



Via Electronic Filing

January 11, 2021

Debra A. Howland
Executive Director
New Hampshire Public Utilities Commission
21 S Fruit St #10
Concord, NH 03301

RE: Docket No. IR 20-166, Investigation into Compensation of Energy Storage Projects for Avoided Transmission and Distribution Costs

Dear Executive Director Howland,

Key Capture Energy (“KCE”) respectfully submits these comments pursuant to the October 12, 2020 Order of Notice in the above-referenced docket. KCE commends the Public Utilities Commission (“PUC,” or the “Commission”) for commencing this proceeding to investigate the best methods for compensating energy storage projects for avoided transmission and distribution costs.

KCE is a battery storage developer, owner, and operator, focusing on the deployment of front-of-the-meter, stand-alone storage projects at both the distribution and transmission level. KCE brings prior experience with Non-Wire Solutions (“NWS”) and utility-scale storage projects to this conversation. We currently operate the largest battery in New York State (the 20MW KCE NY 1) and recently completed construction of a distribution-deferral 4.4 MW energy storage NWS for Orange and Rockland, a distribution utility in New York State. Additionally, we own and operate three 9.9MW storage projects in Texas, all of which interconnect at the distribution level, and we currently have 200 MW of facilities under construction in Texas at the transmission level. KCE has a 2.5 GW development portfolio across North America and has also been developing energy storage projects in New England since 2017.

KCE applauds the Commission for its significant research, stakeholder involvement, and policy development in the areas of grid modernization, utility incentives, and reforms to distribution system planning. We are eager to assist the Commission in moving from analysis and planning to implementation and deployment, drawing on KCE’s experience in multiple states developing, constructing, and operating battery energy storage projects. We are confident that with the right regulatory, planning, and incentive mechanisms in place, New Hampshire can unlock the value

that storage can provide to achieve New Hampshire's policy objectives of reducing costs and improving grid reliability.

As an independent developer, owner, and operator of energy storage solutions, we focus our comments on the following themes raised in the October 12 Order of Notice:

- Design of price signals and compensation mechanisms for energy storage that avoid transmission or distribution costs
- How to encourage non-utility investments in energy storage projects to reduce ratepayer risk and maximize market-driven benefits

I. Energy storage projects can provide avoided transmission and distribution ("T&D") savings to ratepayers, and New Hampshire should capitalize on this opportunity by mandating a full-fledged Non-Wire Solutions program. This program would demonstrate proof of value and help the State learn by doing. At the same time, the Commission could continue its longer-term work to refine more sophisticated, tariff-based pricing signals and compensation mechanisms.

As a flexible and fast-responding resource, energy storage can provide wide-ranging benefits to the electric grid, including reducing or avoiding the need for costly "poles and wires" investment at the distribution and transmission levels. To realize these benefits, however, grid planners and operators must supply transparent price signals and rational compensation mechanisms so that storage companies can design, deploy, and operate assets in a way that maximizes value to the system.

Accurate and efficient price signals already exist for storage projects participating in wholesale energy markets. For instance, a distribution-interconnected battery project participating in the ISO-NE energy market can refer to locational marginal prices ("LMPs") to formulate bids and offers to buy and sell energy in day-ahead or real-time. By buying energy (i.e., charging the battery) when the system is over-supplied and selling energy (i.e., discharging the battery) when system conditions are tight (i.e., periods of peak demand), storage projects can displace more expensive marginal generators and reduce system costs for ratepayers.

In contrast to the wholesale market, however, there is a lack of detailed price signals communicating where and how storage companies could provide value to New Hampshire's T&D system, with attendant savings to New Hampshire ratepayers. On the distribution side, the PUC has already begun developing the analysis needed to form the basis of such price signals, including the recently completed Locational Value of Distributed Generation Study ("LVDG Study") and upcoming Value of Distributed Energy Resources Study ("VDER Study"), both initiated in Docket DE 16-576. The LVDG Study is significant because its results indicate the substantial economic opportunity for the targeted deployment of technologies like storage to address locational capacity deficiencies on the distribution system in lieu of conventional infrastructure solutions. The VDER Study represents a laudable effort to develop a value-based compensation mechanism for net-metered distributed generation. KCE is concerned, however, that the scope of the VDER Study appears limited to solar photovoltaic and hydroelectric technologies in the context of net metering while omitting both stand-alone storage, hybrid

systems (such as solar plus storage), and potentially larger projects that also provide value to the distribution system.

