

## **ERB Stakeholder Meeting 8/27/2014**

### **Comments/Questions**

The ERB held a stakeholder meeting on August 27, 2014 to review drafts of the New Jersey Energy Resilience Bank Grant and Loan Financing Program Guide (“Guide”) and the Water and Waste Water Treatment Facilities ERB Funding Guide (“Product”). Comments were solicited at the meeting and via written and/or email to the BPU. This document is a compilation of the comments that were received.

September 4, 2014

**VIA Email Delivery**

Mr. Mitch Carpen  
Executive Director, Energy Resilience Bank  
36 West State Street  
PO Box 990  
Trenton, NJ 08625-0990

Request for Comments: Draft Financing Program Energy Resilience Bank

Dear Mr. Carpen:

DCO/Energenics is pleased to present comments regarding the Draft Financing Program Energy Resilience Bank as was proposed on August 27, 2014 at your meeting in Trenton. DCO/Energenics is a power generation and combined heat and power company headquartered in Mays Landing New Jersey. DCO/Energenics has been a key provider of electricity and thermal energy systems to some of New Jersey's most advanced energy systems for more than a decade. From New Jersey's Casinos to landfill gas to energy projects DCO/Energenics has played an important role in helping New Jersey customers reduce energy costs by leveraging state of the art technologies to maximize energy efficiency.

In the wake of Super Storm Sandy DCO/Energenics was able to bring Essex County Correctional facility back into service with its combined heat and power facility well in advance of the utility grid service being restored to the facility. We know the important role that "power islanding" can represent and hope that our recommendations and thoughts will be considered in the Energy resilience Bank's deployment of the financial resources required to build the infrastructure required maintain New Jersey's most critical infrastructure during periods of weather crisis.

At the outset we wish to recognize the number of requirements that must be incorporated into any financing program design that is associated with the disposition of federal funds. We understand that these requirements have somewhat limited the flexibility that you otherwise might have incorporated into your financing design, hopefully, our comments will focus upon areas that are within areas of the state's discretion.

## **I. Need to Leverage Energy Resilience Bank with Existing NJ / OCE Funding Programs**

As a general rule, the current OCE CHP incentive program for new combined heat and power facilities has been sufficient to support the underlying economics to of combined heat and power facilities. When the revenue streams associated with the provision of more efficiently produced electric and thermal energy are valued against the fuel, operation, maintenance and capital costs of most projects, most “good” projects fall within the range of the 30% cost cap established under the current program.

When energy resilience costs come into play an additional 10% to 30% of capital costs need to be factored into the economics. Generally for new construction power islanding would add costs at the 10% lower end of that range, while older pre-existing facilities would tend to fall toward the upper ranges nearing 30%. Naturally, in pre-existing facilities a great deal of internal plant reconfiguration, and rewiring need to be factored into the economics that tend to drive up costs quickly.

As developers and owners consider the ERB program as currently proposed, it is very unlikely that any applicant would petition for much less that 100% of total required capital funding from the ERB. Clearly, under the current design the maximum program’s benefit would be achieved by seeking the greatest loan possible. In directly comparing on a net present value basis, the more traditional financing normally associated with the existing OCE’s CHP 30% grant program and the proposed ERB program with a 20% grant, a 20% grant at risk, and the remainder loaned at 2% for 20 years, it is clear that a very high ERB loan amount as a percentage of total capital cost would be required just to break even with the existing OCE CHP program, particularly in view of the power islanding and black start requirements. And, these economic comparisons don’t even consider the loss of the current federal 10% ITC for projects that can be developer owned under a PPA structure.

In view of the fact that conventional CHP without resilience will run in the \$2200-\$2600/ KW installed and that with resilience expenses added the range would run from a low of about \$2400/KW all the way up to about \$3300/KW, it is clear that the financial resources of the bank will be quickly exhausted. For the current water and wastewater treatment proposal funded at \$65 million the bank’s resources will likely be limited to funding somewhere in the 20MW to 30MW range all in.

In view of the fact that the current OCE CHP program will be significantly under subscribed and perhaps even abandoned if the ERB model proves successful, it would seem logical to blend the programs together to the extent possible to leverage the bank's resources much further.

This blending of programs would permit an applicant to apply to the OCE program for base CHP costs and then permit an applicant to also apply for an ERB application just to cover only the resiliency portion of the cost. The two funding sources could therefore complement one another while extending the resources of the bank to the extent possible. The Energy Resilience Bank would then truly become a resource more specifically dedicated to resilience expenditures. In this way we would avoid leaving OCE program money on the table and extend the reach of the bank for maximum benefit.

This would also bring more traditional private funding into the equation as the balance of the CHP only plant (less resiliency expenses) could be funded through private financial resources and commercial debt. In addition, the CHP portion could also be financed through a PPA allowing the 10% federal ITC to be utilized for non-resilience expenses.

We think that leveraging all of these financial resources cooperatively will extend the reach of the bank and maximize the benefits of all of the combined programs. This should not be construed as a request to double dip on incentives. The ERB would only fund the resiliency expense portion of the project.

## **II. Financial Product Terms**

There seems no reason to structure the 20% performance "bonus" grant by eliminating eligibility for future years based upon the failure to meet the performance bonus in any single prior year. Clearly, issues of material failure, and large component warranty failures beyond the control of the operator can create long term forced outages that could easily result in a facility missing performances goals for a single year. While it is entirely appropriate to withdraw the performance incentive for that year, this penalty should not be arbitrarily extended to preclude future years of eligibility. There seems no reasonable justification to limit program eligibility as currently structured.

## **III. Loan Scoring Criteria Issues**

### *1. LMI National Objective (20 points)*

While the LMI national objective is clearly an important national social goal, New Jersey's goal for the ERB should be focused more on maximizing its coverage of critical regional facilities to reduce the public health risk for the greatest number of its citizens possible. While we would agree that this would likely result in focusing funds to our states most densely populated urban areas, largely consistent with the LMI objectives, the highest and best use of these funds first needs to consider the greatest good achievable in the protection of public health and safety.

## *2. Readiness to Proceed (Up to 10 points)*

Readiness to proceed and the requirement that all facilities become operational within 24 months of the close of the loan will rely very significantly upon the responsiveness of both state and federal agencies in reviewing permit applications and granting permits in a timely fashion. The DEP's offer to institute a "general permit" for these applications needs to be seriously considered for all applications associated with the ERB funding program. In addition, the requirement for NEPA federal environmental review could also result in significant delays. The program needs to set requirements upon these agencies to be responsive and set time limits that, if exceeded, will create automatic exemptions from the readiness and timing requirements of the program.

It is also very unlikely that any project can be commercially operational 12 months after loan closing. We would suggest that the scoring reflect 10 points for any project commercially operational in less than 24 months.

## *3. Technology Efficiency/Economic Cost Effectiveness (up to 25 points)*

We would recommend that the bank expand the CEEEP DER Cost-Benefit ratio guidance to include the public health aspects of the cost benefit calculation. While it is relatively easy to make the requisite calculation for the parameters included within the CEEEP DER document, the more compelling benefits associated with avoiding the potential environmental damage and public health aspects of discharging millions of gallons of untreated waste into our state's clean water streams and rivers simply cannot be left to individual applicants to calculate based upon their own assumptions. The program needs to provide standards of uniform guidance that will appropriately frame the applicant's calculations.

We would suggest that these public health benefits might be of far greater value than the attributes defined in the current CEEEP DER document. Therefore, the need to uniformly score these externalities for direct project-to-project cost benefit comparisons is of paramount importance.

#### *4. Most Impacted Communities (up to 20 points)*

The likelihood of another storm tracking exactly along the route traveled by Sandy is highly remote. The best use of these funds should be to create a regional network of critical facilities that can serve and protect the public health the greatest number of citizens irrespective of where the next storm tracks. While all deference should be accorded to Sandy impacted communities where possible, it should not be at the expense of significantly impairing our goal of creating a regional network that will support the greatest number of citizens and mitigate health risks to the greatest extent possible with the limited resources available.

#### *5. Criticality (10 points)*

A facility that is identified as a state level asset in the Office of Homeland Security and Preparedness State Asset database will be awarded 10 points.

Inasmuch as this is a crucial measure of a facilities asset value, we would recommend that the scoring for this metric be higher than ten points and also further scaled based upon a ranking of these assets within the database. Clearly, some critical facilities are far more important to the state's infrastructure than others in the overall scheme of public health. A more detailed ranking within the database would be appropriate to advancing the applications of the most critical facilities ahead of others.

#### *Summary*

Without combining the financial resources of the private sector, the OCE grant program and the ERB into a blended resource that can each contribute to the cost, it remains to be seen whether or not the program as proposed will generate applications all at the high end of the "unmet" financial requirements. Clearly in the short time permitted for public comment since August 27<sup>th</sup>, no serious project developer financial modeling has been undertaken.

The current proposed structure also requires a great effort and expense on the part of the engineering and development community to assess the cost of power islanding and black start capability for existing facilities. These detailed design

requirements require the identification of critical circuits within the facility and estimates to rewire these assets on the fly. These are very significant front-end costs that must be absorbed before even applying for a loan and entering the competitive scoring process. This is a very significant expense risk. Perhaps consideration should be given to a process where critical facilities are first identified as those that will be subject to ERB financing and then through a competitive RFQ process the facility could select the best project proposed in the RFQ processola.

In addition, there are no stated qualifications or minimum requirements associated with those who will be responsible for the maintenance and operation of the facilities over the twenty-year term of the loan. Clearly, DPMC certification, as well as requiring evidence of significant financial resources and operational experience needs to be part of the loan process.

We hope that our comments will help you further refine the proposal in order to achieve the important goals of the program and utilize these funds to maximum benefit. Please feel free to contact us directly if you have any questions regarding our comments or would like us to provide further details

Thank you for providing us the opportunity to participate in the development of a process to utilize these funds to maximum benefit in creating the vital infrastructure improvements necessary.



Fred D. DeSanti  
Managing Director  
MC<sup>2</sup> Public Affairs, LLC  
on behalf of Energenic



*Tyler & Carmeli, P.C.*

*Attorneys At Law  
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Robbinsville, New Jersey 08691  
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September 5, 2014

*Via Email to [erbc\\_comments@bpu.state.nj.us](mailto:erbc_comments@bpu.state.nj.us)*

New Jersey Board of Public Utilities  
44 South Clinton Avenue  
Trenton, New Jersey 08625

Re: New Jersey Energy Resilience Bank  
Grant and Loan Financing Program

Dear Sir or Madam:

This office represents Trenton Biogas, LLC (“Trenton Biogas”), a proposed green energy recycling facility. These comments are submitted on behalf of Trenton Biogas. The recycling facility will be located in Trenton, at the site of the Duck Island facility currently owned by the Mercer County Improvement Authority. Trenton Biogas appreciates the opportunity to participate in this process.

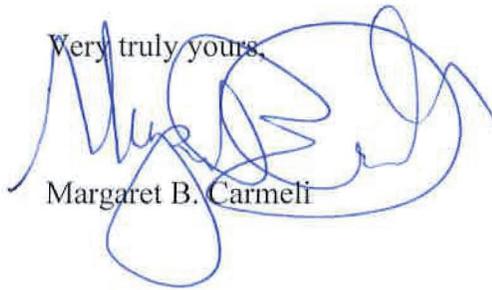
Representatives of Trenton Biogas attended the public hearing on August 27, 2014. Many important comments were made at that hearing. Based on the statements made by the facilitators, it is our understanding that based on the record made at that hearing, those comments will be considered and a response provided as the process moves forward.

As important concept discussed at the hearing was the importance of public-private partnering. Public-private partnering is a necessary component of the program. Facilitators at the hearing recognized the role of public-private partnering. Trenton Biogas requests that this recognition be restated in the final document and that the final document clarify the inclusion of these projects within the scope of the program. In addition, a clear statement of the requirements would be appreciated. Finally, criteria that encourage public facilities to partner, including flexible requirements that allow a public entity to select among alternatives, are appropriate for inclusion. For example, criteria that provide choice as to the audit methodology, recognizing that the goal is to collect the necessary data, and that goal may be accomplished by more than one method.

Continued recognition of projects outside the nine county areas that was most severely impacted by Superstorm Sandy is also important. For example, Trenton, the state capital is outside the nine county areas. However, critical emergency personnel and facilities are based in Trenton. For example, Trenton is the location of the central offices of the New Jersey Department of Environmental, Economic Development, and the State's elected officials. Trenton Biogas will help support these critical facilities on which the emergency personnel rely.

Again, Trenton Biogas appreciates the opportunity to participate in this process. Should there be any questions, please do not hesitate to contact me at any time. Thank you.

Very truly yours,

A handwritten signature in blue ink, appearing to read 'Margaret B. Carmeli', is written over the typed name. The signature is stylized and somewhat abstract.

