September 12, 2023

Sherri L. Golden
Secretary of the Board
New Jersey Board of Public Utilities
44 S. Clinton Avenue, 1st Floor
Trenton, NJ 08625

Submitted Electronically

Re: Docket No. QO22080540 - CPower Comments in the matter of the New Jersey Energy Storage Incentive Program

Dear Secretary Golden,

Thank you for the opportunity to provide additional information on the proposed New Jersey Storage Incentive Program ("NJ SIP") in response to the New Jersey Board of Public Utilities (the "BPU's") August 8, 2023 Notice of Request for Information (the "RFI") in the above referenced docket. CPower continues to be enthused about the prospect of the NJ SIP program and believes the Program has the potential to deliver significant benefits to ratepayers in terms of resiliency, emissions reductions, and cost savings.

CPower is a leading Demand Response ("DR") and Distributed Energy Resource ("DER") Service Provider, with over 6 GW of capacity under management across the nation. CPower participates in all the organized wholesale markets as well as over two dozen retail programs designed to incent energy storage and load reductions. CPower was actively involved in the development of the recently launched Connecticut Energy Storage Solutions ("CT ESS") program and has qualified several resources for participation in that program. Nearly all of the issues that are being explored in this docket were dealt with in the CT ESS docket as well.

Below are CPower's comments in response to the RFI.

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1.0 Utility Ownership/Dispatch Control

1.1 What are the advantages and disadvantages of utility control versus non-utility control of energy storage systems?

CPower does not support utility ownership of energy storage resources.

As discussed in CPower's December 12, 2022 comments in this docket, CPower agrees with the BPU's plan to support private ownership of energy storage resources. This is consistent with New Jersey's restructured competitive market and will maximize benefits to ratepayers. For more information on this topic, please see CPower's December 12, 2022 comments.

CPower does not support direct utility control of Distributed storage systems located at Commercial & Industrial (C&I) sites.

Requiring customer-sited C&I batteries to be subject to direct utility control will create uncertainty about the associated value streams, discouraging investment in these resources and making achievement of Program goals more difficult.

Installing a battery at a C&I customer site requires a significant investment. As a result, such investments are pursued only if the expected net benefits over the life of the project yield a positive return. In order to estimate return on investment, the project sponsor must be able to model forecast costs and benefits. If the battery is subject to utility control, however, this task becomes much more difficult because there is significant uncertainty about how the battery would be dispatched and the extent to which it would create on-bill savings and other benefits, such as resilience. Given this, it will be difficult to attract customer-sited C&I batteries to the NJ SIP Program if the Program requires direct utility control of these batteries.

Notably, C&I customers are sophisticated energy consumers who will respond to price signals and incentives with the help of their energy service providers. As such, the NJ SIP Program would be better served by creating performance incentives that reward batteries that respond to dispatch calls during a select set of critical hours, with some limit on the number of dispatches each season. This would create benefits for the system while enabling the project sponsor to make reasonable estimates of future value streams so that they can justify investment in the battery.

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The Connecticut Energy Storage Solutions ("CT ESS") Program provides a good model for this. The Program provides a performance incentive to batteries that respond to 30-60 dispatches per summer season and 1-5 dispatches per winter season[1].

Direct utility control may be appropriate for batteries located at residential customer sites; these customers are generally less sophisticated and may find responding to dispatch calls burdensome. For C&I Distributed batteries, it is appropriate to allow the battery owner to respond to dispatch signals and performance incentives in a manner that maximizes the value of their investment. A well-designed incentive structure will yield the desired performance without having to resort to heavy-handed measures that may dampen interest in the Program.

1.2 For Distributed resource Performance-based Incentives, should responding to a utility signal be compulsory or voluntary?

Responding to a utility dispatch signal should be voluntary.

As discussed above, the optimal dispatch construct for customer-sited (Distributed) C&I batteries is a third party-based dispatch that is tied to a performance incentive that rewards batteries that respond to a dispatch signal. A market-based system like this puts the incentive in place for the battery to respond but ultimately allows the customer to determine the highest value use of the battery. This type of "Pay-for-Performance" construct is used in several successful Programs today[2] and is well-understood by battery developers.

