Mid-Atlantic Solar & Storage Industries Association
Rutgers Eco-Complex, Suite 208-8
1200 Florence-Columbus Road, Bordentown, NJ 08505 | info@mseia.net

October 4, 2023

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

Via email to:
secretary@bpu.nj.gov

Re: Docket No. QO22080540
IN THE MATTER OF THE NEW JERSEY ENERGY STORAGE INCENTIVE PROGRAM REQUEST FOR INFORMATION

Dear Secretary Golden:

The Mid-Atlantic Solar & Storage Industries Association (MSSIA) is pleased to present these responses in regard to the above-referenced request for comments.

MSSIA is a trade organization that has represented solar energy companies in New Jersey, Pennsylvania, and Delaware since 1997. During that 26-year period, the organization has spearheaded efforts in the Mid-Atlantic region to make solar energy a major contributor to the region's energy future. Its fundamental policy goals, which were recently expanded, are to: (1) grow solar energy and storage in our states as quickly as practicable; (2) do so at the lowest possible cost to ratepayers, while delivering the greatest possible benefit as a public good; (3) preserve diversity in the market, including opportunity for Jersey companies to grow and create local jobs, and (4) ensure equitable access to the benefits of solar and storage for overburdened communities, and for low and moderate income households (https://mssia.org/fundamental-policy-objectives/).

We are fast entering a brave new world for the electric grid in which, on the one hand, stationary storage and EV battery storage are increasingly integrated into its operation; and on the other hand, massive amounts of intermittent renewable power are injected into it. Transactions of many types with hundreds of thousands of storage and generation sources will be managed. With MSSIA's on-the-ground view of the complexities that are already becoming evident, and the greater complexities to come, MSSIA offers its responses humbly, knowing that there will be much more to learn in the near future.

Time is running out. Already, New Jersey's in-state solar power can reach 35% of total statewide electric load between 11:00 AM and 3:00 PM on some days, and circuits are closing down to new solar installations at an accelerating rate.

MSSIA offers the following responses to the questions in the above-referenced request for information. MSSIA hopes that BPU will especially take note of MSSIA suggestions regarding broad eligibility for an EDC performance-based incentive system, in its response to question 3.9.

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?

MSSIA assumes that the question is intended to cover utility *ownership* as well as utility *control* of storage resources under the Storage Incentive Program (SIP).

Utility Ownership

Several times during the development of the New Jersey renewable energy program, regulated utilities have been allowed to play a limited role in developing, owning, and operating renewable energy assets. This has been in addition to continuous and robust participation in the solar development markets on the part of unregulated utility subsidiaries. MSSIA has generally supported limited and controlled roles for regulated utilities in renewable energy development. In doing so, MSSIA has recognized the advantages and disadvantages of utility participation.

Regulated utilities have what could be called an "unfair advantage" over private industry, because utility investments under BPU approval and control entail little risk for them, earning a regulated rate of return as long as their activities stay within certain pre-set boundaries. Their participation can reduce the amount of opportunity for a sector of the private solar & storage industry – namely, the finance-own-operate sector. As in the past, they presumably would still work with the same solar & storage industry participants "downstream" of the finance-own-operate sector, including EPC companies, skilled labor providers, and equipment & material vendors, and to some degree with project developers.

In order to participate, as in the past, the utilities presumably would be required to petition the BPU for their proposed participation, and thence be subject to discussion, negotiation, alteration and/or reduction, and ultimately approval or disapproval of their proposals by the BPU - along with intervenors representing a broad range of interests. MSSIA believes that this process can appropriately limit the extent of participation of utilities in the program to the degree that private industry participation is not unduly curtailed.

Utility Control

In the case of the SIP and the achievement of the state's storage requirement by 2030 (and beyond), MSSIA sees utilities as having a particularly vital role. Utilities bear the responsibility for maintaining the safety and reliability of the distribution system. This responsibility will become much more complex and challenging as intermittent renewables such as solar and wind provide an ever-increasing share of electrical load. Storage will play a major role in maintaining a stable, reliable grid, and MSSIA believes that utilities will need to play a central role in controlling them to maintain that stability and reliability.