Margaret B. Carmeli

MBC/pkt

cc: Mr. Peter Joseph (via email)  
Mr. Brian Blair (via email)  
Mr. Lance Miller (via email)  
George J. Tyler, Esq. (via email)

**MURRAY E. BEVAN**  
mbevan@bmgzlaw.com

September 5, 2014

**VIA ELECTRONIC AND REGULAR MAIL**

The Honorable Kristi Izzo  
Secretary, New Jersey Board of Public Utilities  
44 South Clinton Avenue, 9<sup>th</sup> Floor  
Post Office Box 350  
Trenton, NJ 08625-0350  
[erb\\_comments@bpu.state.nj.us](mailto:erb_comments@bpu.state.nj.us)

***Re: Bloom Energy Corporation's Comments on the Draft: Energy Resiliency Bank Grant and Loan Financing Program***

Dear Secretary Izzo:

On behalf of our client, Bloom Energy Corporation (“Bloom Energy”), please accept these comments regarding the Draft New Jersey Energy Resilience Bank (“ERB”) Grant and Loan Financing Program Guide (“Guide”) issued by the Board of Public Utilities (“Board”) and the New Jersey Economic Development Authority (“NJEDA”) on August 22, 2014. While Bloom Energy supports the objectives of the Board and NJEDA in establishing the ERB Financing program to expand energy resilience for certain public critical infrastructure and assets, Bloom Energy is concerned that there is no financing provision for privately owned facilities that provide critical public services. Therefore, as further detailed below, Bloom Energy encourages the Board and the NJEDA to develop a parallel program for select private-sector critical facilities.

Bloom Energy is a provider of breakthrough solid oxide fuel cell technology that generates clean, reliable, and highly-efficient onsite power using an environmentally superior non-combustion process. Bloom Energy currently has over 140 megawatts (“MW”) of operating systems at over 120 locations across the United States and in Japan. In New Jersey, Bloom Energy is seeing growing interest from customers who desire a clean and reliable distributed

power generation solution, but do not have the thermal requirements necessary to support a CHP solution.

As the provider of highly efficient and resilient all-electric fuel cells, Bloom Energy is pleased that the Guide includes fuel cells as a distributed energy resource (“DER”) eligible for ERB financing. Nonetheless, Bloom Energy is concerned that there does not appear to be a program for certain private facilities that will be critical during the next widespread outage, including supermarkets, large retail stores, telecommunications providers and data centers. It should be noted that the federal government itself defines the term “critical infrastructure” more broadly than the proposed ERB program. For instance, “Presidential Policy on Critical Infrastructure Security and Resilience” identifies sixteen critical infrastructure sectors, including *communications, financial services, food and agriculture, information technology, commercial and transportation* sectors amongst others.<sup>1</sup>

The Board and NJEDA should develop a parallel program to the ERB Financing Program within the NJ Clean Energy program. An incremental incentive that is within the scope of the existing Fuel Cell/CHP program and is designed to spur the adoption of “grid-isolating” project designs would achieve the same end without the need to create new program infrastructure and without the constraints of federal requirements. During the next public emergency in New Jersey, millions of citizens and the government itself will attempt to rely upon a privately-owned telecommunications network to communicate, a privately-owned information technology sector to access data, and a privately-owned commercial sector to obtain food, clothes, and water. It will be to the lasting credit of the Board and NJEDA if these types of private facilities are considered “critical facilities,” and have access to a Board/NJEDA program that enables them to maintain resilient on-site power during widespread outages.

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<sup>1</sup> <http://www.whitehouse.gov/the-press-office/2013/02/12/presidential-policy-directive-critical-infrastructure-security-and-resil>

The Hon. Kristi Izzo  
September 5, 2014  
Page 3 of 3

As the Board and NJEDA develop the ERB Financing Program, Bloom Energy urges them to consider creating a parallel program for private sector critical facilities within the existing Fuel Cell/CHP program. Please do not hesitate to contact me should you have any questions or concerns.

Very truly yours,

A handwritten signature in black ink, appearing to read "M. E. Bevan". The signature is fluid and cursive, with a long horizontal stroke at the end.

Murray E. Bevan

SUMMITTED ELECTRONICALLY

September 5, 2014

New Jersey Board of Public Utilities  
44 S. Clinton Avenue  
Trenton, NJ 08625  
[erb\\_comments@bpu.state.nj.us](mailto:erb_comments@bpu.state.nj.us)

Re: New Jersey Energy Resilience Bank (ERB) – Comments on Draft Program Guide

To Whom It May Concern:

Clean Energy Group (CEG) respectfully submits these comments on the Draft ERB Financing Program Guide, dated August 22, 2014.

Clean Energy Group is a national, nonprofit organization that manages a resilient power project that seeks to advance deployment of clean, resilient power technologies such as solar with energy storage at critical facilities. CEG staff attended a recent meeting on the NJ ERB draft program guide, and we welcome the opportunity to offer the following brief comments on the guide.

1. Credit enhancement was mentioned as a financing tool in the preliminary design document but it is not specifically mentioned in the current program guide. Credit enhancement would be a good way to leverage more private capital. We encourage the inclusion of this and other alternative financing strategies in the ERB.
2. Solar + storage is a promising technology for resilient power and one of the key eligible DER technologies for the ERB. However, the ERB draft program guide limits solar + storage systems in a number of important ways:
  - 1) Solar + storage must be paired with other DER generators, while other technologies may stand alone.
  - 2) Solar generation capacity may not be larger than the host facility load, while other generation types are not capacity capped.
  - 3) The total set aside for electricity storage systems is capped at \$2.5 million in the first round, and individual awards for electricity storage are capped at \$250,000, while no award caps apply for other technologies. This per-project cap is too low to allow for a reasonably sized electricity storage system.
  - 4) New solar generation capacity is not eligible for ERB awards, while other new generation types are eligible.

While solar + storage may not prove to be the best resilient power solution for many water and wastewater treatment plants, we see no advantage in preemptively limiting its use, capping its

eligibility for awards, and applying other restrictions that are not likewise applied to other technologies. Instead, we would urge that the ERB allow the market to decide which technologies and combinations of technologies provide the best solution for each eligible facility, on a case-by-case basis. Solar + storage should compete on the basis of cost effectiveness as do all the other technologies, without additional caps and limitations. By managing outcomes rather than picking winners, the ERB will ensure its program is flexible enough to take advantage of changes in markets and technologies.

3. During the recent workshop meeting, ERB officials clarified that there are no restrictions on services that can be provided by eligible systems during non-emergency operation (this could include grid services, renewables integration, electricity arbitrage, load shifting, ancillary services, etc.). However, ERB officials also stated that such potential value streams and benefits would not be included in cost effectiveness calculations when considering proposed projects for awards, while resiliency benefits would be considered. It would be helpful if the program guide were more explicit about what will be included in cost effectiveness calculations, and how resiliency benefits will be determined.
4. For microgrid proposals, please confirm that not all facilities connected to the microgrid need to be eligible critical facilities, and what impact, if any, this might have on the calculation of cost effectiveness and award eligibility. In other words, would a microgrid connecting two eligible critical facilities be considered the same as a microgrid connecting two eligible critical facilities and a third non-eligible facility?
5. Please clarify in the program guide that awards will meet 100% of unmet need (except for electricity storage, as currently written).
6. The ERB program guide stipulates that if an awarded project doesn't meet performance goals for any one year, it is no longer eligible for loan forgiveness. This seems unreasonable and may discourage applicants. It might be more helpful to offer loan forgiveness as a percentage each year over X number of years, with each year's percentage tied to successfully met performance goals for that year.
7. Currently, the amount of unmet need is not considered in the scoring process. It may be helpful to include the amount of unmet need, the amount of leveraged funds, or both as elements of the scoring process.
8. The proposed financing terms are flexible and attractive. However, it is proposed that credits that are rated below AA or are unrated will receive an interest rate "tied to prime." Clarification is needed as to what is expected to be the anticipated spread over or under prime.

If you have any questions about our comments, we would be pleased to discuss them with you.

Sincerely,

/s/

*Lewis Milford*

*Todd Olinsky-Paul*

*Rob Sanders*

Clean Energy Group

# MEMC<sup>®</sup>



VIA E-MAIL

September 5, 2014

Mitch Carpen  
Executive Director  
New Jersey Energy Resilience Bank  
44 South Clinton Avenue  
Trenton, New Jersey 08625

**RE: Comments on Draft Program Guidelines**

Dear Mr. Carpen:

SunEdison LLC<sup>1</sup> is pleased to submit these comments on the New Jersey Energy Resiliency Board's (ERB) Draft Program Guide for Round 1 funding opportunities covering waste water and water treatment facilities. While we generally endorse the draft guidelines issued on August 22, 2014 for Round 1 funding, as described more fully below, we do take strong exception to the disproportionately low share of available funding earmarked for solar with storage capability.

SunEdison strongly supports the mission of the ERB to enhance the ability of New Jersey's critical infrastructure to withstand operational disruptions from future catastrophic events and

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<sup>1</sup> SunEdison is a global leader in transforming how energy is generated, distributed and owned. SunEdison manufactures solar technology and develops, finances, installs and operates distributed solar power plants, delivering predictably priced electricity and services to its residential, commercial, government and utility customers. SunEdison has installed over 45 MWdc of solar PV at 237 customer sites across New Jersey. SunEdison also provides 24/7 asset management, monitoring and reporting services for hundreds of solar systems worldwide via the company's Renewable Operation Center (ROC). SunEdison has offices in North America, Europe (including our Northeast Regional Operations Center in Pennsauken, NJ), Latin America, Africa, India and Asia. SunEdison's common stock is listed on the New York Stock Exchange under the symbol "SUNE."

concomitant loss of energy supply through the greater deployment of clean and reliable on-site generation systems with backup capability. Further, we support the ERB's decision to target Round 1 funding to waste water treatment plants and water treatment plants, predominately within areas affected by a recent natural disaster. As noted by the ERB, these vital facilities are particularly vulnerable to power disruptions; an extended outage can result in untold public health, economic, environmental and other social costs.

With ample roof-space or surplus land generally available, and a significant appetite for a reliable source of electric energy, WWTPs and WTPs are ideal candidates for deployment of distributed solar systems. SunEdison developed one of the nation's first large-scale solar systems for the City of San Diego, CA. The 1 MW Alvarado solar facility, built atop the plant's three concrete reservoirs, provides the community with a clean, reliable and predictably priced power supply pursuant to a 20-year fixed price PPA. Nearer to home, SunEdison recently completed a 5.5 MW solar array for the East Orange Water Commission in East Orange, NJ.

The ERB is well-situated to greatly augment the capability of such facilities to provide the uninterrupted flow of critical services during and in the aftermath of catastrophic events. Historically, due to the prohibitively high initial cost of storage, WTPs and WWTPs have generally eschewed battery back-up in favor of more conventional sources of emergency power. As has been the case with solar incentives, targeted incentives directed to storage can help achieve scale and bring down installed costs in a virtuous cycle such that these options are cost-competitive with conventional generation, while providing immediate and significant direct benefits to the applicant and to society at large.

Unfortunately, we believe the anticipated funding restrictions of \$2.5 M (and \$250,000 per project), applied exclusively to solar/storage applications would severely and needlessly constrain the market opportunity and hinder the market transformation effects noted above. The guidelines provide no justification for singling out solar/storage for funding restrictions, and as such seem arbitrary and without foundation. Indeed, given the funding limitations relative to other prime mover/backup combinations, ERB is at risk of picking technology winners and losers and distorting the market for solar/battery configurations. Further, given the market potential for solar/storage within the WWTP and WTP verticals, preemptively limiting solar/storage to less than 4% of total Round 1 funding may inhibit the rollout of the ERB and effective deployment of public funds earmarked for infrastructure hardening.

SunEdison respectfully requests that the ERB treat solar/storage in a market neutral fashion with other DER technologies and backup options and remove any arbitrary funding caps. In the alternative, in the absence of program experience or a market assessment of expected demand for low-interest loans, SunEdison believes that, at a minimum, the ERB should significantly raise

the technology-specific cap for solar/storage to 25% of total funding.<sup>2</sup> This would provide additional headroom for solar while preserving diversity across potential technologies.

Thank you in advance for your consideration of these comments.

Respectfully submitted,

Fred Zalcman  
Managing Director of Government Affairs, Eastern U.S.  
SunEdison LLC  
12500 Baltimore Avenue  
Beltsville, MD 20705  
[fzalcman@sunedison.com](mailto:fzalcman@sunedison.com)

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<sup>2</sup> SunEdison does not take issue with the restriction on ERB funding to certain eligible project costs centered on storage capability and off-grid inverters.

