

2nd STRAW PROPOSAL

Fiscal Year 2015 Energy Storage Program July 25, 2014

Introduction

This second straw proposal is being issued by Board Staff in response to written public comments and a March 13, 2014 Energy Storage Stakeholder Group discussion on the first straw proposal of January 28, 2014. The first straw proposal was the result of ideas and recommendations expressed at working group meetings held on July 23 and September 20, 2013 and in subsequent written comments on the design, timing, process, incentive structure and eligibility criteria for the competitive solicitation.¹ Information was also obtained from the results of an online Request for Information (RFI) survey that was conducted among energy storage stakeholders in February and March.²

In keeping with the transparent and inclusive nature of NJCEP program development, public comments on this straw proposal will be welcomed and considered. Based upon that input, a final draft of the competitive solicitation will be presented to the NJBPU for its review and approval at one of its regularly scheduled Board agenda meetings.

Background and Context

In August 2012, the New Jersey Board of Public Utilities (NJBPU) released a study it had commissioned from Navigant Consulting, Inc. titled “Market Assessment Services to Characterize the Opportunities for Renewable Energy”. In the study, Navigant identified two potential opportunities for energy storage in the near term based on the amount of intermittent renewable energy (RE) installed or anticipated to be installed in New Jersey:

- Shifting renewable generation to more optimal times of the day; and
- Providing some of the additional frequency regulation that may be required with higher levels of intermittent RE

¹ The first straw proposal, the meeting notes and presentations of the two working group meetings and all written comments can be found at <http://www.njcleanenergy.com/main/clean-energy-council-committees/energy-storage>

² A summary of the RFI survey results can be found at <http://www.njcleanenergy.com/renewable-energy/programs/energy-storage>.

Navigant estimated that the current technical potential³ for storage associated with load shifting for solar PV is 500 megawatts (MW), with an additional 45 MW of storage representing the current technical potential for frequency regulation⁴.

Two months after the release of the Navigant study, a third important motivation emerged in support of energy storage market development. With Superstorm Sandy knocking out power to millions of New Jersey residents and businesses – and thousands of critical facilities – energy storage is seen as a way of hardening the state’s electric infrastructure and allowing essential services to continue operating during grid outages.

As noted in the Introduction, Staff began developing a new incentive program for energy storage technology during FY2014 that will be implemented in FY2015. Staff and the Market Manager held discussions with interested stakeholders to develop program guidelines, incentive structure and target markets. This revised straw proposal, the public comments submitted in response to it and data compiled from the Request for Information survey of energy storage stakeholders will form the basis of a proposed solicitation that Staff will present to the Board for its review and approval at one of the regularly scheduled Board agenda meetings. Staff recommended through the Comprehensive Resource Analysis⁵ (CRA) that \$3 million be allocated for energy storage incentives in the FY2015 New Jersey Clean Energy Program budget.

Program Goals

- Energy storage projects must be integrated with existing or proposed behind-the-meter Class I renewable energy resources that can be completed as expeditiously as possible.
- Establish maximum incentive amounts which will allow the limited amount of funds to be committed to a broader number of projects.

³ The current technical potential for storage is defined as the amount of storage that is technically feasible to install based on the opportunities generated by the total installed amount of intermittent RE in New Jersey through 2016.

⁴ The Navigant study examined the potential for energy storage in both solar PV and offshore wind development. For purposes of this solicitation, however, the offshore wind numbers have been deducted from the totals, leaving only the solar PV amounts.

⁵ Adopted in the Board Order dated June 30, 2014 In the Matter of the Comprehensive Energy Efficiency and Renewable Energy Resource Analysis for Fiscal Years 2014-2017 Clean Energy Program, Docket No. EO11050324V. The CRA is a statutorily defined method for the NJBPU to establish clean energy program funding levels via ratepayer contribution through the Societal Benefits Charge.

- Prioritize facilities that are defined as “public and critical” with the goal of keeping critical public functions operational during power outages.⁶
- Promote the future integration of energy storage technology into renewable energy systems.
- Prioritize energy storage projects which offer the greatest benefit to the New Jersey ratepayer.
- Demonstrate energy storage technology benefits and revenue streams toward developing markets that can be sustained without further ratepayer contribution.

Stakeholder Discussions

As noted earlier in the “Background and Context” section, three of the primary benefits of integrating energy storage with renewable energy systems are:

- Emergency back-up for critical facilities
- Load shifting
- Frequency regulation

In addition to the findings discussed in the Navigant study, throughout the stakeholder process, Staff has emphasized the need to explore the role of energy storage as means of ensuring the operation of critical facilities during power outages. This prompted additional discussion at the March 13, 2014 working group meeting as to whether the emphasis on the emergency back-up objective may potentially run counter to the two other objectives, since a storage system that discharges its power by the end of the day for load shifting would be unable to recharge itself for emergency back-up purposes until the following day at the earliest. Several stakeholders also pointed out the potential risk of having a storage system whose ability to function as an emergency back-up – particularly for critical facilities – is dependent on an intermittent power source for charging.

