



Testimony on House Bill 5351, An Act Concerning Certain Programs and to Incentivize and Implement Electric Energy Storage Resources

March 5, 2020

Chair Needleman and Chair Arconti, Ranking Members Formica and Ferraro, and members of the Energy and Technology Committee, my name is Rachel Goldwasser and I am here on behalf of Key Capture Energy as its General Counsel, to testify in support of House Bill 5351, *An Act Concerning Certain Programs and to Incentivize and Implement Electric Energy Storage Resources*. I want to thank you all for your leadership with respect to energy storage in Connecticut and for the opportunity to testify today.

Key Capture Energy (KCE) is an Albany, NY based energy storage development company with a focus on utility-scale battery storage projects in the United States. We select project sites, secure all necessary permits, procure full battery systems and oversee construction to move battery storage projects into operation. KCE is currently operating 40 MWs of stand-alone energy storage projects in New York and Texas, and has two additional projects under construction which will be operational within the next month. KCE has been developing stand-alone energy storage projects in Connecticut since 2018, ranging from 20 MWs to 200 MWs. We have one full-time Connecticut employee, and strive to give preference in all development and construction to local firms to build up the clean energy economy in the states where we work. KCE has long been engaged in these issues in Connecticut, dating back to testimony on the Clean Energy Standard in 2017.

While KCE supports HB 5351, it does so with the following caveats:

1. Energy storage does not need to be paired with zero-emission generation, or co-located with zero-emission generation, to provide environmental benefits to Connecticut.
2. By requiring co-location of energy storage with zero-emission generation, Connecticut would be limiting the value of the energy storage system to the grid, effectively having Connecticut customers pay substantially more for energy and grid services offered by energy storage projects.

Benefits of Storage

KCE believes that energy storage will play a crucial role in helping Connecticut meet its goals and continue leading the energy transition by:

- (1) **Reducing Fossil Fuel Reliance:** Storage reduces the need for fossil fuel generators to quickly ramp up and down to meet daily shifts in energy demand (thereby reducing greenhouse gas emissions while benefitting customers by reducing peak electricity prices),
- (2) **Enabling Renewable Penetration:** Storage increases the ability of the grid to deploy additional renewable energy resources, while also reducing the amount of total capacity required, and
- (3) **Enhancing Grid Reliability:** Storage can provide various grid services from wholesale market ancillary services to distribution system non-wires alternatives which directly result in a safer and more reliable electric grid.



Implementation of energy storage, including stand-alone energy storage, aligns explicitly with Connecticut’s state energy policy goals including reliability, reduction of greenhouse gas emissions from the electricity and transportation sectors, and positive impact on customers. The 2018 Comprehensive Energy Strategy (CES) acknowledges energy storage’s ability to contribute to meeting Connecticut’s greenhouse gas emissions reduction target (pg. 12), reduce peak demand and associated costs from high energy rates (pg. 63), and integrate renewable energy resources (pg. 63). Similarly, the Massachusetts “State of Charge” study, concluded that the addition of 600 MW of advanced energy storage by 2025 in that state would capture \$800 million in system benefits to Massachusetts customers in a cleaner and more resilient grid.¹

Deployed properly, storage can reduce carbon emissions.² It can do this in several ways, for example by “firming” intermittent renewable generation, charging when renewables are available and discharging when they are not, which ensures that renewable resources are fully utilized versus being curtailed. Further, it can reduce reliance on fossil fuel plants to support peak demand requirements. Cycling fossil-fuel plants to meet peak electricity demand increases emissions, as pollution control systems (selective catalytic reduction) do not get warm enough to operate when such systems only operate for hours at a time. Energy storage permits reduced reliance on these facilities. In addition, storage can provide indirect services to the grid, such as distribution system investment deferral. For example, storage can be placed in locations where there are significant amounts of distributed resources, and can be used to mitigate impacts of those resources without requiring additional distribution system buildout.³

Finally, while co-located storage provides certain benefits, it narrows the services that storage can provide, by limiting its use cases. Energy storage systems that are behind the meter – so they are co-located with a single intermittent renewable energy facility – are unable to perform many grid-essential services, greatly reducing their value.⁴ Furthermore, the additional land mass required for renewable systems may result in requiring storage to be placed far from where it could be located to benefit the grid, or help to integrate a significant amount of distributed resources in a particular area. There is precedent for not requiring co-location; in New York, after requiring colocation in its initial RFP, the New York State Energy Resource and Development Authority (NYSERDA) did not require colocation in its 2018 and 2019 Large-Scale Renewable RFP.⁵

¹ Massachusetts State of Charge Study. <https://www.mass.gov/service-details/energy-storage-study>

² For example, a 2016 United States Department of Energy study found that a 20 MW storage project reduced 214,129 tons of carbon a year by displacing natural gas in the ancillary services market. Department of Energy, 2016 Final Technology Performance Report. Contract ID DE-OE-0000200, available at https://www.smartgrid.gov/files/documents/Hazle_Spindle_LLC_Final_TPR_20160205.pdf

