







# NJ Storage Incentive Program ("NJ SIP") Straw Proposal Overview



Meeting 1 – October 21, 2022 9AM – 12PM

Meeting 2 – November 4, 2022 – Grid Supply storage

Meeting 3 – November 14, 2022 – Distributed storage

# **Stakeholder Input**

- Meetings
  - Meeting 1 October 21, 2022 will provide an overview of the Straw Proposal
  - Meeting 2 November 4, 2022 will explore the portions of the NJ SIP focusing on grid supply storage
  - Meeting 3 November 14, 2022 will explore the portions of the NJ SIP focusing on distributed storage
- Written Comments due December 12, 2022 5PM EST



# **Webinar Instruction Page**

- All attendees will be automatically muted
- Questions? Please use the "Q &A" function in Zoom
- We will address clarifying questions at the end of each section
- Please note that the "Chat" function in Zoom is not available for this meeting, other than to broadcast the registered speakers "on deck"
- This meeting is being recorded. A copy of the recording and slides will be made available on the BPU website:
  - https://www.nj.gov/bpu/newsroom/public/



# **Disclaimer**

This presentation is provided for informational purposes only and should not be taken to represent the views of the New Jersey Board of Public Utilities, its Commissioners, or the State of New Jersey. Please be aware that any information presented is subject to change if there are changes to New Jersey statutes, rules, or policies.

All viewers are responsible for ensuring that they rely only on current legal authority regarding the matters covered in the presentation.



# Written Stakeholder Comment Guidelines

- The deadline for comments on the NJ SIP is 5:00 p.m. ET on Monday, Dec 12, 2022
- Please submit comments directly to Docket No. QO22080540 using the "Post Comments" button on the Board's Public Document Search tool.
- Comments are considered "public documents" for purposes of the State's Open Public Records Act and any confidential information should be submitted in accordance with the procedures set forth in N.J.A.C. 14:1-12.3.
- Written comments may also be submitted to:

Acting Secretary of the Board 44 South Clinton Avenue, 1st Floor

Post Office Box 350

Trenton, NJ 08625-0350

Phone: 609-292-1599

Email: board.secretary@bpu.nj.gov



# **Live** Stakeholder Comments (this meeting)

- Speaking time per person is limited to 5 minutes—please be respectful of other speakers.
- The next five speakers are posted in the chat. We will call on speakers in order. If your name is not showing (only a phone number), please raise your hand when it is your turn to speak.
- Phone controls for participants
  - The following commands can be entered via DTMF tones using your phone's dial pad while in a Zoom meeting:
    - \*6 Toggle mute/unmute \*9 Raise hand
- At the conclusion of our pre-registered speakers list, we will invite additional speakers to raise their hands to speak.

# NJ Energy Storage Program - Website

https://www.njcleanenergy.com/storage

https://www.njcleanenergy.com/storage



Press Room | Library | FAQs | Calendar | Newsletters | Contact Us | Site Map

Search

HOME RESIDENTIAL COMMERCIAL, INDUSTRIAL RENEWABLE ENERGY

### RENEWABLE ENERGY

- **▼ PROGRAMS** 
  - ► SUCCESSOR SOLAR INCENTIVE PROGRAM

TRANSITION INCENTIVE PROGRAM

SREC REGISTRATION PROGRAM

**COMMUNITY SOLAR** 

OFFSHORE WIND

**PREVIOUS PROGRAMS** 

**GRID MODERNIZATION** 

**ENERGY STORAGE** 

- METERING AND INTERCONNECTION
- SOLAR PROCEEDINGS

Home » Renewable Energy

### **Energy Storage**

The New Jersey Board of Public Utilities ("BPU" or "Board") hereby gives notice of a series of virtual stakeholder meetings to discuss the New Jersey Energy Storage Incentive Program ("NJ SIP") Straw Proposal ("Straw") attached to this Notice.

The State of New Jersey has one of the most ambitious storage targets in the nation, with a statutory mandate to achieve 2,000 megawatts ("MW") of installed energy storage by 2030. Energy storage resources are critical to increasing the resilience of New Jersey's electric grid, reducing carbon emissions, and enabling New Jersey's transition to 100% clean energy. The NJ SIP described in this Straw will build a critical foundation for a long-term energy storage effort in the State.