2.0 Installed Storage Targets, Deployment Timelines and Capacity Blocks

[1] See ESS Program Manual, pages 44-46 https://www.dpuc.state.ct.us/dockcurr.nsf/8e6fc37a54110e3e852576190052b64d/a3ee00544b1b1fc285258940006564b7/$FILE/ESS%20Program%20Manual_Updated%201.20.2023_CLEAN.pdf#page=46

[2] ConnectedSolutions in Massachusetts, Rhode Island and New Hampshire all use a Pay for Performance structure; see page 11 of Program Materials https://www.masssave.com/-/media/Files/PDFs/Business/CI-ConnectedSolutions-Offering-Materials_June-2023.pdf#page=11, The CT ESS Program also uses a Pay for Performance structure combined with an upfront incentive, See pages 44-46 of the Program Manual https://www.dpuc.state.ct.us/dockcurr.nsf/8e6fc37a54110e3e852576190052b64d/a3ee00544b1b1fc285258940006564b7/$FILE/ESS%20Program%20Manual_Updated%201.20.2023_CLEAN.pdf#page=45

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2.1 How should capacity blocks be structured and proportioned, both within each component of the NJ SIP (Grid Supply and Distributed) and relative to each other?

Capacity blocks should be structured to ensure that the goal of incenting 1,000 MW of storage through NJ SIP by 2030 can be met; compared to the initial proposal from the BPU, this means capacity blocks should be more front-weighted, with a greater proportion of capacity allocated to distributed storage.

In CPower's December 12, 2022 comments in this docket, it recommended making more capacity available in the earlier years of the Program to capitalize on actual storage potential in the near-term. In this second set of comments, CPower modifies its proposal to suggest additional "front-loading" of capacity blocks to ensure that the goal of reaching 1,000 MW of storage by 2030 can be reached. This change is based on CPower's experience with the CT ESS Program, which has shown that developing a storage project of any significant size takes two to three years given interconnection challenges and supply chain issues. As such, in order to bring 1,000 MW of storage online by 2030, the "signal" for this storage must be issued well before 2030. Assuming the Program launches in 2024, this gives the BPU four years to sign up enough storage to meet this goal; CPower's proposed schedule of capacity procurement below reflects this.

CPower Proposed Procurement Schedule for NJ SIP		
Energy Year in which Awards are Made	Proposed Procurement Quantity (MWs of 4 Hour Storage)	Proposed Procurement Quantity (MWhs)
Block 1	250	1,000
Block 2	250	1,000
Block 3	250	1,000
Block 4	250	1,000
Subtotal from NJ SIP	**1,000**	**4,000**

Additionally, CPower recommends that Program Administrators be given the ability to move to the next block of capacity regardless of whether an entire year has elapsed in order to ensure that the program does not lose momentum. The CT ESS Program did exactly this when its first tranche of 50 MW was over-subscribed within a few months.[3]

CPower suggests allocating the 1,000 MW of procurement quantity equally between Grid Supply and Distributed storage as shown in the table below.

CPower Proposed Allocation between Distributed Storage and Grid Supply Storage				
Energy Year in which Awards are Made	**Proposed Grid Supply Procurement Quantity (MWs of 4 Hour Storage)**	**Proposed Grid Supply Procurement Quantity (MWhs)**	**Proposed Distributed Procurement Quantity (MWs of 4 Hour Storage)**	**Proposed Distributed Procurement Quantity (MWhs)**
Block 1	125	500	125	500
Block 2	125	500	125	500
Block 3	125	500	125	500
Block 4	125	500	125	500
Total	**500**	**2,000**	**500**	**2,000**

CPower's proposed allocation recognizes that Distributed storage will play a large part in meeting the state's storage goal. Notably, these projects should be able to interconnect more quickly than Grid Supply projects due to their smaller size and simpler configuration.

If the BPU wishes to subdivide the Distributed portion of the Program into residential and non-residential (C&I) portions, it should be mindful of the fact that residential batteries are considerably smaller than C&I batteries. As such, it takes hundreds of residential batteries to reach the capacity level provided by a single C&I battery. Any split between C&I and residential capacity must reflect this, otherwise the Program runs the risk of being unable to fill its capacity blocks and ultimately being unable to meet its goals.

[3] See December 21, 2022 Final Decision in Connecticut PURA Docket No. 22-08-05, page 35, "The Authority further notes that the Program Administrators have the authority to open Tranche 2 for commercial and industrial projects at their discretion, once the preceding Tranche is at full capacity, in order to achieve the third Program Objective, to foster the sustained, orderly development of a state-based electric energy storage industry." https://www.dpuc.state.ct.us/dockcurr.nsf/8e6fc37a54110e3e852576190052b64d/5494c093c39b7f308525891f00571bba?OpenDocument

The CT ESS Program is an example of a program that allocated too much capacity to the residential side of the Program; the initial capacity block that opened in January 2022 was split evenly between the residential and C&I portions. The C&I side of the Program has experienced strong enrollment, with roughly 75 MW enrolled as of September 12, 2023[4]. The residential side of the Program, on the other hand, has only enrolled 2 MW as of the same date[5], and Program Administrators are now proposing to shift some of the capacity allocated to residential projects to the C&I side[6]. The BPU can avoid the need for this type of course correction by either allowing the market to determine how to allocate the Distributed capacity block between residential and C&I projects (i.e. by not subdividing the Distributed storage block into separate residential and C&I blocks) or by sizing the residential capacity block consistent with expectations for residential participation. CPower recommends that any residential block be sized at no more than 10% of the C&I block.