Nevertheless, Staff believes that the goals set forth in this straw proposal are not mutually exclusive. With proper management, energy storage systems are capable of achieving all of the

⁶ NJBPU Staff is in the process of finalizing a definition for public and critical facilities for purposes of developing incentives for CHP and other distributed generation. For the purpose of this solicitation, the following definition will be used which may be subject to change in subsequent proceedings or the next solicitation round: “Critical facilities” means public facilities, including federal, state, county or municipal facilities, non-profit and/or private facilities, including hospitals and communication centers determined to be Tier I or critical infrastructure facilities by the Office of Emergency Management and/or Office of Homeland Security and Preparedness.

program's goals. Applicants are therefore encouraged to submit proposals for systems that encompass all of the capabilities of energy storage, especially emergency back-up. The Solicitation Evaluation Committee will consider the value of emergency back-up in its evaluation process, but that capability, as well as the associated islanding capability, will not be requirements for this program.

It should also be noted that the State is in the process of creating an Energy Resiliency Bank (ERB) which will offer grants and low-interest loans to help finance distributed generation (DG) and energy storage projects at public and critical facilities. For more information on the ERB, please visit <http://www.nj.gov/bpu/commercial/erb/index.html> eligibility.

Several stakeholders have pointed to the ability to provide ancillary services such as frequency regulation to the grid as a "make or break" factor in the economic viability of a project. It should be noted that the interconnecting EDC is capable of determining whether this would be permissible. As long as size of the energy storage system is consistent (to be further defined) with the size of the renewable energy generator to which it is connected; and that interconnection is approved by the interconnecting EDC when they perform their interconnection review, Staff sees no further impediments to the participation of incentive award winning projects in the PJM Frequency Regulation market.

Program Eligibility

The energy storage incentive is funded through the NJCEP's Renewable Energy Incentive Program (REIP) and thus requires applicants to meet eligibility standards that are common to REIP regardless of the technology involved. These common standards include:

- The underlying renewable energy system to which the energy storage project is integrated must be interconnected to the New Jersey electric distribution system pursuant to N.J.A.C. 14:8-2.9, and must be a behind-the-meter, net metered project sized to produce no more than 100% of the host facility's historic annual electric consumption. (Note: The energy storage system may either be integrated with an existing renewable energy installation or with a yet-to-be-installed renewable energy system that has been approved under either the SREC Registration Program (SRP) or REIP.)
- The customer must contribute to the Societal Benefit Charge (SBC) through their utility bills, i.e., as a customer of an Electric Distribution Company (EDC) or Local Gas Distribution Company (LDC) regulated by the Board of Public Utilities.
- The energy storage project provides significant benefits to the New Jersey ratepayer.

- NJCEP incentives are contingent upon the Applicant meeting all other program requirements, including but not limited to compliance with the host Electric Distribution Company's interconnection requirements and compliance with all applicable local state and federal laws, permit requirements and regulations.
- Applicant must supply estimated cost information based upon the projected actual as-built installation cost. Eligible installed system cost includes all key system components, installation, and applicable interconnection costs before *New Jersey's Clean Energy Program* incentive, less any other direct incentives.
- Applicant must provide the source of funds and amount of any other direct incentives received for the project. Staff may recommend that the Board continue the practice of deducting other direct incentives from total installed cost in the calculation of final incentive amounts.
- Applicants receiving grants or loans from the New Jersey Energy Resiliency Bank to finance their energy storage project are not eligible to apply to this program for additional funding.

Technology Eligibility

- Storage system must be capable of charging and discharging electricity only. Thermal storage systems (i.e., those that store energy in the form of ice or hot water) are ineligible.
- Electricity placed into storage must be generated by the renewable energy system to which the storage is integrated. The storage device may not be charged by electricity imported from the distribution system or generated by other on-site fossil fueled generators.
- For purposes of emergency backup, the storage system must be capable of providing power to the host facility's critical load as defined by the Applicant and identified in the application. Although the program will not set a minimum or maximum number of hours for which the critical load must be supported, the Applicant must express their system's storage time either in hours of meeting critical load (as defined by the Applicant and identified in the application) or as hours of full capacity for the renewable system to which the storage is connected. The Solicitation Evaluation Committee will consider the nature of the critical load and the duration times in its evaluation process.
- Storage systems must utilize proven and commercially available technology, although the program is technology agnostic.