In this Straw, Board Staff proposes to create two energy storage programs for Front-of-Meter and Behind the-Meter energy storage incentives, both patterned after the solar-plus-storage program proposed in the Board's Competitive Solar Incentive ("CSI") Program.2 However, while the CSI Program is designed to incentivize solar-plus-storage projects, this Straw will focus on incentivizing stand-alone energy storage devices physically connected to a New Jersey electric distribution company ("EDC"). Staff proposes to apply the incentives only to energy storage projects placed into service after the effective date of the Board Order establishing this program would qualify for incentives.

The stakeholder meetings will be held at the following dates and times, and in the following manner:

### **Program Updates**

- Solar Scam Warning
- Successor Solar Incentive Program
   Order
- CEA Solar Transition Proceeding
   Other updates posted.

### **NJ Solar Installations**

Solar Installations

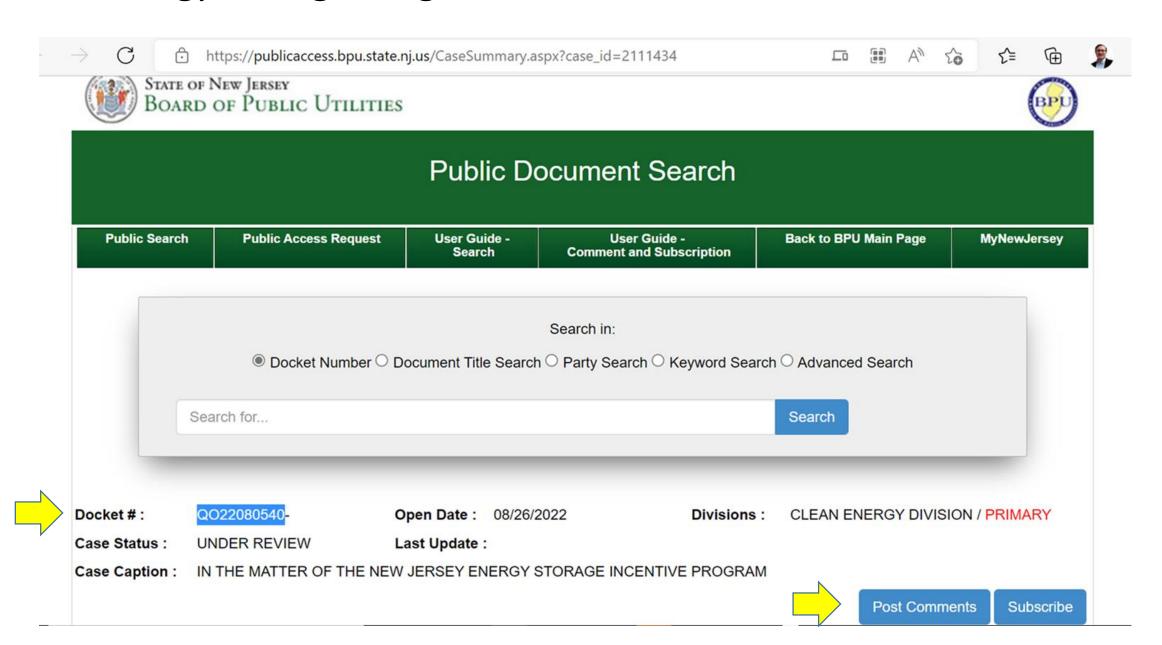
163,164

As of August 2022 over 163,164 New Jersey homes & businesses have installed a solar electric system.