2.2 Should the proposed first-come, first-served application process be changed to a "First-Ready, First-Served" process?

In short, no. The Program should be structured as <u>first-come, first served</u>; using a first-ready, first-served construct would create undue risk for storage developers, significantly reducing interest in the Program.

Under a first-come, first-served construct, limited program capacity is allocated to applicants based on the timing of their applications. This construct has worked well for the CT ESS Program, particularly because a completed interconnection application is a prerequisite to submitting an ESS application. Submitting an interconnection application is an involved process that requires a fair amount of technical work and financial outlay. As such, the interconnection application requirement ensures that only "serious" projects are enrolled in the program.

[4] See ESS Performance Report https://energystoragect.com/ess-performance-report/
[5] Id
[6] See Connecticut PURA Docket No. 23-08-05, Connecticut Green Bank's August 30, 2023 Written Comments, page 2, "Green Bank believes that it would be prudent to rebalance the 50-50 split originally specified by PURA in the original Program design. It would be in the best interest of ESS to shift capacity from residential to C&I to adequately respond to market conditions, especially as it may take C&I projects longer to complete." https://www.dpuc.state.ct.us/dockcurr.nsf/8e6fc37a54110e3e852576190052b64d/bc9fec1905861b1b85258a1b006f7a45?OpenDocument

CPower understands a first-ready, first served approach to mean that limited program capacity is allocated to projects based on when they reach commercial operation or alternatively, when they have signed an interconnection agreement. Either approach is problematic. Under the first approach, a project would not be given a spot in the program until it has been completed. This would create significant risk for project developers because they would need to bring their projects all the way through the development process before knowing whether they had secured program incentives. In other words, a storage developer would have to expend 100% of the funds needed to develop a project, a substantial financial outlay, without knowing what level of Incentive, if any, would be available to them.

Make no mistake, C&I storage projects are not economic to build in New Jersey without incentives. As such, prudent developers are not going to build storage projects without certainty on the incentives that will be available for the project.

If alternatively, a project gains admittance to the Program only after completing the entire interconnection process and signing an interconnection agreement ("IA"), the project sponsor would still be required to expend significant dollars to bring the project through the interconnection process and conduct a system impact study without any certainty that they would receive the incentives needed to make the project economics work. Again, prudent developers are not going to take this risk.

Given the foregoing, the NJ SIP should employ a first-come, first served approach for enrollment in the Program. If the BPU is concerned about the potential for enrolling "speculative" projects with little chance of reaching fruition, it can guard against this by requiring a completed interconnection application to be submitted before applying to the Program and requiring that certain milestones are met after a Program application is accepted.

> *2.3 How should the program be designed to avoid or minimize interconnection delays? Should the interconnection process be modified for accommodating energy storage and if so, how?*

A number of "best practices" can be employed to minimize interconnection delays.

Interconnection delays can be avoided or minimized by developing and enforcing timelines for each stage of the interconnection process, specifying clear and complete information requirements up front, creating a robust fast-track process for projects that do not exceed a specified size (e.g. 5 MW) and/or that do not net export, and ensuring that batteries are studied in a realistic way, consistent with how they intend to operate, as opposed to the worst case scenario.

CPower's experience with the interconnection process in other states is that it is often an iterative process; the utility receives an application, asks for additional information, this information is supplied, additional information requests go out again, and the process continues in this fashion, often for many months. Clear direction on the information needed up front could shorten the process substantially.

Additionally, enforcing prescriptive timelines for utilities to complete each stage of the interconnection process would go a long way in addressing interconnection delays. New York's interconnection process is a good example of this model; utilities are held to specific timelines for completing various stages of the process.[7]

A robust fast-track option would also be very helpful for small and/or non-exporting storage projects. A good example of such a process is the one used by utilities in California. Under this process, projects that meet certain screening criteria are permitted to interconnect without being subject to detailed study. San Diego Gas and Electric's (SDG&E's) fast-track process provides an interconnection agreement to projects within a matter of weeks of the application if the project passes certain sizing, equipment, and net export criteria[8].

A practice CPower has encountered in other areas that *does not* work well is prescribing a set of mandatory charge and discharge windows for a resource as a requirement for obtaining interconnection approval. Onerous restrictions like this discourage development of storage and may result in project dropout. Storage resources should be studied under likely charging/discharging scenarios. CPower has found that some utilities will study storage under the worst case scenario (e.g., charging during peak hours); such practices are counterproductive and can result in requirements for expensive upgrades to guard against highly unlikely scenarios. If specific charging/discharging patterns are desired, these should be incented through rate design and/or pay-for-performance incentive structures like the one envisioned for NJ SIP.

