Public Service Commission (Commission) approve the Roadmap expeditiously and empower NYSERDA to implement the programs it describes.

For **Bulk Storage**, in section III we recommend:

A. **New York should pursue the Indexed Storage Mechanism proposed in the Roadmap.**
B. **NYSERDA should award more than 1,000 MW per year in its procurements to account for project attrition, and continue procurement throughout the entire time period of the federal investment tax credit.**
C. **NYSERDA's Bulk Storage Procurement Program should be structured to ensure project diversity but should maintain flexibility for NYSERDA in project selection.**
D. **Any Change of Law clause in Indexed Storage Credit contracts must preserve contracted revenue to support project financing.**
E. **NYSERDA should include round-trip efficiency in the Reference Energy Arbitrage Price Calculation.**
F. **The Commission should not allow utility ownership of bulk storage.**

For **Retail and Residential Energy Storage**, in section IV we recommend:

A. **NYSERDA should consider setting the initial block size to at least 750 MW.**
B. **NYSERDA should consider establishing distinct incentive blocks fo solar-plus storage and standalone storage or a higher incentive level for standalone storage in Upstate.**
C. **NYSERDA should implement strong maturity requirements.**
D. **NY State should priortize addressing retail storage interconnection challenges.**
E. **Residential storage incentives should not be tied to future performance.**

We also suppport storage as a transmission asset in Section V, and recommend it be competitively procured; we support diversity in demonstration and commercialization projects for long-duration storage in Section VI; we recommend municipal outreach and education on energy storage topics in Section VII; and answer questions posed by Staff and NYSERDA in Section VIII.

II. Introduction

The 6 GW Roadmap proposes to double New York State's energy storage deployment target from 3 gigawatts (GW) of storage to 6 GW of storage by 2030 by updating and augmenting the 2018 Storage Roadmap that was filed in Case 18-E-0130 on June 21, 2018. Like the 2018 Roadmap, the 6 GW Roadmap analyzes various plausible energy storage use cases and suggests policies, regulations, and initiatives that the Commission could implement in order to meet the increased installed energy storage system target of 6 GW. To reach the proposed 6 GW deployment goal by 2030, the 6 GW Roadmap indicates that roughly 4,700 MW of new projects would need to be procured and deployed in the coming years.

Specifically, the 6 GW Roadmap recommends that the Commission adopt an increased deployment target of 6 GW of energy storage by 2030 and direct NYSERDA to engage in procurements for both bulk programs and retail and residential programs. For bulk storage deployment, the 6 GW Roadmap suggests a two-pronged path that includes: 1) a new Index Storage Credit (ISC) mechanism – analogous to the Index Renewable Energy Certificate approach adopted by the Commission and currently applied in NYSERDA's offshore wind and Tier 1 large-scale renewable procurements to be used for the procurement by NYSERDA of 3,000 MW of bulk storage projects; and 2) a directive to the State's major investor-owned utilities (utilities) to study the potential of energy storage to provide transmission and distribution services, and identify projects that provide cost-effective services when compared to traditional alternatives. For retail and residential storage programs, the 6 GW Roadmap proposes to extend the funding of the existing programs, following a design of region-specific blocks of funding similar to that used to date, to include the procurement by NYSERDA of 1,500 MW of program blocks for retail projects and 200 MW for residential storage programs.

The Alliance for Clean Energy New York (ACE NY), Advanced Energy United (United), American Clean Power Assocation (ACP), and the Solar Energy Industries Association (SEIA) have developed these Comments on the proposed plan to achieve the 6 GW storage goal described above.

ACE NY is a member-based organization with a mission of promoting the use of clean, renewable electricity technologies and energy efficiency in New York State to increase energy diversity and security, boost economic development, improve public health, and reduce air pollution. Our diverse membership includes companies engaged in the full range of clean energy technologies as well as consultants, academic and financial institutions, and not-for-profit organizations interested in our mission.

United is a national association of businesses that are making the energy we use secure, clean, and affordable. United works to accelerate the move to 100% clean energy and electrified transportation in the U.S. Advanced energy encompasses a broad range of products and services that constitute the best available technologies for meeting our energy needs today and tomorrow. These include energy efficiency, demand response, energy storage, solar, wind, hydro, nuclear, electric vehicles, and the smart grid. United represents more than 100 companies in the $238 billion U.S. advanced energy industry, which employs 3.3 million U.S. workers, including 157,000 individuals in the Empire State.

ACP is the voice of the clean power industry that is powering America's future, providing cost-effective solutions to the climate crisis while creating jobs, spurring massive investment in the U.S. economy and driving high-tech innovation across the nation. ACP isare uniting the power of America's renewable energy industry to advance its shared goals and to transform the U.S. power grid to a low-cost, reliable and renewable power system.