**Comments on New Jersey Energy Resilience Bank Grant and Loan Financing Guide  
Draft: ERB Financing Program Guide  
Dated: August 22, 2014**

In accordance with the above-referenced document (Cite: Section 1: INTRODUCTION, last sentence on Page 3), this feedback is being provided from a stakeholder in connection with finalizing the Guide and presenting it to the Boards of the BPU and NJEDA for approval.

1. ERB Funding Round 1: Water And Wastewater Treatment Facilities

Section 1.2 - Scoring Criteria for Funding Round 1, Page 1, Scoring Criteria.

Projects will be scored on a point system between 0 and 100 based on the following:

- a. 1. LMI National Objective (20 points). A project that meets HUD's Low Moderate Income (LMI) National Objective will receive 20 points. A project that does not meet this National Objective will receive 0 points.

**COMMENT:** Is the LMI National Objective requirement a mandatory part of the Robert T. Stafford Disaster Relief and Emergency Assistance Act (P.L. 93-288); or may some other criteria be considered?

- b. 2. Readiness To Proceed (Up to 10 points).

- a. A project will receive 10 points if project completion is reasonably expected within one year from the estimated closing date.

**COMMENT 1:** What would be an expected duration from time of submission of an application to the NJERB until "estimated closing date?" Based on the size of the project and matters that are outside the control of an applicant, such as the duration of procurement of CHP system by a contractor from issuance of a firm order (i.e. purchase orders) to the manufacturer, which may be upwards to 32 weeks; it may be difficult to complete a project within one year.

2. Section 4.1 - New Jersey's Energy Resilience Bank Overview, Page 10

The ERB will require a detailed ASHRAE Level III energy audit be performed for each project prior to an application to the ERB, as described in more detail below.

**COMMENT:** Is there any flexibility in the requirement with regard to an Energy Audit and an ASHRAE Level III energy Audit? If an applicant has performed prior audits, energy evaluations, reports, studies, etc.; may a compilation of the germane portions of these items supporting a project be found acceptable or at least considered?

3. Section 4.3.1 HUD Requirements, Page 12

5. Project equipment must be installed at a facility and be operational within two year of the closing of the ERB grant and loan.

**COMMENT:** Is the requirement under Item 1.b of this list of comments a contradiction to that which is stated in Section 4.3.1?

4. With Regard to the following:

Rutgers' Center for Energy, Economics and Environmental Policy ("CEEPP").

**COMMENT:** An additional method or alternative for economic cost effectiveness to the CEEPP Technology Efficiency/Economic Cost Effectiveness DER model should be allowed. For instance, or reputable organizations such as the Water Environment Research Foundation (WERF) Life Cycle Assessment Manager for Energy Recovery (LCAMER) is a very well regarded modeling technique within the wastewater industry, and is specifically designed for and a perfectly acceptable method for calculating energy efficiency from wastewater and anaerobic digestion (forming of biogas and use in a CHP system).

5. 4.3.2 DER System and Equipment Eligibility, Page 15

7. The DER system must be designed to provide energy to all designated critical loads during a seven-day grid outage without a delivery of fuel to emergency generators.

**COMMENT:** For a wastewater facility, for instance, will the determination of "critical loads" be left to the application and their professional staff?

6. 4.4 Project Costs , 4.4.1 Eligible Project Costs, Page 17

6. Storage equipment for fuel produced on-site (e.g., biogas), if it can be demonstrated that more on-site fuel will be produced than can be consumed by the resilient distributed generation system.

**COMMENT:** This statement may want to be modified to acknowledge that due to the diurnal pattern of gas production in an anaerobic digester, more specifically gas production may increase during periods of feeding the digester with primary and/or waste activated sludge that when not feeding sludge, and gas production may increase as flows to the treatment plant increase throughout any one day; so storing the gas and then delivering the gas to a CHP unit during periods when gas production is decreased or inhibited will allow for a more uniform CHP operation; increasing overall efficiency of the proposed system.

7. **GENERAL COMMENT NO. 1:** Using an analogy from the water industry: When designing a booster station you typically would not install just one pump due to when the pump is out- of-service for any reason you would not be able to maintain pressure in the system that is receiving the water. You may size one pump to meet system demand and install a second pump to provide reliability when the primary pump is out-of-service. To provide further flexibility, you may provide two pumps that when run in parallel will meet peak demand, and only use one pump during periods of lesser demand. In this instance, a governmental regulator may require that the station have the ability to meet peak demand at all times. With a two pump system, a third pump (standby/backup) needs to be provided for when either of the primary pumps are out-of-service.

The same concept holds for a CHP system. Installing one appropriately sized CHP unit may provide the appropriate intent and efficiencies, but when it is out of service for routine maintenance (i.e. oil changes, etc.) or long-term overhauls there may be an inability to meet the performance requirements of the project and NJERB. So, providing two units is the answer so that power is always produced. Based on electrical and heat demands at the facility, two smaller units may be desired, that when run in parallel meet peak load, with one running to meet average or less than average load. With a two unit system, a third unit (standby/backup) needs to be provided for when either of the primary units are out-of- service. The program should acknowledge these cases and not impose a requirement or financial penalty, that if a two unit system or three unit system is proposed, all the units must operate 100% of the time.

8. **GENERAL COMMENT NO. 2:** Though there may be many societal benefits associated with the type of projects to be implemented under the NJERB, many of these benefits may be ambiguous, not easily quantified, and indirect. Benefits such as “greenhouse” gas reductions and reducing or eliminating discharges to waterways, etc. are very difficult to place a dollar value on. Even considering that there may be many sources for estimating costs associated with these types of events, including indirect or “soft” costs such as these in an economic evaluation becomes very subjective. This subjectivity may result in an economic evaluation for a particularly marginal project being overwhelmingly positive, receiving a higher numerical rating resulting in placing it ahead of a project which actually has a more tangible or realistic economic advantage.

Even considering that these benefits are in-fact a “benefit”, costs such as those described in Item 8, General Comment No. 2 may be mentioned in the text of any application, but should not be allowed to be used in any final economic evaluation



**Comments of Solar Grid Storage  
On the NJ Energy Resiliency Bank Program**

September 5, 2014

Solar Grid Storage LLC, a company of long-time solar veterans dedicated to the widespread deployment of solar and clean energy, appreciates the opportunity to provide these comments to the New Jersey BPU and EDA.

We applaud the Energy Resiliency Bank (ERB) goal to “minimize the potential impacts of future major power outages and increase energy resiliency” as stated in the first sentence of the ERB Financing Program Guide, and naming photovoltaic (PV) and battery storage systems as qualifying assets for funding under the program. Indeed, we believe that PV + storage systems can be the most cost-effective and fastest way to increase resiliency on many fronts, but in this case, at critical facilities that serve a public purpose. A few key points to keep in mind as this round and others finalize program rules:

- PV + storage systems can be deployed in as little as six months from time of contract to fully operational systems.
- With proper sizing of the PV system and critical loads, the systems can provide power for critical loads indefinitely during outages.
- PV + storage systems require no risky and unreliable fuel deliveries, operate on 100% renewable energy, and can be paired with other on-site generation systems should additional energy be necessary.
- Deployment of PV + storage systems would benefit by the substantial NJ installation infrastructure in place that is the result of the BPU’s decade old and nation-leading Clean Energy Program.
- During normal grid operations PV + storage systems have several other functions that support ongoing year-long customer and ratepayer benefits such as low-cost clean electricity, peak demand power, high power quality, and grid level resiliency support services including frequency regulation and blackstart.

When designing the final rules and criteria for project approvals we urge the following:

1. Not to discriminate against solar by setting cap limits specifically on PV + storage projects (either in the total financial incentive or installation size), especially a per project limit that could force sub-optimal designs.
2. Provide criteria weighting value when renewable energy is the fuel source.
3. Keep the application as simple and transparent as possible, and provide funding on a timely basis so as not to disrupt a speedy development process.

We would also ask that ERB Program managers help ensure that unnecessary restrictions or additional requirements are not imposed by the utilities with PV + storage systems.

We are happy to respond to any additional questions or comments.

Respectfully submitted,

Thomas Leyden, CEO  
Solar Grid Storage LLC  
tleyden@solargridstorage.com  
609-498-6479 office



Re: New Jersey ERB Financing Program – Public Comment to Draft Guide dated August 22, 2014

Please refer to various questions and comments on behalf of Bergen County Utilities Authority (WWTP) supplied by staff, engineering and legal/finance consultants.

Comments: MSB

1. The offering is for \$65MM with 2.5MM carve out for electricity storage equipment (batteries) with a cap of \$250K per project. Does this mean that the \$65MM is also going to be split 10 ways or capped in some other way? I don't think that is the case but I am not sure. Also if someone comes in with a 65MM CHP project I assume no money is made available for battery storage. [1.1]
2. Based on discussions with market participants, it appears that \$250K for battery storage is insufficient to acquire, install, and operate a battery-based back-up emergency power system for critical loads that will operate for any length of time. The cap on battery storage projects may need to be raised.
3. What is the HUD low moderate income objective and does this even apply to WWPCPs? [1.2(1)]
4. What is included within the definition of "indirect impacts" for purposes of evaluation criteria? [1.2(4)]
5. Please provide a copy of the NJ Office of Homeland Security and Preparedness State Asset database [1.2(5)]
6. It is our understanding that the offering will only pay up to 40% of total project costs, does this mean that the applicant has to fund the other 60% and show that funding is in place prior to making application? [1.3(1); see also 1.3(ii)(7) providing that no equity is required].
7. Can the 40% funding from the NJ ERB be combined with funding from NJEIT, BPU, or other sources of public funding?

8. The ERB Financing Program Guide document states that an ASHRAE level III energy audit must be completed for each project prior to an application being submitted. [page 10, Section 4.1]. Does the ASHRAE level III energy audit have to be a condition of funding instead of a pre-application requirement for funding as many authorities already have an in-depth understanding of their energy performance and opportunities for increased efficiencies but such studies may not be full ASHRAE level III audits.

#### Comments R &V:

- The draft documents award what is known as partial loan forgiveness based on performance of the unit built with the ERB loan money. The performance is based on annual hours of operation of this facility... where if there is less down time, the more successful the facility is. However, because NJDEP wants SCR installed in biogas powered engines..... establishing the SCR as the State of the Art (SOTA) device, this could reduce performance hours based on increased maintenance and downtime (eg. 3 days for catalyst replacement alone). The mandating of SCR for NOx control for biogas combustion could prevent facilities to achieve annual performance goals and won't be eligible for loan forgiveness whereas operating without SCR could have the facility achieve these goals.
- Further, it is believed that facilities with sewage sludge incinerators may plan to install anaerobic digesters with CHP to treat sludge, considered to be more beneficial air pollution wise, cost wise and energy wise. However, if DEP mandates SCR for CHP this could hinder such conversion projects.
- To qualify for ERB money the facility needs to be located at a municipality affected by Superstorm Sandy. Both Little Ferry and Moonachie are listed municipalities so the BCUA does qualify. But I did ask a question about facilities like Gloucester County Utilities Authority which has a sludge incinerator taking on extra sludge loading from other facilities that have shut down. BPU was not sure of this answer but this could be a good comment on about this.

Comments: Arcadis:

ARCADIS has reviewed the Draft: ERB Financing Program Guide, including the ERF Funding Round 1: Water and Wastewater Treatment Facilities. Please note that we conducted a review of the documents but did not review the detailed technical aspects and related requirements since it is our understanding that your energy consultant, Remington & Vernick Engineers, will review and comment.

Based on our review, we offer the following observations and comments:

- It is a concern as to how it will be determined whether the facilities were “directly or indirectly impacted by Superstorm Sandy” (see page 2, paragraph 3 and no. 2 page 12). It appears that such impact must be determined in order to achieve funding.
- Section 4.3.1 (no. 5) HUD Requirements, indicates that the project equipment must be installed at the facility within 2 years of closing. It seems appropriate to include some language to allow for permit and other regulatory review that may delay the project as well as Force Majeure events. Section No. 9 restricts physical construction until all environmental reviews are completed. The timing requirements may be too restrictive.
- We believe that it is good that the ERB allows “Retrofits to Existing DER Systems” (page 14) which is what the BCUA is applying for.
- Section 1.3 Financial Product Terms for ERB Funding Round 1 (1.b.i.2, page 3), we suggest adding “once fully constructed and operational” after “...of any year.”
- We agree with R&V regarding the principal forgiveness loan conditions linked to performance of the equipment during the 1<sup>st</sup> yr. Section 1.3 (page 3) of the ERB guide currently states that principal forgiveness up to 20% of the unmet funding need will be permitted based on performance-based standards. However, if the measurement and verification does not achieve the required performance level at the end of the first year, “that year’s principal and the loan principal for all remaining years over the five-year principal forgiveness will not be forgiven”. We are concerned about so much weight placed in the first year. We suggest that using several years rolling average of data to make the determination or develop a progressively reducing the amount of principal forgiveness linked to performance (such as 1<sup>st</sup> yr –

instead of returning 100% of principal forgiveness maybe return 20% of principal forgiveness, 2<sup>nd</sup> yr – 40%, so on until 5yr, 100%).