On the transmission side, KCE observes that New Hampshire has not yet established specific price signals that convey how storage can reduce localized and system-wide transmission costs. KCE commends the PUC's recommendation in Docket DE 16-576 that the VDER Study evaluate a variety of avoided transmission costs — transmission charges, transmission capacity costs, transmission line losses, and transmission system required upgrade costs — that all comprise tangible benefits that storage can provide.¹

While there is value in New Hampshire pursuing the implementation of a VDER tariff, experience in other states has demonstrated that the development of more complex, value-based compensation solutions is a time-consuming and challenging process. Given the low-hanging opportunities for T&D cost savings that exist today as highlighted in Docket DE 16-576 and the LVDG Study, **KCE encourages the PUC to prioritize simpler approaches that move New Hampshire swiftly to project implementation, such as mandating that utilities conduct direct procurement of NWS pilots using RFPs or creating a fixed-price program to compensate storage for discharging at pre-defined peak periods.**

Mandating competitive NWS procurements would allow utilities and the PUC to gain familiarity with integrating energy storage in NWS applications and refine cost/benefit estimates for future tariff-based compensation mechanisms. It will also help identify and troubleshoot unforeseen issues with interconnecting, constructing, and operating actual energy storage projects. KCE has often been the first entity to bring front-of-the-meter storage facilities to full commercial operation in particular jurisdictions or RTOs. These early entry projects often uncover issues that must be addressed to facilitate further storage investment in those jurisdictions. The programs described in this comment would help New Hampshire enunciate and address issues sooner than later based on the benefit of real-world implementation experience, permit parties to collaborate in finding solutions that will enable additional storage investment and provide valuable learning by doing.

To properly compensate storage projects procured through RFPs or a fixed-price program, KCE recommends that utilities identify specific time windows during the year where specific attributes are needed. For instance, if a distribution line only needs load reduction during weekdays in the summer, a NWS would only need to discharge during these hours to meet the attribute need and would only receive compensation for avoided T&D costs. Utilities can forecast these hours in advance and notify NWS projects that the utility will expect that they can discharge — providing clarity and certainty for project operators. At hours where a project does not have an NWS obligation, it could receive compensation from the wholesale market and

¹ For example, the Commission has concluded that ISO-NE charges that may be shifted away from New Hampshire ratepayers should be considered as benefits in cost-benefit assessments. *Order Approving Value of Distributed Energy Resources Study Scope*, Docket No. DE 16-576, Order No. 26,316 at 27 (Dec. 18, 2019) (“To the extent that such charges assessed by ISO-NE based on hourly or peak load or other criteria may be shifted away from New Hampshire customers as a result of DG-related load reduction, those avoided charges should be counted as benefits to New Hampshire utility ratepayers.”).

operate in response to wholesale market signals (subject to any limitations agreed upon with the NWS contracting utility). This design will ensure utilities can meet reliability needs when the NWS resources are needed, but not require utilities to pay the entire cost of the storage facility. Utilities would only compensate NWS for actual performance during these hours, not standby service, helping ensure the program reduces rates for consumers.

Finally, we note that in the context of a competitive procurement, the Commission may wish to consider various development and ownership structures that result in the greatest benefits possible for a particular project or type of project. That may mean that benefits to ratepayers will be maximized when third parties own and operate the storage facilities in accordance with system needs. In other circumstances, a developer may build a project that will be operated by the utility for some period of time (e.g., via a “toll” agreement), and in some situations, the utility should own and operate the facility itself. Different models may be appropriate in different use cases, always considering who should bear applicable risks.

II. New Hampshire should encourage third-party investment in energy storage projects by requiring non-wire solicitations with third-party participation; reforming utility incentives and rate designs; and establishing transparency and best practices in planning and study processes.

KCE applauds the PUC’s recommendation in its May 22, 2020 Order No. 26,358 in Docket IR 15-296 that the LVDG study should inform standardized methods for utility Least Cost Integrated Resource Plan (“LCIRP”) load forecasts, NWS identification, and other relevant distribution planning inputs.² KCE supports many of the PUC’s Order No. 26,358 findings, which would increase transparency in distribution system planning. KCE further suggests the following additional policies for consideration by the Commission to facilitate a favorable market for energy storage participation:

- **Require third-party NWS solicitations.** First and foremost, KCE respectfully urges that the PUC add an explicit requirement that utilities solicit third-party proposals as they consider NWS options to meet distribution system capital investment needs. Ratepayers receive the best deal when third parties and utilities compete on an equal footing to present the lowest-cost solution to provide system benefits. This aligns well with New Hampshire’s least-cost planning practice and emphasis on competitive markets and customer choice expressed within the state’s restructuring statutes.
- **Reform utility incentives.** KCE recommends that the PUC give utilities an additional financial incentive to implement NWS. Existing utility business models create a bias toward investment in transmission and distribution infrastructure at the expense of non-wire solutions. To counteract this misalignment, the PUC should establish a performance-

² See *Investigation Into Grid Modernization*, Docket No. IR 15-296, Order No. 26,358 (May 22, 2020) (Guidance on Utility Distribution System Planning and Order Requiring Continued Investigation), *suspended on July 22, 2020 pending consideration of motion for reconsideration and/or clarification*.

based incentive for utilities that successfully implement NWS projects, including third-party, front-of-the-meter storage projects. One effective option to incent utilities to implement NWS projects is a shared-savings approach whereby the utility would share in a portion of the savings created by an NWS project, with the remaining savings passed on to customers.

- **Institute appropriate rates for storage charging.** In many jurisdictions, distribution utilities will place stand-alone, front-of-the-meter storage projects on existing delivery rates that typically apply to large industrial loads. Such rates may often have a non-coincident peak (“NCP”) demand charge that the customer cannot avoid by shifting charging to off-peak periods. In many cases, these rates can render projects cost prohibitive. Such rates are not justifiable on cost-causation principles, however, because batteries are a flexible load with a different load profile and operating characteristics from the large industrial customers that these rates were designed to serve. Until the PUC is able to clarify standardized rate design recommendations for storage projects, KCE respectfully urges the Commission consider short-term options to address this concern.
- **Reform interconnection procedures.** Because storage acts as both a generator and load, utility planners will often consider worst-case conditions for both charging and discharging during interconnection studies. In some cases, these assumptions may not reflect the real-world operation of the project. For instance, a utility may study the impact of full charging at feeder peak load conditions, however, if the storage project is operating in an NWS capacity, it would always be discharging (not charging) during peak hours in order to supply the needed load relief. Furthermore, unlike some other types of distributed generation, energy storage is a dispatchable and controllable resource that can adhere to a predefined schedule for injection or withdrawal. Therefore, KCE recommends that the PUC establish guidelines for utilities to apply reasonable assumptions when studying storage interconnection requests and require utilities to allow storage developers to agree to a set of operating restrictions to avoid having to pay for major system upgrades.
- **Encourage longer-term contracts for NWS agreements.** To help projects secure low-cost financing and reduce prices for consumers, KCE recommends that the PUC require utilities to provide qualified projects with long-term, fixed-price contracts. At minimum, these contracts should have a term of five-years; though preferably contract terms should be between ten and twenty years. By locking in prices for several years, NWS projects will have less revenue risk. This will, in-turn, reduce creditor’s risk, shrink financing costs, and lead to more cost savings for consumers over the long term.
- **Ensure best practice NWS planning, reporting, and transparency.** KCE applauds the Commission’s expectation that utilities consider NWS in the distribution planning process. KCE further encourages the Commission to require utilities to employ fair, appropriate, and transparent screening criteria to determine where an NWS project might

be a preferable solution. KCE supports the Commission's recommendations on increasing the transparency of distribution system planning, specifically those recommendations in section IV.E.3 (Hosting Capacity/Locational Value Analysis Interconnection) of Order No. 26,358. As competition is the key to successful RFPs, utilities should make distribution system data easily accessible, through online portals and mapping interfaces, for instance. Finally, once NWS opportunities are identified, utilities should lay out clear requirements for eligibility in NWS RFPs. These RFPs should include, at a minimum: the required size of the NWS project, necessary performance characteristics, maximum cost, which utility tariff service class the project will be subject to, ownership and operating expectations, and location.

Conclusion

KCE thanks the PUC for taking on this series of complex and challenging grid modernization dockets. We look forward to continued involvement in these proceedings. KCE remains committed to engaging with New Hampshire and discussing the role that energy storage can play in the State.

Respectfully Submitted,



Rachel Goldwasser, NH Bar # 18315

Danny Musher

Matthew Piggins

Key Capture Energy

25 Monroe Street, Suite 300

Albany, NY, 12210

rachel.goldwasser@keycaptureenergy.com

danny.musher@keycaptureenergy.com

matthew.piggins@keycaptureenergy.com

CERTIFICATE OF SERVICE

I hereby certify that, on the date written below, I caused the attached to be served pursuant to N.H. Code Admin. Rule Puc 203.11.

