In the Matter of New Jersey Energy Storage Incentive Program

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Center for Sustainable Energy®

Contents

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We have one mission – Decarbonize.®

Our vision is a future with sustainable, equitable and resilient transportation, buildings and communities.

Overview of CSE

Center for Sustainable Energy® (CSE) is a national nonprofit that accelerates adoption of clean distributed energy and transportation through effective and equitable program design and administration. Governments, utilities and the private sector trust CSE for its data-driven and software-enabled approach, deep domain expertise and customer-focused team. CSE's fee-for-service business model frees it from the influence of shareholders, members and donors, and ensures its independence. CSE has over 25 years' experience working as a third-party program administrator supporting renewable energy/distributed generation, energy efficiency, electric vehicle (EV) vehicles and EV charging infrastructure. CSE actively administers programs in 11 states including New Jersey, and clients include federal, state and local agencies, as well as investor-owned and municipal utilities.

CSE designs and administers cutting-edge incentive programs valued at over $4 billion

$2.3B+	$500M	$1.3B
EV Incentive Programs	**EV Charging Incentive Programs**	**Distributed Energy**
Over 600,000 rebated vehicles	Funding issued for 6,000+ L2 chargers and 1,400+ DCFC connectors	8,400 projects funded

1.0 UTILITY OWNERSHIP/DISPATCH CONTROL

The Straw "does not propose to allow for utility ownership or operation of devices," but notes that "EDCs will play a key role in building the grid infrastructure necessary to enable the effective dispatch of energy storage devices." This proposal was intended to encourage private ownership and operation of energy storage devices and the development of a robust energy storage sector in New Jersey's restructured competitive market.

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

The spirit of the NJ SIP, as noted in the question context above, is to encourage private ownership of energy storage devices to promote market transformation and the development of a robust energy storage sector in New Jersey. To accomplish this, the program should incentivize non-utility-controlled energy storage systems to allow customers to adopt these technologies. Energy storage systems that are not controlled by the utility allows the grid to reap the benefits of energy storage without the need for substantial, upfront utility investment. However, privately owned systems require buy-in from consumers, which is typically effective if both an initial financial incentive is provided as well as an assurance that long-term savings will be achieved through minimal system maintenance and by optimizing Time-of-Use plans.

NJ has an ambitious energy storage capacity goal of 2000 MW of energy storage by 2030. This goal is substantial, and it would take a large and immediate investment on behalf of the utilities to achieve the target timeframe if they were solely responsible for achieving this objective. By allowing private ownership of energy storage devices, the NJ SIP will distribute the burden of investment across multiple private entities and will accelerate the timeframe in which this capacity can be installed, interconnected, and begin operation.

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

Responding to utility and market signals should be voluntary for the systems receiving a performance-based incentive as their participation or non-participation will directly impact the performance-based incentive they receive. This configuration allows system owners the flexibility to operate their systems at their own discretion, but also provides motivation for system owners to respond to signals as much as possible to recoup the performance-based incentive.

The original NJ SIP staff proposal suggested that the Grid Supply and Distributed storage technologies have two different performance metrics, with the Grid Supply performance based on emissions and the Distributed performance based on participation in performance hours. CSE recommends NJ consider structuring the incentive such that the participants with Grid Supply storage resources or Distributed storage resources can select their performance metric. The program can create two separate incentive budget categories for the two separate performance metrics, and the incentive rate available for each category could be differentiated by which metric NJ chooses to prioritize. For example, if the higher priority is to provide additional support to the grid, systems opting into the performance-hour performance metric could receive a slightly higher incentive or a larger amount of the budget could be reserved for that budget category. This provides participants some autonomy in determining how their systems will operate, and it also allows NJ to influence which participation option is favorable according to the incentives available.

CSE understands that a portion of the Distributed storage budget will be reserved for projects located in or directly serving overburdened communities. Regardless of how the NJ SIP approaches the general market portion of performance-based Distributed storage projects, the projects within the reserved portion should not be required to respond to utility signals. These customers are the most vulnerable and should have the ability to use their systems in the manner that provides the greatest benefit based on their needs, whether it be cost savings or resiliency.

