ESA Comments on Minnesota Department of Commerce

Energy Storage Study Final Results Review Webinar

The Energy Storage Association ("ESA") appreciates the opportunity to provide these informal comments on the October 25, 2019, webinar of the Minnesota Department of Commerce on the Minnesota Storage Cost-Benefit Analysis conducted by E3. ESA is the national trade association dedicated to energy storage, working toward a more resilient, efficient, sustainable and affordable electricity grid – as is uniquely enabled by energy storage. With more than 190 members, ESA represents a diverse group of companies, including independent power producers, electric utilities, component suppliers, and integrators involved in deploying energy storage systems around the globe. Further, our members work with all types of energy storage technologies and chemistries, including lithium-ion, advanced lead acid, flow batteries, zinc-air, compressed air, and pumped hydro, among others. In these comments, ESA addresses areas where E3 has not incorporated stakeholder feedback and outlines the existing regulatory barriers preventing the deployment of energy storage and potential policies to address those barriers.

COMMENTS ON FINAL RESULTS

Including system-wide, forward looking analysis, can be done with the scope of this study

ESA has noted previously the importance of including a system-wide forward-looking analysis in this study. We assert that this is not only within scope of the Request for Proposal issued by the Department of Commerce[1], but is also the legislature's intent by funding the study in the 2019 Omnibus Jobs and Energy Bill.[2] The assertion that this could not be done in the timeline and budget is misplaced. A recently finalized cost-benefit study for Virginia commissioned by the state's Solar and Energy Storage Development Authority and executed by Strategen Consulting for $100,000[3] includes system-wide and forward-looking analysis that finds that at least 100 MW of energy storage deployment in 2019 and at least 1,000 MW of energy storage in 2029 would provide net benefits to Virginia.

Without this analysis, policymakers have no use for this report. For example, the October 25 webinar outlined revised findings showing that lithium ion batteries installed in 2025 are cost effective for both the mid and low storage price scenario (Slide 11 of the October 25 presentation). Given that

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[1] Minnesota Department of Commerce Request for Proposals for the study (reference number COMM_STUDY03_20190603) states under Task 1.1 that the study must include use-cases, and includes a separate task 1.2 "Identify and measure potential costs and benefits of energy storage system deployment [emphasis added]." Were the cost and benefit of total deployment the same task as identifying the costs and benefit of use-cases, it would not have been separated out in a different task.

[2] The 2019 Omnibus Jobs and Energy Bill requires that the storage study "(1) identify and measure the different potential costs and savings produced by energy storage system *deployment* [emphasis added]." It then goes on to state that "(4) include *case studies* [emphasis added] of existing energy storage applications currently providing the benefits described in clauses (1) and (2). If the only requirement was to look at specific applications of energy storage and not an overall deployment, then it would not have been made in a separate requirement (available at: https://www.revisor.mn.gov/bills/text.php?number=SF2&version=latest&session=ls91&session_year=2019&session_number=1).

[3] The Virginia Department of Mines, Minerals and Energy (DMME) commissioned Strategen Consulting to produce a cost-benefit study for energy storage deployment in Virginia. The study included a forward-looking system-wide analysis (press release available at: https://www.dmme.virginia.gov/dmme/pdf/news%20releases/2018Releases/Press_Release_Energy_Storage.pdf).

information, policymakers would benefit from seeing what levels of deployment could be realized by 2030 and what the areas of benefit are to the system given that storage is modeled as cost effective. E3 must incorporate a sense of how many megawatts of storage can be deployed and what the value of those deployments will be to the system.

Findings only show "mid" price and Existing Trends scenario

ESA appreciates E3's willingness to incorporate a "low" price scenario and a High Renewable scenario. However, the use cases presented in the October 25 presentation appear to show the cost and benefit analysis for the medium price and Existing Trends scenario. The final report should provide policymakers with the ability to see what the cost and benefit analysis is for the low price/high renewables scenario.

The value of peak demand reduction is not included in the study as a "benefit" value

In the October 25 webinar presentation, E3 assets that the value of peak demand reduction that energy storage can provide by shifting energy from low demand periods to high demand periods is captured in the energy and capacity prices (Slide 23). In earlier comments, ESA noted that other states measured the savings as a benefit value that energy storage deployment provides and stacked it up as one of the values in a systemwide cost benefit study. We noted in our earlier comments that by exclusively looking at specific use cases, the analysis does not capture that value because energy storage projects do not receive a revenue stream for that benefit, even though it is a tangible benefit to Minnesotans. On Slide 23 of the October 25 presentation, E3 notes that the value is included in the capacity value and the energy value. The slide notes that the savings of peak reduction were valued at $399/day. ESA seeks greater clarity on how this savings is captured in a benefit cost analysis for the specific use cases modeled for this study. How this value is a ***positive*** revenue stream in a specific project's benefit and cost analysis? It seems here that this is a savings to the system, not a revenue stream to the project.