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[7] See New York State's Standardized Interconnection Requirements and Application Process For New Distributed Generators and/or Energy Storage Systems 5 MW or Less Connected in Parallel wit Utility Distribution Systems https://dps.ny.gov/system/files/documents/2023/07/may-2023-sir-final.pdf

[8] See SDG&E Rule 21, Sheet 53 https://tariff.sdge.com/tm2/pdf/tariffs/ELEC_ELEC-RULES_ERULE21.pdf

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3.0 Installed Storage Targets, Deployment Timelines and Capacity Blocks

3.1 Incentives are meant to cover a portion of the fully installed cost of an energy storage system. What is the fully installed cost (in $/kWh) for energy storage systems at present, and estimated to be each year through 2030?

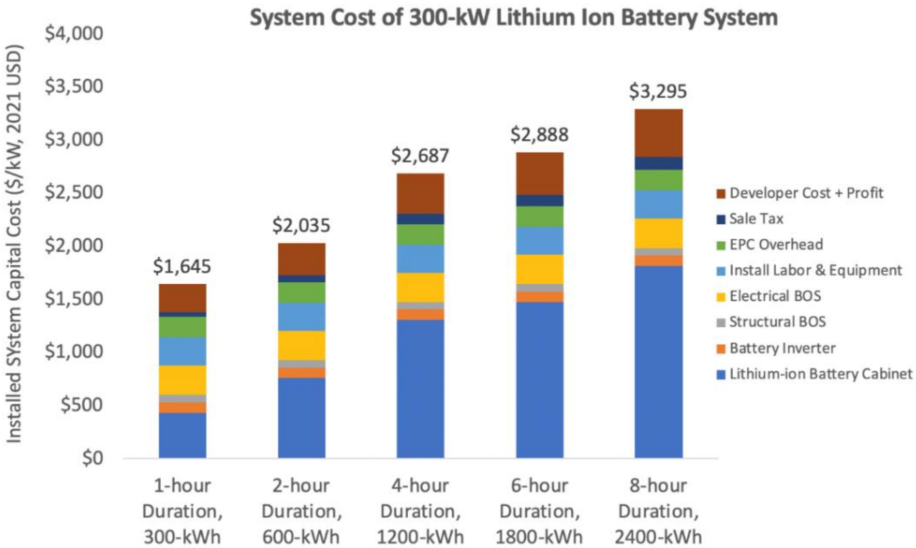
Public sources of data can be used to estimate a general range of battery costs; however, caution should be exercised in relying on these estimates because a number of variables, including size, location, and required distribution and/or transmission upgrades will affect the cost of a specific project. Moreover, projecting costs through 2030 is a difficult task, with no consensus among experts.

The BPU should be aware that battery costs have been volatile over the last couple of years and it is difficult to guess with any precision what these costs will be in the future[9]. That said, there are public sources of data that can be used to get a sense of where costs are currently.

The NREL website contains data on the different cost components of a 300 kW lithium ion battery system. Note that this data is 2022 benchmark data in 2021 dollars so while it is somewhat stale, it does a good job illustrating the various costs involved in developing a battery. As this data illustrates, the cost of the battery itself is just one cost component of many and it makes up only about half of the all-in cost of developing a storage project. The chart below summarizes the data provided on the NREL website.[10]

[9]Rob Handfield, PhD, professor of Supply Chain Management at North Carolina State University notes that prices have been quite volatile and he believes they will rise in the short term. See Motor.com, "Headwinds Hit EV Battery Production with Supply Chain Woes" May 24, 2023 https://www.motor.com/2023/05/headwinds-hit-ev-battery-production-with-supply-chain-woes/ See also lithium carbonate prices on Business Analytiq website https://businessanalytiq.com/procurementanalytics/index/lithium-carbonate-price-index/

[10] NREL website, Commercial Battery Storage https://atb.nrel.gov/electricity/2023/commercial_battery_storage#:~:text=total%20system%20cost.-,Figure%201,-.%20Estimated%20costs%20of



It is also worth noting that while the chart above shows batteries with durations ranging from 1-hour to 8-hour, in CPower's experience, batteries with duration over 2-4 hours are generally not economically viable.

3.2 What are the best public data sets for energy costs?

Please see answer to 3.1, but we reiterate that caution should be exercised when using public data sets to estimate battery costs.

3.3 Should Fixed Incentives be assignable to an aggregator? Why or why not?

Fixed Incentives should be assignable to an aggregator; to do otherwise will increase the cost of developing batteries.