2.0 INSTALLED STORAGE TARGETS, DEPLOYMENT TIMELINES AND CAPACITY BLOCKS

The Straw set annual installed energy storage targets that increase over time (see section V. D. of the NJ SIP Straw Proposal for details).

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?

No response.

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

A "First-Ready, First-Served" approach would require interested parties to achieve a minimum level of completion towards the planning/installation of their energy storage system prior to applying for the program. CSE recommends that NJ BPU evaluate how to balance potential impacts before adopting a "First-Ready, First-Served" process.

The shift to a "First-Ready, First-Served" process has numerous potential upsides, like the reduction of administrative costs due to cancelled applications and expedited timelines from application to completion and payment. However, these upsides also come with potential downsides, like a reduction in program participation from overburdened and underserved communities and generally decreased diversity in the applicant pool. An important factor in balancing the potential upsides and downsides is the determination of the minimum required level of completion (i.e., the definition of "ready"). For example, "ready" could be defined as "ready to permit," meaning that the storage system has been designed and is ready to be submitted for permitting approvals. Implementing this definition could lead to reduction in overall application volume, with a higher percentage of applications being from customers prepared to install, as the design work is now a pre-requisite for the program and requires some investment from the customer and/or third-party. However, this does create additional barriers for all customers, who must now obtain contracts with third parties to complete the design work. Raising the definition of "ready" to "ready to interconnect" would likely streamline application acceptance but may also present a challenge, where applications are only received by customers that ultimately install energy storage but imposes significant burden on customers to complete design and installation work before the promise of an incentive materializes.

Regardless of the definition for "ready," a shift to a "first-ready, first-served" must also come with an increase in outreach, technical assistance, and up-front cost reduction offered to overburdened and underserved communities to ensure funding is equitably spent and that these communities are not left behind. This includes support with helping customers understand their energy needs, translating those to technical requirements, establishing connections with system providers and installers, and helping cover costs to contract with providers and installers. It is critical that adjustments to the program not only increase minimum requirements to reflect market

maturation, but also double down on targeted outreach, technical assistance, and financial assistance to ensure an equitable distribution of funding.

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?

For CSE's administered Self-Generation Incentive Program (SGIP), a California statewide storage and generation incentive program, all systems participating in the program that discharge electricity must be installed on the customer's side of the electricity meter and connected to the local electric utility's distribution system (i.e., equivalent to the NJ SIP proposed Distributed storage systems). The interconnection, operation, and metering requirements for the systems must be in accordance with the local electric utility rules for customer generating facility interconnections. Written certification of interconnection and parallel operation to the Program Administrator prior to the Reservation Expiration date is required. Program participants are responsible for submitting interconnection applications to the appropriate electric utility interconnection department as soon as the information to do so is available to prevent any delays in system parallel operation. This programmatic requirement encourages program participants to consider interconnection early in the project process and promotes coordination with the local electric utility. Systems are eligible to receive a reservation up to 12 months after receiving authorization to operate in parallel with the grid from the electric utility. More details on these requirements are available in the SGIP Handbook under "Resources" on SelfGenCa.com.

There are resources that can be leveraged to simplify and modify the interconnection process as needed to accommodate energy storage. CSE recommends NJ SIP follow Building a Technically Reliable Interconnection Evolution for Storage (BATRIES) guidance on updating interconnection procedures for energy storage. BATRIES recommends, as a starting point, jurisdictions should explicitly include and define Energy Storage Systems (ESS) as an eligible facility under their interconnection rules. In addition, jurisdictions should revise and/or adopt definitions in their interconnection procedures to enable ESS deployment efficiently and effectively. For example, this can include defined terms which, if absent or not drafted to recognize the unique operating characteristics of storage, can result in barriers to efficient ESS interconnection and operation. NJ SIP should consider modifying the following interconnection processes to accommodate energy storage to include:

- Applicability and Definitions of DER, Generating Facility, and ESS
- Definitions of Power Control System and Related Terms
- Definitions of Nameplate Rating and Export Capacity
- Definitions of Operating Profile and Operating Schedule
- Updates to Forms and Agreements

3.0 INCENTIVE STRUCTURE

The NJ SIP incentives are proposed to be comprised of two incentive payments, a Fixed Incentive and a Performance-based Incentive (see section V. E. of the NJ SIP Straw Proposal for details).

