

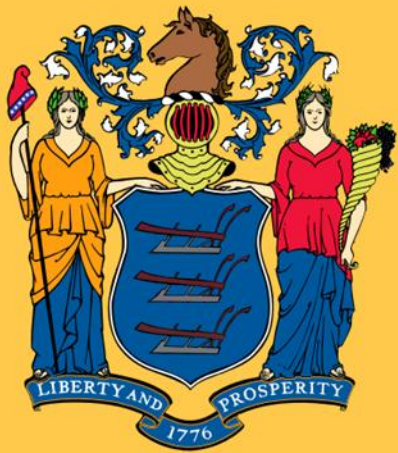
HMGP Energy Allocation Outreach Meetings

Partnership between
state/federal/local
governments

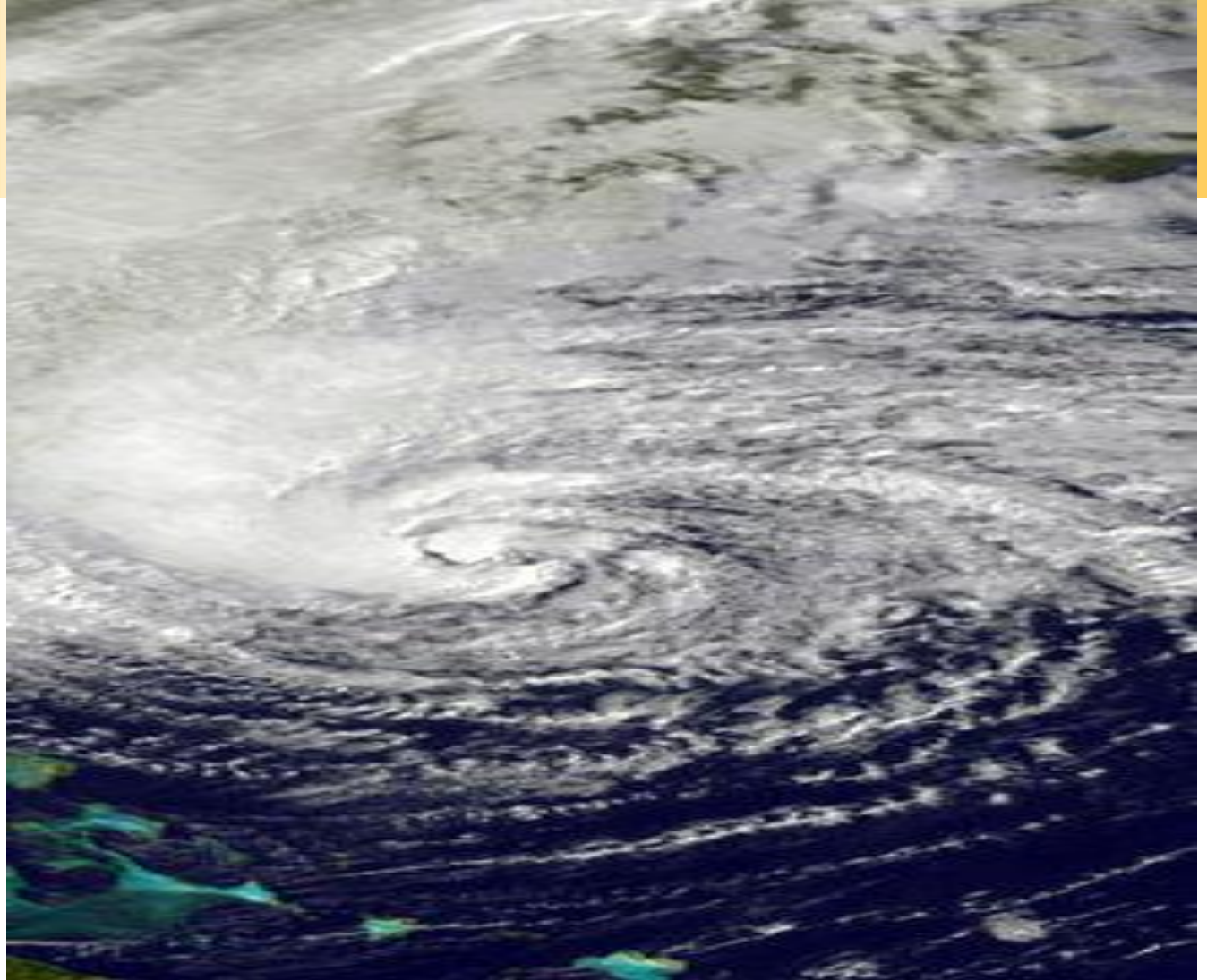
Michael Winka – NJBPU

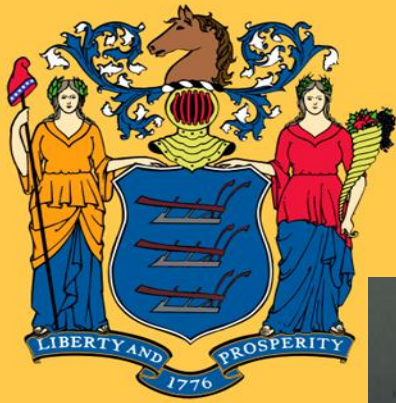
October 29- 31, 2013



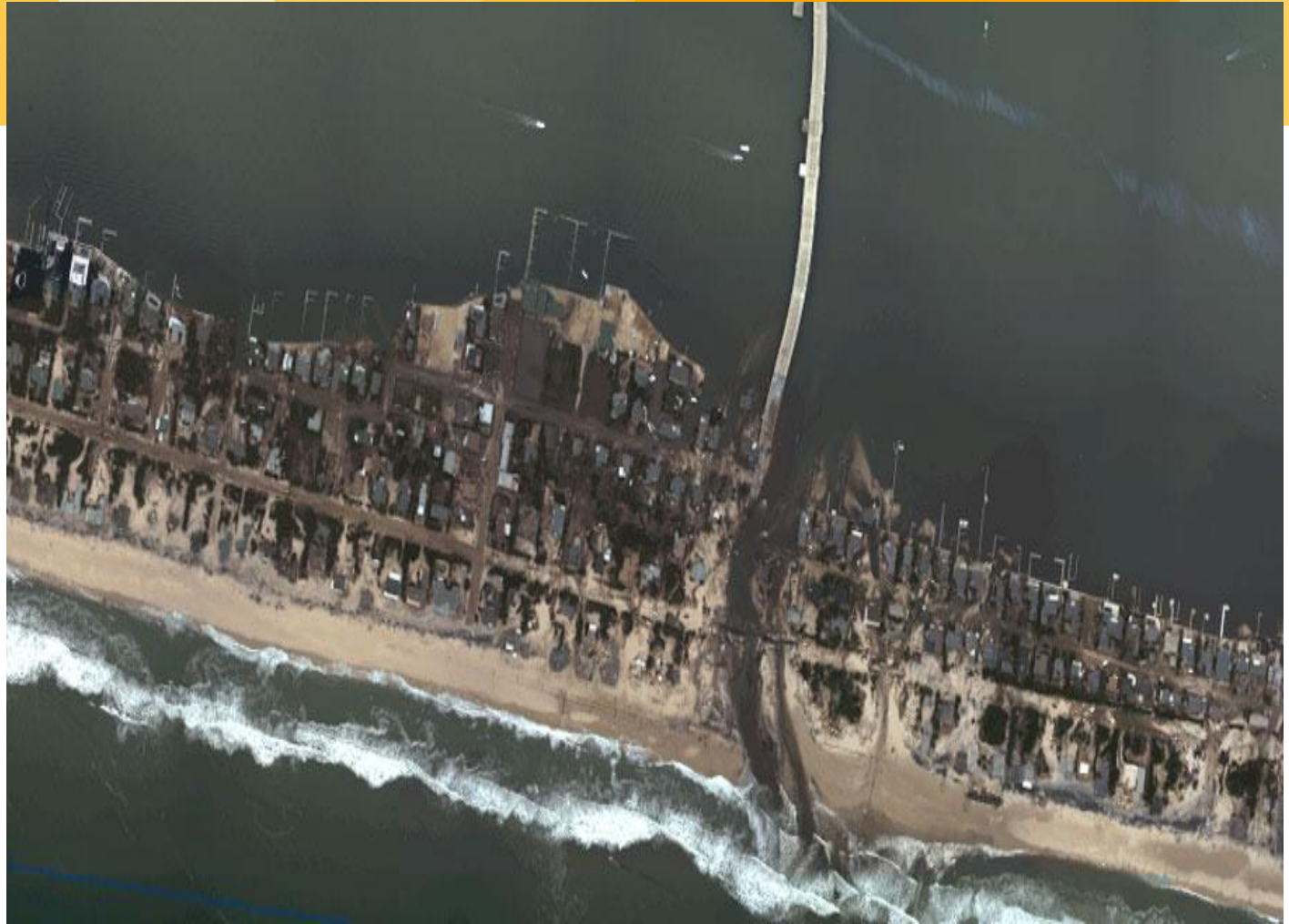


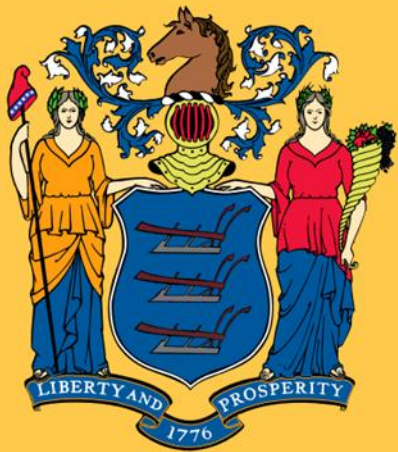
Super Storm Sandy October 29, 2012





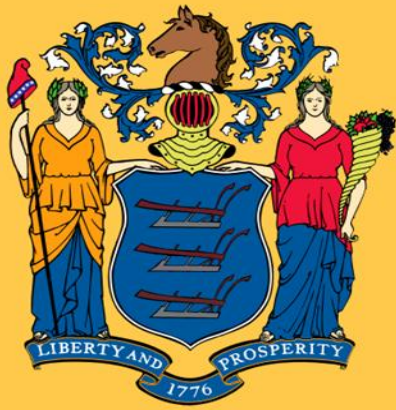
Breach at Rte 35 Mantoloking





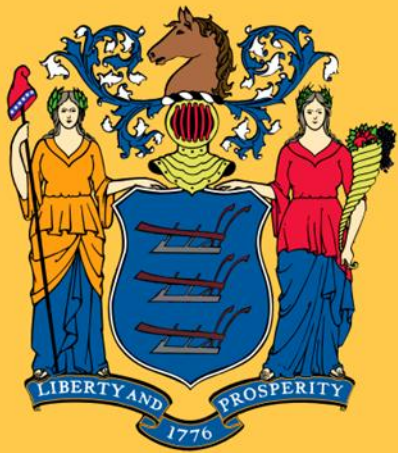