Find a Trade Ally



# NJ Energy Storage Program – Document Server





# THANK YOU – Let's look at the *background* shaping the NJ SIP paul.heitmann@bpu.nj.gov



# Energy Storage Value Stack

# Applications / Use Cases for Energy Storage Systems

"Stacking" Services (Value Stack) Key to Economic Operation || Source: Sandia Labs

	Service	Description	Potential Value	Grid	Commercial	Residential
	Demand charge reduction	Use stored energy to reduce demand charges on utility bills	н		~	~
	Energy arbitrage	Buying energy in off-peak hours, consuming during peak hours	Н	/	~	~
	Demand response	Utility programs that pay customers to lower demand during system peaks	Н		~	~
	Resiliency / Back-up power	Using battery to sustain a critical load during grid outages	н	~	~	~
	Frequency regulation	Stabilize frequency on moment-to-moment basis	н	~	~	
	Capacity markets	Supply spinning, non-spinning reserves	М	~	~	
7	Voltage support	Insert or absorb reactive power to maintain voltage ranges on distribution or transmission system	L	~		
	T&D Upgrade Deferral	Deferring the need for transmission or distribution system upgrades, e.g. via system peak shaving	Site specific	~		

- Released on September 29, 2022
  - Available at <a href="https://nj.gov/bpu/newsroom/public/">https://nj.gov/bpu/newsroom/public/</a>
- Designed to meet New Jersey's goal of 2000 megawatts of energy storage by 2030 through three energy storage programs:
  - Incentives for Front-of-Meter or Grid Supply energy storage
  - Incentives for Behind-the-Meter or Distributed (or Customer Level) energy storage
  - The existing solar + storage component of the soon-to-be-launched Competitive Solar Incentive, or "CSI" program



# **Proposed Definition of Energy Storage**

A device that is capable of absorbing energy from the grid or from a Distributed Energy Resource (DER), storing it for a period of time using mechanical, chemical, or thermal processes, and thereafter discharging the energy back to the grid or directly to an energy using system to reduce the use of power from the grid.



# **Incentive Structure (paid over 10-15 years)**

- Fixed Incentive (with uptime performance requirements)
  - Incentive determined through Declining Bid Block structure
- Pay for Performance Incentive
  - Grid Supply Based on carbon reduction benefits using PJM marginal carbon intensity signal
  - Distributed Based on injecting energy into the distribution system, or by reducing consumption of power from the grid, during specific call hours set by each EDC (modeled after ConnectedSolutions Programs in CT and MA)



# IV. Reference State/Regional Programs

This meeting will also refer to how other states are implementing similar programs, and where we have drawn on some of these elements for our NJ SIP.

- The California Self-Generation Incentive Program
- The Connecticut Energy Storage Solutions Program
- NYSERDA Bulk and Retail Energy Storage Incentive Programs

### WHY IS THIS IMPORTANT?

- Several other states have established similar goals, and have implemented significant policy or legislative action driving commercial deployments.
- Examples of large utility involvement and collaboration are useful to reference potential business model options.



# THANK YOU – Now let's expand the sections of the NJ SIP Straw Proposal paul.heitmann@bpu.nj.gov



# V. NJ SIP Straw Proposal

- A. Program Goals
  - **B** Business Model Considerations
    - C. Technical Considerations and Proposed Definition
      - D. Installed Targets and Timelines
        - E. Incentive Structures

Each of these topics will next be covered individually as follows: (target timing is approximate)

Brief synopsis of Straw segment presented

Open Line for Stakeholder Comments

Brief Stakeholder Polling

5 min

15 min\*\*

3 min

\*\* there is time reserved at the end of the meeting for additional stakeholder comment

# Before We Continue... Mark Your Calendars!

REMINDER: Todays Meeting is intended as an **introductory overview** to the Straw Proposal and its bifurcation into **Grid Supply** and **Distributed** storage domains.

Many details for these elements will be provided in the subsequent two meetings:

### **Grid Supply**

 Meeting 2 – November 4, 2022 - will explore the portions of the NJ SIP focusing on grid supply storage

### Distributed

 Meeting 3 – November 14, 2022 – will explore the portions of the NJ SIP focusing on distributed storage

# V. NJ SIP Straw Proposal: Program Goals

This Straw presents a policy framework designed to meet the following goals:

- 1. Achieve the 2030 energy storage goal of **2,000 MW by 2030**, as set forth in the CEA in a manner that is consistent with New Jersey's competitive electricity markets;
- 2. Promote **deployment of private capital** by establishing a stable market structure that attracts low-cost capital;
- 3. Ensure that energy storage devices are deployed in a manner that **decreases GHG** emissions by tying operations to pay-for-performance metrics;
- 4. Support deployment of energy storage devices **interconnected** to the transmission or distribution system of a New Jersey EDC;
- 5. Grow a sustainable energy storage industry that gradually **requires decreased incentives** to deploy additional storage resources, in order to ensure that the benefits of energy storage last well beyond the term of this initial program;
- 6. Support **overburdened communities** with energy resilience, environmental improvement, and economic opportunity benefits derived from energy storage; and
- 7. Encourage storage deployment that accelerates the clean energy transition, including facilitating deployment of renewable energy, electric vehicle or other DERs.