REGULATORY AND MARKET BARRIERS IN MINNESOTA

Level playing field needed in utility planning

Despite being a part of the Midcontinent Independent System Operator, Minnesota's utilities determine their energy and capacity needs through an integrated resource plan. As a result, one of the areas where energy storage can provide significant savings to customers is through the utility planning process by reducing the need for excess capacity and by providing additional flexibility to the system. Unfortunately, assumptions and modeling techniques in utility plans do not provide a level playing field with traditional investment like natural gas plants. Most of the time, energy storage is not even considered as a possible tool in the toolkit for addressing the needs modeling in resource plans. Even if they are, obsolete cost assumptions rather than using up-to-date data from Requests for Proposals prevent energy storage resources from being selected to fill capacity needs. Finally, system planning does not place a value on flexible capacity. Similar challenges arise in distribution planning and transmission planning practices, where inaccurate assumptions about the capabilities and costs of energy storage prevent the resource from being able to compete with traditional investment.

Hurdles to multiple use applications for distribution-connected assets

Distribution-connected assets face significant challenges to participating in the wholesale market when they are not used for either customer bill management needs or grid services. The most notable question for customers and developers is whether the same asset will be allowed to participate both in the retail market and the wholesale market. A lack of dual market participation rules for storage assets that enable storage to be optimized across a number of applications and receive financial compensation for those values creates an additional barrier to the economics of distribution-connected assets. The

result is not only reduced efficiency since these assets are not optimized for all the applications they can serve, but also reduced revenue streams that will limit the total number of energy storage assets that will be deployed. Similarly, energy storage assets behind a customer's meter can reduce a utility's cost of meeting peak demand as well as provide distribution grid support. Both these services have the potential to provide savings to the system by foregoing the need for additional investment in infrastructure. However, programs do not exist to provide customer-sited energy storage resources an opportunity to compete for grid services or to help with shifting energy from periods of low demand to periods of high demand.

POLICY RECOMMENDATIONS FOR OVERCOMING BARRIERS

Below, ESA outlines several policy recommendations that are intended to overcome the regulatory and market barriers for energy storage.

Unclear why a pilot is needed when energy storage is being deployed at scale across the U.S.

ESA strongly opposes the Storage Study's recommendations that the "state explore pilot programs to gain experience in operating energy storage and understand the potential operational constraints" (Slide 17 of the October 25 presentation). ESA notes that the 2019 Omnibus Jobs and Energy Bill already includes a pilot program for the utilities to deploy smaller energy storage projects. Moreover, energy storage is being deployed across the United States, including over 200 megawatts of energy storage under development by Xcel Energy in Colorado. There is over 1 gigawatt of advanced energy storage systems already operational in the United States. As such, recommendations focused on pilots only stand in the way of effective regulatory and market reforms that are needed to break down the barriers of energy storage, delaying the opportunity for Minnesotans to receive the system efficiency savings that energy storage can provide.

Utility planning and procurement rules should require utilities to consider energy storage

Several basic reforms are needed to the utility planning process as well as the rules governing Certificate of Public Convenience and Necessity. For integrated resource plans, the following requirements would level the playing field for new technologies like energy storage. All of these recommendations can be found in ESA's 2018 report Advanced Energy Storage in Integrated Resource Planning.[4]

1) Use up-to-date storage cost estimates and cost forecasts to better identify near-and long-term prudency of storage;
2) Employ sub-hourly intervals in modeling to quantify the value of both capacity and flexibility benefits provided by energy storage;
3) Institute a "net cost" analysis of capacity investment options to more accurately compare energy storage with traditional capacity resources;
4) Incorporate system flexibility needs into reliability metrics to better account for the characteristics of the future supply mix; and
5) Analyze demand resources as distinct resource options separate from load forecasts to seek the widest range of cost-effective resources.

[4] Energy Storage Association, Advanced Energy Storage in Integrated Resource Planning, June 2018, (Available at: https://energystorage.org/wp/wp-content/uploads/2019/09/esa_irp_primer_2018_final.pdf).

For the process of filing Certificate of Public Convenience and Necessity for new investments, the following requirements should be included:

1) A robust demonstration of alternatives analysis should be included. This includes a requirement that cost assumptions are collected through a Request for Proposals (RFP) within the year that the CPCN is filed; and
2) All Requests for Proposals for a specific need should be all-source and allow all technologies to participate.

Develop program to target peak demand reductions

The Commission should work with utilities to develop programs for customer-sited energy storage to ensure those assets have an opportunity to compete for services and receive compensation for those services based on the value they provide. To further reduce costs to meeting peak demand, utilities could develop a program that provides compensation for customers who participate in a daily dispatch, such as the one that is provided by National Grid and Eversource in Massachusetts. The program enables customers to participate for five years and receive funds through the three-year Energy Efficiency Plans. Another program to consider is the "Bring Your Own Device" program currently available for Green Mountain Power in Vermont, Liberty's customers New Hampshire, and has been proposed by Eversource for its New Hampshire customers as well. Under such a program, customers can provide traditional grid services to the utility and are compensated for the value they provide through an on-bill credit. The savings provided by customer-sited storage comes through the deferment of traditional distribution investment that would have otherwise been needed.