Control of storage assets to benefit the distribution system can to some degree be accomplished with decentralized and automatic, inverter-by-inverter or system-level control, including through the use of algorithms designed to respond to point-of-interconnection conditions with appropriate measures.

An important example is the use of storage system inverters (as well as solar inverters) to stabilize local distribution system voltages through the inverters' reactive power capabilities (e.g., volt-VAR control). Already, there is a developing trend to control these capabilities through simple algorithms that respond to voltage at the point of interconnection. Pre-programmed algorithms for this purpose are even offered by battery energy storage system (BESS) manufacturers and inverter manufacturers, built in to the inverter or system controls. An example of a utility-driven Volt-VAR control program, and a paper by NREL on Volt-VAR control, are attached herewith.

Such local, automated control may not require utility supervisory control, but utilities will still need to be constantly involved in determining or altering the settings of such algorithmic controls.

In some conditions, however, such local control may not be enough. There still is likely to be a need for distribution system-level control. MSSIA believes that utilities are the natural party to send signals when necessary to perform such distribution-level control.

A complicating factor will be the potential for conflict between the needs of the distribution system and the needs of the transmission system. Although the distinction between the two is somewhat arbitrary and the entire grid is integrated, there are physical differences that could give rise to different needs, and they are under different jurisdictions (utility companies for the distribution system, and regional transmission operators like PJM for the transmission system). One important example is that RTOs need to focus on transmission system frequency control, while utilities need to focus on local voltage control. A transmission system's needs typically cover a broader geographical area, while a distribution systems needs are typically more local. Both are important. What happens if PJM sends a signal to a storage system for rapid *up*-regulation of frequency, and simultaneously a utility sends a signal to the same storage system for rapid *down*-regulation of voltage? Cooperation and collaboration among BPU, utilities, PJM, and other stakeholders will be necessary to work out priorities and rules for control. Again, it is evident that utilities should play an important and necessary role.

The discussion above does not cover all of the foreseeable complications that can be expected to arise as intermittent renewables increase. Further, there probably will be unforeseen complications too. All this indicates that system reliability will benefit from utilities getting a substantial amount of hands-on experience with storage assets they own and fully control, as the reality of a much more storage-integrated and intermittent renewable-driven grid develops.

For these reasons, MSSIA recommends that utility control of storage systems be considered favorably, and cautiously recommends that utilities be considered for a limited role in storage system ownership in the program.

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

MSSIA believes that the primary motivation behind the Clean Energy Act of2018's requirement for 2,000 MW of storage capacity by 2030 is the need for storage to help stabilize and maintain reliability of the electric grid during the transition to renewable energy, and thus enable that transition. MSSIA's discussion under question 1.1 above may indicate the need for a stronger measures to drive participation, when extraordinary and vital needs of the distribution system require it.

On the other hand, currently investors own and operate behind-the-meter storage assets in an environment where they can respond to market signals tied to revenue, choosing which markets in which to participate in real time. This should be encouraged because it enables them to optimize revenue in a market-driven way. If storage systems are optimized economically, there will be less need for incentives.

It may be that BPU can devise rules, in consultation with utilities and stakeholders, to provide for market-based choice for storage system owners during most conditions, but stronger drivers for participation in EDC-driven measures when urgent distribution system conditions must take priority. Under those conditions, storage system participation should be compensated appropriately.

MSSIA does not rule out the potential role of compulsory participation in extraordinary circumstances, but an alternative to compulsory response could be a penalty for non-participation or non-compliance in such circumstances. PJM ancillary services include penalties for non-compliance on the part of participants.

Per the discussion above, coordination between PJM signals and utility signals should help reduce the gulf between storage system owners and utilities in this regard. For instance, if a utility's need for local voltage control in a certain circumstance is judged by rule or agreement to take precedence over a PJM conflicting need for frequency control in that circumstance, then the option of participating in frequency regulation would not be an option available to a storage owner at that time.

MSSIA believes that further work among BPU, utilities, and stakeholders will be needed to develop a full answer to this question.