Many different structures will be used to develop customer-sited batteries; most of these will involve an aggregator whose role ranges from the entity funding and/or owning the battery to the entity providing administrative and dispatch services to the battery. As such, it is appropriate to make the Fixed Incentive assignable to an aggregator. If this is not allowed, then the aggregator funding a storage project would have to rely on the customer to remit the incentive to them; this would create credit risk which would increase the overall cost of the project.

Assigning the Fixed Incentive to the aggregator may also create efficiencies related to utilization of tax credits. This is discussed in more detail below in Section 5.3.

3.4 Should a Distributed energy storage resource that can provide grid services have the ability to opt in to either the Grid Supply or the Distributed storage program, for both the Fixed and Performance-based incentives?

Providing flexibility to choose which Program to participate in would be advantageous to resources and could encourage greater participation in the NJ SIP.

CPower sees only upside to providing this type of flexibility but notes that a Distributed storage resource that is providing grid services is likely to have a different cost structure than a Grid Supply storage project and therefore may need to earn a higher incentive rate in order to be economically viable. As such, CPower believes the BPU should consider allowing Distributed storage resources to opt in to the dispatch regime associated with the Grid Supply program, without having to opt in to the incentive rate if that rate is lower. Alternatively, a specific set of incentive rates could be developed separately for distributed storage resources participating in the Grid Supply program.

3.5 The Straw proposes the use of the PJM Marginal Emission Rate ("MER") signal as a basis for the Performance-based Incentives for Grid Supply energy storage systems. Is it or will the PJM MER be sufficiently developed to use to calculate NJ SIP Performance-based incentives?

CPower does not believe the PJM MER will be sufficiently developed to use to calculate NJ SIP Performance-based incentives.

3.6 Is there a different methodology that can be used to determine Performance-based Incentives such as a Peak Demand Reduction program?

CPower recommends a Peak Demand Reduction Program for Distributed storage resources.

3.7 If a Peak Demand Reduction program were to be developed, how should it be structured? What other states have similar programs that New Jersey should use as a benchmark?

A Peak Demand Reduction program, similar to the CT ESS and ConnectedSolutions Programs, would be an optimal performance regime for Distributed storage resources.

Both the CT ESS and the ConnectedSolutions Programs use a performance incentive regime based on peak demand reductions. In the ESS Program, Distributed storage resources are dispatched 30 – 60 times on non-holiday, weekdays between 12:00 pm and

9:00 pm over the summer season (June – September) and 1 – 5 times on non-holiday, weekdays between 12:00 pm and 9:00 pm over the winter season (November – March)[11]. In the ConnectedSolutions Program in Massachusetts, New Hampshire, and Rhode Island, Distributed storage resources are dispatched 30-60 times on non-holiday, weekdays between 3:00 pm and 8:00 pm over the summer season (June – September)[12]. Both Programs provide a Performance Incentive to storage resources based on their average performance during all dispatches during the season with additional compensation for responding to dispatches outside of the Program hours.[13] The goal of these regimes is to reduce peak loads, which in turn reduces capacity market costs, transmission investment, and emissions, among other things.

A Peak Demand Reduction regime is optimal for Distributed storage resources because it is relatively simple and predictable. Some degree of predictability is important because it allows project sponsors to model expected battery dispatch over the life of the project and forecast other benefits that will accrue to the customer (such as on-bill savings). This allows them to develop a multi-year proforma with expected values streams, costs, and return on investment. Being able to put together this type of analysis is critical to securing financing for a Distributed storage resource. Therefore, it is important to use a dispatch regime that can be predicted and modeled with a reasonable amount of accuracy.

CPower recommends that NJ SIP utilize a regime similar to the CT ESS and ConnectedSolutions Programs for Distributed storage resources. The critical hours in which NJ SIP dispatches storage resources may vary from the hours used in the ConnectedSolutions and CT ESS Program; the key to success is ensuring that dispatch windows are known at the time the developer invests in the battery, the dispatch requirements (e.g. maximum number of dispatches and window length) are not onerous, and the performance incentive is tied to performance in response to dispatches during these specified windows.

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[11] ESS Program Manual, Page 8 https://www.dpuc.state.ct.us/dockcurr.nsf/8e6fc37a54110e3e852576190052b64d/a3ee00544b1b1fc285258940006564b7/$FILE/ESS%20Program%20Manual_Updated%201.20.2023_CLEAN.pdf#page=9

[12] MassSave Program Materials, June 8, 2023, Page 2 https://www.masssave.com/-/media/Files/PDFs/Business/CI-ConnectedSolutions-Offering-Materials_June-2023.pdf#page=2

[13] Id, Pages 11-14 and ESS Program Manual, Section 6.3, Pages 45-46 https://www.dpuc.state.ct.us/dockcurr.nsf/8e6fc37a54110e3e852576190052b64d/a3ee00544b1b1fc285258940006564b7/$FILE/ESS%20Program%20Manual_Updated%201.20.2023_CLEAN.pdf#page=46

3.8 What degree/percentage of peak demand should be targeted for reduction? What effect would such a program have on GHG emissions?