- Section 1.2, no. 4 allocates points for impacted communities. The BCUA should receive the highest weighting as it serves four communities identified in Appendix B (Hackensack, Little Ferry, Moonachie and Ridgefield Park).
- The eligibility of the ERB as outlined in Section 1.2 (pages 1-3) requires the critical facility, like the BCUA, to score 55 or more points. Based on the scoring criteria, the BCUA should receive 20 points, at a minimum for “most impacted communities”. However, it may be difficult for the BCUA or similar facilities to secure 55 or more points required to be eligible. It would be beneficial to such facilities to lower the minimum point system for eligibility and/or increase the weight for “most impacted communities”.
- Section 1.2 (page 3) indicates that projects that do not score 55 or more points, will be “deemed ineligible for funding (and may NOT be resubmitted in the case of future funding rounds open to WWTP)”. This is too restrictive and our suggestion is to modify the language to reopen the eligibility on future funding rounds.

End.

Financing program guide questions:

Section 1.3 1(b)(i)1&2- Principal forgiveness will be done over 5 years based on performance measurements; if in any year the measurement is not met, all remaining forgiveness is forfeited. Is there any opportunity to modify this in the event performance issues are corrected?

Section 1.3 1(b)(ii)- Loan terms- 2% fixed interest rate for applicants with AA or better bond rating. Is there any consideration to expanding this to A rated or better? If not, if credit enhancements are available will enhanced credits also be offered the 2% rate?

Section 4.3.1 HUD Requirements, #5- Project Equipment must be installed and operational within two (2) years of ERB grant/loan closing. PVSC's proposed CHP project may take almost two (2) years for permitting, environmental and historical review and design work. Due to the size and scope of the project, PVSC would be unable to meet the two (2) year completion window. Is there any opportunity to expand the time window for completion for projects over a scope threshold, such as \$10 million or more?

Section 5.1 Initial Application and Review requires a completed level III energy audit. Will there be allowances or application time extensions for completion or update of the energy audit?

General program questions:

If the first round of \$65 million for water and wastewater cannot be completed in the ERB timeframe due to outside regulatory issues such as completion of energy audit, environmental/historical assessment, permitting etc. what are the opportunities for "second chance" applications, given that the program will be expanded to other critical facilities?

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**Passaic Valley  
Sewerage Commission**

"Protecting Public Health and the Environment"



September 5, 2014

New Jersey Energy Resilience Bank  
[erb\\_comments@bpu.state.nj.us](mailto:erb_comments@bpu.state.nj.us)

Re: Draft Energy Resilience Bank Program Guidelines

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To Whom It May Concern:

As a nonprofit organization committed to promoting responsible land use policies that will fuel a prosperous economy, New Jersey Future is pleased to have the opportunity to comment on the Draft Energy Resilience Bank (ERB) Financing Program Guide.

New Jersey Future wholeheartedly endorses the ERB program goals and general approach, but finds that, because of unclear and inadequate requirements for flood hardening, the program as designed will not meet its goal of making energy infrastructure more resilient to future storms and other emergencies. We offer short- and medium-term recommendations to ensure that the ERB delivers on its promise.

#### **New Jersey's Increasing Vulnerability to Flooding.**

As noted in the guide, New Jersey is increasingly vulnerable to extreme weather, having experienced 27 major power outages between 1985 and 2013 due to events including tropical storms, hurricanes, wind and rain storms, ice storms, tornadoes and winter storms/nor'easters. The greatest damage has been caused by flooding, most recently from hurricanes Irene (2011) and Sandy (2012). New Jersey has had 11 presidential disaster declarations related to flooding in the last nine years and ranks third in the nation in the value of payments received from the National Flood Insurance Program.<sup>1</sup>

But flooding is not limited to major disasters. According to a recent NOAA report, East Coast cities in particular are experiencing an increase in so-called "nuisance flooding," which leads to such public inconveniences as frequent road closures, overwhelmed storm drains and compromised infrastructure. Atlantic City and Sandy Hook rank among the top 10 cities experiencing nuisance flooding, which is caused by rising sea levels. "As relative sea level increases, it no longer takes a strong storm or a hurricane to cause flooding," said William Sweet Ph.D., oceanographer at NOAA's [Center for Operational Oceanographic Products and Services \(CO-OPS\)](#) and the report's lead author. "Flooding now occurs with high tides in many locations due to climate-related sea-level rise, land subsidence and the loss of natural barriers. The effects of rising sea levels along most of the continental U.S. coastline are only going to become more noticeable and much more severe in the coming decades, probably more so than any other climate-change-related factor."

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<sup>1</sup> <http://bsa.nfipstat.fema.gov/reports/1040.htm>

Sea level rise is a long-observed phenomenon that has begun to accelerate. In New Jersey, sea levels are rising faster than the global average, because, according to the Rutgers Climate Institute, “the land is subsiding at the same time that water levels are rising.”<sup>2</sup> Rutgers scientists provide customized projections of sea-level rise for New Jersey as a range to account for uncertainty, with a best estimate of 18 inches by 2050 and a range from 13 to 28 inches.

Rutgers findings concur with those of NOAA, that sea-level rise will make severe coastal flooding events more frequent in the future. By the end of the century, a storm like Hurricane Sandy can be expected to occur once every 20 years, rather than once every 100 years, if sea-level rise in New Jersey is at the high end of the expected range.<sup>3</sup>

### **Support for the General Approach of the Energy Resilience Bank.**

Given both the damage caused by Hurricane Sandy and the growing risks of future damage due to climate change and sea-level rise, New Jersey Future welcomes the Energy Resilience Bank proposal to fund power systems for critical facilities that will make them less vulnerable to future severe weather events and other emergencies. We also endorse the priority emphasis on the state’s drinking water and wastewater facilities, which are often at above-average risk of flooding and power loss given their locations, and are critical to public health and clean waterways. Although not well-versed on energy technology or finance, New Jersey Future appreciates the bank’s approach to leveraging its \$200 million in federal funds and encouraging energy efficiency and innovative technologies.

### **Review of the ERB Provisions for a Risk Assessment and Major Concerns**

New Jersey’s CDBG-DR Action Plan Amendment,<sup>4</sup> approved by HUD, states that the state will:

- “review design options that ensure that energy technology will be appropriately elevated, walled, or otherwise resilient to potential future flooding and storm surge;” and
- evaluate potential sites for projects “using the National Oceanic and Atmospheric Administration’s (NOAA) Sea Level Rise Tool to assess the risk of sea level rise over the useful life of the energy technology to be funded.”

New Jersey Future does not find that the program guide meets these claims. In addition, we find that the guide’s requirements lack adequate guidance for applicants on resiliency standards, which may increase their application costs if they attempt to determine an appropriate resiliency standard without such guidance, and which create uncertainty about whether a proposed project meets the required standards.

The program guide includes the following language regarding a risk assessment:

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<sup>2</sup> State of the Climate: New Jersey. 2013. Rutgers Climate Institute. Page 6.

<sup>3</sup> Ibid, page 7.

<sup>4</sup>

[http://www.nj.gov/dca/divisions/sandyrecovery/pdf/NJ%20Action%20Plan%20Substantial%20Amendment%207%20R%20FINAL%20-%20formatted%205-23\\_CLEAN%20ve....pdf](http://www.nj.gov/dca/divisions/sandyrecovery/pdf/NJ%20Action%20Plan%20Substantial%20Amendment%207%20R%20FINAL%20-%20formatted%205-23_CLEAN%20ve....pdf), page 3-38.

As set forth in the State’s Comprehensive Risk Analysis, detailed in Substantial Amendment No. 7 to New Jersey’s CDBG-DR Action Plan (“Action Plan”), in addition to energy resiliency, the DER technologies to be financed by the ERB must include designs for flood hardening the facility in which the DER technology will be constructed and installed. At a minimum, all resilient generation or storage equipment of the project within the facility will be required to be constructed above FEMA’s best available data for base flood elevations, plus any additional requirements that may be imposed by federal, state, or local ordinance, statute or regulation.

As further explained in the Action Plan, any pertinent infrastructure vulnerabilities should be identified and evaluated in the feasibility and design stage using, among other tools, the National Oceanic and Atmospheric Administration’s (NOAA) Sea Level Rise Tool for Sandy Recovery at <http://www.globalchange.gov/browse/sea-level-rise-tool-sandy-recovery#overlay-context>. (page 10)

And

Consistent with the State’s CDBG-DR Action Plan, any proposed project design must ensure that energy technology will be appropriately resilient to potential future flooding and storm surge. Tools that can help assess these risks include the NOAA Sea Level Rise Tool for Sandy Recovery at <http://www.globalchange.gov/browse/sea-level-rise-tool-sandy-recovery#overlay-context> and Coastal Vulnerability Index and Mapping Protocol at <http://www.state.nj.us/dep/cmp/docs/ccvamp-final.pdf>. (page 13)

New Jersey Future raises the following concerns about these requirements, which should be addressed by the state of New Jersey in the Program Guide, not left to applicants to figure out:

1. The guidelines do not specify which of the four sea-level-rise scenarios in the NOAA sea-level-rise tool to use, nor do they reconcile the NOAA projections with those of the Rutgers Climate Institute. Should municipalities select the low, intermediate-low, intermediate-high, or high scenario? As NOAA itself notes, due to an observed “hot spot” of accelerated sea-level rise in the Mid-Atlantic region, decision-makers “may consider accelerated rates ... into their risk-averse worst-case scenarios.”<sup>5</sup> Furthermore, how does the NOAA tool relate to the sea-level-rise projections prepared by the Rutgers Climate Institute, which are customized for New Jersey? How should a project engineer factor in risk, given the uncertainty around sea-level-rise projections?
2. The guidelines require applicants to construct projects “above FEMA’s best available data for base flood elevations plus any additional requirements that may be imposed by federal, state, or local ordinance, statute or regulation,” but does not specify what these might be. Where should applicants go to find out what the FEMA and other requirements might be? How much “above” is acceptable? (See our recommendations below.) Those levels, or a process to establish them, should be specified in the guidelines. Note that elevating equipment to higher levels can be quite simple for equipment like solar batteries, which can be placed on a second story as

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<sup>5</sup> NOAA Sea-Level Rise Tool for Sandy Recovery at <http://www.globalchange.gov/browse/sea-level-rise-tool-sandy-recovery#overlay-context>, Page 10.

opposed to the ground floor. Floodproofing standalone power plants, like CHP plants, to a higher design standard may require a combination of approaches and will depend upon site conditions.

3. The guidelines do not specify the planning horizon to use when considering future risks from sea level rise and storm surge. The guidelines should establish the planning horizons for the various types of energy projects that could receive funding. New Jersey Future has always recommended a planning horizon that matches the useful life of the equipment or installation. The concept of “useful” life is fundamentally different for a small piece of equipment, such as a solar battery, than it is for a facility like a combined heat and power (CHP) plant. While a CHP plant may need substantial renovations and upgrades after 25 years, it is major installation that involves considerable site investment and is not considered to be temporary or portable, as one can see in the photograph below of the Princeton University Energy Plant.



4. The program guide offers no guidance on how an applicant should integrate the risk of flooding from storm surge with sea-level-rise projections and maps. Flooding impacts are caused primarily by storm surge, which is exacerbated by sea-level rise. The impact of storm surge depends on site conditions, including whether a site is subject to wave action. The ERB program guide gives applicants the option of referring to the NJDEP Coastal Vulnerability Index and Mapping Protocol, which provides an excellent review of the combined risks of storm surge and sea level rise, *but does not provide any analysis of the interplay of storm surge and sea-level rise for specific sites.* Should applicants conduct their own study to understand this risk? If so, using what assumptions? As noted earlier, sea-level rise increases the impact of all storms: By 2100, what is today a “20-year” storm (with a 5 percent likelihood of occurring this year) will be one with the damage of a “100-year storm” (with a 1 percent likelihood of occurring this year) and the magnitude of Hurricane Sandy.

#### **Recommendations for a Robust Risk Assessment Process to Deliver Resiliency**

New Jersey Future finds that the Draft Program Guide for the Energy Resilience Bank falls behind state-of-the-art efforts to assure resilience in the face of flooding. Regardless of how innovative or “resilient”

the energy technologies and designs might be, if they are vulnerable to flooding the program will not achieve its stated goal of “energy resilience.”

