

New York's 2022 Energy Storage Roadmap: Frequently Asked Questions (FAQ)

General Questions (applicable to all market segments)

- 1. How are the modeling results presented in Appendix A of the Roadmap, showing the optimal buildout of storage deployments across the state by location and duration, expected to instruct or inform procurements?**

These results are not intended to be directly translated into specific locational or durational targets; however, the overall takeaways regarding locations, durations, and services will inform procurement strategy and program design (e.g., through a potential carveout for downstate deployments to offset peakers).

- 2. The modeling results presented in Appendix A of the Roadmap (Figure 21) only show a breakout of storage deployments between 4-hour and 8-hour durations. Why is 2-hour storage not shown here? Will 2-hour storage be eligible to participate in the proposed Bulk program solicitation? Does this imply that 2-hour bulk storage is not foreseen as a core piece of the 6 GW target?**

2-hour storage was included in the modeling exercises conducted for this Roadmap. However, given the opportunity, the model did not procure any 2-hour resources beyond those already awarded and/or deployed, due to the higher value of 4-hour and 8-hour storage given system needs in 2030 and beyond, and it is therefore not represented in the by-duration deployment buildouts. The Roadmap does not propose a duration "floor" with respect to participation in the proposed Bulk solicitation program.

- 3. Will the proposed new incentives will apply only to standalone storage systems, projects paired/co-located with renewables, or both?**

For the Bulk and Commercial Retail programs, both standalone as well as paired storage would be eligible to participate in the proposed programs, though only the storage component would be funded through the proposed storage programs. For the proposed Residential program, this matter is under consideration, and stakeholders are encouraged to comment on whether the program should be open to standalone residential storage, versus being restricted to supporting paired solar-plus-storage systems.

Bulk Storage Questions

- 4. For storage projects awarded a contract through a Tier 1 Large-scale Renewables (LSR) or Offshore Wind (OSW) solicitation, the Roadmap recommends that these awarded storage projects could elect to receive compensation under an Index Storage Credit (ISC) bulk storage award if that better suits the project timeline or for other reasons. Could you please clarify if this is a correct understanding?**

This is simply referring to the fact that as proposed, projects could participate in an ISC solicitation, but still decide to operationally pair with an LSR or OSW project if that method works better for

timing and business models. However, the storage project would not be permitted to be compensated both through a Tier 1/OSW contract and an ISC contract. Accordingly, a storage project awarded through a Tier 1 or OSW solicitation would need to be removed from the Tier 1 or OSW contract to be eligible to receive compensation under an ISC bulk storage award. The same storage project cannot hold contracts from both solicitations.

5. Will bidders be required to indicate whether they intend to avail themselves of the inflation adjustment before bidding? Will this factor into bid evaluation?

Yes, bidders will need to indicate whether to bid with or without incorporating the proposed inflation adjustment. Projects will be evaluated on the total cost and benefits of the project inclusive of all relevant information.

6. What weight will be given to non-price factors for evaluation of projects that bid into the proposed Bulk solicitation?

Details on evaluation criteria for the proposed Bulk program, including weightings for price and non-price factors, will be provided as part of a forthcoming Bulk Storage Implementation Plan, following the approval of the Roadmap, if so ordered by the Public Service Commission (PSC). These are likely to be based on the framework used for Tier 1 LSR solicitations, with additional criteria specific to requirements of the Climate Act (CLCPA), which require the PSC to specify that a minimum percentage of energy storage projects should deliver clean energy benefits into NYISO zones that serve disadvantaged communities, and that energy storage projects be deployed to reduce the usage of combustion-powered peaking facilities located in or near disadvantaged communities.

7. How will bulk procurements be distributed geographically?

As discussed in Section 7.1 of the Roadmap (“Geographic Distribution of Procurement”), given the significant variation between values and services of different storage projects, even within a similar geographic area, the Roadmap finds there are valuable energy storage projects across the entirety of New York State. This is particularly true when considering the long-term need to operate a zero-carbon grid statewide. Accordingly, NYSERDA and DPS expect all geographies to be eligible for participation.

That said, analysis carried out for this Roadmap found that two-thirds of all energy storage deployment in a least-cost scenario was developed in downstate New York (Zones J and K), and NYSERDA and DPS Staff therefore recommend designing programs to ensure a significant proportion of energy storage is deployed downstate. Furthermore, the CLCPA requires the PSC to specify that a minimum percentage of energy storage projects should deliver clean energy benefits into NYISO zones that serve disadvantaged communities, and that energy storage projects be deployed to reduce the usage of combustion-powered peaking facilities located in or near disadvantaged communities. This is primarily Zones J and K of the NYISO system. Given this, the Roadmap recommends that the bulk storage program should consider downstate-specific carve-outs to ensure targeted deployment.

8. How will wholesale market rule changes trigger contract amendments, as proposed in Section 5.4 (p.55) ? What constitutes a wholesale market rule change?