³ Orange and Rockland Utilities selected KCE as a partner through a non-wires solution competitive procurement to build an energy storage system that will allow the utility to both delay costly rate-based system upgrades while encouraging the growth of sustainable electric operations. This project will be operational in 2020. <https://www.oru.com/en/about-orange-rockland/media/news/2019/2019031301/oru-key-capture-energy-to-develop-new-pomona-battery-project>

⁴ For example, the Investment Tax Credit requires 75% of energy stored to come from the collocated facility. This means that if storage is collated with solar, and wind is blowing but the sun is not out, the storage facility may forgo charging to maximize ITC revenues, limiting overall grid and environmental benefits.

⁵ For example: NYSEDA RFP No. RESRFP18-1: https://portal.nyserda.ny.gov/CORE_Solicitation_Document_Page?documentId=a0lt000000K79A



The proposed state program in HB 5351 to secure 1000 MWs of nameplate energy storage capacity using competitive solicitations is a great start to bringing the benefits of storage to Connecticut. KCE suggests the following framework to facilitate the lowest cost, most competitive, and most environmentally sustainable package:

Energy Storage Framework and Size

KCE supports the goal set forth in HB 5351 of 1,000 MW of storage by 2030. This proposal incorporates a diverse series of demonstration projects at a variety of scales. As Connecticut has experienced with renewable project development, to facilitate battery storage development, we need to see long-term, predictable revenue streams (which can then allow for financing by equity and debt providers). To create a market that developers like us know will allow for healthy competition, KCE encourages the state to establish interim goals on the way to meeting its target by 2030:

(1) 1,000 MW energy storage goal by 2030

- 150 MW procured by 2020
- 300 MW procured by 2022
- 500 MW procured by 2024
- 700 MW procured by 2026
- 900 MW procured by 2028
- 1000 MW procured by 2030

(2) Procurement Parameters:

To facilitate competition of the widest range of projects that are beneficial to Connecticut customers, KCE suggests the State bifurcate the procurements such that:

- 500 MW comes from Class 1 Renewables + Storage (co-located or non-co-located)
- 500 MW comes from stand-alone storage
 - o 80% bulk-level -- > 20 MW projects (400 MW)
 - o 20% distribution-level -- < 5 MW projects (100 MW)

Each of these categories is described briefly below:

(A) Class 1 Renewables + Storage Recommendations

For the Class 1 Renewables + Storage, Connecticut has proven through its LREC and ZREC program for solar energy that the state can benefit from the same economic development and environmental attributes at a fraction of the cost of neighboring states with properly designed programs. In a similar approach, procurements for Class 1 renewables + Storage will allow for Connecticut's home-grown renewables, such as utility-scale solar and offshore wind, to provide even more ratepayer benefits. For all projects, the storage should be new, with a capacity minimum of 2 hours, favor (or require) in-state generation, and be online within 18 months of award. These energy storage projects, which would be partnered with Class 1 renewable projects, should be paired with renewable energy projects but be allowed to be either co-located (behind the meter of renewable generator) or non-co-located (in front



of the meter). This flexibility would allow energy storage projects to be sited closer to electricity demand (urban areas) where they will be better able to provide their benefits.

(B) Standalone Storage Recommendations

As described above, standalone storage benefits the State through economic development, capacity replacement (especially with regards to fossil peakers), and environmental benefits. To ensure that Connecticut gets the most environmental and economic benefit from storage, Connecticut should specifically acquire (with respect to standalone storage):

1. Two hours of peak reduction at the highest summer peaks (adjusted based upon load data from the previous year)
2. Two hours of peak reduction at the highest winter peaks (adjusted based upon load data from the previous years).

This procurement would permit Connecticut to require the energy storage facilities to discharge during peak two-hour periods during the summer and during the winter, effectively ensuring that the storage facilities would be required to reduce reliance on fossil fuel peakers. This procurement model protects Connecticut customers by requiring the battery storage owner to take on all market risks for any periods outside these two-hour windows. KCE does not recommend operational obligations during the Spring and Fall, as forcing a battery to dispatch during these seasons could lead to scenarios where there is a net loss from an environmental and economic perspective for Connecticut customers.

(C) Distribution-Level Project Recommendations

For the 100 MW of distribution-level projects, the state could mandate that energy storage be used for Non-Wires-Alternatives and for system peak shaving to enable more distributed solar energy and save ratepayer dollars by deferring costly system upgrades. Competitive solicitations overseen by DEEP and programs developed through PURA's storage docket can ensure the cost-effective deployment of storage. Competitive solicitations can allow for the utility to still own the project but would require they go through a competitive process for developers to build-transfer.

Conclusion

KCE is committed to the continued development of standalone energy storage projects in Connecticut and looks forward to competing in future procurements which will directly benefit of the state's environment and customers. Thank you for your time and engagement on these issues.

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