- Applicant must be able to demonstrate that the energy storage project submitted under this solicitation can be replicated at other sites and may provide opportunities for future applications.

Incentive Structure and Maximums

Incentives are provided to eligible projects as a representation of the energy, environmental and societal benefits the project brings to the ratepayers who are funding it and, in essence, place a dollar value on those benefits. At the same time, if properly structured, incentives should provide only the incremental amount required to motivate investment, the tipping point at which a project becomes economically feasible without creating a ratepayer-financed windfall for the developer or end-user.

Creating an optimal incentive structure is a challenging task, particularly when it involves a technology like energy storage that is new to the NJCEP, has a diversity of potential applications, and for which few other state incentive programs exist. An administratively determined incentive in a fixed structure provides some applicants with more incentive than required and many with too little. Thus, Board Staff proposes to conduct this program as a competitive solicitation, placing the onus on the applicant to specify the incentive amount necessary to make the project economically viable while recognizing that they are contending with other applicants for a limited amount of funds.

The limited funding compels Board Staff to establish maximum incentive amounts in order to ensure the widest and most equitable distribution of funds while encouraging applicants to request only the minimum incentive required for their projects. Applicants may request incentive payments no greater than \$500,000 per project or 30% of the project's total installed cost after deducting any other incentives, whichever is less. Although an entity may submit more than one project, the total incentive request for each NJCEP fiscal year is limited to \$750,000 per entity. For purposes of the per-entity maximum, an entity is defined as the business, institution or public agency that is the site host for the energy storage project(s). The per-entity maximum does not apply to project developers. It will remain in effect for all solicitation rounds within a single fiscal year. Projects that are granted incentive commitments in one solicitation round of a fiscal year may not reapply in the following round, although they are eligible to reapply in a round thereafter.

Although the program does not feature a structured, administratively set, capacity-based rebate, applicants will propose a fixed incentive amount for their projects. This proposed incentive amount will be used to adjust their actual incentive in the event that a project is ultimately sized below the capacity level stated in the initial application. For example, an applicant requesting a \$100,000 incentive for a 100 kW storage system is effectively establishing a \$1.00 per watt incentive for their project. If the system that is eventually installed

is only 90 kW, the incentive would be calculated at \$1.00 per watt times 90,000 watts = \$90,000.

Applicants will be required to submit a list of additional incentives they anticipate applying for, may have applied for or have received. These additional incentives will be considered in calculating the final REIP incentive for which the project may be eligible. However, Applicants who pursue loan or grant incentives for their renewable energy electricity storage application from the New Jersey Energy Resiliency Bank will not be eligible to receive incentives under this program.

To encourage the completion of projects as expeditiously as possible, storage systems must be installed within the 12-month approval period to qualify for 100% of the approved incentive amount. Applicants may request one six-month extension beyond the initial approval period due to unforeseen or extenuating circumstances, but will forfeit 10% of the approved incentive amount if project completion exceeds 12 months.

Solicitation Structure and Timing

Staff anticipates that there will be only one solicitation round for energy storage in Fiscal Year 2015, with the entire \$3 million annual budget available for that round. In the event the budget is not fully committed, Staff may recommend an additional solicitation or that the Board carries over any uncommitted funds to the Fiscal Year 2016 solicitation.

The estimated timeline for the solicitation response and evaluation period will be structured as follows:

- Day 1: Solicitation is issued through email distribution to RE and biopower listserv and posting on NJCEP website. Applicants may begin submitting written questions regarding the Solicitation.
- Day 5: Written question submittal period ends at 5:00 pm EST.
- Day 12: Market Manager distributes answers to previously submitted questions to Energy Storage listserv and posts them on NJCEP website.
- Day 45: Deadline for application submittal. All paperwork must be received by the Market Manager by 5:00 pm EST.
- Day 55: Market Manager finishes its review of all applications for completeness. It identifies incomplete applications as such prior to forwarding all applications to

the Solicitation Evaluation Committee⁷. Incomplete applications may be evaluated at the discretion of the Committee.

- Day 75: The Solicitation Evaluation Committee completes its evaluation of all applications and recommends incentive awards for Staff's presentation to the Board.
- TBD: Board Staff will present the recommendations made by the Solicitation Evaluation Committee to the Board at one of the Board's regularly scheduled Agenda meetings.
- TBD: The BPU makes a final determination on the Committee's recommendations. Following the issuance of a Board Order, all applicants are notified in writing as to whether their applications have been approved and, if so, at what funding level.