As discussed in Sections 2 and 4 of the Roadmap, a number of future reforms to commodity markets relevant to energy storage are either under consideration or underway. These could result in changes to the types and level of compensation storage projects receive for their services in ways that may not have been captured adequately in the proposed ISC reference price formula applied to the project, and consequently provide windfall profits to projects at the expense of ratepayers. Therefore, a contract amendment clause to manage potential windfalls and ratepayer exposure is proposed as necessary. The proposed amendment, as intended, is primarily to avoid significant ratepayer exposure in extreme instances; program rules and contracts are expected to be very specific and avoid being punitive to projects that may see short-term or relatively small increases in revenue due to new products. Specifics regarding the nature and extent of market rule changes that would trigger the proposed amendment will be provided in the forthcoming Bulk Storage Implementation Plan, following approval of the Roadmap, if so deemed by the PSC.

9. The Roadmap proposes not to incorporate round-trip efficiency (RTE) losses into the Reference Energy Arbitrage calculation. This advantages high-RTE technologies. Is there a consideration that other technologies with lower RTEs but improved project profiles (such as lower fire risk) could be evaluated at a discount?

While not including RTE may benefit high-RTE projects, a full suite of other benefit criteria will be used to compare projects across the spectrum. Some low RTE technologies may be able to provide a better overall value to ratepayers over the long term, for example. NYSERDA and DPS are also considering embedding a generic RTE rate assumption into the Reference Price formula, and stakeholders are encouraged to provide comments on this matter.

10. How will NYSERDA and DPS determine whether and how much to carve-out a portion of the procurements for 8-hour storage?

The Roadmap recommends that NYSERDA should have flexibility to stipulate specific durations of technologies being sought for each solicitation, for instance by carving out designated procurement amounts. Analysis conducted for the Roadmap (see Appendix A) shows that there is a clear benefit to storage with an average duration of 8 hours, with significant deployment of these resources beyond the 2030 timeframe. These resources are also expected to maintain a high reliability contribution in the long-term, without steep declines in marginal value often seen in short-duration assets. The Roadmap does not recommend whether there will be a specific carveout for 8-hour resources, versus simply a soft target for procuring longer-duration resources, and interested stakeholders are encouraged to provide comment on this matter.

11. How will ISC calculation be handled given the different units in which NYISO Energy and Capacity prices are reported?

All prices will be converted to a single common unit, which is expected to be \$/MWh of installed energy capacity of storage (one “operational” MWh of installed capacity per day equals one Index Storage Credit). Specifically, capacity pricing in \$/kW-mo would be converted to \$/MWh following the conversion formula below.

$(\text{CAF-adjusted } \$/\text{kW-mo} * 12 \text{ mo} * 1,000 \text{ kW/MW}) / (\text{duration of reference} * 365)$.

For example, a 100 MW, 400 MWh project (4-hour duration) with a monthly ICAP price of \$5/kW-month and a Capacity Adjustment Factor (CAF) through NYISO of 0.9 would have a Reference Capacity Price of ~\$37/MWh.

12. What project maturity milestones will be required to bid into the ISC solicitation?

Project maturity milestone eligibility criteria for the proposed Bulk solicitation program will be proposed as part of the forthcoming Implementation Plan, following approval of the Roadmap if so deemed by the PSC.

13. Will NYSERDA publish forecasted pricing or a calculator for developers to estimate the ISC Reference Price when calculating a bid's Strike Price? Or conversely, should each developer form an internal view of the revenue opportunity and develop their own Reference Price? When a developer is calculating their required Strike Price, will there be a standard 15-year curve for both arbitrage and capacity to project those monthly reference prices?

NYSERDA does not envision publishing standard power curve forecasts as part of the Bulk solicitation process. Rather, NYSERDA will publish the detailed mathematical Reference Price formula to be used for ISC payment calculations as part of the subsequent Roadmap Implementation Plan (if the Roadmap is approved by the PSC,) and developers will be free to use their preferred datasets and sources to develop their own forecasts for analysis and bidding purposes.

14. What happens if the requested funding is exhausted before all expected MWs are procured (e.g., if wholesale prices are lower than expected and more payment to developers is necessary)?

Given the Clean Energy Standard (CES)-based funding mechanism sought to support the Bulk storage program, the Roadmap does not request a fixed budget to pay out ISC contracts. All procurements related to the programs proposed in this Roadmap are envisioned to take place before 2030, and contracts would be paid out over the course of the contract length (proposed as 15 years), regardless of wholesale pricing dynamics.

15. Does the storage asset have to charge and discharge daily to generate ISCs, or just be available?

As proposed, there would be no cycling or charging/discharging requirements associated with generation/payment of ISCs. For energy storage, it is important to incentivize discharge when it is most needed rather than to reward as much discharge as possible. On this basis, the Roadmap proposes that each ISC should represent one MWh of energy storage capacity that is operational on a given day. This means that each day a storage project is operational, it would be credited with and compensated for a number of ISCs equal to the MWh of storage discharge *capacity* of the unit. ISCs would be credited only for days when the project is operational and available for dispatch (e.g., not during days of outage or maintenance – see below).