SEIA is leading the transformation to a clean energy economy, creating the framework for solar to achieve 30% of U.S. electricity generation by 2030. SEIA works with its 1,000 member companies and other strategic partners to fight for policies that create jobs in every community and shape fair market rules that promote competition and the growth of reliable, low-cost solar power. Founded in 1974, SEIA is the national trade association for the solar and solar + storage industries, building a comprehensive vision for the Solar+ Decade through research, education and advocacy. There are more than 730 solar companies based in New York across the entire solar value chain, including installers, manufacturers and service providers, as well as a variety of regional or national businesses with projects and operations in the Empire State.

ACE NY, United, SEIA, and ACP are referred to collectively in these comments as the "clean energy industry", "we," or "our." Our detailed comments follow.

III. Recommendations Regarding Bulk Storage

A. New York should pursue the Indexed Storage Mechanism proposed in the Roadmap.

In the Roadmap, NYSERDA and DPS Staff discuss six options for bulk storage procurement: (1) Upfront Incentive (2) Index Storage Credit, (3) Clean Peak Credits, (4), Utility Market-based Ownership, (5) Utility Dispatch Rights, and (6) Utility T&D Ownership.

Our organizations agree with NYSERDA that the Index Storage Credit (ISC) offers significant hedging opportunities for the market and will reduce project attrition, and provides ancillary benefits for ratepayers, such as reduced financing costs and reduction in volatility of their energy bills. In addition to hedging benefits and lower financing costs, the ISC maintains the local value and market signals and puts downward pressure on bid strike prices. The ISC is also a familiar concept to NYSERDA and the development community, as it bears similarities to the approach used by NYSERDA in Tier 1 of the Clean Energy Standard. Therefore, the ISC is the clear choice for reducing uncertainty and risk for private storage developers and ratepayers alike.

In contrast, the other options are less optimal. The Upfront Incentive option has no hedging available, no long-term revenue support, and higher ratepayer costs. The Clean Peak Credit option is complex and doesn't maintain important market signals, and may conflict with NYISO dispatch approaches. We are clearly opposed to the utility ownership option, which would require regulatory changes, raises serious market concerns, and would reduce opportunities for the private sector. The Utility Dispatch Rights option would be a time-consuming process and there would be the risks of delay and limited awards as in the current model; attrition risk due to contract requirements; uncertainty in post-contract value; and the contract requirements unnecessarily raise costs. The Utility T&D Ownership option would also likely be a time-consuming process to design and launch and would not be effective at achieving the 6 GW target, especially if it was the sole mechanism. For all of these reasons, our organizations favor the ISC approach recommened in the Roadmap.

B. NYSERDA should award more than 1,000 MW per year in its procurements to account for project attrition and permitting and interconnection delays, and continue procurement throughout the entire time period of the federal investment tax credit (ITC window).

Ongoing interconnection delays at NYISO and challenges with local permitting have extended project timelines between contract award and project completion to three years or more. In

addition, NYSERDA should expect a non-trivial amount of attrition in awarded projects due to the inherent risk of development, the nascency of NY's bulk storage market, and the fact that this will be the first of its kind procurement in many ways.

NYSERDA assumes an attrition rate of 20% in setting the annual procurement level for Tier 1 of the Clean Energy Standard. In addition to attrition from the 3,000 MW of new bulk storage proposed in the Roadmap, there will be attrition among the 840 MW of bulk storage projects that have been awarded or contracted already. To date, only 60 MW of these projects have been brought online. Applying the attrition rate that the Commission assumed for Tier 1 of the Clean Energy Standard procurement schedule, which may be conservative given the relative maturity of the bulk storage market and this procurement, NYSERDA will need to award 4,600 MW total ensure that 3,840 MW of bulk storage projects will come online by 2030.

The clean energy industry also agrees with the State's intent to use these procurements to establish a more robust bulk energy storage market and create a glide path to the tens of GWs of energy storage NY State will need by 2040 and 2050. This will not happen if these procurements end after 2026. As mentioned in the Roadmap webinar on February 28, 2023, the Roadmap analysis shows that procurements during the federal ITC window result in lower costs compared to waiting.

Therefore, we recommend that that NYSERDA: a) award at least 1,500 MW in the first three procurements and b) plan to continue procurements throughout the federal ITC window. The NYSERDA procurement program should also be explicit about the additional storage capacity that will be awarded so that developers can have clear visibility into procurement opportunities. This visibility is critical for project development and aligning timelines for local permitting, NYISO interconnection, and financial certainty.

C. NYSERDA's Bulk Storage Procurement Program should be structured to ensure project diversity but should maintain flexibility for NYSERDA in project selection.