Houses destroyed in Tuckerton Beach





Poles down across the state – Grid down

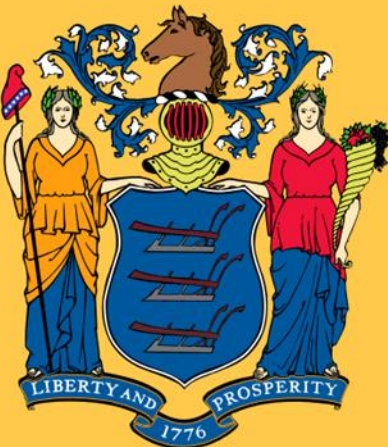


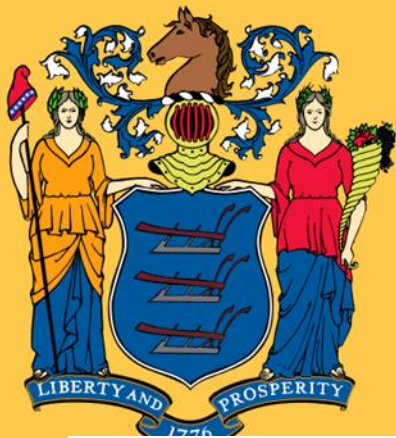


Impacted Liquid fuels



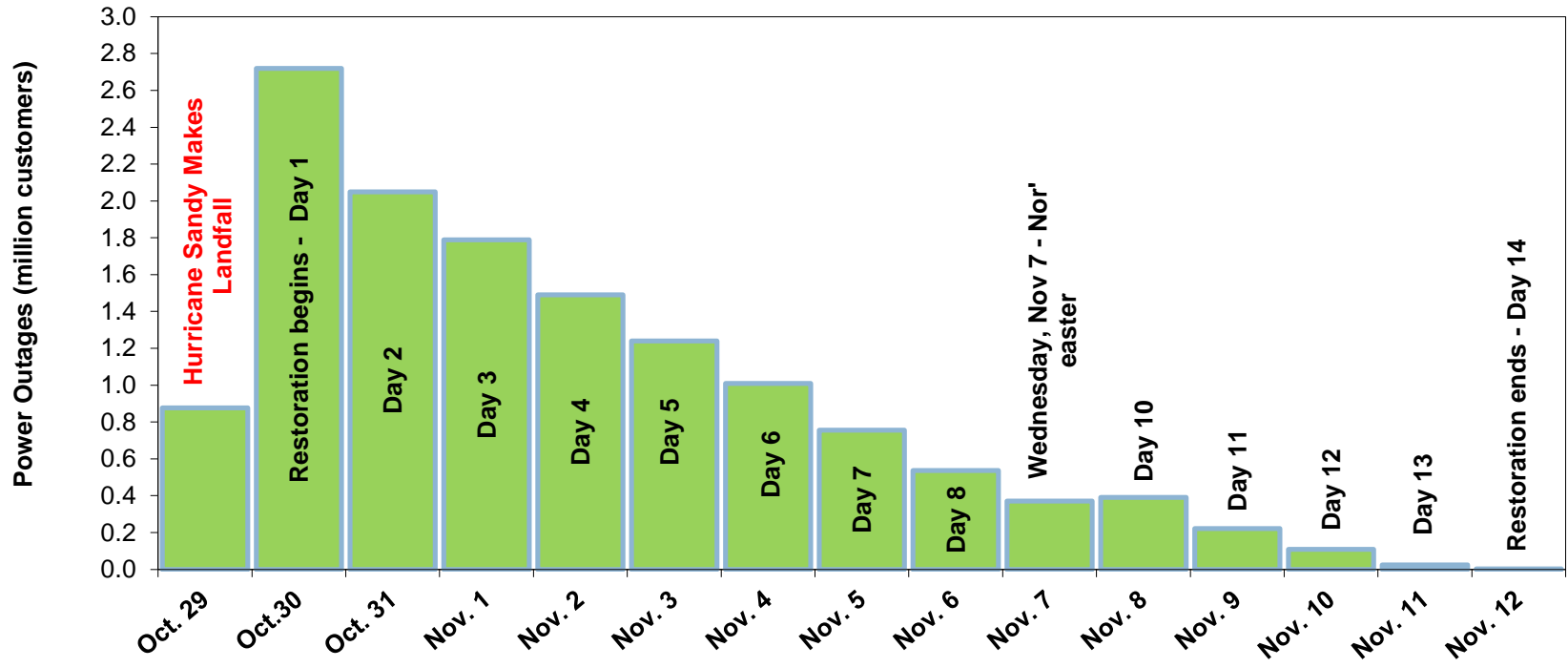
Critical Infrastructure Flooded and without power

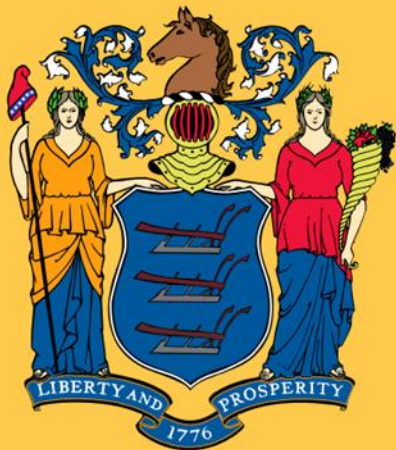




Super Storm Sandy Restoration

Sandy Electric Restoration Timeline





Resilient Energy System

There is a better way –
if we plan for local energy resiliency

There were locations in New Jersey that operated
During and after the storm when the grid was down

And not just with a diesel generator

HMGP Programs

- Elevations
- Buyouts
- Planning
- Mitigation Projects
- Liquid Fuels
- Energy Allocation Initiative

Letters of Intent (“LOIs”) Received by the State

Counties, municipalities, regional districts, and other eligible entities expressed significant interest in energy resilience / back-up energy technology through the HMGP LOI process.

