THE POWER BUREAU, LLC

ENERGY PLANNING & PROCUREMENT

October 26, 2023

TO: Anthony Star, Senior Advisor and Chief of the Planning & Procurement Bureau, Illinois Power Agency

FROM: Mark Pruitt, Principal, The Power Bureau

SUBJECT: Response to House Bill 3445 Policy Study Request for Stakeholder Feedback dated September 29, 2023

On behalf of the Clean Grid Alliance, the Illinois Solar Energy Industry Association, the Solar Energy Industries Association, the Coalition for Community Solar Access, and the American Clean Power Association (the "Associations") I am submitting to you the below responses to your request for stakeholder feedback to the House Bill 3445 Policy Study. The Associations may be able to provide additional data, information, and context to the Illinois Power Agency (the "Agency") as they become available through the Associations and their members.

Background. The Agency's request for stakeholder feedback outlined how the Agency is performing a series of studies as directed by House Bill 3445. The Associations appreciate this opportunity to provide feedback to the Agency and look forward to providing ongoing input as the Agency progresses in its evaluations. Representatives and members of the Associations have reviewed your request and have prepared the following responses.

Initial Responses to Agency Request for Feedback. The Associations consider this document as an initial response to your request for feedback with the anticipation that subsequent submittals may be provided at a later date. The following responses correspond to the seven (7) items included in section 1 ("Energy Storage") of the Agency's request for feedback:

a) Senate Bill 1587 sets a procurement goal of 7,500 MW of energy storage by 2030. Is this a realistic or appropriate goal for energy storage in Illinois? How does this compare to goals and timelines for achieving those goals in other states?

RESPONSE: A procurement goal of 7,500 MW of energy storage by 2030 is a realistic and appropriate goal for Illinois.

Multiple states with electricity market structures and energy policies that are similar to Illinois (e.g., New York[1], Connecticut[2], Maryland[3], New Jersey[4], and Maine[5]) have established energy storage

[1] NY Public Service Commission, Case 18-E-0130, "New York 6 GW Energy Storage Roadmap: Policy Options for Continued Growth in Energy Storage" (filed Dec. 28, 2022); *available at*: Link
[2] 2021 Conn. Acts 21-53, "An Act Concerning Energy Storage"; *available at*: Link
[3] 2022 SB 528, "Climate Solutions Act of 2022": *available at:* Link
[4] 2018 N.J. P.L. 17, "Clean Energy Act of 2018"; *available at*: Link
[5] MRSA 35-A §3145, "An Act to Advance Energy Storage in Maine" (2021); *available at*: Link

targets ranging from 12-25% of their state or utilities' 2020 summer peak demand. The 7,500 MW target set in Senate Bill 1587 is approximately 16% of Illinois' net peak summer demand. In addition, New York, Maryland, and New Jersey, like Illinois, have passed legislation that drives a transition from fossil-fuel generators to clean energy generators. The storage targets established for these states are intended to support that transition while maintaining system reliability and level or lower consumer costs.

Michigan and Iowa have also identified energy storage need that are in the same range as the aforementioned states. The Iowa Economic Development Authority commissioned a study in 2020 that projected a scenario of 1,860 MW of energy storage by 2030. That is approximately 18% of Iowa's 2020 peak demand.[6] The Michigan Department of Environment, Great Lakes, and Energy (EGLE) recently commissioned an energy storage roadmap that identified a need for 2,500 MW of front of the meter storage by 2030.[7] That target amount is approximately 11% of Michigan's peak demand. Furthermore, it is anticipated that an energy storage target bill will be filed in Michigan within the next month.

b) Is an indexed energy storage credit structure (as proposed in SB 1587, and modeled off the approach presently utilized for large-scale renewable energy projects in the Illinois Renewable Portfolio Standard) an appropriate compensation structure for energy storage? If not, what structures would more efficiently and cost-effectively compensate energy storage projects to incentivize new development? Should that structure vary based on project size?

RESPONSE: An indexed energy storage credit can be an appropriate compensation structure for energy storage resources. In addition to an indexed energy storage credit, there are other compensation structures for non-utility-owned energy storage that are used in other states -- upfront incentives, clean peak credits, and tolling agreements (also referred to as "Utility Dispatch Rights"). A high-level of summary of these structures is provided in the "New York 6 GW Energy Storage Roadmap: Policy Options for Continued Growth in Energy Storage" (pp. 39-43) which was prepared for the New York Public Service Commission.[8] Table 4 (p. 48) of the report provides an assessment of these structures, however, the assessment reflects NYSERDA's and NY DPS staff's views and not necessarily the views of the Associations.