We encourage NYSERDA to procure projects of various sizes and in various locations across the state. We recommend that NYSERDA publish procurement goals for project sizes and locations but have the discretion to award above or below those goals (*i.e.*, a soft target approach). Otherwise, NYSERDA adhering to strict carve-outs could unnecessarily force NYSERDA to award sub-optimally with respect to its broad range of other important project criteria, such as cost and viability. Considering that some projects in the NYISO queue are very large (over 600 MW), NYSERDA should take care to balance the need for duration and location-specific solicitations with ensuring that each solicitation is large enough to support a mix of projects. While a 200+

MW project will be effective in certain areas of the grid, a 20 MW project will be a better fit to local needs in others. We encourage NYSERDA to consider project size in the context of regional grid capacity and need.

With regards to distribution-connected bulk storage projects (*i.e.*, projects larger than 5 MW), we encourage NYSERDA to provide clarity on the path to market for these resources. As distribution-connected bulk storage will be subject to distribution charging rates that transmission-connected resources will not be subject to, it's unlikely these resources will be competitive in an ISC solicitation. In recognition of the different cost realities for these projects, the original Bulk Storage Incentive Program had a different incentive level for bulk storage projects between 5 - 20 MW. As such, clarity is necessary for how that segment of resource will competitively participate in the ISC solicitations.

On the upstate grid, there are key areas of high load, congestion, and renewable penetration, where storage should be sited. The NYSERDA procurement should reward projects that are located in areas with demonstrated need arising from high renewable penetration, fast growing load, or constrained substations and circuits.

In addition to locational and size diversity, NYSERDA should award contracts to a diversity of developer counterparties to support long-term industry growth and program success.

D. Any Change of Law clause in Indexed Storage Credit contracts must preserve contracted revenue to support project financing.

As the 6 GW Roadmap notes, future reforms to wholesale markets could result in changes to types and level of compensation that are not captured in the indexed storage credit formula as proposed. We agree that a change of law clause in contracts may be appropriate to account for a level of uncertainty. However, a change of law clause that is too easily triggered, or that could potentially impede the ability of energy storage projects to capture sufficient revenues (between wholesale market participation and sale of indexed energy storage credits) to meet the originally bid strike price could limit the project's ability to secure financing at a reasonable cost.

Renegotiation should be expressly limited to significant market changes that make out-of-index revenue a dominant source of revenue over the remaining contract length, and any revenues from new markets must be indexed based on, at minimum, the originally bid (and financed) strike price.

E. NYSERDA should include round-trip efficiency in the Reference Energy Arbitrage Price Calculation.

The Reference Energy Arbitrage Price (REAP) is an approximation of the profits available to a contracted energy storage system (ESS) in the day-ahead energy market. However, since all commercially available energy storage technologies experience energy losses when charging and discharging energy, ESS will not charge and discharge at exactly their full rated power for the number of hours equal to the duration of the battery. The REAP does not need be an exact representation of profits earned by the ESS for the ISC to function, and a number of factors will cause ESS revenue to diverge from the reference prices, in both directions. However, a more accurate REAP will allow bidders to set strike prices in bids that are closer to their genuine revenue requirements and reduce uncontrollable risks related to inevitable inaccuracies when forecasting energy market outcomes. Therefore, we recommend that NYSERDA use a uniform round-trip efficiency (RTE) adjustment as part of its monthly ISC calculation of the REAP to better represent the operational reality of BESS in the day-ahead energy market and more accurately capture genuine energy arbitrage opportunities. Using the same uniform RTE assumption for all contracts will go a long way towards enhancing accuracy, while also maintaining incentives for BESS owners/operators to maintain a high RTE through high-quality equipment and effective maintenance and operation and allowing for easier implementation. The RTE value used should be set ahead of each solicitation to reflect the prevailing techno-economic outlook at that time.

F. New York should not allow utility ownership of bulk storage in competitive markets.

As ACE NY has conveyed in prior filings, including in comments we filed in August of 2022[1] in Case 22-M-0149 (Proceeding on Motion of the Commission Assessing Implementation of and Compliance with the Requirements and Targets of the Climate Leadership and Community Protection Act), we recognize that utilities have a critical role to play in the attainment of 70% renewable energy generation by 2030 and a zero-emissions electric grid by 2040. However, the ownership and operation of power generating and energy storage facilities, whether Distributed Energy Resources or large-scale renewable facilities, should not be one of those roles. Rather, we agree with and continue to support the policies previously articulated by the Public Service Commission that restrict regulated utilities from owning and operating generation except in limited circumstances and situations. Since the utility ownership policies were reiterated by the Commission, there have been many additional complex tasks assigned to the utilities to support

[1] ACE NY and Advanced Energy United (f/k/a Advanced Energy Economy) comments, https://documents.dps.ny.gov/public/Common/ViewDoc.aspx?DocRefId={EE4CD7C9-0919-4555-9456-3CCC9D43AFCE}

New York's clean energy transition, such as transmission planning. In short, New York's utilities have plenty to do and changing the utility ownership policy will distract from those efforts.