16. How would NYSERDA define, measure and/or verify when a project is 'operational and available' for ISC generation purposes?

A project would be considered operational and available if available for dispatch by the NYISO (i.e., not suffering a forced or maintenance outage as defined by the NYISO). This data is reported to the NYISO, and would be transmitted to NYSERDA to utilize in ISC contracting by means of a contract between NYSERDA and the project and/or the NYISO. Importantly, the Roadmap proposes there not be any form of operational requirements – including charging/discharging (cycling) – for the project to generate ISCs. If deemed as operational and available, a project would generate a daily volume of ISCs equal to its MWh energy capacity.

17. How is degradation accounted for over the proposed 15-year ISC contract term? If ISCs are generated based on system operational availability, does system degradation over time result in lower ISC generation?

Degradation is not proposed as being accounted for in the ISC calculation, and would therefore need to be accounted for by the developer/project in the consideration of their Strike Price bid.

18. Will the Reference Arbitrage Price be calculated at a regional hub or more locally, perhaps even at the node?

As in existing programs, NYSERDA and DPS Staff consider NYISO zonal LBMPs to be the optimal Reference Price forecast and settlement option. More granular pricing data reduces feasibility and increases administrative burden while mitigating incentives for projects to seek injection at higher value injection points with greater benefits afforded to grid reliability and energy deliverability. Zonal LBMPs address these issues and are a well-established measure for reference price calculations.

19. Can the Strike Price be adjusted over the life of the project?

As proposed in the Roadmap, consistent with other NYSERDA solicitation program rules, projects would submit a single Strike Price, to be used over the life of the ISC contract.

Commercial Retail and Residential Storage Questions

20. Is the 1,500 MW target for Retail storage intended to be primarily standalone storage or will a portion of this be allocated to solar-plus-storage projects?

Both standalone storage as well as storage paired with solar are envisioned to be eligible to participate in the proposed Retail programs.

21. Would the addition of storage to an existing NY Sun project qualify for the Retail incentive program?

Yes. A storage project paired with a project that has been awarded a NY-Sun incentive can participate in the proposed Retail program, as long as the storage portion of the project meets Retail storage program eligibility criteria.

22. Would the proposed Retail Commercial incentives be available in Long Island?

Yes, NYSERDA envisions that a portion of Retail program capacity would be made available for projects sited on Long Island, in addition to New York City, Westchester, and the Rest of State regions.

23. The Retail program as presented in the Roadmap assumes a 3-hour average – will this be a program requirement?

No. The 3-hour average is simply reflective of past program deployments and is used for modeling/analysis purposes. It is not intended to be a program requirement.

24. Is behind-the-meter storage eligible for the proposed Retail program? Are different incentive levels anticipated for behind-the-meter vs front-of-the-meter projects?

Both behind-the-meter and front-of-the-meter storage are envisioned as being eligible to participate in the Retail program. However, NYSERDA does not envision implementing a capacity carveout or a separate incentive rate for behind-the-meter systems.

25. Can you share any details about incentive rates for the initial blocks of the proposed Retail and Residential programs?

Incentive rates for the proposed programs have not been finalized, and will be determined as part of the Implementation Plan process prior to program launch, following approval of the Roadmap if so deemed by the PSC.

Stakeholders are encouraged to provide comments on the appropriate rates for incentive blocks, ideally specific to market segment and geography.

26. For off-site Retail projects, the Roadmap proposes a requirement for at least 35% of program funding to be used to support projects in areas of the state with the highest benefits to Disadvantaged Communities (DACs) and peaker plant reductions. Can more information be provided on how these benefits will be assessed?

The Climate Leadership and Community Protection Act (CLCPA), signed into law in 2019, stipulates that no less than 35 percent of the benefits of clean energy expenditures from state entities or programmatic resources be allocated to disadvantaged communities, as defined by the Climate Justice Working Group created by the CLCPA. Additionally, the CLCPA requires the PSC to specify that a minimum percentage of energy storage projects should deliver clean energy benefits into NYISO zones that serve disadvantaged communities, and that energy storage projects be deployed to reduce the usage of combustion-powered peaking facilities located in or near disadvantaged communities. Accordingly, benefits are envisioned either in the form of economic benefits to DACs (such as electric bill credits), or by driving reductions in emissions from peakers sited in or near DACs.

27. For on-site retail ESS, there is a requirement for at least 35% of funding and benefits go to projects sited in DACs. Why is there a focus on siting ESS in DACs here, but different criteria for bulk and off-site retail ESS?

On-site projects whose primary benefit is to the site owner and whose operation is primarily in reducing the load at a particular host meter are considered to be place-based investments and the benefits of these projects must meet applicable criteria related to siting in DACs to ensure benefits accrue as required.

28. The Roadmap proposes improving upon the original Retail Storage program by “communicating adjustments to incentive rates early in the process.” What is meant by this statement?

This recommendation refers to providing stakeholders with greater visibility regarding future Retail program incentive block sizes and rates than previous programs, so as to provide stakeholders with a longer runway of information to support project development, financing and decision-making.