The practice of flood hardening in a coastal area is evolving rapidly across the country in response to the growing understanding of risks, jump-started most recently by Hurricane Sandy. As one example of an up-to-date and more robust flood standard, on September 2, Con Edison submitted its Storm Hardening and Resiliency Collaborative Phase Two Report to the New York Public Service Commission. This report included provisions to flood-harden its power facilities using a design standard of FEMA 100 year Base Flood Elevation (BFE) plus three feet, or “BFE+3.”<sup>6</sup> Con Edison also proposed to review this standard at least once every five years, based on the best available data on climate science and standards, using a process involving outside experts and design engineers.<sup>7</sup> Interestingly, the New York State Attorney General found that the BFE standard was not adequate and has responded that “Con Edison should refine its BFE+3 flood design standard to account for asset-specific features and risks, including consideration of the BFE+5 design standard for all long-lived, critical assets.” (See attached.)

New Jersey Future recognizes that the ERB has established an aggressive timeframe for launching its program. We make the following recommendations for revisions to the EFB Program Guide that respect that timeframe but will also ensure that taxpayer dollars are not invested in projects at risk of flood damage. The ERB Program Guide should be revised before adoption in order to:

1. Require, as an interim step, that all project applications use a minimum design standard of BFE+3 for tidally influenced areas, and of BFE+2 for non-tidally influenced areas. (Note that Base Flood Elevations are a shorthand means of integrating risks from storm surge and sea-level rise.)
2. Define, as an interim step, “major installations” to include new power plants, including CHP plants, and require for such major installations a more detailed site-specific analysis that considers likely storm surge and a range of design elevations from BFE+3 to BFE+5.
3. Establish a climate hardening advisory group that would include members from the NJDEP, the Rutgers Climate Institute, the Columbia Climate Change Law Center, the New Jersey Association of Floodplain Managers and appropriate engineering professionals, to establish more robust and thorough risk assessment guidelines for applicants and to review criteria for ERB staff, both to ensure resilience and increase certainty in the application process. The State of New Jersey should incorporate the refined guidelines into the program guide by December 2014.
4. To commit to reviewing and updating the risk assessment guidelines on a five-year timeframe.

New Jersey Future wholeheartedly endorses the stated goals of the Energy Resilience Bank. We offer our assistance to the State of New Jersey in updating its flood hardening standards to ensure that the state’s critical facilities, starting with water and wastewater infrastructure, are available to serve New Jersey residents today and in the future regardless of the what the weather may bring.

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<sup>6</sup> <http://documents.dps.ny.gov/public/MatterManagement/CaseMaster.aspx?MatterCaseNo=13-e-0030&submit=Search+by+Case+Number>

<sup>7</sup> <http://documents.dps.ny.gov/public/MatterManagement/CaseMaster.aspx?MatterCaseNo=13-e-0030&submit=Search+by+Case+Number>

We thank you for the opportunity to comment on the Energy Resilience Bank. Please do not hesitate to contact [me](#) (609-393-0008, x104) or [Chris Sturm](#), senior director of state policy (609-393-0008, x114) with any questions.

Sincerely,

A handwritten signature in black ink, appearing to read 'PK' followed by a long horizontal stroke and a final flourish.

Peter Kasabach  
Executive Director



September 5, 2014

New Jersey Board of Public Utilities  
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Re: New Jersey Energy Resilience Bank (ERB) – Comments on Draft Program Guide

To Whom It May Concern:

Clean Energy States Alliance, through its Energy Storage Technology Advancement Partnership (ESTAP), respectfully submits these comments on the Draft ERB Financing Program Guide, dated August 22, 2014.

Clean Energy States Alliance is a national, nonprofit organization. Through its ESTAP program, under contract with Sandia National Laboratories and with funding from US DOE, we seek to advance deployment of electricity storage technologies. CESA staff attended a recent meeting on the NJ ERB draft program guide, and we welcome the opportunity to offer the following brief comments on the guide. These are the comments of the CESA staff and not those of its individual members.

1. Credit enhancement was mentioned as a financing tool in the preliminary design document but it is not specifically mentioned in the current program guide. Credit enhancement would be a good way to leverage more private capital. We encourage the inclusion of this and other alternative financing strategies in the ERB.
2. Solar + storage is a promising technology for resilient power and one of the key eligible DER technologies for the ERB. However, the ERB draft program guide limits solar + storage systems in a number of important ways:
  - a. Solar + storage must be paired with other DER generators, while other technologies may stand alone.
  - b. Solar generation capacity may not be larger than the host facility load, while other generation types are not capacity capped.
  - c. The total set aside for electricity storage systems is capped at \$2.5 million in the first round, and individual awards for electricity storage are capped at \$250,000, while no award caps apply for other technologies. This per-project cap is too low to allow for a reasonably sized electricity storage system.
  - d. New solar generation capacity is not eligible for ERB awards, while other new generation types are eligible.

While solar + storage may not prove to be the best resilient power solution for many water and wastewater treatment plants, we see no advantage in preemptively limiting its use, capping its

eligibility for awards, and applying other restrictions that are not likewise applied to other technologies. Instead, we would urge that the ERB allow the market to decide which technologies and combinations of technologies provide the best solution for each eligible facility, on a case-by-case basis. Solar + storage should compete on the basis of cost effectiveness as do all the other technologies, without additional caps and limitations. By managing outcomes rather than picking winners, the ERB will ensure its program is flexible enough to take advantage of changes in markets and technologies.

3. During the recent workshop meeting, ERB officials clarified that there are no restrictions on services that can be provided by eligible systems during non-emergency operation (this could include grid services, renewables integration, electricity arbitrage, load shifting, ancillary services, etc.). However, ERB officials also stated that such potential value streams and benefits would not be included in cost effectiveness calculations when considering proposed projects for awards, while resiliency benefits would be considered. It would be helpful if the program guide were more explicit about what will be included in cost effectiveness calculations, and how resiliency benefits will be determined.
4. For microgrid proposals, please confirm that not all facilities connected to the microgrid need to be eligible critical facilities, and what impact, if any, this might have on the calculation of cost effectiveness and award eligibility. In other words, would a microgrid connecting two eligible critical facilities be considered the same as a microgrid connecting two eligible critical facilities and a third non-eligible facility?
5. Please clarify in the program guide that awards will meet 100% of unmet need (except for electricity storage, as currently written).
6. The ERB program guide stipulates that if an awarded project doesn't meet performance goals for any one year, it is no longer eligible for loan forgiveness. This seems unreasonable and may discourage applicants. It might be more helpful to offer loan forgiveness as a percentage each year over X number of years, with each year's percentage tied to successfully met performance goals for that year.
7. Currently, the amount of unmet need is not considered in the scoring process. It may be helpful to include the amount of unmet need, the amount of leveraged funds, or both as elements of the scoring process.
8. The proposed financing terms are flexible and attractive. However, it is proposed that credits that are rated below AA or are unrated will receive an interest rate "tied to prime." Clarification is needed as to what is expected to be the anticipated spread over or under prime.

If you have any questions about our comments, we would be pleased to discuss them with you.

Sincerely,

/s/

*Todd Olinsky-Paul*

Project Director

Clean Energy States Alliance

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September 5, 2014

**VIA EMAIL (ERB Comments@bpu.state.nj.us) AND FEDERAL EXPRESS**

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P.O. Box 350  
Trenton, New Jersey 08625-0350

**Re: Stakeholder Group Process – Request for Comments on Draft ERB  
Grant and Loan Financing Program Guide**

Dear Mr. Walker:

The undersigned New Jersey Electric Distribution Companies, Atlantic City Electric Company (“*ACE*”), Jersey Central Power & Light Company (“*JCP&L*”) and Public Service Electric and Gas Company (“*PSE&G*”), (hereinafter, for the purposes of this letter, collectively referred to as the “*EDCs*”) jointly provide these comments in the above-referenced matter. This letter responds to the request of the New Jersey Energy Resilience Bank (the “*ERB*”) for comments by September 5, 2014 regarding the ERB’s above-referenced draft Grant and Loan Financing Program Guide (the “*Program Guide*”). The EDCs appreciate the opportunity to provide these comments. The EDCs also appreciate that the ERB recognizes that “stakeholder comment is a critical component of developing reasonable, practical and cost-effective financing for ERB products across different market sectors.” Program Guide at 3. In this regard, the EDCs wish to comment on certain items in, or suggested by, the Program Guide with respect to energy resiliency projects or types of such projects, which the EDCs believe may, or will, have a direct

impact on the EDCs' operations. The EDCs believe that it is important to be aware at the outset of this unique and laudable State program that the installation of many of the kinds of projects anticipated to receive ERB funding can present challenges from a technological as well as a regulatory perspective. Please understand that the EDCs' comments are high-level comments intended primarily to address the utility interconnection process, the consideration of microgrids, which may involve the use of utility infrastructure to assist in establishing alternate sources of power for offsite locations, and associated regulatory and tariff issues.<sup>1</sup>

The EDCs understand that the State of New Jersey has established the ERB as the first funding source of its kind in the nation that focuses exclusively on energy resilience in order to support the development of distributed energy resources (“**DER**”) at critical facilities throughout the State. Under a sub-recipient agreement, the New Jersey Board of Public Utilities (“**BPU**”) has worked jointly with the New Jersey Economic Development Authority (“**EDA**”) in the establishment, operation, and administration of the ERB. The EDCs hope and intend that their collective comments will provide helpful insights regarding the interactions, interrelationships and inter-dependencies between the types of projects contemplated for financing by the ERB and the utility systems to which they must interconnect in order to assist ERB in its implementation of financing support for the development of DER at critical facilities throughout the State. The EDCs further understand that the first round of funding by ERB will be for eligible water and wastewater treatment facilities. The EDCs observe that all of the eligible technologies (*e.g.*, combined heat and power (“**CHP**”)) may **not** be readily available, or an ideal application of those technologies, given the nature of such facilities. As a matter of policy, through its loan and grant programs, the ERB should encourage technology applications that when applied to targeted critical facilities represent the best use of those technologies, in terms not only of resiliency but also in terms of efficiency and effective and consistent utilization.

As part of its eligibility requirements, the ERB will require, among other things, the DER system to be able to automatically disconnect and operate independently of the electric grid, maintain “blackstart” capability, and be sized to meet the facility’s critical loads. Program Guide

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<sup>1</sup> Please note that insofar as the EDCs are not providing comments on all aspects of the Program Guide, the EDCs’ silence should not be misinterpreted as their agreement with those other provisions.

at 15. Furthermore, all applicants are responsible for obtaining all appropriate interconnection approval and tariff approval, if required, from applicable local utilities. Program Guide at 16.

### **The Interconnection Process**

Given the overlay of the EDCs' service territories with the nine most-impacted counties (Program Guide at 12), it is anticipated that the ERB project pipeline will likely produce several new projects that will operate within the service territories of the EDCs. Given the time frames for becoming operational (Program guide at 12), the EDCs believes that it will be important to all participants in the ERB program to understand and follow each EDC's interconnection process. At a high level, these procedures are designed to alert the EDCs, at an early stage in project conceptualization and design, that the customer or developer wishes to install some type of on-site, behind-the-meter generation, that, by design, will operate (or have the potential to operate) in parallel with the existing EDC electric system.<sup>2</sup> When a customer desires to operate an on-site generation source (*e.g.*, diesel, gas turbine, photovoltaic, wind, biomass, or fuel cell) in parallel with the EDC's electric system (*e.g.*, either on a continuous basis, or intermittently for testing, while switching power sources), the customer must notify the EDC and make an application informing the EDC of the specific details regarding the proposed project. This application serves several purposes: (1) it allows the EDC to conduct an engineering study to determine if the generation will have any adverse effects for that specific customer, or for any surrounding customers in terms of voltage fluctuation, flicker, or regulation in accordance with the EDC's tariff and the BPU's rules and regulations; (2) it allows the EDC to determine if the size and characteristics of the generation will affect service continuity or reliability for customers on that circuit or in the area; (3) it allows the EDCs to work with the applicant and determine if the proposed installation meets applicable codes and accepted design practices to ensure the safe

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<sup>2</sup> For clarification purposes, it is noted that a customer who desires to install stand-alone, non-interconnected generation does not need to follow this interconnection procedure, although such customers often notify the EDC of their intent to do so. An example of this would be a customer who installs a diesel generator for emergency on-site power, where the generator is connected to the customer's electrical system by means of an automatic or transfer switch that physically isolates the EDC-feed prior to switching to emergency backup (a break-before-make switch). At no time during the operation of the customer's backup generation will the on-site emergency generator be operated in parallel with the EDC electric system, so there is no potential for generator-back-feed to the electric utility system.

operation of the generation and larger surrounding electric utility infrastructure; and (4) it sets a legal framework for establishing rights and obligations and for settling disputes and possible claims should the system malfunction, or cause damage to life or property.

