



New Jersey Energy Resilience Bank

*The Resilient Smart Grid
Spring 2015 Workshop
Brookhaven National Laboratory*

April 17, 2015



**NEW JERSEY
ENERGY
RESILIENCE
BANK**

Building a solid foundation for the future



SECTION 1

Introduction to the ERB

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.

BPU and EDA have partnered to commit \$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”



SECTION 2

Financing Support for Resilience

The ERB currently has two sources of funding at its disposal, each with its own conditions

Source	Allocated amount	Status
<div style="background-color: #0099cc; color: white; padding: 10px; text-align: center;"> HUD </div>	<ul style="list-style-type: none"> ▪ \$200M to be spent by 2017 	<ul style="list-style-type: none"> ▪ Limited to public, non-profits, and small businesses that satisfy the SBA definition ▪ Requires that 60% of funds be used for LMI, & ~80% for most impacted communities ▪ Awaiting decision on SBA waiver, submitted Fall 2014, which would allow HUD funds to be used for large private facilities and developers
<div style="background-color: #0099cc; color: white; padding: 10px; text-align: center;"> Other Public & Private Sources </div>	<ul style="list-style-type: none"> ▪ Currently applicable for public, non-profit, and small businesses that satisfy SBA definition ▪ SBC funding may be available on a case-by-case basis ▪ Possible EDA bonds ▪ Private Banks 	<ul style="list-style-type: none"> ▪ Currently applicable for public, non-profit, and small businesses that satisfy SBA definition ▪ SBC funding may be available on a case-by-case basis ▪ Possible EDA bonds ▪ Private Banks

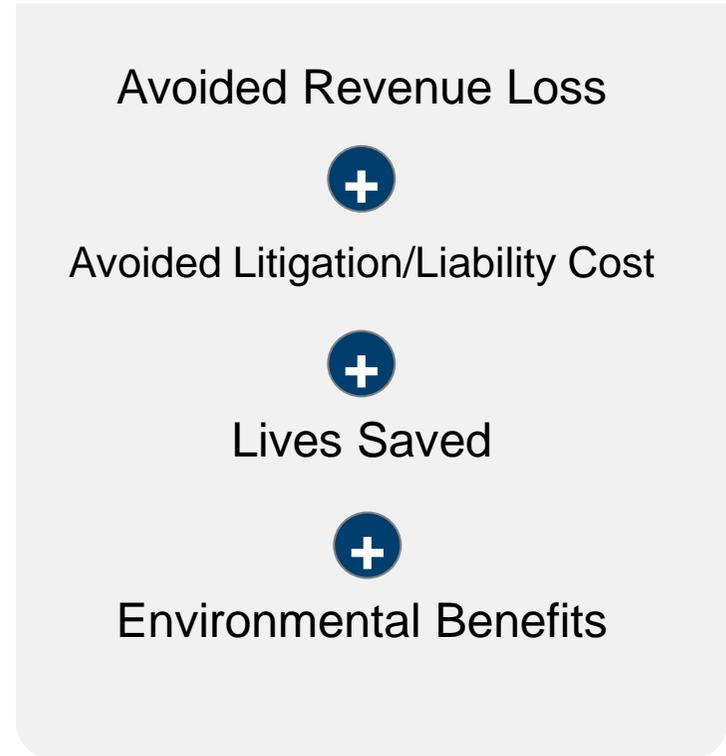
Product terms will consider resilience benefits in addition to economic benefits

Economically Positive Investment



+

Resilience Benefits



=

Economically healthy and resilient healthcare facility with functionality during a storm or disaster

Energy savings and the CEP grant can make non-resilient CHP systems financially viable

Non-resilient CHP economics

	1	2	3	4
Area, sq. ft	663,953	553,970	651,370	3,400,000
Generator size¹, Kw	2,050	2,350	3,600	8,375
Generator capex, \$	6,583,668	8,358,623	10,512,061	21,203,173
Annual Net energy savings², \$	~900k	~800k	~1.6M	~3.1M
Baseline NPV³, \$	525,611	(761,954)	2,846,524	(1,723,681)
ERB baseline NPV⁴, \$	1,514,967	372,185	3,355,161	908,751

1 Sized to average electric load

2 Includes electricity savings and increase in natural gas purchases

3 No islanding cost included; 100% funded by market debt at 5% interest rate with 15 year term

4 30% CHP grant included; 100% funded by market debt at 5% interest rate with 15 year term



SOURCE: Team Analysis; CEEP, DOE, CEP

The ERB will support water and wastewater treatment plants with comprehensive financing for resilience projects

Overview of Proposed Total ERB Funding for New Builds

Program size

- **\$65M**, which would cover 10 projects, with an average project size of ~\$6.5M

Eligible facilities

- **Water and Waste Water Treatment Plants**

100% unmet funding

Incentive:

- **20% Grant:** Percentage of unmet funding need provided as a grant
- **20% Loan Forgiveness:** Percentage of unmet funding need available as a loan that may be forgiven based on performance-based standards. Loan forgiveness spread over 5 years