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

MSSIA offers a similar response to this question as for question 1.2 above. The main difference is that distributed resources would have more choices to consider for deploying storage capacity, having the choice of PJM markets and the new SIP utility-driven Performance-based incentives, as well as behind-the-meter revenue opportunities. Otherwise, the response above stands.

2.0 Installed Storage Targets, Deployment Timelines and Capacity Blocks

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?

MSSIA recommends the following allocations for the first three years, based on the BPU-suggested 4-hour equivalents, with any unused capacity each year rolling over into the following year:

Table 1: Total Grid Supply and Distributed NJ SIP Allocations

Program Year	Procurement Quantity (MW / MWH)
PY 1	60 MW / 240 MWH
PY 2	120 MW / 480 MWH
PY 3	120 MW / 480 MWH

Table 2: Grid Supply and Distributed NJ SIP Allocations

Program Year	Grid Supply Procurement Quantity (MW / MWH)	Distributed Procurement Quantity (MW / MWH)
PY 1	20 MW / 80 MWH	40 MW / 160 MWH
PY 2	40 MW / 160 MWH	80 MW / 320 MWH
PY 3	40 MW / 160 MWH	80 MW / 320 MWH

Note that although the yearly amounts recommended here are higher than the amounts in the staff straw proposal, they are well below the average amounts needed to comply with the requirements of the Clean Energy Act.

MSSIA's recommendations for allocating between grid supply and distributed storage are based on three factors:

1. According to MSSIA anecdotal information regarding storage development going on currently, more development is underway in the distributed market than the grid supply market. MSSIA believes this trend will intensify, because more sources of revenue, and significantly greater revenue overall, are available to distributed storage systems, making them more economic.

2. The greater economic quality of distributed storage means that the need for incentives will settle in at a lower level, lowering the cost of the program for ratepayers.

3. Distributed storage delivers greater policy value for three reasons:

a. Distributed solar returns a large fraction of the cost of incentives as cash back to New Jersey host sites that participate in the program.

b. Distributed solar can contribute to resiliency for critical community facilities, when configured as microgrids.

c. Distributed solar more readily delivers benefits to overburdened communities.

Regarding block sizes, MSSIA believes that dividing each year into three equal blocks is a reasonable starting point. Caution is recommended in initially setting the incentive reduction from the first block to the next. IT is axiomatic that initial incentive levels should be set as close as possible to the minimum level necessary to drive the program's chosen pace of construction. By definition, then, any reduction in those levels will be below the level necessary to drive the chosen pace of construction, unless costs go down. Although historically costs have indeed gone down (*slowly*), current supply chain issues and high demand are still pushing hardware prices higher. MSSIA recommends that block-to-block incentive reductions be set at a small value initially. Then, the BPU should assess market response to the program, and adjust incentives depending upon whether the pace of development exceeds the chosen pace or falls short.

MSSIA supports the inclusion of a separate block for residential-scale storage, but has not yet developed a specific capacity number or percentage to recommend for such a block.

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

Assuming that "first-ready" means ready to operate, MSSIA believes that a first-ready, first-served process would make it very difficult for project developers and project finance-own-operate companies to confidently invest the large amounts of capital necessary to develop projects, let alone to build them. If they do not know what incentives, fixed or performance-based, they will qualify for, then committing to hundreds of thousands to millions of dollars of expenditures will be difficult to justify. It should be remembered, too, that the history of renewable incentives in New Jersey and elsewhere has proven the principle, *high risk begets high costs*.

MSSIA recommends staying with a first come, first served application process with robust proof-of-maturity requirements.

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?

First, the interconnection process should require utilities, in considering interconnect applications for storage systems, to consider the beneficial effects that storage systems can provide to the grid, in a prescribed fashion. In order to make that happen, it will be necessary for the BPU, utilities, and the solar & storage industry to work together intensively, presumably through the Grid Modernization proceeding, to define the parameters and protections to build into the rules.

Second, storage systems that are connected to the distribution system, are part of community solar projects, or are part of remote net metering projects, should follow rules similar to solar interconnect rules, such as similar application fees and review timelines, streamlined application processes, defined tiers, etc.