It is important that the customer submit its application early in the design phase of the project, to confirm that the proposed system will be compatible with the EDC's infrastructure, and that the system will have the necessary controls to allow it to operate in a safe and reliable manner (in line with applicable codes and good design practices), and, also, to verify if any modifications are needed on the EDC's system as a result of the proposed interconnection, and to establish the costs associated with those modifications (for which the customer will be responsible), and the expected timeframes to engineer and implement those changes. By starting the process early and reading and understanding the required EDC interconnection policies, it will help to ensure that the customer's project is completed in an efficient, timely manner and the new system will accomplish its desired purpose.<sup>3</sup>

Therefore, while appreciating that the Program Guide refers to the need for obtaining interconnection and tariff approval, the EDCs believes that the value of the Program Guide could be enhanced by encouraging applicants to consult with their local EDC early in the application process.

### **Microgrids**

According to the Program Guide, eligible DER systems include microgrids, which are generically described as "equipment necessary to connect a collection of load centers together to a distributed generation source." Program Guide at 13-14. The Program Guide also refers to microgrid capabilities as being potentially useful for connecting "additional buildings or facilities" in the event of the need for sheltering of displaced employees, customers or residents. Program Guide at 15. The Program Guide also cites examples of microgrids that operated successfully during Superstorm Sandy, including CHP microgrids at Princeton University, the

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<sup>3</sup> It is noted that certain types of facilities may require interconnection at the transmission level, requiring the developer to utilize PJM processes in order to comply with PJM and Federal Energy Regulatory Commission ("**FERC**") requirements.

College of New Jersey, the Bergen County Utilities Authority and several medical facilities (Program Guide at 5-6), all of which appear to share the similar design feature that the CHP microgrid technologies are used to connect a single customer's buildings and facilities at a single campus or business location. Given the perspective provided by the Program Guide, the EDCs believe that additional information may be useful in considering the implementation of microgrid technologies as part of projects to be supported by ERB.

The interest in microgrids in New Jersey has increased in the aftermath of Hurricane Irene and Superstorm Sandy. Microgrids create a small 'island' of power where localized generation is used to supply both on-site power needs and the power needs of selected surrounding facilities, or targeted infrastructure. As indicated in the Program Guide, a college campus that has on-site generation and owns and maintains wires and transformers throughout the campus is a relevant example. Upon disconnecting from the local EDC, the college might be able to operate its generation to supply all or part of the campus' electric service needs for an indefinite period of time (*i.e.*, operating as an 'island' within the larger surrounding EDC electric system, which has been de-energized as a result of the precipitating outage event). This approach, as long as it is permissible under existing law and regulations, can work well where external parties are not involved, and where the ownership and control of the on-site generation, wires, transformers, and the buildings or facilities to be served during the outage event are under a single entity.

However, the EDCs are concerned about the leap taken in the Program Guide from using microgrid examples such as those discussed above to using imprecise descriptions of potential configurations that may be eligible for ERB funding, but which may not be consistent with existing law or regulation. Notwithstanding the caveat that projects must obtain necessary EDC interconnection and tariff approval where applicable, imprecise descriptions that suggest the possible creation of microgrids of potentially unrelated, and non-contiguous buildings and facilities using customer owned on-site generation and local electric utility infrastructure to distribute the power to off-site locations can only lead to confusion, wasted time, and conflicts (between developers, customers, EDCs and/or regulators) when such suggestions are or may be

inconsistent with existing applicable law and regulations. ERB should eliminate such descriptions from the Program Guide<sup>4</sup> and should add a disclaimer to the effect that:

“Nothing contained in this Program Guide is intended to promote project configurations that are, or may be, inconsistent with existing law or regulation. Applicants should consult with appropriate energy and legal advisors and with their local EDC regarding the operational and legal feasibility of proposed project configurations.”

Furthermore, it should also be noted that the establishment of a microgrid needs to address real operational constraints, and each potential installation should be studied taking into account the guidance contained in IEEE’s Std 1547.4 entitled “IEEE Guide for Design, Operation and Integration of Distributed Resource Island Systems with Electric Power Systems” (issued July 2011), which provides alternative approaches and good practices for these types of systems that would include the ability to separate from and reconnect as part of the area electric power system while providing power to the islanded entities’ power systems. The IEEE guide identifies a number of general DER island system considerations as well as a number of concerns that have arisen with the operation of such systems, including in connection with such systems’ interactions with the EDC electric system. Indeed, the EDCs recommend that the Program

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<sup>4</sup> For instance, on page 14 of the Program Guide, the ERB states that it will finance “equipment necessary to connect a collection of load centers together to a distributed generation source.” On page 15 of the Program Guide, the ERB discusses the possible use of microgrid capabilities to connect additional buildings and facilities to provide shelter for displaced employees, customers or residents in the event of a disaster or other emergency. On page 16 of the Program Guide, it states that, with certain exceptions, DER systems meeting the definitions of onsite generation at N.J.S.A. 48:3-51 and N.J.S.A. 48:3-77.1, “can be sized larger than the facility’s electric and thermal loads provided they have customers for the additional electricity and useful thermal energy.” On page 2 of the ERB Funding round 1 document, a microgrid project that “includes more than one free standing facility interconnection will be awarded 10 points.” Without any or more qualification or clarification, these descriptions could be taken to imply not only stand-alone single customer microgrid configurations, but other more complex scenarios that might be subject to legal and/or regulatory prohibitions or challenges.

Guide contain a specific reference to the IEEE guide.<sup>5</sup>

### **Regulatory and Tariff Issues**

In addition to the operational complexity of integrating certain of the proposed technologies to be financed by the ERB with the EDC electric system, there are also potential regulatory issues related to metering. The EDCs notes that the Program Guide allows for DER systems, except solar off-grid inverter and storage systems, to be sized larger than the serviced facility's electric and thermal load subject to certain conditions. Program Guide at 16. This appears to require that solar-based technologies adhere to applicable net-metering sizing restrictions but does not appear to recognize that depending on whether the eligible battery storage system will be charged solely from the photovoltaic solar generation or whether it may also at times be charged from grid-supply power can necessitate additional components and metering in order to ensure proper recording of generation for purposes of properly creating Solar Renewable Energy Certificates ("**SRECs**") and the appropriate treatment of any energy delivered to the EDC system.

In addition, according to the Program Guide, certain eligible DER systems and equipment technologies that qualify as Class I Renewables can also be sized larger than the facility's electric and thermal energy loads, without noting that such an approach to sizing will not meet the criteria for net metering. This oversizing allowance coupled with imprecise references to serving neighboring loads and encouraging projects with multiple interconnections, may be read to advocate for project configurations that are not, or may not be, valid or lawful under existing New Jersey laws and regulations. In addition, even putting aside questions or confusion regarding validity and lawfulness, such configurations can present metering issues, which may

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<sup>5</sup> Please also note that the IEEE 1547 standard is only a guide, and does not carry the same weight and authority of a traditional or typical "Standard" insofar as the "Guide" does not provide specific requirements for interconnection. Instead, the Guide makes a recommendation regarding the issues to be considered in safely integrating intentionally islanded generation. The lack of a standard, as opposed to a guide, can increase the time required to properly evaluate the proposed installation in what is likely to be an iterative process.

necessitate additional metering requirements for certain DER projects in order to avoid consumption registration and billing inaccuracies. These and other potential issues (such as, for example, the need for stand-by service, to the extent available, under existing EDC tariff provisions) lead the EDCs to suggest that the encouragement of consultation with appropriate advisers, and early interaction with the local EDC, are directly and conspicuously encouraged in the Program Guide. This, together with the type of disclaimer noted earlier, could lessen potential confusion and prompt the necessary and early dialogue that might spell the difference between a successful and unsuccessful project.

Regarding Company tariff classifications, the EDCs specifically note that these would include addressing any need for standby service in strict accordance with the EDC's respective applicable tariff provisions. Again, this further underscores the importance of early consultation with appropriate advisors and the local EDC.

Lastly, while the EDCs appreciate the State's goal of adding resiliency in preparation for any future emergency events, such initiatives may create cost issues that could impact utility customers. For instance, the addition of more distributed energy resources behind-the-meter based would lead to further EDC revenue erosion which will eventually need to be recovered from the EDCs' remaining ratepayers.

### **Conclusion**

The EDCs appreciate the opportunity to provide comments regarding the ERB Program Guide. In general, in their comments, the EDCs have sought to emphasize the potential operational and regulatory complexities of integrating DER into the existing utility infrastructure system, the need for project developers seeking ERB funding support for their projects to consult appropriate experts, and to engage with the local EDC early in the ERB application process regarding the interplay of project design and EDC interconnection and operational requirements.<sup>6</sup>

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<sup>6</sup> In addition, the EDCs respectfully request that the ERB consider opportunities whereby the EDCs, if interested, would be eligible to participate in future ERB program initiatives, assuming there are no legal constraints on ERB with respect to the specific funding available.

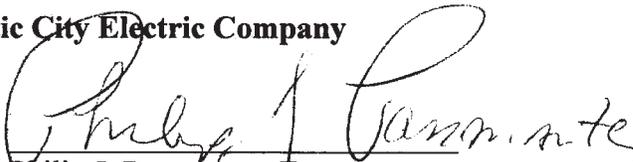
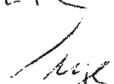
The EDCs hope that its specific comments assist ERB in clarifying, modifying and improving the Program Guide for the benefit of all interested stakeholders including ERB, project developers, customers, and the EDCs. The EDCs look forward to continuing to work with the ERB and in its stakeholder process. Finally, the EDCs reserve the right to supplement these comments based on evolving experience and further analysis when subsequent opportunities are provided. If you have any questions, please let us know.

Respectfully submitted,

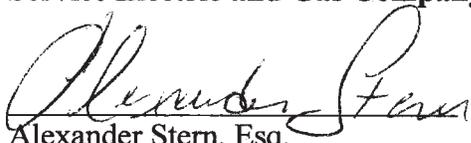
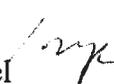
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September 5, 2014

VIA ELECTRONIC MAIL TO [erb\\_comments@bpu.state.nj.us](mailto:erb_comments@bpu.state.nj.us)

**COMMENTS OF  
ENERGY MANAGEMENT, INC  
RE: THE NEW JERSEY ENERGY RESILIENCE BANK  
DRAFT PROGRAM GUIDE**

As part of New Jersey’s ongoing efforts to minimize the potential impacts of future major power outages and to increase energy resiliency, the State has established the New Jersey Energy Resilience Bank (“ERB” or the “Bank”), a first-of-its-kind energy resilience financing initiative, utilizing \$200 million of second round Community Development Block Grant-Disaster Recovery (“CDBG-DR”) funds allocated to New Jersey by the U.S. Department of Housing and Urban Development (“HUD”).

The New Jersey Board of Public Utilities (“BPU”) and the New Jersey Economic Development Authority (“EDA”) are currently engaged in developing the program structure for the administration and disbursement of ERB funds. As part of this effort, a public stakeholder meeting was held on August 27, 2014, at which the BPU and EDA presented the Draft Program Guide for the New Jersey Energy Resilience Bank (“Draft Program Guide”) and details on financing product for Funding Round 1 to be directed towards Water and Wastewater Treatment Facilities (“Round 1 Product”). The August 27<sup>th</sup> stakeholder meeting followed earlier stakeholder workshops convened by the BPU and EDA on April 7 and 11, 2014.

Energy Management, Inc. (“EMI”) attended each of the public stakeholder meetings and workshops and hereby respectfully submits its comments in response to the Draft Program Guide for the New Jersey Energy Resilience Bank (“ERB”) discussed at

the August 27, 2014 stakeholder meeting. EMI appreciates the opportunity to comment on this important matter.

## **INTRODUCTION**

EMI is an energy development company with over thirty years of experience in developing innovative energy projects for utilities and end-use customers. EMI, with Starwood Energy Group and Siemens, are actively developing a set of clean and renewable distributed energy installations at Joint Base McGuire-Dix-Lakehurst (“JB MDL”), a tri- service military installation located in Burlington and Ocean counties. JB MDL is one of New Jersey’s most critical facilities from the perspective of State security and emergency response; for example, during Hurricane Sandy, an Emergency Operations Center was established at JB MDL, coordinating the reception, staging and onward movement of critical support and supplies before, during and after the storm, made direct impact with the State. The criticality of energy resilience for the Base was underscored when during Superstorm Sandy several regions of JB MDL lost power. Had the outage extended to other portions of the Base, or extended longer, vital emergency response services provided by the Base would have been significantly impeded. Consequently, JB MDL leadership have expressed a need to improve energy resiliency at the Base in order to serve not only its military mission, but its role as a critical emergency response platform for New Jersey and surrounding communities.