As the Commission states in the May 12, 2022 Order accompanying Case 22-M-0149, "The issue of utility ownership of renewable energy generation assets must be considered in the context of what can best accelerate the market and be consistent with the public interest."[2] Introducing utility-owned generation will hinder New York's competitive market and is likely to have a cooling effect on private investment in large-scale renewables in the State. Any claims that utility ownership can reduce prices is likely to be more than offset by the hollowing out of competition. There is no shortage of private entities or capital looking to build renewable energy in New York. The competitive market response to the State's clean energy policies has been robust, which is a strong indicator that New York's current approach is viable and that the competitive market is ready and able to do its part to meet the important goals of the CLCPA.

The clean energy industry agrees with the Roadmap not selecting utility ownership of bulk storage in competitive markets as a method to achieve the 6 GW energy storage target. Risks and downsides of utility ownership include:

- Does not maximize participation in wholesale market. Utilities may choose to limit wholesale market participation for energy storage if it is also being used as a distribution or reliability asset, reducing net benefits.

- Challenges for price-setting. Like the Market Acceleration Bridge Incentive (MABI) and the price thresholds in utility dispatch rights solicitation, NYSERDA and the PSC would need to set an appropriate price for energy storage when approving utility projects. This is challenging for projects with long lead times and can result in either projects being over-subsidized or under-subsidized and never getting built.

- Long-term implications for wholesale markets. If utility-owned assets that can be rate-based are allowed to participate in wholesale markets and compete directly with third-party owned assets, market competition will decrease over time.

- Increased Customer Costs. Third parties who have experience and incentive to maximize participation in wholesale markets will be able to deliver the most value, which reduces

[2] May 12, 2022 NYS Public Service Commission Order on Implementation of the Climate Leadership and Community Protection Act https://documents.dps.ny.gov/public/Common/ViewDoc.aspx?DocRefId={5F73F855-B506-41B3-AB05-3CF66F736497}

electric customer costs in the ISC model. Third party developers have proven they can build more cost-effectively and faster than utilities.

IV. Recommendations Regarding Retail and Residential Energy Storage

A. NYSERDA should consider setting the initial block size to at least 750 MW.

The clean energy industry recommends that NYSERDA set its initial incentive block sizes as large as possible. Despite the absence of retail storage incentives for well over a year, many developers have continued to develop projects. Consequently, many megawatts of storage projects have achieved high levels of site control, interconnection maturity, and permitting maturity. NYSERDA attempting to predict how many megawatts are already achieving the program's maturity requirements with the intent to use that information to set block sizes is impossible. It is also unnecessary, because NYSERDA has the discretion to modify incentive levels and block sizes within the budget approved by the Commission at any time. As much as half of the retail target could be reserved within the first months to a year, as was the case for the NY-Sun Program. Therefore, our organizations respectfully request that NYSERDA set the initial blocks to add up to 750 MW or more. NYSERDA can always make adjustments. We just ask that NYSERDA continue to be judicious with its modifications and avoid abrupt changes to incentive levels or program pauses. Such abrupt changes undermine market certainty and apply upward pressure on soft costs, which erode and may outweigh the program savings associated with attempting to achieve "just in time" adjustments.

B. NYSERDA should consider establishing distinct incentive blocks fo solar-plus storage and standalone storage or a higher incentive level for standalone storage in Upstate.

For the upstate region (Zones A-G), we recommend that NYSERDA establish either distinct incentive blocks for solar-plus-storage and standalone storage, or a higher incentive level for standalone storage. These project types have both unique benefits and different economics. Solar-plus-storage projects need less incentive to be developed given the revenues currently available to them (for example, the E-value) and their current operational costs (for example, no demand charges). If a higher incentive is not available for standalone storage, compared to solar-plus-storage, it is likely that developers will not pursue standalone storage projects. The current upstate interconnection queues predominantly consist of solar-plus-storage projects, illustrating this behavior.