3.1 Incentives are meant to cover a portion of the fully installed cost of an energy storage system. What is the fully installed unit cost (in $/kWh) for energy storage systems at present, and estimated to be each year through 2030? How do New Jersey-specific costs vary from these estimates? Please provide links to your references.

In California, the SGIP has a storage incentive rate of $1/Wh ($1000/kWh) for its Equity Resiliency budget which was established with the intent of covering the full cost of the energy storage system. Depending on what portion of the fully installed system cost the NJ SIP intends to cover, the incentive rate could be adjusted accordingly. For example, for 50% coverage, the incentive rate could be $0.5/Wh ($500/kWh). However, note that these costs do not incorporate any additional costs that are often associated with energy storage installations, especially in older vintage buildings, such as electrical panel upgrades. If the incentive is intended to cover these additional costs, this needs to be factored into the incentive rate or considered as an additional incentive.

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

Pacific Northwest National Laboratory (PNNL) has released an Energy Storage Cost and Performance Database.

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

Fixed Incentives should not be assignable to aggregators. Per the NJ SIP staff proposal, Fixed Incentives are described as being "established through a declining block structure in order to create a market-like incentive while providing industry clear insights into the incentive value for energy storage devices." To enable aggregators to collect fixed incentives would be counterintuitive to the effort of market transformation.

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?

Energy storage projects funded through the SGIP are eligible to provide demand response services or participate in demand response programs.

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

No response.

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

No response.

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?

No response.

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

No response.

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?

CSE urges the NJ SIP to implement standardized and common performance incentives across all EDCs. EDCs should be provided the opportunity to weigh in on appropriate performance incentive metrics and rates; however, ultimately the NJ SIP should establish one set of performance incentives across all EDCs participating in the program. Per the NJ SIP straw proposal, the program will be administrated by a single BPU Program Administrator. Implementing a single, standardized performance incentives across all EDCs will reduce administrative burden on the Program Administrator for tracking various incentive levels across EDCs and will simplify communication to customers across the state.

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 into utility control.

3.11 How should incentives be structured for thermal storage systems?

Within the Self-Generation Incentive Program (SGIP), Large-scale Thermal Energy Storage Systems (L-TES) are subjected to a provisional one-year 30/70 Performance Based Incentive structure. This structure allows 30 percent of the total incentive to be paid up front based on the applicant's requested incentive amount that is estimated by using the applicant's proprietary modeling. The remaining 70 percent will be paid out, based on actual performance, over at most five years.

3.12 Under what circumstances, if any, should Distributed resources be able to opt in to Grid Supply Performance-based Incentives?

No response.

3.13 Large projects and long duration projects have the potential to qualify for significant incentives. Should incentive caps be applied in this program? If so, how (for example, by customer, project, developer, duration or meter), or other method?

No response.

3.14 Should a cap be set such that the sum of federal and state incentives does not exceed a certain amount? If so, please provide details.

The NJ SIP should have a cap that prevents the sum of federal and state incentives from exceeding the total cost of the system for low-income and disadvantaged community households. A lower cap should be implemented for general market households.

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?

SGIP requires an independent meter rather than allowing inverters to report on performance for the performance-based incentives. SGIP meter requirements can be found in Section 5.5 of the SGIP Handbook.

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

The surest way to ensure success of the NJ SIP is to tie its program goals and incentives to an efficient process for applicants to apply for incentives. The NJ SIP Straw Proposal currently proposes two types of incentive payments for energy storage: a fixed $/kWh paid annually for a certain number of years based on a to-be-created performance metric; and performance-based incentive tied to the grid environmental benefits provided by the energy storage system. Regrettably, this incentive structure will likely fail to efficiently unlock the benefits of energy storage by pushing $/kWh payments out numerous years with a performance metric that seems to already be tied to the Straw Proposal's second performance-based incentive design. Instead, the fixed $/kWh should be paid as a lump sum $/kWh incentive after the project has met all program requirements.