## **COMMENTS**

EMI applauds and supports the BPU and EDA’s efforts to craft a first-of-its kind energy resilience financing initiative. During the Stakeholder Meeting, the BPU and EDA identified the following objective for the ERB: “to improve and increase the energy

resilience of the state’s critical facilities through the financing of distributed generation projects”. As set forth in the Draft Program Guide, ERB financing will be used to: “develop or enhance distributed energy resource (“DER”) technologies at critical facilities that were directly or indirectly impacted by Superstorm Sandy or other eligible disasters.” Specifically, the ERB seeks to utilize DER technologies with islanding and blackstart capabilities to improve and increase the energy resilience of the State’s critical facilities so that they may continue to operate when the larger power grid fails. During the Stakeholder Meeting, the BPU and EDA identified the following criteria as key measures of an eligible project:

- Technical Feasibility
- Resiliency Benefits
- Financial Attractiveness
- Criticality

The State’s program should be designed to yield maximum resiliency impact for each and every ERB dollar invested particularly since the funds, relative to the task at hand, are quite limited. In our view, the natural extension of this goal should be to prioritize those critical facilities which make the greatest contribution to statewide response capability.

In service of this end, EMI respectfully makes the following suggestions for your consideration:

1. Clarify that energy resiliency projects on federal facilities which play a critical role in the State’s emergency response infrastructure qualify for ERB funds. Presently the focus is limited to water and wastewater

treatment facilities that are: public, not for profit, or meet the U.S. Small Business Administration's definition of "small business". We support the State's effort to work with HUD to address regulatory issues concerning the types of critical facilities that may receive ERB financing. (Draft Program Guide at p. 11) We encourage the State to urge HUD to provide regulatory clarification that resiliency projects develop for federal facilities which play a critical role in the State's emergency response infrastructure are eligible for ERB funding. (Draft Program Guide at p. 12) We note that a number of stakeholders at the April 7<sup>th</sup> workshop commented that military bases were one of the best candidates for resilient energy technologies. To the extent that military bases are able to develop microgrids and function as an island of power during times of major disaster events they will be better able to provide critical support to emergency responders in affected areas. Such an approach would significantly enhance statewide response capability.

2. Allow projects which would impact several of the key ERB target markets in a single application apply in the first round of funding Projects that are capable of serving as an island of power for multiple facilities offer significantly greater resilience benefits to the State than a facility by facility approach. It will enable the ERB to view the resiliency forest as a whole rather than a tree by tree, or species by species approach. Such projects are consistent with the examples cited in the Draft Program Guide as model islands of power including: Princeton University, The College of

New Jersey and the Bergen County Utilities Authority. Moreover, accepting applications for projects that serve multiple target markets will help inform the ERB's approach for its next market sectors.

3. Expand the list of impacted communities listed in Appendix B to include those municipalities with "major damage" sustained in other eligible disasters listed in Appendix A. To limit eligibility to municipalities with "major damage" resulting solely from Superstorm Sandy is unfair to other municipalities which sustained similar "major damage" resulting from other eligible disasters listed in Appendix A. We note that Appendix B establishes an objective and verifiable standard for municipalities with the largest combined number of homes and rental units that sustained at least \$8,000 of physical damage. It appears arbitrary to limit the application of this objective standard to a single disaster from those listed in Appendix A. Municipalities which meet the standard should be treated in similar manner regardless of which eligible disaster caused the damage. Moreover, each of the eligible disasters listed in Appendix A are recent, covering the period from December 2010 through November 2012. Accordingly there should be current information for each such event.
4. Clarify the criteria for "Most Impacted Communities" set forth in Section 1.2 No. 4 of the Scoring Criteria. Presently points are awarded for critical facilities that serve multiple municipalities. We recognize this criteria is intended for water and wastewater treatment facilities. However, consistent with Comment 2. above, consideration should be given to

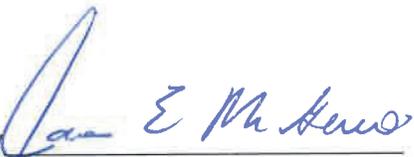
projects that serve as islands of power and provide support to residents and/or responders in multiple affected communities. For example, the Draft Program Guide notes that the College of New Jersey's microgrid provided heat, power, hot food and hot showers to 2,000 mutual aid workers from other states working to restore power to impacted municipalities. Comprehensive Island of Power projects, which offer similar assistance to multiple municipalities, should be given consideration comparable to treatment facilities serving multiple municipalities.

5. Clarify the eligibility of reciprocating engine or microturbine installations for which there is no steam host and thus CHP is not applicable. In the requirements for DER System and Equipment Eligibility set forth in the Draft Program Guide, Item 3. states that "CHP systems must achieve an annual system efficiency of at least 65% based on the lower heating value (LHV), and electric only generation fuel cells must achieve at least a 50% electrical efficiency." (Draft Program Guide at p. 15) It is unclear however, whether an electric only microturbine or reciprocating engine would be considered eligible for program funds. As not all critical facilities can serve as efficient steam hosts, the program should not exclude electric only reciprocating engine or microturbine projects. In certain applications they may be the most cost-effective means to energy resiliency and islanding capability.

## CONCLUSION

EMI appreciates the opportunity to submit these comments. While we are urging certain modifications to the proposed structure, we do want to reiterate our support for the BPU and EDA's efforts to continue to advance energy resilience in New Jersey. We look forward to participating in the process of developing a highly effective program to support the continued deployment of distributed generation in a manner that makes real contributions to the State's energy resilience.

Respectfully submitted,  
ENERGY MANAGEMENT, INC

By 

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## Shoreline Energy Advisors, LLC

Shoreline Energy Advisors, LLC would like to thank the EDA and the BPU for soliciting industry input relating to the New Jersey Energy Resilience Bank Grant and Loan Financing Program. We are currently involved in similar initiatives in Connecticut and would like to pass on observations and comments that may be pertinent, which have evolved from our experience there, for your consideration.

We believe that programs of this nature, though always well intentioned, can be less effective when their design attempts to address too many objectives and constituencies simultaneously. If the ultimate objective is resiliency, or uninterrupted power in the event of a natural disaster, system overload, or failure, there is a highest and best manner of addressing that need. We believe that the best way of meeting resiliency objectives does not necessarily include renewable fuel, mandatory cogeneration, solar PV with battery storage or fuel cells. If resiliency is the primary objective, and funds for the program are limited, a natural gas fueled reciprocating engine or combustion turbine, with a storable liquid fuel such as diesel or propane, is the simplest, cheapest and certainly the most commercially proven alternative available to achieve those objectives.

When we try to be all things to all people, simultaneously addressing renewable fuels, efficiency and emerging technology, we often divert the highest and best use of available funds and the complexity of the program design results in long delays in implementation, or the careless spending of public funding. Although the environmental aspects of these alternatives are valuable policy objectives, we would question whether they should be included in this program whose stated objective seems to be fail-safe power at all times for facilities that are deemed to be critical to the public good.

While the first phase of the program is targeted to water and wastewater facilities who will have a relatively steady load without large swings between base load and peak, as the program moves to other types of facilities deemed critical like hospitals and to a greater extent, municipal facilities, it will become apparent that these facilities may have peak loads that are double, triple or an even greater multiple of base load electric. The program seems to be silent on whether the infrastructure installed under the program is to cover power needs 24/7/365 or only a component of loads. If it is the later, the program is silent on what type of load shedding needs to be built into the system and the method for determining what loads to shed. If power is desired 24/7/365, and generation is included as part of the eligible project funding, the need to build capacity to serve peak demand will result in investment in generating capacity that is rarely used. This will have the effect of greatly increasing the cost of electricity related to capacity charges to the point of where it will be difficult to produce from these facilities at a rate that is comparable to prices offered by Local Distributing Companies or Third Party Suppliers. As many of the targeted "critical facilities" are public buildings funded by local tax, the difficulty in developing momentum and commitment from the Mayor and Council, Freeholders or an Authority Board should not be underestimated. While in days past certain power users were more than willing to pay a premium for power that withstood system failures due to weather or other events, the new paradigm with these types of energy resiliency facilities seems to be that they need to offer power at or near to the price that would be available from traditional sources despite the added benefit, and cost, of resiliency.

The desire for efficiency in the program is admirable and will certainly help with lowering the net cost of electricity coming from these facilities but isn't that is a "nice to have" as opposed to a "must have" if the objective is resiliency?

We are not sure if the desire for cogeneration as a desired component of the design makes sense, particularly in the first phase. Phase one concentrates on wastewater treatment and water facilities and we believe you will find that there is not sufficient thermal energy needs to balance the optimal level of electric load even if anaerobic digestion is present or contemplated. In other words, if the resilient facility is sized to serve the electric load of these plants, the available thermal load which can be served by waste heat from the cogeneration plant will in all likelihood amount to only a fraction of the waste heat that is generated, resulting in a lowering of the overall efficiency of the cogeneration plant, probably to below your cited target.

The EDA and BPU may want to consider ways of lowering the "capacity" component of these plants, perhaps by using excess electric generating capacity to service related non-critical loads which can be curtailed in periods of emergency. This might entail some acceptable variation of virtual net metering to related or even non-related accounts, which would provide a greater number of KWH's to defray the extra capacity costs required to achieve resiliency. If an emergency occurred, supply to the non-critical loads could be curtailed and the installed generation would merely serve those loads deemed critical. While it is likely and reasonable to assume that the LDC serving these loads would expect some level of compensation for lost load from non-critical, or even critical accounts, accounting for this cost in utility tariffs, and spreading it over their entire customer base who would by definition, benefit from the installation of resilient energy facilities, could be a more reasonable way of dealing with the inherently higher costs of resilient capacity.

Another question deals with whether generation assets should be included in the program at all or whether dollars from it should be limited to distribution related investment to provide islanding and black start. In Connecticut funds available from the DEEP's Microgrid Pilot Program are only to be used for distribution related investment and related infrastructure like relocations of facilities, buildings, etc. Generation is ineligible for utilization of program dollars. Despite this prohibition on using program dollars for generation, there has been no shortage of applicants for the program. In the first phase thirty-three preliminary applications were submitted and of these, twenty-seven were invited to submit detailed proposals. From the twenty-seven invitations, eighteen submitted detailed proposals and of these, nine were selected for a portion of the Connecticut DEEP grant pool which totaled \$18 million for phase one. The second phase built upon the learnings from the first phase and went directly to a detailed proposal as step one. These were due in August and awards will be made in October. At this time there is no information available on the number of proposals submitted for Phase Two but again as in Phase One, generation investment is not eligible for funds from the program.

While the New Jersey program goes further to allow funding to be used for new generation as a component of a resiliency project, the Program Guide gives no indication of whether projects which only require distribution investment will be given priority over those that require generation investment. In Connecticut, several projects which received grants only involved investment in weatherproofing existing generation, and making the investment in distribution infrastructure required to allow black start and islanding. As one would expect these projects have a much shorter implementation schedule and several are completed and operating already. If resiliency and speed to development are objectives of the program, the EDA and BPU may want to consider offering priority to projects which provide the sought after level of resiliency without having to make investment in generation.

The program seems to infer that natural gas will always be an un-interruptible source of fuel to these installations. While this is probably a safe bet the great majority of the time, it is possible that pipeline operations could be disturbed with a wide-spread power failure in which case the natural gas fueled power generation from facilities in this program will not be able to meet their energy resiliency objective. Given this, the program may want to re-consider its discouragement or prohibition on the use of storable fuels like diesel or propane. While diesel generators are not built to run for prolonged periods of time, the seven days which the program targets while although a stretch is not impossibility for a diesel generator. In fact during Sandy many emergency generators were forced to operate for this length of time and did so without incident although they are not designed to do so. Both diesel and propane present siting issues but having a storable fuel alternative is the only way of guaranteeing true resiliency with distributed energy. The EDA and the BPU may want to re-consider its discouragement of storable fuel, perhaps accepting some percentage of generation as diesel or propane, or as backup that can serve the truly critical load when incorporating a defined program of load shedding for loads at critical facilities which can be classified as non-critical.

Finally, Shoreline believes that you may want to re-consider the definition of facilities that are deemed to be critical, particularly those dealing with colleges and universities or multi-family housing unless those facilities can truly be used as emergency shelters. If dormitories and apartment buildings are occupied with their regular residents during an outage, how could they handle more people and why would their residents be considered any more important than people living in single family homes, condominiums or other non-college or non-multifamily domiciles?

Shoreline Energy Advisors appreciates the opportunity to comment on the New Jersey Energy Resilience Bank Grant and Loan Financing Program Guide and looks forward to hopefully working with the Bank in developing infrastructure for its clients that will meet the objectives of the program and provide the highest and best use for both state and federal funds that are being made available for the program.