Solar-plus-storage projects are valuable for their ability to control when solar generation is supplied to the grid, but a dispatch schedule that maximizes solar-generated injections does not always maximize other benefits that storage can provide (*e.g.*, enabling greater operational flexibility and versatility, shifting feeder or substation level generation and demand, responding to local grid needs), at least for in-front-of-the-meter solar-plus-storage. Standalone storage, on the other hand, has greater dispatch flexibility to provide those other benefits. Moreover, many distribution substations are cannot support additional solar deployment. This is exactly where standalone storage assets are needed to support the grid, but where new solar-plus-storage projects will not be feasible. Additionally, for front-of-the-meter systems, standalone storage can typically be sited closer to load than storage paired with solar, due to the land requirements associated with solar.

Our recommendation is budget-neutral (*i.e.*, for NYSERDA to provide differentiated incentives to upstate solar-plus-storage and standalone storage within the budget requested in the Roadmap). Doing so would reflect the actual economics of each project type and ensure a diverse portfolio of storage assets. We defer to NYSERDA and Staff regarding whether it is preferable to have a distinct upstate standalone storage block or one block with different incentive levels for the two different types of projects. In a one-block scenario, we suggest a structure with a base rate for all projects plus an adder option specifically for standalone storage.

We do not think distinctive incentive blocks for solar-plus-storage and standalone storage downstate are worth the added administrative burden. Limited land availability downstate inherently limits the amount of solar-plus-storage that can be developed. The limited number of solar-plus-storage projects that are possible can be included in a single downstate retail block without jeopardizing standalone storage deployment to the same degree as upstate. The makeup of the current downstate interconnection queues illustrates this dynamic.

C. NYSERDA should implement strong maturity requirements.

We support NYSERDA implementing strong maturity requirements for projects to reserve incentives. Similar to the NY-Sun Program, NYSERDA should require storage projects to pay their initial interconnection deposit and receive certain local permitting approvals to reserve incentives. These maturity requirements have resulted in negligible project attrition in the NY-Sun Program, and we have no reason to believe the same would not be true for storage. This approach balances project maturity and risk management for developers.

With respect to local approvals in NYC, we suggest that NYSERDA should not require final approval for NYC projects from the fire department (FDNY) or the Department of Buildings (DOB)

in order to reserve incentives. As NYSERDA is aware, in certain project size ranges only one battery product currently has FDNY approval, and recent supply chain issues have made these products hard to procure. As a result, FDNY approval, which is required for final DOB approval, is not currently a good measure of project maturity.

D. The Commission should priortize solving retail storage interconnection challenges to ensure New York can reach its 6 GW goal.

Interconnection is a significant technical and economic challenge to retail storage deployment. We recognize that the Joint Utilities have the complicated job of safely and reliably interconnecting a significant amount of storage, and doing so expeditiously. Doing so will also require review and revision of many existing interconnection standards, study practices, and tariffs. In many cases, this work is not being completed at the pace necessary for the State's deployment goals. Interconnection standards, study practices, and tariffs that have not been modified or updated to be relevant for storage ultimately increase project costs unnecessarily. This makes incentive programs like the one proposed by NYSERDA more expensive than necessary and in many cases, prevents otherwise good projects from being deployed at all. We are aware that the Joint Utilities and DPS have a number of ongoing efforts to address these challenges. We appreciate those efforts but encourags the Commission to make them a priority, move as quickly as possible, and be responsive to industry feedback. The industry has provided detailed recommendations in forums such as the DPS Interconnection Policy Working Group (IPWG) and the DPS Interconnection Technical Working Group (ITWG) on these issues. We encourage NY State to review those priorities in the context of their threat to achieving the 6 GW goal. We also encourage NY State to consider the work-in-progress ITWG guidance document *Energy Storage System (ESS) Core Deployment Principles, Challenges & Recommended Phased Deployment n NYS.*

E. Residential storage incentives should not be tied to future performance.

The clean energy industry is supportive of the residential storage program incentive design and of the Roadmap's recommendation that the utilities should examine opportunities to maximize the value of residential storage systems through new tariffs. We would not support a future iteration of the residential incentive that tied receipt of the upfront incentive to storage system performance or availability requirements under future utility tariffs. Residential storage demand response programs that make upfront incentives contingent on future performance have proved burdensome to the residential storage industry, which in turn has limited enrollment in such programs, hindering efficacy. However, simple pay-for-performance load reduction program designs without performance requirements have proven successful and supported broad uptake

under ConnectedSolutions in several Northeast states and in California's Emergency Load Reduction Program.

V. Recommendations Regarding Storage as Transmission

A. Storage as transmission should be a key part of NY transmission planning.

The clean energy industry commends the Roadmap's recognition of storage as a transmission asset (SATA). SATA is a cost-effective tool that can increase transmission capacity and integrate renewables in New York State much more quickly than linear transmission buildout, which can take as much as a decade from planning to energization. To unlock the untapped potential of SATA, it is important that it be explicitly incorporated into system planning at both the state and regional level.

