New Jersey
Energy Resilience Bank

Building a solid foundation for the future
SECTION 1

Introduction to the ERB
Critical facilities were significantly impacted by power outages from Superstorm Sandy

“The loss of facilities as well as public safety and emergency vehicles caused increased response times for fire and medical services, further endangering local residents.”

“Hospitals, nursing homes, long-term care facilities, domestic violence shelters, foster homes, mental health facilities, and other critical social service providers throughout the State were forced to contemplate evacuation in light of prolonged power outages.”

“Flood waters and power outages forced at least 370 school districts to close for at least one week.”

“Even those critical infrastructure and assets reliant on diesel generators for back-up power experienced electric reliability issues, due to limitations on the availability of liquid fuel. Petroleum production, transport, distribution, and retail sales were also significantly impacted... Over 70 percent of gas stations in northern New Jersey were unable to operate for as much as a full week after the storm.”

“427 of 604 community water systems experienced power loss during the event. As a result of these service interruptions, water quality was compromised. Boil water advisories were issued by 37 water systems, impacting 362,334 New Jersey residents.”

SOURCE: DCA, Hurricane Sandy Rebuilding Strategy Task Force
Some facilities were able to continue operating thanks to their resilient energy systems

<table>
<thead>
<tr>
<th>Resiliency benefit</th>
<th>Sample cases</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Continued operations</strong></td>
<td>- Several medical facilities were able to maintain power through CHP micro-grids, becoming larger shelters as well as accepting patients from other facilities</td>
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<td></td>
<td>- Bergen County Utilities Authority (BCUA) was able to operate its sewage facilities both during and after the storm by relying primarily on a biogas-powered CHP system</td>
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<td><strong>Shelter for Emergency</strong></td>
<td>- College of New Jersey’s CHP micro-grid provided heat, power, hot food and hot showers to 2,000 mutual aid workers from other states that helped to restore power after the storm</td>
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<tr>
<td><strong>Additional financial savings</strong></td>
<td>- Princeton University’s combined heat and power (CHP) micro-grid operated for a week when the larger grid failed, saving the University millions in documented avoided loss in hundreds of irrereplaceable research projects</td>
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</tbody>
</table>

SOURCE: DCA
New Jersey Energy Resilience Bank (ERB) Overview

The extensive damage and outages caused by Superstorm Sandy prompted the state to prioritize its efforts to minimize the potential impacts of future major power outages and increase energy resilience.

The State has committed $200 million in funding for the ERB to assist critical facilities with securing resilient energy technologies that will make them – and, by extension, the communities they serve – less vulnerable to future severe weather events and other emergencies.
Mission

“Realizing energy resilience for New Jersey’s critical facilities through financing and technical assistance”
Critical facilities based on list compiled by the state’s Office of Homeland Security and Preparedness

- Water/Wastewater facilities
- Hospitals
- Long term care facilities
- Transportation and transit infrastructure
- Colleges and University
- Schools that act as shelters
- Multifamily Housing Units
- Prisons
- Police departments and public safety answering points
- Certain municipal buildings and town centers
- Other Tier 1 and Tier 2 critical facilities
SECTION 2

Financing Energy Resilience
The ERB is currently funded with HUD CDBG-DR funds:

<table>
<thead>
<tr>
<th>Source</th>
<th>Allocated amount</th>
<th>Status</th>
</tr>
</thead>
</table>
| HUD    | $200M to be allocated by September 2017 | Limited to **public, non-profits, and small businesses** that satisfy the SBA definition  
|        |                  | Priority for **Low-Moderate Income** areas and for **most Storm impacted communities**  
|        |                  | Awaiting decision on SBA waiver, submitted Fall 2014, which would allow HUD funds to be used for large private facilities and developers  
|        |                  | Conformance with HUD CDBG-DR program requirements (i.e. Davis-Bacon, Section 3, NEPA review, etc.) |
Product terms will consider resilience benefits in addition to economic benefits.

**Economically Positive Investment**
- Energy Savings
- ERB Incentives
- Incremental Cost of Islanding
- Sizing for Resilience

**Resilience Benefits**
- Avoided Revenue Loss
- Avoided Litigation/Liability Cost
- Lives Saved
- Environmental Benefits

**Economically healthy and resilient facilities will function during a storm or disaster.**
The ERB will support water and wastewater treatment plants with comprehensive financing for resilience projects

<table>
<thead>
<tr>
<th>Overview of Proposed Total ERB Funding</th>
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</thead>
<tbody>
<tr>
<td>Program size</td>
</tr>
<tr>
<td>• $65M</td>
</tr>
<tr>
<td>Eligible facilities</td>
</tr>
<tr>
<td>• Water and Waste Water Treatment Plants</td>
</tr>
<tr>
<td>100% unmet funding</td>
</tr>
<tr>
<td>Incentive:</td>
</tr>
<tr>
<td>• 40% Incentives</td>
</tr>
<tr>
<td>Loan:</td>
</tr>
<tr>
<td>• 60% Loan</td>
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<tr>
<td>Terms</td>
</tr>
<tr>
<td>• <strong>Interest rate:</strong> 2% IG, 3% non-IG</td>
</tr>
<tr>
<td>• <strong>Collateral:</strong> Unsecured</td>
</tr>
<tr>
<td>• <strong>Term:</strong> Up to 20 years, based on useful life of assets</td>
</tr>
<tr>
<td>• <strong>Principal Moratorium:</strong> Up to 2 years’ principal moratorium</td>
</tr>
</tbody>
</table>
SECTION 3

Resilient Energy Solutions
ERB Support for Critical Facilities will Support Distributed Generation at the Customer Site

Distributed generation:
- Combined heat and power
- Fuel cells
- Energy storage battery
The ERB will Fund Resilient Energy Systems for Critical Facilities

RESILIENT TECHNOLOGY IS...

...distributed generation or other technologies...

CHP plants can use a reciprocating natural gas engines

Gas Turbine CHP Plant

RESILIENT TECHNOLOGY IS NOT...

...emergency backup generators

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

Inverter system

Black Start Controls

Fuel Cells and Batteries

SOURCE: DOE, NREL
The ERB can Cover a Range of Costs

**ELIGIBLE COSTS**

**New Resilient Systems**

- Core system
- Piping & wiring
- Islanding fixtures
- Interconnection
- Fuel pre-treatment (e.g., biogas treatment, or gas compression)
- Installation
- Site work
- Engineering and project management
- Hardening of resilient energy system (e.g., elevation)

**NON-ELIGIBLE COSTS**

**Backup Generators**

- Emergency backup generators
- Onsite fossil fuel storage for emergency generators

**Other non-energy hardening**

- Flood walls
- Elevation

**Other**

- Used, refurbished equipment
- Solar PV panels
SECTION 4

Eligibility
HUD Requirements

• Direct impact by Sandy or other qualifying disaster.

• With limited exceptions, per federal regulation, CDBG-DR funding may not be used within a Coastal Barrier Resource Area (CBRA).

• Project system must be installed at a facility and be operational within two years of the closing of the ERB incentive and loan funding.

• ERB Requirement: ASHRAE Level II Energy Audit
Scoring Criteria

- Tech. Efficiency / Economic Cost Effectiveness
- Low Moderate Income Area Benefit
- 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.

External approvals (e.g., NEPA, air and water, public bids and other DEP review)
SECTION 6

Questions & Contact Info
ERB Contacts

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