- Energy projects were the single most requested type of project from the HMGP.
- Common requests included generators for water and wastewater facilities, hospitals, universities and schools (sheltering facilities in the event of disaster), communications equipment to support police/fire.

Analysis of LOIs – NREL Review of Energy Technologies

State partnered with the U.S. Department of Energy, the National Renewable Energy Laboratory (NREL), and FEMA to review energy requests submitted to the HMGP.

- NREL conducted a comprehensive analysis of energy needs on a facility level.
 - A survey was disseminated to all energy-LOI Applicants, and had a significant (90+%) response rate.
 - LOIs were GIS mapped and overlaid against existing energy resources (e.g., solar panels).
 - Efficiency audits and other information already maintained by BPU was reviewed.
- Based on data reviewed, NREL identified specific **resilient and cost-effective** energy solutions for LOI Applicants.
 - Recommendations include: pursuing engineering studies for fuel cells and CHP; purchasing dynamic inverters and storage for existing solar panels; installing natural gas or tri-fuel generators where appropriate.

Analysis of LOIs – Cross-Agency Evaluation of Local Requests

A cross-agency State evaluation team was convened to develop **objective metrics** to use limited HMGP funds to support energy projects.

- Cross-agency evaluation team chaired by OHSP and including representatives of OEM, BPU, and DEP.
 - Team evaluated projects using data supplied by NREL, BPU, OHSP, DEP, and other State agencies.
- Projects were individually scored based on **overall characteristics of the Applicant** and **project-specific factors**.

Objective Criteria

Overall Characteristics of the Applicant	Project-Specific Factors
<p>Population Size – indication of <i>RISK</i> and <i>NEED</i>; points awarded based on size of population (awarded in increments of 0, 5, 10, and 20 points).</p>	<p>Facility Tier Categorization – proposed projects awarded points based on its critical infrastructure sector.</p> <ul style="list-style-type: none"> •Tier 1 – Life Safety – e.g., police departments, hospitals, water and wastewater facilities, and shelters (20 points) •Tier 2 – Lifeline – e.g., communications equipment, transportation (10 points) •Tier 3 – All Other – e.g., city halls and senior centers not capable of sheltering (0 points)
<p>Population Density – indication of <i>RISK</i> and <i>NEED</i>; points awarded based on density per square mile (awarded in increments of 0, 5, 10, and 20 points).</p>	<p>OHSP State Asset Database – proposed project in building or facility that meets pre-established State and/or national asset criteria. (20 points)</p>
<p>[WATER AND WASTEWATER FACILITIES] Size of Population Served – indication of <i>RISK</i> and <i>NEED</i>; points awarded in lieu of population size (awarded in increments of 0, 5, 10, and 20 points).</p>	
<p>[WATER AND WASTEWATER FACILITIES] Total Daily Flow (millions of gallons per day) – indication of <i>RISK</i> and <i>NEED</i>; points awarded in lieu of population density (awarded in increments of 0, 5, 10, and 20 points).</p>	
<p>FEMA Public Assistance History – indication of <i>RISK</i>; points awarded based on 15-year review of documented past impacts (awarded in increments of 0, 10, 20, and 40 points).</p>	
<p>National Flood Insurance Program (NFIP) Participation – indication of <i>RISK</i>; points awarded for NFIP participation (20 points).</p>	
<p>BPU Energy Audits – indication of <i>EFFICIENCY</i> and <i>FORETHOUGHT</i>; points awarded based on community's / entity's participation in BPU's Energy Audit program (20 points).</p>	

Approach Based on Objective Criteria

\$25 million in HMGP funding **allocated** to Applicants based on the jurisdiction's total point score.

- Applicants that scored the highest received funding.
 - Applicants that scored in the top category include:
 - regional districts, school boards, water and wastewater utility authorities;
 - county governments;
 - municipal governments; and
 - State entities.

Permissible Uses for the Energy Allocation

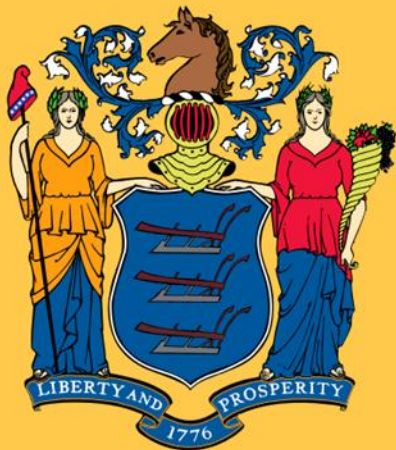
Jurisdictions/entities can use their “energy allocations” to fund a range of energy projects that are **permissible** under HMGP/FEMA regulations.

- Decisions to spend energy allocations will be **community driven** based on the jurisdiction’s or entity’s energy resilience priorities, **informed** by NREL’s recommendations/analysis.
- Potential permissible uses include:
 - Fund (or partially fund) project requested in LOI, e.g., purchase diesel generator.
 - - - OR - - -
 - Engineering studies to support fuel cells, CHP, and other distributive generation technologies.
 - *Jurisdictions/entities that pursue engineering studies could be eligible for incentives / opportunities to access other available funding sources.*
 - Dynamic inverters and storage for existing solar panels.
 - Retrofitting existing distributive generation (fuel cells, CHP) to provide increased capacity to support other critical infrastructure.
 - More sophisticated fixed or mobile generators, e.g., natural gas, tri-fuel, and solar.
 - Other energy or technology that makes sense for specific facilities/communities.