Under current transmission planning rules SATA is not permitted to complement traditional transmission solutions or be a component of a broader solution set.

- For example, and as the Roadmap notes, a proposal that included energy storage was removed from consideration in the ongoing Long Island Offshore Wind Export Public Policy Transmission Need because the NYISO tariff does not include provisions for evaluating or considering storage as transmission. In response to NYSERDA's proposal of the work plan project and strong stakeholder support, the NYISO has committed storage as transmission to Issue Discovery for 2023. However, as of the date of the filing of these comments in late March 2023 the NYISO has failed to initiate its SATA Issue Discovery project. Most other RTO/ISOs in the United States have already adopted or are promulgating SATA rules including MISO, SPP, ISO-NE and CAISO.

- At the state level, there have been numerous recent transmission approvals including the $4.4 billion of utility Phase 2A transmission projects authorized by the PSC on February 16, 2023. These are important investments for the state that we support. Yet, SATA is notably absent from state level transmission planning, which may leave ratepayer benefits on the table from a cost and timing perspective.

If allowed the competitive opportunity, storage as transmission is ready to provide significant value to New York ratepayers. To achieve the CLCPA and meet the growing need for electric transmission, SATA cannot be ignored as part of the solution set.

B. Storage as transmission should be competitive in NY.

Storage as transmission should be open to independent developers. While the Joint Utilities of New York should be directed study the potential of energy storage to provide non-market transmission and distribution services as NYSERDA and DPS Staff recommend, these projects should not be limited solely to utility ownership. The greatest opportunity for SATA to provide cost-effective transmission services is if independent developers are allowed to compete. As decades of experience with competition in electricity generation and the growing number of examples of competitive traditional transmission awards have proven, competition is a critical principle. If SATA is not a cost-effective solution for a particular transmission need, or if the proposing party is not qualified to execute on such project, it will not be selected along with or over other solutions. We strongly believe that storage as transmission should be competitive in New York State.

To ensure the incorporation of SATA in transmission planning as well as competition, the clean energy industry recommends that:

1. The JUs be directed to modify the Coordinated Grid Planning Process (CGPP) proposal to include an explicit obligation to solicit storage as transmission/Non-Wires Alternatives from the market to meet local transmission needs arising from the process to ensure the lowest cost and greatest benefits to ratepayers.

2. The State request NYISO implement tariff changes required to incorporate SATA in its interconnection and regional transmission planning processes, including the Public Policy Transmission Planning Process, and adopt a cost recovery/allocation mechanism in a timely manner.

These recommendations are actionable ways that storage can be incorporated into transmission systems. It is critical that the State lead on storage transmission to not only increase the deployment of energy storage but also cost effectively and expeditiously achieve its broader policy goals including the CLCPA.

VI. Recommendations Regarding Long-Duration Energy Storage

The Roadmap rightly acknowledges that deep decarbonization of New York's grid, as planned for in the Climate Scoping Plan, demands that long-duration storage is deployed. This will address multi-day-long periods when electric demand is high and when contributions from renewables and zero-emissions resources are not sufficient to meet demand.

Our organizations believe that the Commission and Staff clearly define Long Duration Storage, as >8 hour duration to align with the Roadmap's proposed programs, particularly for bulk energy storage deployment. 8+ hour energy storage, can be further broken out into a wide array of durations, which can address intraday, interday, multi-day and seasonal energy storage requirements.

Further, our organizations recognize that New York will need to act to encourage investment in LDS resources to maintain the reliability of electricity supply. To best prepare for the future, New York should invest in a variety of LDS resources with varying durations, and not, for example, focus exclusiving on 100-hour storage or infinite duration Dispatchable Emission Free Resources (DEFRs), since there is still such uncertainty in what will be the best generation resource mix in 2040 and 2050.

We do agree that demonstrating LDS technologies before 2030 will be required to gain experience. We recommend that NYSERDA establish a well-funded demonstration project program to enable early LDS deployments, and develop a program to support the commercial deployments of LDS projects.

In the section below, we provide additional input in response to Stakeholder Questions related to long duration storage.

VII. Increasing Municipal Understanding of Energy Storage

In addition to the major barriers to storage deployment identified in the 6 GW Roadmap – *e.g*. supply chain and material costs; market rule changes; financial barriers – there is growing opposition throughout the state to renewable energy projects, including energy storage facilities. This barrier was not fully explored in the Roadmap. The clean energy industry knows how important it is to direct additional resources to preparing municipalities for the role energy storage facilities will play in meeting the state's clean energy goals and what municipalities need to know with respect to siting and safety. We respectfully request that NYSERDA dedicate resources to municipal outreach in order to help municipalities understand energy storage issues and to get ahead of the inevitable misinformation that accompanies siting issues. It is very critical to devote more resources to public acceptance of energy storage and to countering myths and falsehoods that are being promoted.

