



February 7, 2024

Massachusetts Clean Energy Center
55 Summer Street
Boston, MA 02110

Massachusetts Department of Energy Resources
100 Cambridge Street Ste 1020
Boston, MA 02114

RE: Charging Forward: Energy Storage in a Net Zero Commonwealth, Report and Study

Nexamp appreciates the opportunity to comment on the report and study published by the Massachusetts Department of Energy Resources and Clean Energy Center. We are pleased to see that the Commonwealth is seeking to further its renewable energy and storage goals and break down current barriers to energy storage deployment including rates, interconnection reform, and siting and permitting.

General Comments:

Nexamp supports the points made in the NECEC/SEIA comments regarding the positive findings of the study and the need for more concrete storage mandates and procurement schedules to foster market confidence and continue development. As further described below in the comments on financial modeling, currently 2-hr batteries are preferred by customers over 4-hr batteries from a cost benefit perspective, and we agree with the NECEC/SEIA comments that a firm mandate and procurement schedule is needed for mid and long duration batteries to move forward in the market.

Siting and permitting of storage continue to be a challenge in the Commonwealth. Standardization across the state for solar and storage permitting, like what has been used in New York through NYSERDA's guidebooks would help overcome this hurdle.

Comments on financial modeling:

The results of the study's financial modeling for use cases and revenue trends summarized in study figures ES-7 and ES-8 were in line with what we expected to see. However, it's worth noting that we were surprised the study omitted the 2-hr system configuration in its analysis. From our experience, 2-hour storage systems are preferred over 4-hr systems due to insufficient incentive to install more costly higher capacity batteries. Connected Solutions and

the Clean Peak Program provide insufficient value for 4-hour systems, making them uneconomical. Customers typically would not choose a 4-hour BTM C&I paired BESS over a 2-hour BESS, unless the customer was willing to take on substantial financial burden for resiliency, which we have not seen in practice. Even without the value of resiliency, Nexamp's internal analysis has shown 2-hour storage to be more economical under current market conditions, regardless of the application (FTM or BTM, Dx or Tx, solar paired or standalone).

Study figure ES-9 showing storage cost expectations over time provides a cost forecast based on levelized cost of storage (LCOS) on a \$/KW-year basis. Generally, the LCOS values are higher than we would expect, specifically for the 2025 2 MW 4-hr lithium-ion BESS and for LDES greater than 8-hr.

Comments on existing programs:

Below are Nexamp's thoughts on the policy recommendations made in the study on the Clean Peak Standard, Connected Solutions, and SMART programs. We also support the comments made by NECEC/SEIA on the need for more frequent incentive updates and the program specific feedback provided. Generally, the process for updating existing programs needs to become more agile so improvements can be made without bringing project development to a halt. Changes to both rules and incentives should not affect already financed projects, perhaps through a legacy approach, understanding that a balance needs to be struck between program agility and administrative complexity. Effort should be made to ensure that program rules and pricing signals do not conflict with each other, but instead are harmonized to realize maximum system benefits.

In the study, E3 makes the point several times that costs to ratepayers need to be reduced and storage development should be driven by market signals and revenue streams. While Nexamp agrees that this is the goal, financing pathways and revenue streams need to be created and proven before upfront incentives can be reduced.

- Clean Peak Standard
 - We agree with the recommendation in the study that a floor price for clean peak certificates would help reduce risk, however longer-term contracting will do more for project implementation than a price floor.
 - We recommend adjusting the SMART multiplier, which currently dampens the price signals in such a way that the Clean Peak revenue barely outcompetes lost Energy Value Generation from RTE losses.
 - We agree with the study comment considering implementing contracting to allow incentive levels to be locked in and reduce uncertainty.

- The ACP cap is declining which means that NPVs are making the program challenging to finance, and the program is underutilized. The decline should be reviewed and adjusted.
- Connected Solutions
 - Similar to Clean Peak, longer contracting periods, ideally 10+ years, to lock in incentive levels are needed to increase revenue certainty and reduce risk to program participants.
 - An improved process for program changes is needed. In 2023 program changes were communicated in stakeholder through public stakeholder forums, and there was an opportunity to ask questions, however there was significant confusion surrounding the changes and delayed issuance of program manuals. In June 2023 Industry submitted a letter the Massachusetts Energy Efficiency Advisory Council (EEAC) with recommended process changes, which Nexamp supports. These recommendations included clearly defining potential changes and the issues being addressed well ahead of the upcoming season, EEAC involvement in changes, a stakeholder roundtable, and a hard deadline for when changes must be finalized prior to season start.
 - A winter event season should be considered.
- SMART
 - Agree that SMART incentive mechanisms should not interfere with market signals.
 - Nexamp recommends increasing the \$/kWh storage adder and tie it to enhanced storage performance requirements or creating peak windows (aligned with Connected Solutions or other emerging programs to reflect grid benefits) in Winter and Summer and pay a higher adder for every kWh discharged by the storage within those windows.
 - The declining block incentive was designed under the assumption that storage costs would decline linearly, which has not been the case. Incentives should be reevaluated and based on the value that storage provides, not based on a declining block, or cost to install.
 - Storage adders should be increased to reflect regional and locational value (see first bullet).

Additional Comments:

NYSERDA Index Storage Credit: The study highlighted NYSERDA's Index Storage Credit Mechanism for bulk energy storage projects in New York. Nexamp agrees that this mechanism is a cost-effective solution and provides revenue certainty for developers. However, Nexamp would encourage the DOER and MassCEC to consider adopting a general "wholesale market revenue curve" (\$/kW-mo) for developers to base their strike prices on. This would create a

level playing field and allow the administrators to pick projects that are most cost effective, not the projects that take a more aggressive stance on potential revenues just based on an arbitrary curve. A developers' revenue curve will have a large impact on a resulting strike price, where actual project costs (capex, development, etc.) should be the main driver.

Supply Chain and Materials Cost: In Section 2.1.2, Challenges to Deployment, it is stated that Covid-19 supply chain constraints exist today. In Nexamp's experience, supply chains have rebounded well since the height of the pandemic and, in many cases, has been improved since companies have identified new and efficient ways around logistics and manufacturing issues posed by COVID-19. However, we agree with the study comments that a U.S. based supply chain will be a difficult journey, which likely won't be realized until 2028-2030. Materials pricing is still 15-25% higher than in 2019, but significantly lower than the highest prices observed in 2021-2022. Battery energy storage pricing is expected to drop 18% throughout 2024. Nexamp agrees that incentives are still needed to mitigate the price fluctuation triggered by COVID-19. Prices have not declined linearly as was anticipated in the design of many of the current programs.

Distribution Connected and Transmission Connected FTM Storage: Nexamp supports the NECEC/SEIA comments on FTM storage and on interconnection concerns.

We look forward to continuing to be a resource as the straw proposal and procurement programs are developed.

Contact: Lisa Boba, Energy Storage Manager

lboba@nexamp.com | 401-714-6373