Outreach to Support Jurisdictions/Entities in Using Their Energy Allocations

NREL, BPU, DEP, and OEM have partnered to provide support and education (technical and process-related) to communities and entities on how best to maximize/utilize energy allocations.

- Outreach/education sessions will be held in North, South, and Central New Jersey on October 28, 30, and 31.
- NREL/BPU will provide technical (in-person and remote) support on a local/facility level and help answer questions regarding technology choices.
- OEM will manage grant distribution process.



Resilient Energy System

A Permissible Use is a Emergency Generator
But in certain cases

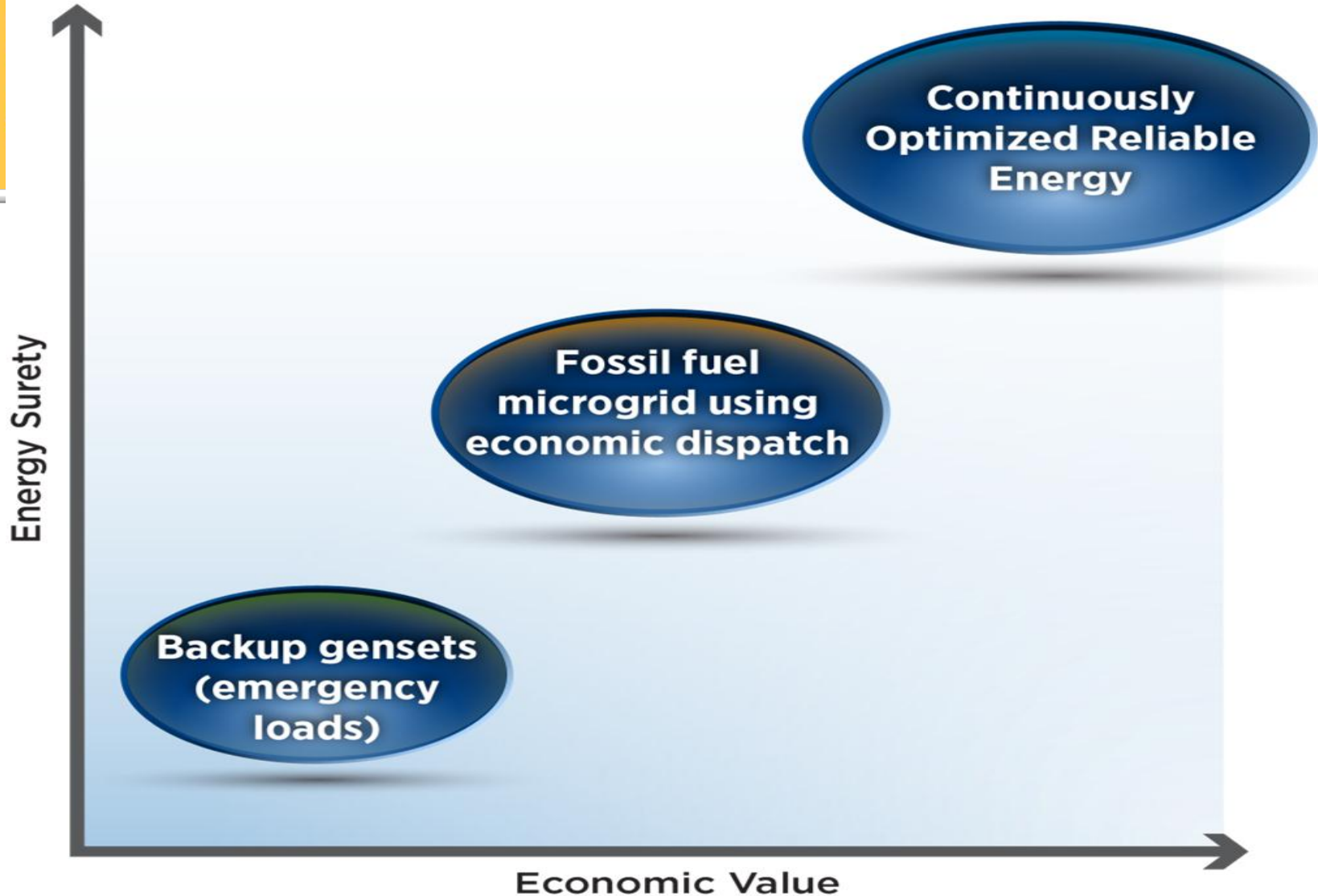
Clean Distributed Generation that can
operate 24/7 and Islanded from the grid
when there is an emergency – a Microgrid