CPower does not take a position on the percentage of peak load reduction that should be targeted for reduction but notes that it is well-established that reducing peak loads also reduces GHG emissions[14].

3.9 The Straw proposed that each EDC establish its own level of Performance-based Incentives. Should EDCs establish EDC-specific performance incentives, or should the incentive be standardized and common to all EDCs?

Performance Incentive levels should be uniform across EDCs.

The underlying cost of performing and resulting benefits that accrue to ratepayers from that performance will not vary by EDC, therefore, there is no rationale for having different rates. Additionally, establishing different rates may result in storage being located predominantly in the EDC territory with the best rates which could result in missed opportunities and jeopardize achievement of the Program's goal of incenting 1,000 MW of storage by 2030.

3.10 Should energy storage owners be permitted to opt in, or be subject to utility control, in order to be eligible for Distributed performance incentives?

Energy storage owners should be permitted to opt in to direct utility control; they should not be required to be subject to direct utility control.

As discussed above in Section 1.1, mandating utility control for customer-sited C&I storage projects is not appropriate and would discourage participation in the Program. C&I customers that invest in on-site storage expect to operate these projects in a way that maximizes value to them. If instead, the battery is subject to utility control, the customer will be unable to quantify the expected value streams for the project and therefore will have difficulty justifying investment in it. A well-designed incentive structure will ensure that the customer is incented to operate the battery in a way that maximizes value to ratepayers in the state.

3.13 Large projects and long duration projects have the potential to qualify for significant incentives. Should incentive caps be applied to this program? If so,

[14] See Synapse Avoided Energy Supply Costs in New England; specifically, Appendix B shows the avoided GHG costs associated with on-peak load reductions https://www.synapse-energy.com/project/aesc-2021-materials

how (for example, by customer, project, developer, duration or meter), or other method?

A few large and/or long duration project should not be permitted to use up the majority of the budgeted funding available to the Program.

Allowing a single large project or a few large projects to use up the majority of limited Program funds would be counterproductive; it would limit the resilience created by the Program and would result in the BPU "putting all (or most) of its eggs in a single basket". In other words, if a single large project or few large projects were unable to reach fruition, this would be a large setback for the Program, jeopardizing achievement of its goals.

CPower recommends that the NJ SIP adopt a cap on the fixed incentive equal to the greater of 5 MW or 10% of the capacity block. This cap will ensure that the Program is not dominated by a few large projects.

3.14 Should a cap be set such that the sum of federal and state incentives does not exceed a certain amount?

No, a cap on federal + state incentives <u>should not</u> be adopted

Setting a cap on the amount of federal plus state incentives that a project can earn would dampen interest in the Program. Developing a storage project is a significant undertaking that requires a substantial investment of time and money and involves many uncertainties and risks around the ultimate costs and timing of completion. Capping the developer's upside, while continuing to expose them to unlimited downside would be counterproductive, adding risk to the process and ultimately discouraging participation in the Program. Given this, CPower recommends that no cap be imposed on the amount of federal plus state incentives that a project in the Program could earn.

3.15 What provisions should be included in the program for monitoring, reporting and evaluation in order for deployed projects to maintain eligibility for incentives that are paid over time?

The Program Administrators should require submission of interval meter data to monitor performance in response to Program dispatches. The BPU may want to consider whether resources with consistently poor performance should be subject to some type of prorating of the Fixed Incentive.

3.16 How can BPU structure NJ SIP Performance-based Incentives to both promote value stacking and prevent double compensation?

CPower recommends a few changes in Section 5.1 to ensure value stacking can be achieved without double compensation.

The potential value streams for C&I customer-sited storage (in addition to Program incentives) include, among other things: wholesale market revenues, savings in transmission costs, savings on demand charges, resilience, and net metering credits. Any value stream associated with cost savings or customer resilience is unambiguously separate and distinct from the NJ SIP incentive and would not constitute a double payment for the same service. The same can be said for any value stream associated with PJM market participation provided that this participation occurs during time periods when the battery is not providing a service in the NJ SIP. The Program rules can ensure value stacking without double compensation by specifying that PJM participation is allowed only during hours outside of the Program dispatch windows.