Third, storage systems should be able to participate in PAVE application processes, in order to prevent the need to invest large sums in development before know if a project can be interconnected.

3.0 Incentive Structure

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.

For storage systems with 4-hour duration sized 1 MW to 30 MW, MSSIA estimates a total cost of approx. $600 to $650 per KWH, including development, design, and installation. The basis for these estimates include hardware costs from the Tesla website for Tesla Megapack BESS (https://www.tesla.com/megapack/design), and development/design/installation estimates by Advanced Solar Products, which included labor and material vendor quotes.

This compares to the cost estimate for a 300 KW, 4-hour system from *"U.S. Solar Photovoltaic System and Energy Storage Cost Benchmarks, With Minimum Sustainable Price Analysis: Q1 2022"* (cited and linked below). The estimate for "minimum sustainable price" was $671 per KWH.

Costs of constructing storage systems in New Jersey can be expected to be higher than estimates based on national averages, because New Jersey has higher costs of land, labor, and soft costs such as permitting and design.

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

MSSIA offers the following sources:

NREL, *"U.S. Solar Photovoltaic System and Energy Storage Cost Benchmarks, With Minimum Sustainable Price Analysis: Q1 2022"*
https://www.nrel.gov/docs/fy22osti/83586.pdf (file)
and
https://data.nrel.gov/system/files/202/U.S.%20Solar%20Photovoltaic%20System%20and%20Energy%20Storage%20Cost%20Benchmarks%20With%20Minimum%20Sustainable%20Price%20Analysis%20Data%20File.xlsx
(data set)
and
https://atb.nrel.gov/electricity/2022/commercial_battery_storage (website)

USDOE / PNNL, *"2022 Grid Energy Storage Technology Cost and Performance Assessment"*
https://www.pnnl.gov/sites/default/files/media/file/ESGC%20Cost%20Performance%20Report%202022%20PNNL-33283.pdf (file)
and
https://www.energy.gov/eere/analysis/2022-grid-energy-storage-technology-cost-and-performance-assessment (website)

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

MSSIA believes fixed incentives should be assignable to aggregators. Aggregators maybe able to achieve better economic results for storage systems through benefits of scale. In particular, relatively small storage systems will benefit from aggregation, allowing them to come closer to the economic performance of larger systems. Anything that provides batter economic outcomes will help to minimize incentives over time. Furthermore, the encouragement of small storage systems will help spread the benefits of the SIP over a broader base of participants.

If the presence of aggregators fails to deliver on improved economic outcomes, then they will not proliferate. Therefore, allowing them is unlikely to do any harm.

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?

Yes, they should. As noted before in the response to question 2.1, distributed storage systems offer greater policy benefits for the state, so they should be allowed room to grow where possible.

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?

MSSIA believes that emission rates should not be the primary measure for performance-based incentives.

First, entities invest in storage systems expecting revenue net of operating expenses that are enough to produce a return on their investment. The sources of revenue that meet this test are well-known to entities who are in the business of developing storage systems. Major storage asset management companies report to MSSIA that for grid supply systems, revenues focus on PJM ancillary service markets, often focusing on the Reg D frequency regulation market. For distributed storage systems, the PJM ancillary service markets still apply, but demand response markets – capacity and transmission – and behind-the-meter demand charge bill reduction are additional sources of revenue. Resiliency payments can sometimes be added as well, for storage systems that are part of microgrids. To MSSIA's knowledge, bulk transfer of power between on-peak and off-peak times is not as common. Therefore, emission rates as a performance-based incentive measure would be out of step with the prevailing use case for storage systems, and therefore of little use.

Further, bulk transfer of power from peak emission times to lower emission times may be difficult to implement efficiently, being inherently predictive. There would also be countervailing environmental effects. These would include the round-trip-efficiency power losses from the throughput of the batteries, at best 10% of throughput. The resulting emissions attributable to the lost power could fully offset the peak-off peak differences in emission rates. In addition, in the case of batteries the throughput eats up battery life, so there is an embodied energy cost as well as a disposal or recycling cost.