# V. NJ SIP Straw Proposal: **Business Model Considerations**

- Staff notes that the question of who should own and operate energy storage assets is a
  major question for any energy storage program design. This Straw recommends that
  the Board adopt a storage business model that encourages private ownership and
  operation of energy storage devices, consistent with New Jersey's restructured
  competitive market structure.
- EDCs must play a key role in building the grid infrastructure necessary to enable the effective interconnection and dispatch of these resources.
- This role is particularly important for the Distributed portion of the NJ SIP, where the EDC will interconnect the resources and will be directed to establish **pay-for-performance** incentives that address the "value" of storage.
- Two major long term goals of the NJ SIP program are to attract low-cost private capital
  and to develop an energy storage program that is consistent with New Jersey's
  competitive electric markets. To establish an optimal investment environment requires
  recognition of "value stacking" and market-based compensation for as much of the
  value stack as possible.

# V. NJ SIP Straw Proposal: Business Model Considerations

- Value stacking is important as it **reduces the need for incentives** to move the market adoption of storage at a desired pace.
- Part of the value stack that can provide this **offsetting revenue stream** include Customer savings and grid revenue, which may be driven by elements such as:
  - Wholesale market revenues;
  - Energy arbitrage in time of use ("TOU") differentiated markets;
  - Participation in wholesale ancillary services markets;
  - Retail bill reductions created by active management, such as management of demand charges, standby charges, and distribution costs; and/or
  - Cost-effective investment in DERs, electric vehicle charging, or other technologies, supported by energy storage devices.
- These value-stacking revenues are in addition to any NJ SIP incentives, such as distribution-level price signals established by the EDCs\*\* or grid-level performance-based incentives that incorporate marginal emission rates reported by PJM\*\*

\*\* Note: These mechanisms will be discussed in greater detail in subsequent stakeholder meetings.

# V. NJ SIP Straw Proposal: Technical Considerations

- Energy storage consists of a variety of physical, thermal, and chemical technologies, each of which offer unique capabilities and limitations and may be at different stages of commercial maturity. Staff believes that the bulk of the NJ SIP should focus at this time on **replicable projects using commercially available technologies** but also be flexible enough to promote new and emerging energy storage technologies if they are cost-competitive with more established energy storage technologies.
- Staff proposes adopting as broad of a definition of energy storage as possible, in order to leverage innovation and competition to meet New Jersey's energy storage goals at the lowest possible cost to ratepayers, and open opportunities to a diverse community of developers. Staff proposes to adopt the following definition for energy storage:

A device that is capable of absorbing energy from the grid or from a Distributed Energy Resource (DER), storing it for a period of time using mechanical, chemical, or thermal processes, and thereafter discharging the energy back to the grid or directly to an energy-using system to reduce the use of power from the grid.

# V. NJ SIP Straw Proposal: Targets and Timelines

- Annual installed energy storage targets that increase over time create:
  - Compelling opportunity for energy storage developers to build NJ businesses
  - Investment in the workforce of the future, paving the way for high paying green careers
  - More demand certainty which lowers risk and supports investment decisions
- Staff weighs three main factors: (i) expected declines in the installed cost of storage over time (recognizing the disruption to this trend caused by recent supply chain issues); (ii) the environmental, public health, and grid benefits of quickly scaling storage; and (iii) the need to gain operational experience in New Jersey's storage program.
- The Clean Energy Act (CEA) describes the storage target in terms of "megawatts" of storage.
  Because energy storage is typically denominated in MWh, Staff proposes to interpret the
  CEA's 2030 storage mandate as requiring New Jersey to procure 2,000 MW of storage
  devices capable of four hours of continuous discharge, or 8,000 MWh.\*\*
- Staff assumes that the CSI program will procure approximately 1000 MW of four-hour storage capacity between 2022 and 2030, resulting in a total contribution of 4000 MWh, or roughly half the total towards the CEA goal for 2030.