As discussed further below in Section 5.1, the BPU can improve access to storage value streams by 1) implementing a peak demand reduction incentive scheme for Distributed storage resources, and 2) revising Tariff rates to ensure that customers with onsite storage realize on bill savings for operating their storage in a way that benefits the system. Please see Section 5.1 for more detail.

4.0 Overburdened Community (OBC) Incentives

4.1 Staff is considering establishing both an adder and a capacity block for OBCs. What size should the capacity blocks be over time as a percentage of the overall Distributed segment? How much should the adder be in 1) $/kWh or 2) as a percentage of the base incentive?

CPower recommends a 25% fixed incentive adder for Distributed C&I storage in OBCs and a 50% fixed incentive adder for Distributed residential storage in OBCs.

A 25% and 50% fixed incentive adder for C&I and residential BTM storage projects respectively is consistent with the adders in the CT ESS Program for "Grid Edge" communities.[15]

CPower does not support establishing capacity blocks for OBCs.

CPower recommends against establishing a specific capacity block for projects in OBCs; this could result in putting aside capacity that goes unused, which would adversely affect achievement of the Program goals. Moreover, the amount of capacity that the BPU has proposed to make available to the Distributed side of the Program is already quite small compared to the level of interest CPower expects for a well-designed Program. As noted above and in its first set of comments, CPower encourages the BPU to increase the size of the Distributed capacity blocks but even if the BPU does increase the size of these blocks, carving out a piece for OBCs could result in capacity blocks that are simply not meaningful in size and therefore would not attract much interest.

5.0 Other Questions

5.1 What actions, if any, should BPU take to improve access to the energy storage value stack as part of implementing the NJ SIP

To improve access to the energy storage value stack, the BPU should implement a Peak Load Reduction Program, and implement Tariff rate changes for customers with on-site storage.

Customers with onsite storage can realize significant savings in transmission costs by discharging their storage during the hours in which transmission charges apply. Given this, the BPU can improve access to the energy storage value stack by designing a Program that dispatches during these key hours. A Program that focuses dispatch on reducing peak loads, as discussed above in Sections 3.6 and 3.7, should accomplish this.

An additional value stream that a customer with onsite storage may be able to realize is demand charge savings, but because many Tariff schedules allocate demand charges based on the highest demand in the month or over the recent year, customers with storage

[15] CT ESS Program Manual, Section 6.1.1 https://www.dpuc.state.ct.us/dockcurr.nsf/8e6fc37a54110e3e852576190052b64d/a3ee00544b1b1fc285258940006564b7/$FILE/ESS%20Program%20Manual_Updated%201.20.2023_CLEAN.pdf#page=43

often cannot realize the savings that they should from storage. Based on information provided by utilities in Connecticut, the addition of a storage resource on the distribution system generally does not result in incremental distribution costs.[16] Given this, Tariff rates should be structured so that adding onsite storage does not increase a customer's demand charges; rather it should *decrease* their demand charges if the customer operates the storage in a way that benefits the system. This can be accomplished by developing Tariff schedules or riders specifically for customers with on-site storage and specifying in these schedules/riders that demand charges for applicable customers are allocated based on peak demand during a set of on-peak hours in which storage discharge is beneficial to the system.

Similarly, the BPU should also undertake a process to develop net metering tariffs for customers with on-site storage. Unlike other types of customer-sited devices that New Jersey provides incentives for, standalone behind the meter ("BTM") storage that exports energy onto the grid is not eligible for net metering credits. This is problematic because unlike renewable resources that are fueled by natural sources of energy, the "fuel" used by stand-alone storage is not free. For every kWh discharged by a stand-alone battery, a bit more than a kWh of electricity must be purchased. This cost can be recouped for battery discharge that reduces the host customer's load (because that discharge reduces the customer's retail energy charges). Once the host load is reduced to zero, however, the customer cannot recoup the charging cost because it does not receive a payment or credit for the energy exported onto the grid. Given this, the BPU should open a proceeding to develop net metering provisions for BTM storage.

5.2 How will FERC Order 2222 affect New Jersey's energy storage market? What changes should the Board make to the NJ SIP to take advantage of PJM's pending implementation of FERC Order 2222?

FERC Order 2222 should enable distributed energy resources, including storage located on the distribution system or at a customer site, to participate in the PJM market. The BPU should ensure that the NJ SIP does not prevent such resources from participating in that market.