Loan:

- **60% Loan**

Terms

- **Interest rate:** 2% IG, 3% non-IG
- **Collateral:** Unsecured
- **Term:** Up to 20 years, based on useful life of assets
- **Principal Moratorium:** Up to 2 years' principal moratorium

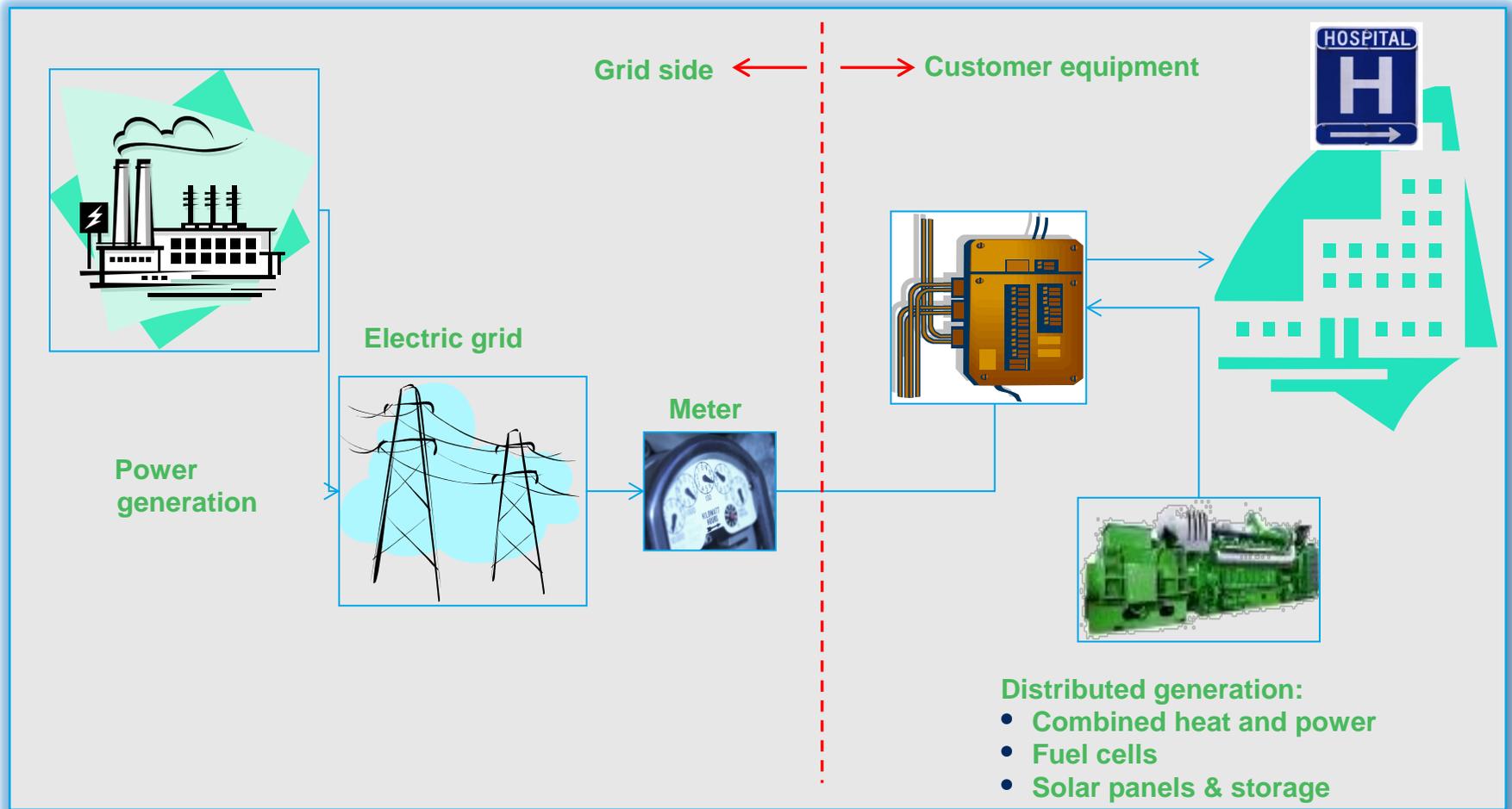


SECTION 3

Potential Resilience Solutions

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

ILLUSTRATIVE



The ERB will Fund Resilient Energy Systems for Critical Facilities

RESILIENT TECHNOLOGY IS...

...distributed generation or other technologies...

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



CHP plants can use a reciprocating natural gas engines



Gas Turbine CHP Plant



Inverter system



Black Start Controls



Fuel Cells

RESILIENT TECHNOLOGY IS NOT...