<sup>\*\*</sup> Note: The solar + storage component of the **CSI Program** already includes a targeted storage procurement of 160 MWhs per year and uses four hours of continuous discharge as the standard.

# V. NJ SIP Straw Proposal: Targets and Timelines

- Taking these various factors into account, Staff proposes the targets shown in Table 1 below for the NJ SIP. Each targets are established per Energy Year, which is June 1 of the first year until May 31 of the second year.
- Targets will be additional to the storage component of the CSI solar+storage market segment and would be split between the **Distribution and Grid Supply portions.**
- Further, Staff notes that meeting the 2000 MW target established by the CEA will involve contributions from **both** the **CSI solar+storage** and **NJ SIP** programs.

Energy Year in which Awards are Made	Proposed Procurement Quantity (MWs of 4 Hour Storage)	Proposed Procurement Quantity (MWhs)
2023/2024	40	160
2024/2025	60	2
2025/2026	90	
2026/2027	120 X	4 = (480)
2027/2028	160	640
2028/2029	200	800
2029/2030	330	1320
Subtotal from NJ SIP	1000	4000
Contribution of CSI	1000	4000
Total NJ Storage	2000	8000

Energy Year in which Awards are Made	Proposed Grid Supply Procurement Quantity (MWs	Proposed Grid Supply Procurement Quantity (MWhs)	Proposed Distributed Procurement Quantity (MWs of 4 Hour	Proposed Distributed Procurement Quantity (MWhs)
2023/2024	30	120	10	40
2024/2025	50	00	10	
2025/2026	75	50	15	
2026/2027	105	420	15	60
2027/2028	140	560	20	80
2028/2029	180	720	20	80
2029/2030	300	1200	30	120

Grid Supply BTM Distributed

# V. NJ SIP Straw Proposal: Incentive Structures

 Staff proposes that the total NJ SIP incentives be comprised of two main incentive payments:

Fixed

 The first will be a fixed incentive, measured in \$/kWh of storage capacity and paid annually to both Grid Supply and Distributed projects, for a fixed term of years, contingent on satisfactory up-time performance metrics.

Performance

- The second will be a **performance**-based incentive tied directly to the grid and environmental benefits created through the storage device's operations.
- Staff proposes to offer these incentives through a **Declining Block** method to stimulate early project applications and reflect the likely reducing cost trends over time.

	First Year Allocation	Block 1	Block 2 <\$2/kwhr	Block 3 <\$2/kwhr
Grid Supply:	30 MW	5 MW	10 MW	15 MW
Distributed:	10 MW	1.5 MW	3.5 MW	5 MW

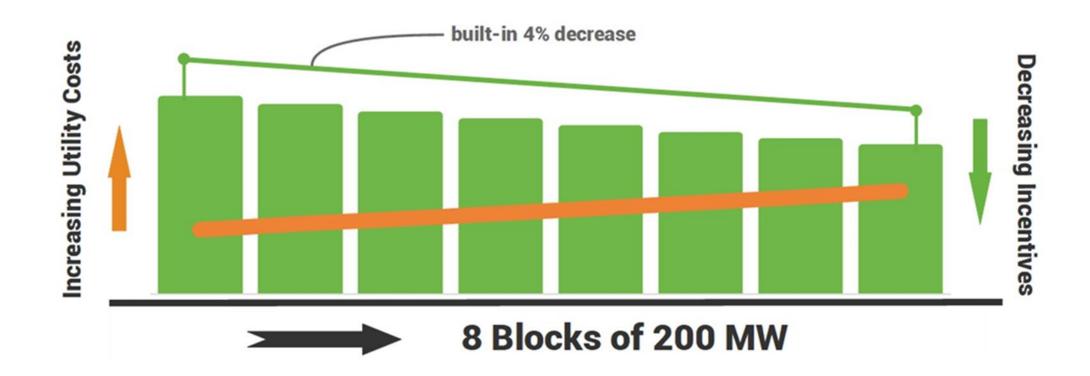
Incentive Rate: Starts Higher to "Jump Start" Investments without large budget hit, then incrementally reduces by \$2/kwHr for each successive block on Year 1.