VIII. Responses to Questions for Stakeholder Comment

Section 5: Bulk Storage Program Design

Should action be taken on the remaining JU Bulk Storage Dispatch Rights procurement requirement? Numerous utilities have yet to fulfill their requirement from the 2018 Storage Order and NYSERDA and DPS Staff are currently assessing the ramifications of future programs on these procurements.

Given that developers have made investments in projects to respond to utility procurements, utilities should be given the opportunity to conduct a successful solicitation, that is to solicit successful energy storage project proposals in pursuit of the State's 6 GW energy storage target.[3] To improve the likelihood of successful solicitations, utilities should increase transparency on the price thresholds and reform contracts to reduce onerous burdens on developers.

What methods should be used in each program to attract storage projects in preferred locations and durations? For example, should procurements seeking 8-hour duration assets utilize a TB8 mechanism, or should all resources compete with the same reference prices in the same solicitations? What impacts do duration or location carve-outs have on competitive procurements?

NYSERDA should conduct solicitations for 8-hr energy storage separately from solicitation for 4-hour storage, as it may be difficult to compare prices for 4- and 8-hour storage on a case-by-case basis. In theory, the ability of longer-duration storage to earn more revenue than 4-hour storage in energy and capacity markets could make the price-per-credit for each resource type converge, but that may not necessarily be true in practice.

The Reference Energy Arbitrage Price is a proxy for how much revenue the storage system could earn in the day-ahead energy market. Therefore, each energy storage resource should have a Reference Energy Arbitrage Price calculated from the number of hours equal to its duration (nameplate energy capacity in MWhs divided by nameplate power capacity in MWs). For example, an 8-hour duration ESS would use the 8 most expensive hours minus the 8 least expensive hours.

[3] Advanced Energy United (f/k/a Advanced Energy Economy) and the Alliance for Clean Energy New York filed comments on February 21 in support of a Joint Utilities petition, filed on November 30, 2022, to make certain modifications to energy storage procurement. https://documents.dps.ny.gov/public/MatterManagement/MatterFilingItem.aspx?FilingSeq=300855&MatterSeq=55960

Costs for land and interconnection vary across NYISO zones. Some areas with higher interconnection costs or more expensive land will also see higher wholesale market revenues, and thus provide as much or more value to the state than other areas with lower costs. However, strike prices, the chief measure by which NYSERDA will evaluate projects, will reflect only cost, not value. Therefore, to compare like projects, NYSERDA should issue separate RFPs or give additional non-price factors points for preferred locations to ensure that locational targets are met.

Considering that some projects in the NYISO queue are very large (over 600 MW), NYSERDA should take care to balance the need for duration and location-specific solicitations with ensuring that each solicitation is large enough to support a mix of projects.

Section 7: General Storage Program Design Considerations

For programs supporting bulk and off-site retail projects, how should incentive programs and procurements be best designed towards ensuring that at least 35% of proposed program funding is utilized to benefit disadvantaged communities and drive peaker plant emissions reductions, beyond a program focus on Zone J as proposed in Section 7.2?

The clean energy industry commends NYSERDA's efforts to ensure that the proposed energy storage programs directly benefit disadvantaged communities and drive peaker plant emissions reductions. Zone J is a great area of focus, given the density of disadvantaged communities and peaker plants. Zone J, however, has unique siting, permitting, and interconnection challenges. So, relying solely on projects sited in Zone J to meet all the program's disadvantaged communities' benefits goals ignores opportunities upstate that could accelerate and augment those efforts. Moreover, it is important that the energy storage programs support upstate disadvantaged communities in addition to downstate ones. We recommend that NYSERDA include a disadvantaged communities incentive adder for retail standalone and solar-plus-storage projects upstate that are beneficial to disadvantaged communities, similar to the ICSA for community solar. For bulk storage, projects that provide incremental benefits to disadvantaged communities should be given additional non-price points, similar to the Tier 1 procurement. We recognize that defining "beneficial to disadvantaged communities" is complicated. We recommend that the criteria be tied to mitigating the operation of dirty peaker plants that are harmful to disadvantaged communities. Not only will this adder compel developers to site storage upstate in areas that would benefit disadvantaged communities (not to be confused with siting in disadvantaged communities), but also to better align the program

with the equity elements of the CLCPA. Regarding funding, NYSERDA may find that less than 35% will need to be deployed in Zone J to meet its obligations.

For programs supporting on-site retail and residential projects, how could programs be optimally designed so as to ensure that at least 35% of the funding and associated benefits of these projects are directed to projects sited in DACs?