Application Process and Evaluation Criteria

The Market Manager intends to revise the existing REIP forms – the Application Checklist, Application Form and Technical Worksheet – to reflect the nature of energy storage technology and the fact that the program is a competitive solicitation. A complete list of the application packet components will be included in the solicitation documents.

Since the energy storage program is a competitive solicitation, the Market Manager will not be able to offer individual assistance to potential applicants in terms of walking them through the process on the phone or scheduling pre-application meetings to ensure that all the paperwork requirements are met. Instead, the Market Manager will use its mailbox at njreinfo@nicleanenergy.com to receive written questions on the solicitation; those questions, along with the Market Manager's answers, will be distributed to the Energy Storage listserv and posted on the NJCEP website so that all potential applicants can benefit from the exchange. Individual consultation with applicants will be permitted following the issuance of incentive commitments.

Copies of applications deemed both complete and incomplete by the Market Manager will be distributed to all members of the Solicitation Evaluation Committee for their review. It will be at the discretion of the Committee to either evaluate or reject the incomplete applications. The Committee will evaluate the applications based on four criteria related to the program's goals.

- Economic:** The Committee will evaluate the cost-effectiveness of projects on the basis of the following:

⁷ The Solicitation Evaluation Committee shall be comprised of representatives from the OCE, Market Manager, Program Coordinator and such other State agencies as may be appropriate (i.e., DEP). Evaluation criteria will be discussed in the following section.

- Incentive per kW of storage system's capacity (based on the system's full rated capacity) and per kWh of projected annual discharge
- Projected cost savings produced, demand response or ancillary service revenues generated by load shifting or other PJM market participation
- The potential economic benefits of any resiliency capability, such as the ability of a commercial customer to conduct business, earn profits and keep workers employed during an emergency
- Other incentives for which the project may be eligible

Project Readiness: The Committee will evaluate projects on the basis of their readiness to be installed expeditiously, including:

- Projected completion date with realistic schedule and milestones
- Identifying and obtaining all necessary permits and interconnection approvals including, but not limited to, local permits, land use, CAFRA, National Fire Protection Agency safety requirements, etc.
- Providing examples of successful projects with similar energy storage technologies at existing sites with which the applicant was involved

Technical: The Committee will evaluate projects based on:

- System efficiency (amount of power lost between charging and discharging)
- Maturity and proven success of the technology
- Commercial availability and “track record” of equipment
- Performance and reliability of the proposed energy storage system relative to cost

Resiliency: The Committee will evaluate projects based on whether:

- The host site is defined as a “public and critical facility”
- The system incorporates islanding capability
- The storage system is capable of providing power to the host facility’s critical load (as defined by the applicant) and the length of time that load can be met
- The project benefits a large number of people as opposed to a single customer (end-user)
- The underlying renewable energy system and the facility itself are capable of remaining operational in the event of an emergency

This straw proposal contains Staff’s preliminary recommendation on the evaluation scoring system that will be applied to the solicitation responses. These scoring values are subject to change prior to approval by the NJBPU and are provided at this time to solicit stakeholder

comments. The final evaluation scoring system will not be published in the solicitation but will be established by the evaluation committee prior to the release of the solicitation.

The Evaluation Committee shall review applications on the basis of the four criteria categories below. The categories will be weighted, with the weighting based on a possible total of 100 points that can be awarded to any one project. Funds are expected to be committed to the Applicants who are determined to rank highest on the point scoring system. The NJBPU reserves the right to reject all applications for any reason and to terminate this Solicitation round.

The proposed weighting for each category is as follows:

Category	Weight as % of Total	Maximum Point Total
Economic	30%	30
Project Readiness	30%	30
Technical	20%	20
Resiliency	20%	20
Total	100%	100 points

Each category will include criteria that are specific to that category. The evaluation of each of those criteria will determine the total score for the category.

The Committee will conduct its evaluation even if only one application is submitted in a solicitation round, or if multiple applications submitted in a solicitation round have a total requested incentive that is less than the funds available in that round. The lack of competition or the availability of funds does not mean that projects will be funded by default. In all cases, the Committee must make a determination that a project has met a minimum score in the evaluation process in order to receive a recommendation from the Committee to the Board for an incentive payment.

Monitoring and Reporting

Incentive recipients will be requested to provide NJBPU Staff with data on the performance and efficiency of their storage systems on a quarterly basis including, but not limited to, the total amount of kilowatts and kilowatt-hours charged and discharged each month; overall operating efficiency; the economic benefit the system produces in terms of revenue generated by ancillary services or demand charges avoided by load shifting; and, if applicable, the amount of time the system may have served the host facility's critical load (as defined by the applicant) during power outages. This information will be valuable to Staff in evaluating the success of the

program, and will help inform the discussion on the design of future energy storage solicitations.

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