[16] Discussed during a meeting of the Connecticut Front-of-the-Meter Storage Working Group. This Working Group was convened at the direction of the Connecticut PURA to create a Tariff for Front-of-the-Meter Storage. See Final Decision, Order 9 in Connecticut PURA Docket No. 22-08-05 https://www.dpuc.state.ct.us/dockcurr.nsf/8e6fc37a54110e3e852576190052b64d/5494c093c39b7f308525891f00571bba?OpenDocument

The purpose of FERC Order 2222 was to remove barriers to participation in the wholesale markets by distributed energy resources (DERs)[17]. If the changes that PJM is implementing to comply with Order 2222 are successful, then the Order should make additional value streams available to storage located on the distribution system or at a customer site. The single most important thing that the BPU can do to ensure PJM's implementation of Order 2222 is successful is to specify that NJ SIP resources are permitted to participate in the PJM market during periods when they are not providing services under the NJ SIP.

As noted in CPower's December 12, 2022 comments, the ConnectedSolutions program does not prohibit dual participation in the program and the ISO-NE market. CPower suggests that the BPU adopt a similar policy, as it would allow Distributed resources to maximize the value they provide to the grid and earn incremental revenue streams, thereby reducing the incentive needed from the state to make projects viable.

5.3 Are modifications to the NJ SIP needed to maximize the ability of energy storage developers to access federal investment tax credits or other federal incentives?

NJ SIP can maximize the ability of energy storage developers to access federal investment tax credits and incentives by ensuring that NJ SIP payments can be assigned to third-party aggregators/owners/operators.

The host site for a customer-sited battery is generally not able to fully utilize federal tax credits for storage because they do not generate enough profit. As a result, a third party is needed to fully monetize those tax credits and, in most cases, that third party will also be the owner, operator and/or aggregator. Having the ability to direct NJ SIP payments to this same third party simplifies the project structure and decreases transaction costs.

5.4 What provisions, if any, should be established for interconnection of zero-export energy storage facilities?

A fast-track interconnection process should be developed for zero-export energy storage facilities.

Zero-export energy storage resources should have access to a quick and low-cost interconnection process since they have minimal impact on distribution system and

[17] FERC RM18-9-000, P1 https://www.ferc.gov/sites/default/files/2020-09/E-1_0.pdf

generally do not require a detailed study. CPower suggests a process that involves a perfunctory filing and a set interconnection fee that reflects the minimal effort required to interconnect these resources. Similar processes are employed in many areas for residential projects and, as noted above in Section 2.3, California employs such a process for small storage resources.

5.5 What specific best practices regarding rates and tariff from other states should be incorporated?

Con Edison's Rider Q is a good example of a Tariff structure that works well for customers with on-site storage.

Con Edison's Rider Q was developed to provide alternative rate options for energy storage customers. The Rider allocates demand charges based on the customer's peak demand during daily four-hour windows that align with peak usage on the system[18]. This gives customers with on-site storage the ability to reduce their demand charges by discharging their storage during hours that provide the most benefit to the system while not creating large penalties for missing a single peak hour during the month.

5.7 How should energy storage systems be metered and measured? Can an inverter serve this function? What role should advanced metering infrastructure ("AMI") play in NJ SIP?

Energy storage systems in NJ SIP should be directly metered for the purpose of assessing performance.

Direct metering means that the performance of the battery is measured at the asset itself (as opposed to at the "customer meter" for a Distributed resource). This allows battery performance to be measured in a straightforward manner without the need for estimations and/or calculations which introduce unnecessary complexity and create the potential for error.

Energy storage systems should be required to provide 15-minute interval meter data at a minimum from a revenue quality meter; an inverter with built-in metering functionality

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[18] See Energy Storage Customer Electric Rates Reference Guide https://www.nyserda.ny.gov/-/media/Project/Nyserda/Files/Programs/Energy-Storage/energy-storage-customer-electric-rates-reference-guide.pdf
See also Con Edison Electric Tariff, Rider Q, Leaf 239
https://lite.coned.com/_external/cerates/documents/elecPSC10/electric-tariff.pdf

should be permitted to meet this requirement. AMI does not have a role to play for Distributed storage.

Many battery inverters have built in metering functionality that could be used to provide meter data for settlement of performance in the NJ SIP. CPower recommends that Program participants be permitted to use data from this embedded metering for settlement if the metering is revenue grade and from the AC side of the inverter. Allowing the use of this embedded metering will reduce costs for Program participants, which will ultimately reduce the cost of the NJ SIP.

With respect to data granularity, CPower suggests that 15-minute interval data be required at a minimum. Anything less granular than this may not be sufficient to assess responsiveness to dispatch signals.

For Distributed storage resources, CPower presumes that AMI would not play a role because AMI will be at the customer meter level not the asset level. Moreover, CPower does not believe that deployment of AMI in New Jersey is widespread enough yet to be used across the board in any state program.

Conclusion

CPower appreciates this opportunity to provide comments in the early stage of the NJ SIP development and looks forward to continuing to work with the BPU and its staff to develop a successful program.

Respectfully submitted,

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