Finally, as noted before in MSSIA's response to question 1.2, MSSIA believes that the primary intended purpose of the 2,000 MW by 2030 requirement is to facilitate and enable the transition to renewable energy. Other measures, like those discussed below, will better serve that purpose.

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

Peak demand reduction for behind the meter billing, and PJM coincident peak reduction through demand response markets, are already rewarded with substantial revenues. It may not be desirable to duplicate those existing markets. Peak demand reduction for distribution-level needs locally might be differentiated relative to PJM and behind-the-meter customers, but more exploration is needed on that point.

MSSIA believes that the focus of performance-based incentives should be on services that storage systems can provide to the stability and reliability of the distribution system, in particular in countering any real or perceived potential disruptive effects of intermittent renewables. MSSIA believes that staff's proposal to create EDC-based performance-based incentives is a good approach that can simplify the program by consolidating desired services and outcomes in one performance-based incentive structure. MSSIA explains this suggestion further in its responses to questions 3.9 and 3.10 below.

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?

See MSSIA's response to question 3.6 above.

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

See MSSIA's response to questions 3.5 and 3.6 above.

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?

MSSIA believes that EDC performance-based incentives could be structured in a common framework for all EDCs, but particular rates and parameters would be different for different utilities.

First, MSSIA believes that such EDC performance-based incentives would be structured as remuneration for services that can be delivered to the distribution system by storage systems, according to the value of those services. The BPU, in coordination with utilities, storage industry stakeholders, experts, and other stakeholders would need to determine what services would be included in the program, how to value them, how to ensure that they are delivered when needed, and how to measure delivery of the services. Examples of services of interest could include:

1. Injecting real power to, or absorbing power from, the POI in order to maintain proper voltage in the distribution circuit.
2. Absorbing or producing reactive power at the POI in order to maintain proper voltage (Volt-VAR control).
3. Using near-real-time, granular weather data to respond predictively to expected fluctuations in solar or wind resources - dampening fluctuations, slowing renewable resource ramp times.
4. With selected storage assets, using them as black start devices for nearby utility generation assets.
5. Injecting power to reduce peak demand at the system level.
6. Injecting power to reduce local peak demand, such as on a substation level.
7. If desired, emission reduction services could be added.

As stated previously, services could be preprogrammed in the storage system itself locally. The occurrence fo such automated use of a service by a storage system would then have to be measured and recorded for compensation. Services could also be activated via an EDC signal. As with PJM ancillary services, it may be that a storage system would be managed by a service company, whose network operation center would monitor an EDC's signals and control the storage asset to deliver services, along with other markets or uses in which the storage system participates.

Second, MSSIA asserts that if an EDC performance-based incentive system is put in place, *any storage system that meets the functional requirements for participation should be eligible to participate, not just storage systems that receive the fixed incentive*. Normally, this is how service markets function. PJM ancillary service markets are an example.

MSSIA believes that there is a high likelihood that most of the storage development in the state will not be able to receive the fixed incentive. The degree to which this is true, of course, will depend on the BPU's decision on how much capacity to make available in the Program. If any storage systems that are built are not allowed to participate in a market for services they are capable of providing, then they will not provide those services. This would be a waste of assets that could be helping to meet the state's goals. MSSIA also points out that storage assets that provide the desired services through an EDC performance-based system without being paid the fixed incentive should be attractive to BPU, since the state is getting more bang for the buck.

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?

MSSIA is not certain what is meant by this question, but it may be that MSSIA's response to question 3.9in the last two paragraphs provide an answer.

3.11 How should incentives be structured for thermal storage systems?

If eligibility is restricted to thermal storage systems that have the effect of time-shifting electrical loads, then the thermal storage system's power capability and duration can be calculated in KW and KWH, providing an equivalent to electrical storage system ratings for the fixed incentive. Likewise, a performance-based incentive can be applied to a to thermal storage systems by a combination of measurement and calculation.

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

IF MSSIA's recommendation is followed and the performance-based incentive is an EDC performance-based incentive focused on the provision of valuable services to the distribution system, then the same program would apply to grid-supply storage systems and distributed storage systems alike (that is, assuming that both are connected to the distribution system. MSSIA has not yet developed a position on whether the SIP should apply to storage assets connected to the transmission system.