The residential storage program design of an upfront rebate to help offset the initial cost is a proven model which will help scale the market for energy storage. The residential storage program should allocate a minimum of 35% of the 200 MW for projects located in DACs. Without an explicit allocation, storage deployment is likely to be concentrated in higher-income areas where customers are willing and able to pay a premium for the resilience value that energy storage provides. Overcoming the challenges of reaching DACs with energy storage will require intentional program design.

NYSERDA should also provide a higher incentive for projects located in DACs. Unlike higher-income households, residents of DACs are much less able to bear having their utility bill savings from solar significantly reduced or eliminated in order to install energy storage and receive the benefit of back-up power. As noted in the Roadmap, the lack of other revenue streams from established tariffs or programs poses a challenge for both project economics for customers and in maximizing ratepayer value. We support further exploration by DPS and NYSERDA to determine how residential storage projects can provide grid and ratepayer value through participation in demand response programs or through aggregations in NYISO's DER market, as those are the long-term solutions to scaling residential energy storage.

It will also be important to ensure that participation from customers in DACs will be either the same as non-DAC customers or as little different as possible. Programs with a higher administrative burden for customers or developers typically result in less participation. The program should also conduct outreach and education to groups such as municipalities, community groups, and other trusted organizations to build trust within DACs which will help encourage participation.

Section 9: Long-Duration Storage and Innovation

What type and size of LDS demonstration projects should be considered in future programs, and how should the program be designed to maximize value and learning?

ACE NY commends Staff for recognizing the role of >4-hour energy storage systems and including these systems in the proposed bulk procurement program. We urge NYSERDA to annually assess the need for 4- and 8-hour systems, a well as other system durations, in advance of program solicitations. We also urge that the program authorization provide NYSERDA flexibility to consider procuring other system durations, such as 6-hour or >8 hours.

There are clearly advantages and disadvantages to holding one solicitation versus separately procuring 4 and 8-hour systems, depending on the State's goals. A single bulk procurement offers administrative ease and provides NYSERDA with a greater breath of simultaneous current project information. However, separate procurements may facilitate a level playing field for the evaluation of projects with different durations and send clear signals to market participants in these particular market segments.

As discussed above, whether NYSERDA holds one bulk solicitation or separate solicitations for 4 and 8-hour systems, ACE NY recommends that separate reference prices and evaluation factors be developed for 4 vs. 8-hour systems. It is particularly important that the reference price be separately calculated for 4 and 8-hour systems. If the reference price is set as the same for 4- and 8-hour systems, than an 8-hour system's total reference price would be the same as two 4-hour systems of the same size. This is clearly incorrect from both a capacity and energy arbitrage perspective.

What mechanisms need to be considered when evaluating options for operating and compensating LDS projects on the grid?

LDS's primary application is to provide inter-day energy shifting to compensate for prolonged low renewable availability over a 1–7-day timeframe, or even seasonal timeframe. As a result, LDS is not intended to nor technically able to fully cycle in a day, thus the TB[hour-duration] hedging mechanism, used to procure shorter duration projects, would not apply to LDS. Instead, NYSERDA could consider a capacity payment in combination with an alternative hedging mechanism to help compensate LDS projects.

Exploring the variety of, and impacts of, different mechanisms for compensating LDS should be part of efforts to pursue LDS demonstration projects. That is, LDS demonstration projects should test not only different technologies and use-cases, but business models and compensation mechanisms. The members of our organizations would welcome the opportunity for a stakeholder group or task force to explore and discuss compensation for LDS as these demonstration programs evolve.

IX. Conclusion

Energy storage is critical to the future growth of the clean energy sector and to achievement of a 100% emissions-free grid, as required by the CLCPA. As the Climate Scoping Plan and the 6 GW Roadmap both recognize, a reliable grid will require a massive amount of additional capacity for storing energy at utility scale in 2040, both to respond to electricity demands and to maintain a safe, reliable, and sustainable grid.

The 6 GW Roadmap takes the right approach by addressing the bulk, retail, and residential market segments and by proposing different approaches to support deployment in these three segments. The clean energy industry generally supports the approach that NYSERDA and Staff have described in the Roadmap. For bulk storage, we particularly appreciate the understanding of development risks and wholesale market rules that informed development of the indexed storage credit mechanism. For both the bulk and retail sectors, our organizations make a variety of recommendations in the Comments to adjust program design to be most compatible with how our storage developers need to operate in the market.

ACE NY, SEIA, ACP, and United sincerely appreciate the opportunity to submit these Comments on the 6 GW Roadmap, and we look forward to continuing to work with NYSERDA and the Commission on deploying the energy storage needed to achieve the CLPCA goals.