In CSE's experience, requiring performance-based incentives involves an elaborate and costly administrative structure where a simple one-time payment easily can be made instead. For energy storage developers, a performance-based incentive structure will require the creation of an unnecessary performance metering infrastructure, requiring the program administrator to create an unnecessary vetting process, such as performance data protocols and a detailed data sharing method to collect the data from participants, in order to pay out the incentives. Collectively, this structure will only add cost and time to the incentive payment process for both energy storage developers and the program administrator, using valuable program resources that could otherwise be better spent providing education to participants or providing more incentives to support energy storage projects, as well as added complexity for customers.

4.0 OVERBURDENED COMMUNITY INCENTIVES

The Straw proposed three methods to support OBCs with energy storage incentives.

- **An incentive adder in kWh**
- **A separate incentive block**
- **An additional up-front incentive**

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?

CSE recommends BPU set an energy storage equity budget for NJ SIP reserved for OBCs. For example, SGIP allocates 63% of the overall incentive budget for qualifying equity resiliency residential (single family and multifamily low-income housing) and non-residential. At the very least, the NJ SIP should set aside half of the overall Distributed segment to prioritize OBC participation. Customers in OBCs are less likely to adopt energy storage technologies on their own, so for full market transformation, these communities should be a significant target of the NJ SIP.

4.2 How can BPU assure that the incentive structure chosen will in fact provide benefits to OBCs?

When supporting target communities across a state, it is important to understand each specific community's needs, and in order to do this, we recommend that NJ SIP work closely with community-based organizations (CBOs) across the state when finalizing the requirements around the OBC-focused budget. It is challenging for a statewide program to be aware of the unique barriers that may exist locally or regionally. CBOs are able to leverage existing

community networks and relationships to raise awareness, promote the program, and build trust and credibility. For example, CSE is part of the Program Administration team for the California Solar and Multifamily Affordable Housing (SOMAH) program, a statewide solar incentive program which provides incentives for solar installations on existing multifamily buildings in low-income and disadvantaged communities. The SOMAH program administration team partners with multiple CBOs across the state who work directly in communities to provide education and communicate program benefits. CBOs are often viewed as the only trusted and reliable sources of information in OBCs. In the SOMAH program, CBOs are provided compensation for their outreach efforts including time and materials spent on engagement activities on behalf of the program. If the BPU does choose to work with CBO partners, CSE recommends the CBOs are provided compensation for their time and efforts.

To ensure the equity budget specifically benefits OBC, CSE recommends establishing the following proof of eligibility requirements for equity recipients to receive incentives for NJ SIP:

- Low Income Home Energy Assistance Program (LIHEAP)
- Universal Service Fund
- Comfort Partners
- Lifeline Utility Assistance Program
- New Jersey utility payment assistance for Gas and Electric
- Section 8 Housing Choice Voucher Program
- Supplemental Nutrition Assistance Program (SNAP)
- Lifeline program administered by the Universal Service Administrative Company
- Other local, State, or Federal LMI programs
- Location in a census block where 80% or more of the households earn less than 80% of the area median income according to the US Department of Housing and Urban Development

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?

No response.

5.2 How will Federal Energy Regulatory Commission ("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?

No response.

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?

No response.

5.4 What provisions, if any, should be established for interconnection of zero-export energy storage facilities (that is, energy storage facilities that do not inject power back into the grid and only supply power to on-site load)?

No response.

5.5 What specific best practices regarding rates and tariffs from other states should be Incorporated?

No response.

5.6 Should energy storage be utilized and compensated in the Triennium 2 Energy Efficiency /Demand Response proceeding as an allowable Demand Response resource? If so, what changes, if any, should be made to the NJ SIP design to avoid potentially providing double compensation for the same service?

No response.

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 the NJ SIP?

No response.

5.8 Please provide any other comments on the NJ SIP

No response.