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?

In view of the potential for the size of the program to be severely limited, MSSIA supports project size caps and, as in past programs, MSSIA supports developer caps.

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.

In keeping with MSSIA's stated fundamental policy principal to develop solar energy (and by extension, energy storage) at the lowest possible cost to ratepayers, MSSIA responds that BPU could consider reducing the incentive payments to an extent when projects receive extraordinary federal funds or benefits, such as ITC adders or large federal grants. However, storage system developers may expend considerable resources to secure those federal benefits, and well as bearing certain extra costs and/or risks. Furthermore, those federal incentives may be intended to provide additional benefits to certain stakeholders, such as overburdened communities. Therefore, BPU should judiciously balance those factors in considering any reduction in state incentives.

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?

Simple standards could be promulgated by BPU for the capabilities of data acquisition systems (DAS) and the data gathering, recording, and periodic reporting of performance data for storage systems. The most obvious parameter would be the throughput (power in and out) of the storage system. Additional data relevant to the services provided under a performance-based incentive could be added, such as power factor (to track reactive power services).

Another way that could be considered for monitoring the systems could be to track the revenue (including avoided cost) generated by storage systems. The point of monitoring, MSSIA presumes, is to make sure the storage systems deliver the societal value the systems were meant to deliver were, in fact, delivered. The point of service markets is to remunerate the systems for the value they deliver. Furthermore, they value different services delivered by storage systems differently, in theory based on how much each service is valued by society. As such, the amount of revenue generated by a storage system could be thought of as a proxy for how much value it has delivered to society. Storage system owners will certainly track the revenue geenration of their assets closely for their own purposes, so the data should be readily available – that would be the easy way. But BPU could derive the information independently by combining the aforementioned performance data with market price and tariff data. Tracking this data will also promote understanding of how the markets are working and how the economics of storage systems is progressing.

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

MSSIA believes that an EDC performance-based incentive can and should be designed to value services to the distribution system that are different from the services valued by PJM. If those services happen to coincide in time of delivery, then double compensation theoretically could happen. It may be that market rules could prevent storage assets from enrolling in different signal-based markets at the same time, but such rules will need to be examined once the nature of the SIP's performance-based incentives begins to take shape, so that their potential for double compensation can be understood in detail.

4.0 Overburdened Community 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?

MSSIA agrees that both an adder and a dedicated capacity block for OBC's should be established. A separate block will drive development toward OBC locations, The adder will both drive development and help overcome any cost, risk, or timing factors that could inhibit development in those locations

Stakeholder discussion should take place regarding this matter, with significant representation of OBC advocacy groups and OBC local government. Subject to such discussion, a separate capacity block for OBC-located projects could be something in the range of 20% to 30% for commercial distributed storage and grid supply storage, and 40% for residential storage.

The adder for location in an OBC could be 10% to 15% of the base incentive. More adders could be applied to projects with special characteristics, as discussed in MSSIA's response to question 4.2, below.

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

First, in providing special incentives for projects located in OBC's, BPU can encourage and/or require job creation within the OBC, including special training programs. BPU should play a role in helping connect OBC community entities with grants and other resources for job training, and helping developers and other participants, such as trade schools and community college training programs, with those grants and resources as well.

Second, BPU should consider further encouraging development of storage projects in areas of electrical congestion within OBCs, and areas within OBC's that have experienced lower electric reliability than the state average, or that have experienced other infrastructure problems such as chronically low voltage, etc.

Third, BPU should provide capacity blocks for residential storage projects, and focus a large portion of those residential blocks on OBC households.

Fourth, BPU should consider larger adders for storage projects that also function as microgrids – specifically, microgrids that provide resilient power to critical facilities that deliver vital services to the public in OBC's. Such extra support should be focused especially on renewable energy-driven microgrid projects.

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?