# Declining Block Elements

- If a Capacity Block remains **unsubscribed or under-subscribed**, then incentive would remain at that level until the incentive level becomes attractive to bidders.
- Second, an NJ SIP incentive structure that is, in part, **fixed and known in advance** provides a lower-risk incentive for developers and investors, thereby, encouraging investment of at-risk private capital.
- Third, a declining block incentive provides the Board flexibility to establish block sizes, reset incentive levels (if necessary), and adjust programmatic elements on an annual basis, as needed, to meet policy goals and cost considerations. Staff proposes that any adjustment to the NJ SIP program would be made at the same time and general manner as the adjustments to the similarly structured ADI Program.
- Staff proposes that storage developers must **select between the NJ SIP or the CSI** Programs. Participation in more than one program should be prohibited; however, Staff is interested in how best to allow developers the flexibility to select which program they wish to participate in.

# Example of Declining Block Method



# Comparing CSI with SIP

# Comparison of CSI and NJ SIP Incentives

	Competitive Solar Incentive (CSI)	NJ Energy Storage Incentive Program (NJ SIP)
Solar + Storage?	Yes	Emphasis on stand- alone storage
Administratively Determined Incentive	Net metered <=5 MW and community solar	Behind the Meter (distributed, customer level)
Competitive Incentive	Net metered > 5 MW and grid supply solar facilities	Front of Meter (grid supply)

# Performance Metrics

- Staff proposes making the fixed incentive payment available to storage resources
  contingent on the storage resource remaining online and available \*\* for dispatch in 95%
  percent of all hours.
- Staff further recommends that the Board utilize the PJM Equivalent Forced Outage Rate ("EFORd") as the metric for Grid Supply projects.
- Staff also seeks comment on whether an availability level of less than a certain percentage (initially proposed at 50% availability over a rolling 12 month period) should result in the project being investigated and potentially terminated from the program.
- Staff also seeks comment on how best to incorporate (without overly complicating) a similar performance requirement for Distributed resources and whether there should be a size cutoff.
- Staff seeks comment on whether to exempt all Distributed storage projects from this availability requirement, due to their smaller size and the need to limit program complexity.
   \*\* Staff notes that "availability" does not affect whether a resource is does not affect wheth

\*\* Staff notes that "availability" does <u>not affect whether a resource is dispatched</u> <u>or not</u>. Instead, the requirement is that the energy storage device is participating in placing economic bids offering the unit for dispatch in the PJM market.



# Long-Duration Storage

• Staff also invites comment on whether the NJ SIP should provide appropriate incentives (in terms of dollars per kWh of storage capacity) for storage systems that have **durations substantially longer than four hours.** Staff proposes to define long-duration storage as any storage technology that is greater than 20 hours of storage and requests comment on that proposed definition.

# Performance-Based Incentives

- The performance-based incentive for storage resources will be designed to encourage the operation of storage assets in a manner that maximizes environmental benefits and helps the electric grid during times of operational stress. The flexibility of grid supply energy storage can result in a range of benefits for the efficient and effective operation of the bulk electricity system while also providing environmental benefits by reducing carbon emissions and criteria pollutants.
- Likewise, storage resources at the distribution level can provide all of these benefits while also contributing to local system resilience, helping integrate higher levels of distributed generation, and potentially reducing the cost of operating and maintaining the distribution grid. As noted in the EMP, while "New Jersey does not currently have a means of pricing the benefits that batteries can provide at the distribution level . . . New Jersey is committed to adopting changes in regulatory policy that recognize the full wholesale and distribution value of batteries." EMP at p. 128.

# Marginal Emissions Signal

- Absent a mechanism to incentivize GHG emission reductions during operation, energy storage projects can also increase GHG emissions. Ensuring New Jersey's energy storage policies help achieve the State's overarching climate objectives thus requires creating such a mechanism.
- In general, high marginal carbon emissions rates track with higher PJM prices but this
  correlation does not always hold true, which is why ensuring that storage projects reduce
  emissions requires an incentive mechanism directly tied to marginal carbon emission
  rates.
- Combining locational marginal price and marginal emissions signals will incent storage developers to site their units in the places on the grid where they will provide the most significant price and environmental benefits to consumers.
- This Straw proposes that the Board will hire a Program Administrator to track and administer the performance-based incentive portion of the NJ SIP based on PJM's marginal carbon emissions data\*\*.