May be the Better Approach



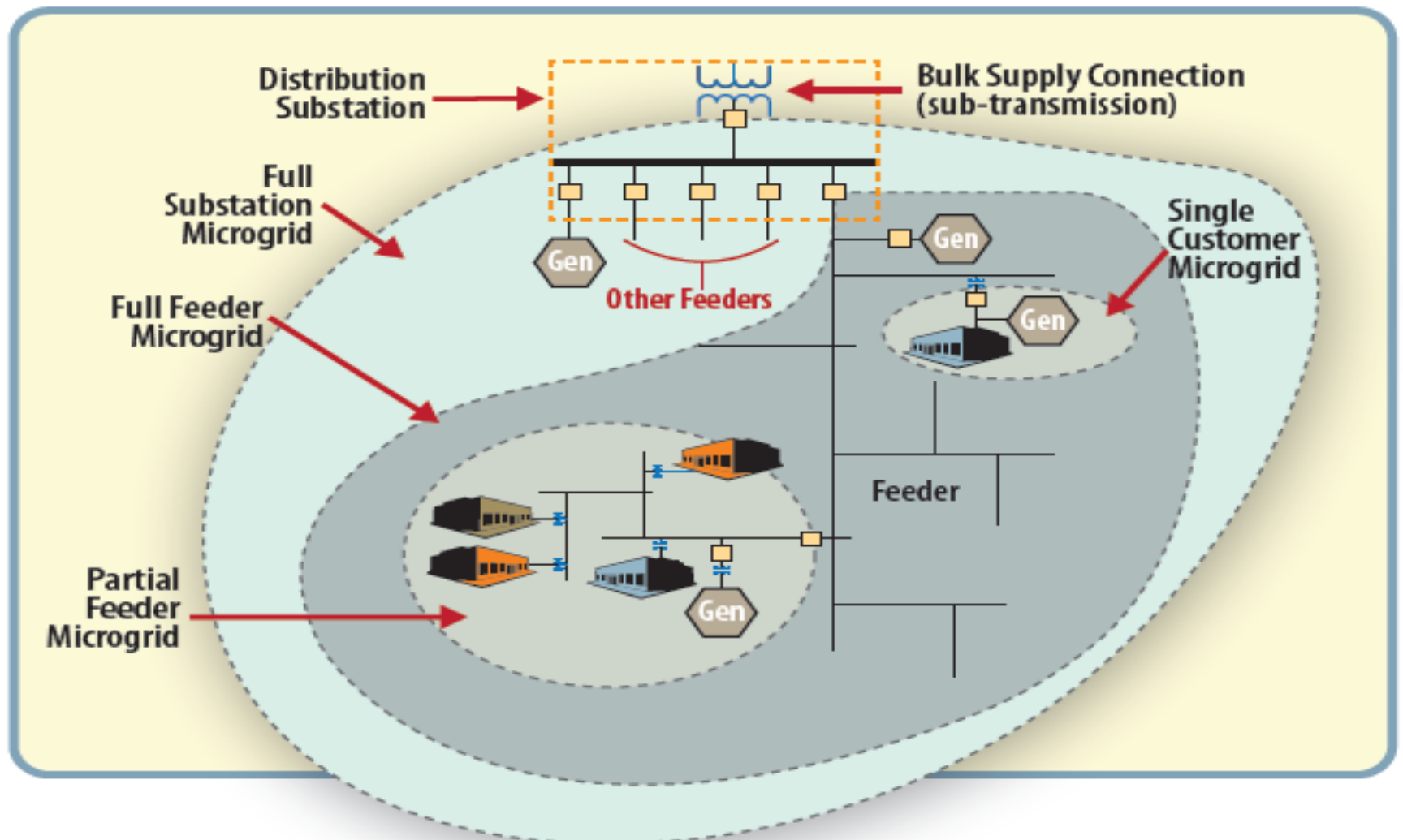
Resilient Energy System

Microgrid Approach Chart



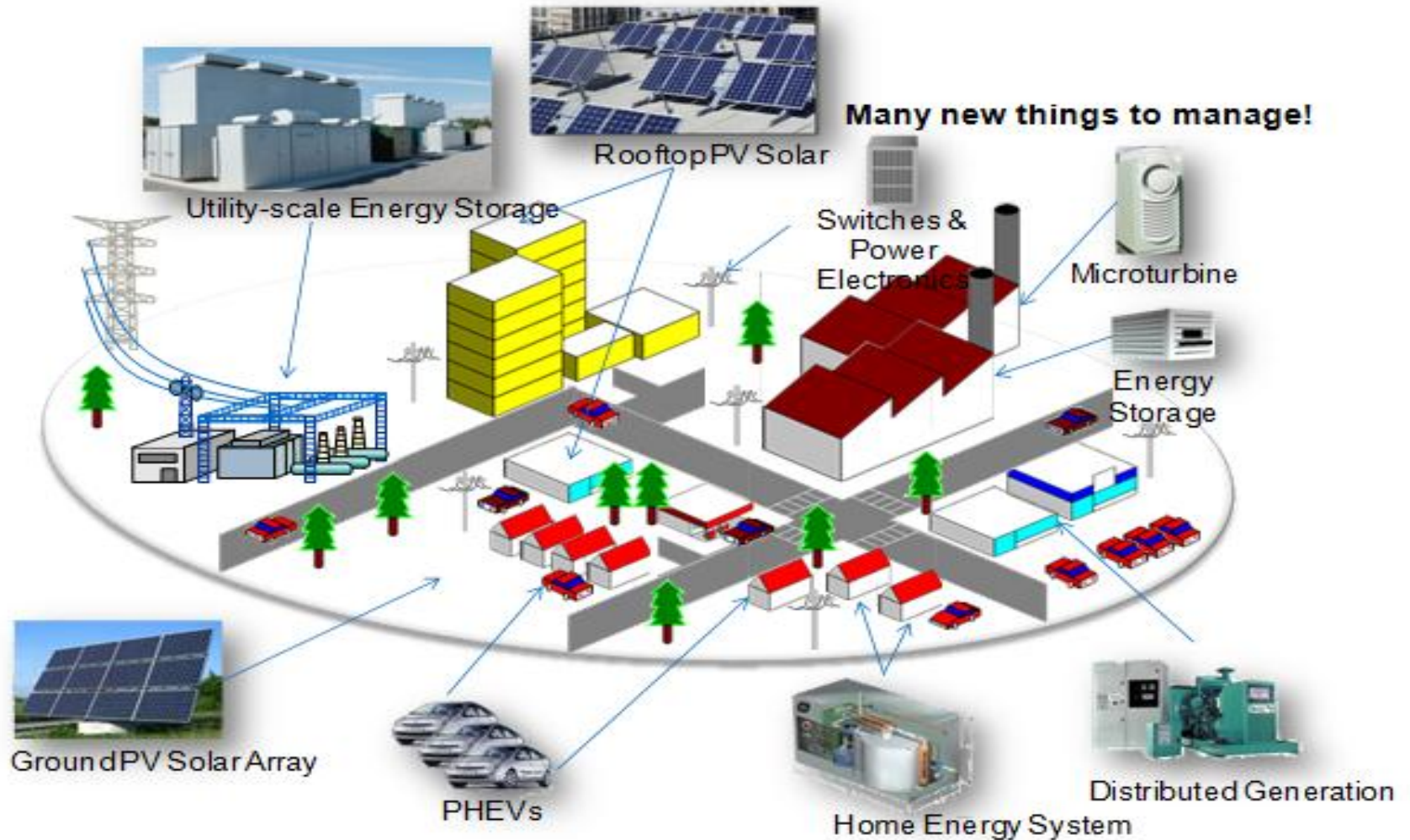


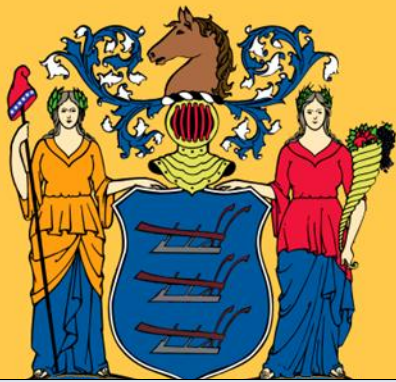
Resilient Energy Systems – Distributive Generation





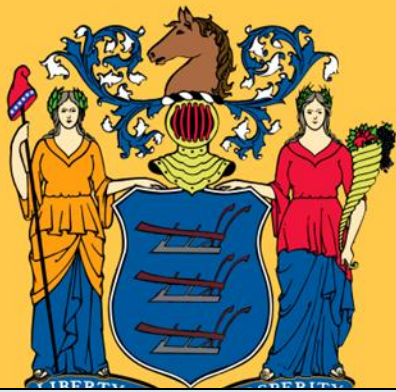
Resilient Energy Systems – Distributive Generation





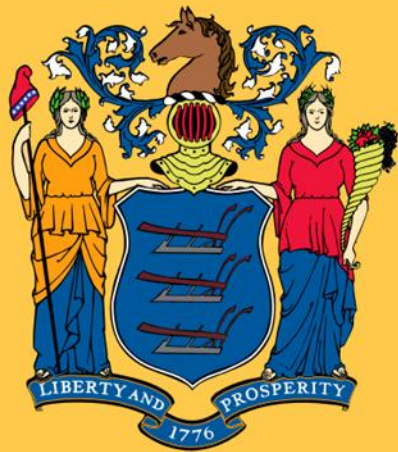
Super Storm Sandy October 29, 2012

Applicant	City	Equipment Type	kW installed	Capable of Operating Off the Grid	Operated during Hurricane Sandy
Ortho-Clinical Diagnostics, Inc.	Raritan	Gas Turbine	1500		
Raritan Valley Community College	Somerville	Gas Turbine	1250		
Browertown Associates Inc., TIA Prospect Heights	Hackensack	Microturbines (2 units)	140	No	No
Regent Care Center, Inc.	Hackensack	Microturbines (2 units)	140	No	No
Rowan University	Glassboro	Gas Turbine (one 3500kW; one 1200 kW)	4700		
KPMG LLP	Montvale	Microturbines (14 Capstone units)	840	Yes	No
E.R. Squibb and Sons/Bristol-Myers Squibb	New Brunswick	Gas Turbine	2000	Yes	Yes
Johnson Matthey	West Deptford	Fuel Cell (1 UTC)	200	Yes	No
Christian Health Care Center	Wyckoff	Microturbines (4 Capstone/UTC units)	230	Yes	Yes
Princeton University	Princeton	Back Pressure Steam Turbine (2 Carrier units)	550	Yes	Yes
Salem Community College	Carney's Point	Microturbines (3 Capstone)	130	Yes	Yes
Ortho McNeil Pharmaceuticals	Raritan	Gas Engine	3000	Yes	
Infineum USA LP	Linden	Back Pressure Steam Turbine (1 Carrier units)	275	Yes	Yes
Jersey Shore University Medical	Neptune	Gas Engine (2 Cat units)	1900	Yes	Yes