Fred Fastiggi, CEM, DGCP  
Managing Director



STATE OF NEW YORK  
OFFICE OF THE ATTORNEY GENERAL

ERIC T. SCHNEIDERMAN  
ATTORNEY GENERAL

DIVISION OF SOCIAL JUSTICE  
ENVIRONMENTAL PROTECTION BUREAU

August 26, 2014

Martin F. Heslin, Esq.  
Assistant General Counsel  
Consolidated Edison Company of New York, Inc.  
4 Irving Place, Room 1815-S  
New York, NY 10003

Re: Cases 13-E-0030, 13-G-0031, 13-S-0032  
2014 Storm Hardening and Resiliency Collaborative Phase II Report

Dear Martin:

Thank you for sharing Con Edison's draft Phase II Collaborative Report. We appreciate the time and effort that the company and other parties have put into Phase II of the collaborative process. While the draft report reflects some progress in the company's storm hardening and resiliency efforts in the last year, we would like to share our concerns with the company's continued reliance on the 2014 BFE+3 flood design standard for the next five years, i.e., until 2019. Locking in BFE+3 for the next five years is not consistent with the Public Service Commission's directive that the company review and update its design standards on an on-going basis. Moreover, for long-lived assets, the three feet included in that standard fails to provide for both adequate protection against future sea level rise and the freeboard required by codes and good engineering practice.

As we indicated in our January 2014 comments on the Phase I Collaborative Report, Con Edison should refine its BFE+3 flood design standard to account for asset-specific features and risks, including consideration of the BFE+5 design standard for all long-lived, critical assets. The rationale for the company's proposed relocation of the East 13th Street substation control room to the second floor appears to be consistent with the flood design strategy we recommend, yet such rationale does not appear to have been applied to the company's other projects. We have repeatedly urged the company during informal discussions and collaborative meetings to develop an internal process for periodic evaluation of the sufficiency of existing flood protection measures and consideration of alternative flood designs for future projects. Once again, we request that Con Edison undertake this necessary step to ensure timely and cost-effective flood protection is in place for all assets in the system network.

While Con Edison has committed to reviewing the BFE+3 flood design “at least every five years,” we fail to see the value in delaying design review for post-2014 projects, especially given the lack of protectiveness this standard provides against risks from sea level rise. We do not read the Commission’s order as authorizing Con Edison to freeze its design standards for the next five years. Nor do we view the Order as immunizing the company from the consequences of underestimating the impact of rising sea levels, storm surge and other climate-related risks. Indeed, the PSC’s February 2014 Order clearly envisions a timely, systematic and transparent process for Con Edison’s development of robust and cost-effective solutions to addressing climate risks.

In addition, we provide the following comments and suggestions:

- at page 10 and elsewhere, the draft report refers to preparing for Category 1 & 2 hurricanes. This office notes that New York has already experienced a Category 3 hurricane, referred to as the 1938 Long Island Express; and
- at page 89, the draft report refers to 5 of the top-10 storms (not identified) for customer outage occurring as “coastal type storms” that occurred “in the three years between 2011 and 2012.” This office suggests that Con Edison consider: (1) identifying all 10 storms by common name, month, and year; and (2) clarifying the scope or description of the “three year” period.

We look forward to working with Con Edison and the Collaborative in this regard. Please do not hesitate to contact me if you have any questions.

Respectfully submitted,



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cc: (via email)  
Collaborative Distribution List

The following questions/comments are being submitted regarding the ERB program. The questions/comments are from the perspective of a municipal sewerage authority with a sanitary sewage treatment plant and anaerobic digesters.

1. It is the Authority's understanding that the BPU/utility companies prohibit interconnections between bio-gas generated from a wastewater digester and natural gas piping. Has the Energy Resiliency Bank worked with the BPU to address this?
2. Air permitting of a co-gen system through NJDEP is generally onerous and time consuming. In consideration of ERB project deadlines and possibility of losing funds, does the ERB have any indication from DEP about streamlining the permitting process or making it more compatible with ERB goals?
3. Section 1.3, Part 1.b(i) provides 20% principal forgiveness for projects that meet performance goals over a five year period. How will the goals be developed for a given project?
4. Other State financing programs (i.e. NJ Environmental Infrastructure Trust) have provided non-performance based grants/principal forgiveness for projects. Although the grant and principal forgiveness are each proposed to be 20%, the grant has greater value than principal forgiveness. Principal forgiveness conditional on performance creates uncertainty on the Applicant's end.
5. Can ERB financing/grants be used in combination with other financing/grant programs such as the NJ Environmental Infrastructure Trust, FEMA Hazard Mitigation Grant Program and NJ Clean Energy Program?
6. If a proposed bio-gas fueled co-gen system can generate 50%-75% of a facility's critical load, can a fossil fueled emergency generator be used to generate the remaining critical load and address ERB's requirement for a system that provides full resiliency?

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Thank you for holding the workshop this morning for this exciting funding opportunity to spur the development of a much needed capability at these critical facilities. Though I live in Washington, DC now, I grew up in northern NJ and my whole family and many friends were devastated by superstorm Sandy and other Atlantic storms.

I am curious if some clarification could be made about solar PV systems. If I understood some points correctly, it seems that solar PV is an eligible technology for the funding program but only the microgrid-

specific components would be eligible for funding. Exactly what components/equipment and scopes of installation would be eligible for this program? My understanding so far, although I need to read the program guide closely is the following:

Funded: materials and labor related to microgrid capable inverters, battery storage system, battery management system, SCADA system, critical load panels, interconnection and integration of microgrid system

Not Funded: materials and labor related to solar panels, racking structure, sub-array combiner boxes

What is the reason for parsing out only the micro-grid components of solar PV systems for funds? Is it due to other funding opportunities available to solar such as SRECs, ITC, accelerated depreciation that are not available to other technologies? Please let me know if I am misunderstanding this program or any of the details. I am also unclear about overall project costs such as permitting, site work, civil engineering work, construction mobilization costs. Would these need to be separated as well so that only the proportion of those costs related to micro-grid components would be funded?

Best Regards,  
Steve

Stephen Swern  
Project Engineer  
NABCEP Certified PV Installation Professional™



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Hello,

Can you tell me what defines a small business as we are interested in participating in this initiative but I am not sure if we are eligible as we are a for profit institution.

Thank you,

**John Kroncke**  
**Director of Plant Operations**  
**HackensackUMC at Pascack Valley**  
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We are proceeding with a project that wishes to apply for ERB support for battery storage and inverter components to enable a solar array to "blackstart."

Can our project receive a waiver of the energy audit requirement to apply for these ancillary components?

**G. Bruce Ward, Esq.**  
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While I applaud the mission of the ERB, it seems that the inability of facilities to gain funding for PV components as part of an islanding power production system (PV + battery backup) is very restrictive. This term restricts the PV/battery backup solution to only those facilities which currently have solar PV.

Can you explain the reasoning behind this ruling? Also, what if any alternatives did the ERB team discuss for those facilities which want to combine solar with battery backup, but do not currently have a PV system in place? – Would the answer be a separate agreement for a PV PPA with the facility coupled with ERB funding for the battery/microgrid components?

Thank you.

Best regards,

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The Energy Resiliency Bank should focus on the total financial need of the host site for developing resilient power. The proposed structure does address the single largest obstacle that projects face by offering not just a grant or forgivable loan but the balance of the necessary financing. The proposed 20

year term and 2% financing will enable projects to achieve positive cash flow from the beginning of commercial operation and through the life of the project. We would recommend that the ERB provide 100% grants to upgrade facilities existing onsite generation to meet resiliency islanding and black start capabilities. This would be equitable considering that those facilities have already made the investment in their plants for onsite generation.

These projects can be in the \$3 to \$30 million dollar cost range which could rapidly deplete the available funds. Many of the large WWTF's which are typically regional facilities have already developed CHP systems particularly facilities with anaerobic digesters. Some such as BCUA are adding new units to their existing facilities or as stated by OCUA may need to replace older worn out or obsolescent equipment. Given the limited funds available for this initiative we would recommend that you reconsider not allowing applicants to receive CEP CHP funding. If an applicant were to receive a CEP CHP grant and then use the ERB to finance the balance it would effectively leverage the ERB funds by 30%. If you wanted to make this truly equal to the current proposal allowing a CEP CHP grant equal to ~30% of the project cost and then allowing that applicant to apply to the ERB for a 10% forgivable loan and 60% project financing would enable more projects to be financed. This may be more important for the next phase as there are more public sector, higher ed and hospitals which can support larger projects.

Similarly the potential to coordinate with the Environmental Infrastructure Trust (EIT) funds could also expand the reach of the ERB. In the case of the EIT the ERB could provide grant and forgivable loans and use the EIT to provide the balance of project funding. The EIT itself may need modest support if it would be necessary to buy down their interest rate to be equal to that offered by the ERB.

Water treatment facilities typically have no significant thermal energy needs so excluding distributed generation makes it unlikely they will be able to meet the efficiency requirement which then limits them to storage and possibly fuel cells. In these cases natural gas I.C. engines with emissions controls and linked to PJM DR can be economically attractive and still improve overall efficiency as they would only operate when the grid is on peak and suffering higher than normal transmission losses 10-20% on top of running the most inefficient peaking units. An independent analysis could be developed to prove that this is indeed a efficiency improvement and energy savings. Currently several manufacturers offer I.C. engines which can achieve 42% efficiency. Setting a requirement that these systems meet a minimum 40% efficiency would be a reasonable metric. The load duration curves for the electric delivery system clearly show the disproportionate emissions and cost of the highest 1,000 hours in the year we would expect that these units would operate less than 2,000 hours per year but these are the high pollution and high cost hours. Since these hours coincide with air quality issues particularly Ozone it would be essential that these engines be equipped with SCR or other NOx controls. A very positive environmental effect would be avoiding diesel generators from running as is currently allowed if there is a voltage drop indicating impending brown outs.

Regarding storage we would recommend that this include a requirement for sufficient MWh to operate the facility for sufficient time to contribute to real resiliency. In most cases to approach enough MWh to be significant would be enormously costly. If instead the storage project could be defined to provide limited MWh but would coordinate with onsite generation it would enable the site PV to contribute power without being disruptive to operating stability and thereby extend the fuel resources needed to operate in the event of a power failure. This would require more sophisticated controls but provide a significant benefit. Allowing the necessary controls and integration to be included in the ERB funded project would enable the adoption of this technology.



To enable multi user applications that define the provision of exempt from utility franchise direct wire connection from an

critical facilities. This would need to include appropriate safeguards similar to emergency generator transfer trip devices to prevent back feeding power onto utility lines which would be a safety hazard. There is even a precedent for this where the NJDOC provides emergency power to the Bridgeton municipal wells located across the street from South Woods prison. This is a mutually beneficial arrangement as in the event of a power failure the prison generators which are a N+ 2 system can keep the water pressure up for the town and securely supply the prison itself. The prison generators are installed indoors in a 24/7 manned boiler plant so there is always an operator on duty if there is a problem with one of the emergency generators whereas when the municipal utility places emergency generators at municipal wells they are installed outdoors and are unmanned. This avoided a major capitol expense as well as maintenance on the part of the municipality.

the BPU should adopt rules emergency power as being restrictions and allowing a onsite generator to nearby

Thank you for the opportunity to provide our comments and recommendations on this initiative.

Joseph Sullivan  
Vice President Energy Policy and Development

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September 4, 2014

Re: Comments on Energy Resiliency Bank Grant and Loan Financing Program Guide

To Whom It May Concern:

On behalf of the NY/NJ Baykeeper we hereby submit the following comments for the Energy Resilience Bank Grant and Loan Financing Program Guide (ERB). Since 1989, Baykeeper has been protecting, preserving and restoring the Hudson-Raritan Estuary.

The plan briefly states on pages 10 and 13 that the facility must include an evaluation of its vulnerabilities to sea level rise and suggests the use of the NOAA sea level rise tool. This

requirement should be more highly emphasized and must be enforced. Also, the program should include more detailed requirements such as the level of sea level rise evaluated and the inclusion of storm surge analysis along with sea level rise. The applicant should be required to evaluate their vulnerability at the level of sea rise anticipated for the entire life of the facility. In addition to the NOAA sea level rise tool, NJ Flood Mapper should also be recommended as it includes storm surge impact predictions (<http://njfloodmapper.org/>).

The ERB would benefit from creating a data sharing site where prospective applicants could share information on what has and hasn't worked for them. This site should showcase innovative technologies, such as the biogas powered generators used by Bergen County Utilities Authority. In this way best practices can be promoted and mistakes that were made in the past can be avoided.

Thank you for your consideration of the above comments. Overall this appears to be a sound program that will hopefully encourage and facilitate energy resilience in NJ's infrastructure.

Sincerely,

Jessica Evans  
Post Hurricane Sandy Fellow  
NY/NJ Baykeeper