The primary actions BPU could take to improve access to the energy storage value stack were the suggestions offered above in response to questions 1.2 and 3.9 – namely, bring utilities, PJM, and developers together to coordinate and prevent conflict between regional/transmission needs and local/distribution system needs, allowing EDC performance-based incentives and PJM ancillary service incentives to co-exist productively; and design and EDC performance-based incentive system to value services that are unique to the distribution system.

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?

BPU should play a proactive role with PJM in pushing for improvements to PJM's implementation of FERC Order 2222, and in particular to: 1) broaden eligibility and participation of distributed resources, especially behind-the-meter resources like behind-the-meter storage, and most especially small-scale storage; and 2) streamline and accelerate the process of enrolling small-scale, behind-the-meter storage.

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?

The best modifications to the SIP that could help maximize developers' access to federal incentives would be focusing programs on OBC's, since support from many federal programs are focused there.

In addition, outside the SIP itself, BPU could coordinate with specific New Jersey towns to proactively work with U.S. Treasury and IRS to ensure they are fairly including all areas of New Jersey that should be able to qualify for ITC adders, and are included as such in Treasury and IRS rules and guidance.

In particular, New Jersey so far has not faired well in Treasury and IRS guidance regarding the low-income adders (location eligibility for identified low-income municipalities) or for areas qualifying for the energy community adders. With some research, it is possible that the case can be made for the inclusion of additional locations.

Additionally, BPU could reach out to NJ DEP to help identify areas in New Jersey that could qualify for the energy community adder under the category of brownfield. Treasury has not provided any guidance to help interpret the IRA law on that category. DEP could be of great value in understanding the IRA language and identifying areas that would qualify.

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)?

Behind-the-meter, zero-export storage systems can do everything that other storage systems (that are not zero export) can do. The only difference is that their ability to provide services, follow market signals, and the like could occasionally be reduced (curtailed) by the need to ensure zero export.

Developers and investors will avoid designing systems so that curtailment could have a significant impact on the system's ability to produce revenue. This is because not only would significant curtailment impair the economic viability of the project, but the risk to the project would be unusually high. The risk is high because experience has shown that modeling based on available historical data, such as 15-minute interval data, can significantly underestimate the degree of curtailment. Projects projected to yield a decent rate of return have ended up operating at a small loss. Investors really hate that. Therefore, MSSIA expects that any zero-export storage systems that are developed will be able to operate in virtually the same way as other systems do. In other words, the development community can be expected to avoid any reduction in the usefulness of such systems based on their own self-interest.

In summary, MSSIA believes that zero-export storage systems should be allowed to participate in the SIP, and that BPU does not need to do anything special to allow their participation. However, if BPU is concerned, it could require any zero-export storage system applying to the program to show its data and analysis demonstrating minimal or no curtailment.

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

Storage incentive programs in Massachusetts and Connecticut should be considered, although in many respects they are different basic approaches than the approach being proposed by staff.

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?

As discussed in the response to question 3.9, an EDC performance-based incentive program should be designed to remunerate services that uniquely can be provided by storage systems, and most of these are not related peak demand reduction.

If remuneration for peak demand reduction is to be included in an EDC performance-based incentive program, it might overlap with compensation available through T2 demand response incentives. If there are two potential programs that could provide incentives for exactly the same service, incentives should probably come from one or the other. If there is a choice between compensation through T2 demand response incentives or through an SIP EDC performance-based incentive program, it may be better to avoid the complication and confusion for storage system owners of participating in multiple markets by compensation peak demand reduction through the EDC performance-based incentive program.

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?

For small storage systems, for example residential systems, inverter-produced data may be able to serve this purpose. For commercial or utility-scale storage systems, more sophisticated data acquisition systems (DAS) would be required, and would already be present to serve the needs of the system owners.

MSSIA thanks staff for the opportunity to provide responses on this matter.

Sincerely,

Lyle K. Rawlings, P.E.
President

Attachments:
US Solar PV System Energy Storage Cost Benchmarks with Minimum Sustainable Cost Analysis -Q1 2022.pdf
ESGC Cost Performance Report 2022 PNNL-33283.pdf
NREL - Volt-VAR control 67296.pdf
Reactive Power - Obligatory (Synch Gens) v1.1.pdf