<sup>\*\*</sup> While PJM does not currently reward energy storage resources for their contribution to decreasing the carbon intensity of the PJM grid, it does *track* the marginal carbon intensity of the grid at each of its thousands of wholesale pricing nodes across the regional grid on a real-time basis.

# EDC Administered Incentive Program

- For Distributed storage devices, Staff proposes to direct each EDC to establish a **performance-based incentive**, in \$/kWh, for storage resources operating during specific call hours, in part, patterned off of the ConnectedSolutions program utilized in Connecticut and Massachusetts. The individual EDC program should be designed for their optimal distribution system benefit, and should include:
  - **Program Call Hours** Each EDC will identify the seasons and times of day when resources are most likely to be called.
  - A \$/kWh Incentive Payment for Calls: a simple \$/kWh payment for storage resources on its system, which correlate with achieved cost savings for grid management services or peak load reduction. This payment method must be based on
    - (i) maximizing environmental benefits of storage deployment;
    - (ii) minimizing distribution investment; and
    - (iii) otherwise minimizing the stress on the local distribution system and reduction of operating costs.

# EDC Administered Incentive Program

- Payments to Resource Owners: During dispatch events, a Distributed resource owner
  will meet its obligations under the performance based payment portion of the NJ SIP
  if it responds to a call. Successfully "responding" to a call can take two forms:
  - either injecting energy into the distribution system or
  - reducing the customer's consumption of power from the grid.
- A **Mechanism for Calling Resources**: Each EDC will be required to develop a system for calling resources and communicating with distributed storage resources, providing customer applications for settings, tracking and override, and maximal use of Advanced Metering Infrastructure ("AMI") for measurement and verification and billing settlement.

# Overburdened Communities

**PRO** 

 This Straw proposes to ensure that an equitable share of Distributed energy storage resources are placed into overburdened communities and seeks stakeholder input on the following options:

Least administratively complex option

Does not guarantee that they are located there

 Establishing an adder of to be determined value per kWh of energy storage capacity to the fixed portion of the incentive for projects located in overburdened communities; or

More directive toward this segment

Adds administrative complexity

- Establishing a separate Capacity Block limited only to customers in overburdened communities; or
- Adding an additional up-front incentive for projects located in overburdened communities to help defray the initial cost of installation.

Reduces up front financial hurdle

Adds cost / administrative complexity

In the initial program, Staff <u>does not</u> propose to include additional incentives to locate **Grid Supply storage** in overburdened communities, as those projects typically have fewer localized benefits, as compared to Distributed storage resources, which directly add to the resilience of the local community.

# Other Potential Topics

- EV batteries;
- Eligibility of distributed ES + solar for SIP incentives;
- Mobile storage.

More **specific discussion** for these elements and others will be provided in the subsequent two meetings into **Grid Supply** and **Distributed** storage domains.

### **Grid Supply**

 Meeting 2 – November 4, 2022 - will explore the portions of the NJ SIP focusing on grid supply storage

### Distributed

 Meeting 3 – November 14, 2022 – will explore the portions of the NJ SIP focusing on distributed storage

# Open Discussion for Stakeholder Comments

- Speaking time per person is limited to 2 minutes—please be respectful of other speakers.
- Please raise you hand if you would like to provide any last thoughts or comments. You will be recognized by our meeting facilitator and offered your speaking opportunity.
- Phone controls for participants
  - The following commands can be entered via DTMF tones using your phone's dial pad while in a Zoom meeting:
    - \*6 Toggle mute/unmute
    - \*9 Raise hand
- As a reminder: The deadline for comments on the NJ SIP is 5:00 p.m. ET on Monday, Dec 12, 2022
- Please submit comments directly to Docket No. QO22080540 using the "Post Comments" button on the Board's Public Document Search tool.



# THANK YOU – This concludes our NJ SIP Straw Proposal Overview paul.heitmann@bpu.nj.gov

