NJ Energy Resilience Bank

A State-Based Financial Approach to Support Energy Resiliency Efforts
New Jersey Energy Resilience Bank (ERB) Overview

Damage and outages caused by Superstorm Sandy prompted the state to prioritize efforts to minimize the potential impact of power outages and increase energy resiliency.

BPU and EDA have committed $200 million in funding for the ERB to assist critical facilities with securing resilient energy technologies that will make them - and the communities they serve – less vulnerable to severe weather and other emergencies.

Mission: “Realizing energy resilience for New Jersey’s critical facilities through financing and technical assistance”
## Illustrative Pro Forma CHP Economics

### Our assumptions

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engine / system size (kW)</td>
<td>2050</td>
</tr>
<tr>
<td>Average electric load (kW)</td>
<td>2000</td>
</tr>
<tr>
<td>Our best understanding of your critical load (kW)</td>
<td>2000</td>
</tr>
<tr>
<td>Estimated capex for system ($/kw)</td>
<td>$3,200</td>
</tr>
<tr>
<td>Estimated islanding costs ($/kwh)</td>
<td>$400</td>
</tr>
<tr>
<td>Operating and maintenance ($); yearly cost for 15 years</td>
<td>$200K</td>
</tr>
</tbody>
</table>

### Summary of Project Costs

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Generation cost ($)</td>
<td>$6.5M</td>
</tr>
<tr>
<td>Islanding cost ($)</td>
<td>$0.9M</td>
</tr>
<tr>
<td>Total system cost</td>
<td>$7.4M</td>
</tr>
</tbody>
</table>

### Summary of Project Benefits

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annual electrical savings</td>
<td>$1.8M</td>
</tr>
<tr>
<td>Annual resiliency benefits</td>
<td>$100K</td>
</tr>
</tbody>
</table>

| Benefit cost ratio                   | 1.14    |
ERB Financing – Waste Water Treatment Plants and Water Treatment Plants Product Overview (1/2)

Funding Allocation: $65 million

Total ERB Funding:

100% unmet funding

Incentive:

40% of unmet funding need:
- Grant: 20% after equity contribution, if applicable
- Loan Forgiveness: 20% after equity contribution, if applicable
  - Principal forgiveness based on proof of successful operation of equipment and evidence of minimum required performance
  - Forgiven in equal percentages over five years (4% per year)
  - If project does not meet required performance level in any year, forgivable portion of that year’s loan will not be forgiven. In following year, if performance level returns to required level, then forgivable portion of current and previous year’s principal will be forgiven.

Loan:

60% of unmet funding need
ERB Financing – WWTP/WTP Product Overview (2/2)

- **Interest rate:**
  - 2%, fixed interest rate for bond rating of BBB- or higher at the time of approval
  - 3% fixed interest rate for applicants with bond rating lower than BBB- or which are not rated at time of approval

- **Term:** Up to 20-year term, based on useful life of majority of assets

- **Principal Moratorium**
  - Up to 2 years’ principal moratorium, according to the following:
    - Based on length of construction period, subject to the lesser of construction period and 2 years
    - Up to two, six-month extensions may be provided
    - Interest during construction period will be based on disbursements of loan capital
    - Disbursement – grant funding disbursed before loan capital
      - Based on milestones with evidence of cost incurred and site visit to verify
      - First milestone will be purchase and delivery of equipment and feasibility study, if applicable
The ERB will fund resilient energy systems for critical facilities.

Resilient energy technology is ... 

... distributed generation or other technologies ...

CHP plants can use a reciprocating natural gas engine

Gas Turbine CHP Plant

... that is islandable, capable of blackstart and can operate at critical load

Inverter system  Black Start Controls  Fuel cells

Resilient energy technology is not...

...emergency backup generators

Generator

SOURCE: DOE, NREL
ERB support for critical facilities will support distributed generation at the customer site.
The ERB can cover a range of costs for new systems

<table>
<thead>
<tr>
<th>Eligible costs</th>
<th>Non-eligible costs</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>New resilient systems</strong></td>
<td><strong>Backup Generators</strong></td>
</tr>
<tr>
<td>▪ Core equipment</td>
<td>▪ Emergency backup generators</td>
</tr>
<tr>
<td>▪ Piping &amp; wiring</td>
<td>▪ Onsite fossil fuel storage for emergency generators</td>
</tr>
<tr>
<td>▪ Islanding equipment</td>
<td></td>
</tr>
<tr>
<td>▪ Interconnection</td>
<td></td>
</tr>
<tr>
<td>▪ Fuel pre-treatment (e.g., biogas treatment, or gas compression)</td>
<td></td>
</tr>
<tr>
<td>▪ Installation</td>
<td>▪ Flood walls</td>
</tr>
<tr>
<td>▪ Site work</td>
<td>▪ Elevation</td>
</tr>
<tr>
<td>▪ Engineering and project management</td>
<td></td>
</tr>
<tr>
<td>▪ Hardening of resilient energy system (e.g., elevation)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>▪ Used, refurbished equipment</td>
</tr>
<tr>
<td></td>
<td>▪ Solar PV panels</td>
</tr>
</tbody>
</table>
Eligibility Criteria

Eligibility Overview

- Eligible ERB Applicants
  - Public facilities – municipal and county authorities
  - Non-profits
  - For-profit businesses that meet the SBA definition of “small business”

All other entities, and all privately owned utilities, are currently ineligible

BPU/NJEDA are working with HUD toward regulatory flexibility for the ERB that would expand the list of eligible entities
The ERB evaluates all projects on the following criteria:

- Tech. Efficiency / Economic Cost Effectiveness
- LMI National Objective
- Most Impacted Communities
- Readiness to Proceed
- Criticality
- Microgrid
- Facility Energy Efficiency

Additional detail on these criteria available
Application Overview

Some steps in the application process will take place concurrently.

Outreach / engagement
Intake application
Full application
Technical review
Financial / Federal requirement review
Board consideration
Closing
Construction and monitoring

External approvals (e.g., NEPA, air and water, public bids and other DEP review)
ERB Contacts

Mitch Carpen
36 West State Street
Trenton, NJ
mcarpen@njeda.com

Tom Walker
44 South Clinton Avenue
Trenton, NJ
Thomas.Walker@bpu.state.nj.us

Call toll-free: 1-866-534-7789
E-mail Address: erb@njeda.com
Website: www.njerb.com