The Associations recommend that the Agency conduct its own independent analysis on each of the alternative compensation structures identified in parallel with the indexed energy storage credit structure proposed in SB 1587. Such an analysis should holistically evaluate the costs and benefits of the applicable compensation, procurement, and contract structures - and not just consider which program offers the lowest program cost. A holistic assessment is critical for selecting the best compensation and contract structure for energy storage resources in Illinois. As Illinois establishes these initial energy storage targets, there are other factors to consider beyond the benefits and costs, such as design robustness of the battery energy storage system, operation and maintenance, and battery augmentation plans. To that end, the Agency can utilize a request for proposals process that considers standards for project execution and delivery would ensure developers submit comparable bid proposals. Additionally, by allowing appropriate compensation and contracting

[6] Synapse Energy Economics, Inc., Energy Storage in Iowa (12/15/2020); *available at*: Link

[7] Institute for Energy Innovation, "Energy Storage Roadmap for Michigan", at 84-85 (March 13, 2022); *available at*: Link

[8] NY Public Service Commission, Case 18-E-0130, Item No. 285 (filed Dec. 28, 2022); available at: Link

mechanisms the Agency can effectively improve developer access to capital at a lower cost. Agency consideration of all these factors will ensure that the ratepayers receive the most value from these energy storage assets.

c) Should procurement design differ for varying types of energy storage projects, such as differentiating between stand-alone energy storage projects, projects paired with renewable resources, specific-storage technologies, and projects located at the sites of former coal plants? If so, what kind of varying procurement structures should be considered?

RESPONSE: Short-, long-, and multi-day duration storage should be procured and evaluated separately. Each of these resources have different attributes, including different capital costs, and different profile for energy and capacity, and they specialize in providing different grid services. To develop a market for each resource class, which as a portfolio will lower system costs, it is important to evaluate each of these resource classes independently in a manner that allows for reasonable competition within each resource class.

Additionally, procurements should be designed to incentivize, prioritize, and differentiate between stand-alone energy storage and energy storage paired with renewable resources. Selection of stand-alone energy storage resources could focus on the extent to which energy storage can provide bulk energy system resilience during periods of extreme or atypical weather and adverse grid conditions. Alternatively, energy storage paired with renewables could focus on the extent to which the storage can facilitate the deployment of renewables and support the transition to a dependable low-carbon electric grid by maximizing the use of renewable energy resources.

d) What scale of procurement for long-duration energy storage is needed for Illinois? Is the proposal in SB 1587 sufficient? What special considerations for long-duration projects should the IPA consider when conducting its analysis?

RESPONSE: The scale of procurement for long-duration energy storage that is proposed in Senate Amendment 1 of SB 1587 is sufficient for purposes of this round of modeling of the impacts of long-duration energy storage.

e) What large-scale energy storage procurement designs used in other states are seen as best practices?

(i) What obstacles have emerged in those procurement designs, and how have they been addressed or resolved?

RESPONSE: In addition to the New York Energy Storage Roadmap cited in the response to item b above, California has successfully used full or partial tolling agreements (referred to as the "Utility Dispatch Model" in the New York Energy Storage Roadmap) to facilitate large procurements year after year. This tolling approach has contributed significantly to both the reliability and resiliency of the grid and enabled higher integration of renewable energy. Many regulated utilities use the tolling structure to contract energy storage assets, and that also enables large scale deployment.

f) What best practices in other states for potential tariff design for the participation and/or aggregation of customer-side energy storage from should be examined by the IPA?

RESPONSE: Behind-the-meter ("BTM") storage resources can provide significant value to the grid by offering peak shaving to reduce power supply and distribution system costs. The Agency should

consider the BTM programs that are modeled by the Massachusetts Connected Solutions program and the New York State's Retail Storage Incentive Program. These programs offer incentives to customers who respond to utility-called peaking events or are enrolled in tariffed rates which incent charging and discharging to coordinate with grid needs and power supply cost drivers.

In the Massachusetts program, customers are eligible for $275 per kilowatt (kW) for a battery's average contribution during summer events. The program imposes parameters on when and how a utility can deploy a customer-sited battery: no more than sixty (60) times per summer with each event lasting a maximum of three (3) hours.

In the New York program, an incentive payment is made when an energy storage project has passed NYSERDA's quality assurance inspection and enters commercial operation. The incentive is paid directly to the participating contractor, and the customer agreement must reflect the entire amount of the incentive, which directly reduces the purchase price or lease rate. To be eligible, the customer must participate in one of the following tariffs: distribution utility demand response, and a non-wires alternative contract, a granular delivery rate, or the Value of Distributed Energy Resources (VDER Value Stack tariff).

g) To model the impact of the deployment of energy storage in Illinois, the Agency and its consultants will need to make assumptions about the size, location, duration, technology, and other key attributes of energy storage projects that might successfully participate in energy storage procurements. What recommendations do stakeholders have for creating a proxy set of energy storage projects for modeling?

RESPONSE: The Agency should use the energy storage projects that are currently in the PJM and MISO queues as the indicative locations of large-scale battery storage facilities that could be built to meet the target capacities set forth in SB 1587. While these will not exactly match what will be built, they are the best indications, at this time, of locations that battery energy storage developers are likely to build over the next five years. MISO also provides a map of transmission grid congestion that aids developers in determining where to locate projects to minimize interconnections costs. Large-scale stand-alone projects are most likely to be sited in the green and yellow areas of this map.[9] Projects are also likely to co-locate with existing solar projects.

In conclusion, the Associations appreciate this opportunity to engage with the Agency in support of its efforts to analyze the benefits of energy storage in Illinois: Please contact me directly if I can provide any further information or assistance.

[9] https://giqueue.misoenergy.org/PoiAnalysis/index.html