...emergency backup generators



Generator

The ERB can Cover a Range of Costs for New Systems

ELIGIBLE COSTS

New Resilient Systems

- Core equipment
- Piping & wiring
- Islanding equipment
- 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

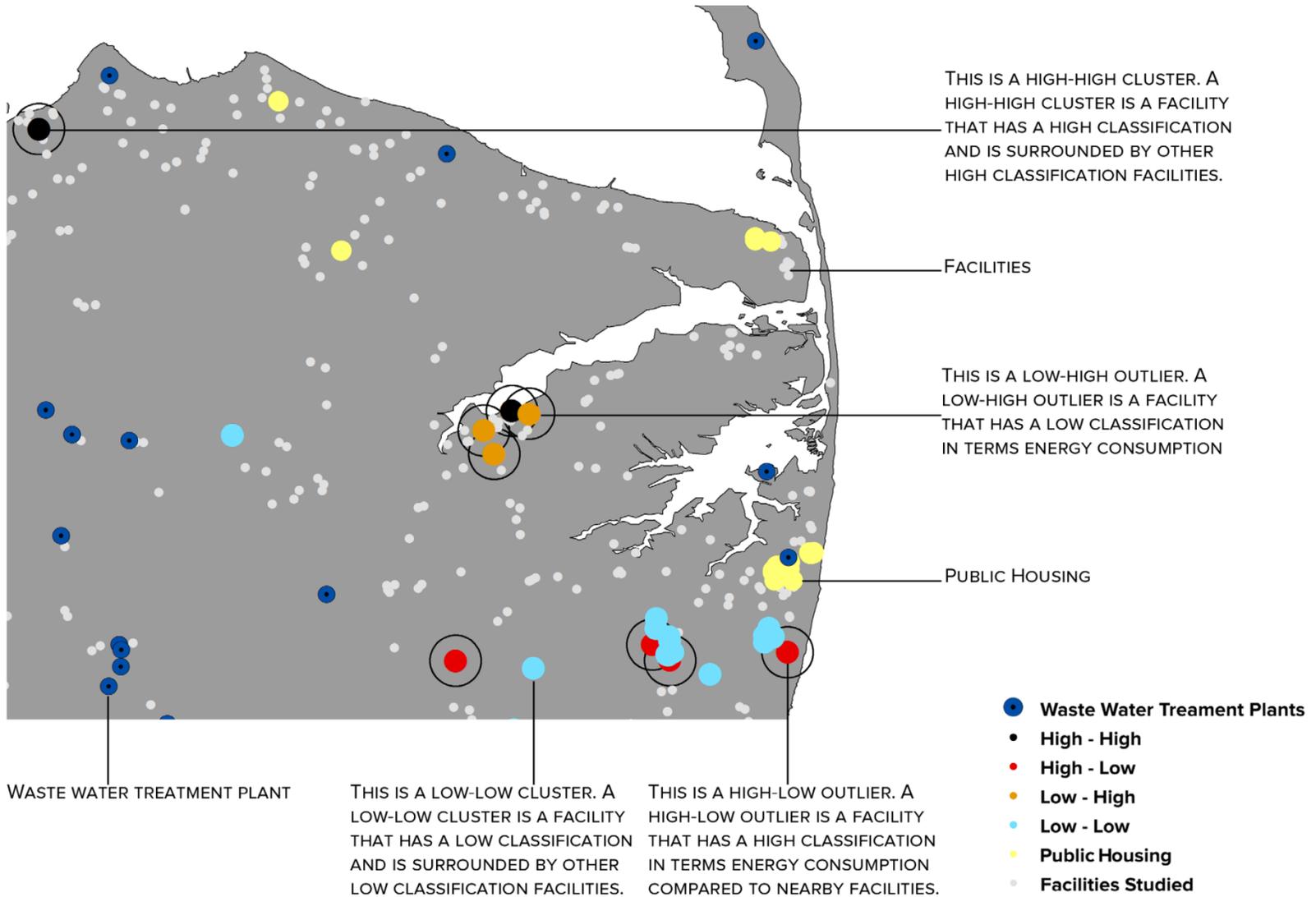
- Used, refurbished equipment
- Solar PV panels



SECTION 4

Some Initiatives

Identifying Microgrid Sites



Possible Microgrid Projects

- TransitGrid
- Hoboken
- TownCenters



SECTION 5

Eligibility

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**



Eligible Disasters

- **To be eligible for funding under the Energy Resilience Bank, according to the Robert T. Stafford Disaster Relief and Emergency Assistance Act (P.L. 93-288), as amended by the Disaster Relief Act of 1974 (P.L. 93-288), projects must:**
 - Demonstrate a tie Superstorm Sandy, or;
 - Have incurred physical damage from one of the six additional nationally-declared disasters dating from December 2010.



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



Scoring 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



SECTION 6

Questions and Next Steps

How the ERB Team can Help You

- Provide technical support on feasibility and possible options
- Assist with financial analysis
- Connect you to other sources of funding
- Support you in enhancing the community and improving energy resilience
- Help you communicate with your stakeholders to explain the benefits of energy resilience
- Provide you with a single point of contact at ERB

Any questions or concerns?

ERB Contacts



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