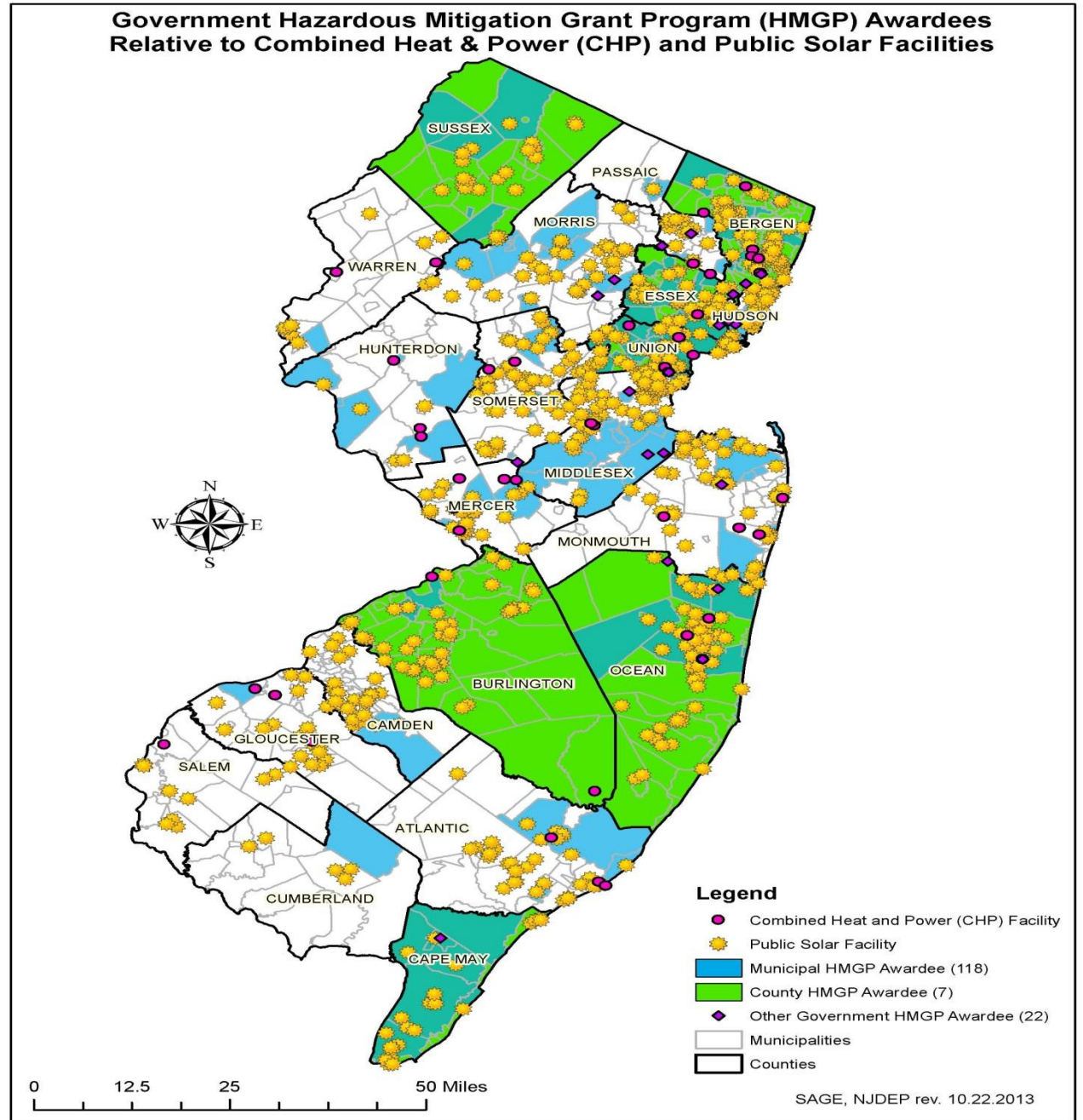


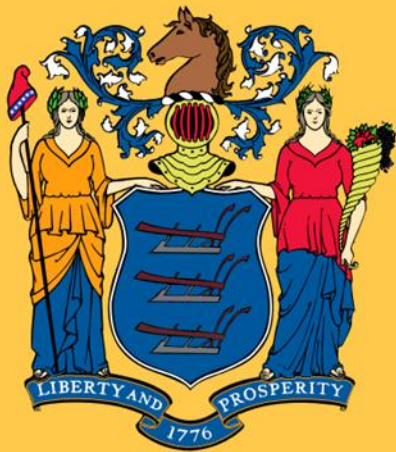
Super Storm Sandy October 29, 2012

Customer	Industry	System Size (kW)	System Type	Cooling
Overlook Hospital	Hospital	4000	Gas Engine	Absorption Chiller
FDR Services Corp of NJ	Industrial	200	Gas Engine	None
Ocean County College	College/Univeristy	1100	Gas Engine	Absorption Chiller
St. Peter's College	College/Univeristy	360	Gas Engine	Absorption Chiller
Embassy Suites	Hospitality	300	Gas Engine	Absorption Chiller
NHA NJ2-21F Seth Boyden Elderly	Multifamily	75	Gas Engine	None
NHA NJ2-21A Otto Kretchmer Elderly	Multifamily	150	Gas Engine	None
NHA NJ2-21E Seth Boyden Elderly	Multifamily	150	Gas Engine	None
Prestige Hospitality	Industrial	300	Gas Engine	None
Viking Yacht	Manufacturing	390	Microturbine	Absorption Chiller
Donio	Food Service/Warehouse	190	Gas Turbine	Absorption Chiller
Bayonne Medical Center	Hospital	1000	Microturbine	None
AtlantiCare Medical Center	Hospital	1100	Gas Engine	None
Rider University	College/Univeristy	1100	Gas Engine	Absorption Chiller
Village Inn LLC	Hospitality	10	Gas Engine	None
Owens Corning	Manufacturing	500	Fuel Cell	None
Wayne YMCA	Non-profit	150	Gas Engine	None
Fellowship Village	Multifamily	225	Gas Engine	Absorption Chiller
A Hunts Mill Associates	Hospitality	130	Gas Turbine	Absorption Chiller
Kresson View Center	Nursing home	100	Gas Engine	None
Douglas Electric	Manufacturing	75	Gas Engine	Absorption Chiller
Masonic Charity	Multifamily/assisted	800	Gas Turbine	None
Steve and Cookies	Restaurant	20	Gas Engine	None
Pine Hill Overbrook HS	K-12 school	225	Gas Engine	None
Pine Hill Middle School	K-12 school	150	Gas Engine	None
Pine Hill John Glenn	K-12 school	75	Gas Engine	None
Pine Hill Albert Bean	K-12 school	75	Gas Engine	None
Rose Garden	Multifamily/assisted	75	Gas Engine	None
St. Peter's College Student Center	College/Univeristy	160	Gas Engine	None
Riviera Towers	Multifamily	400	Gas Engine	Absorption Chiller

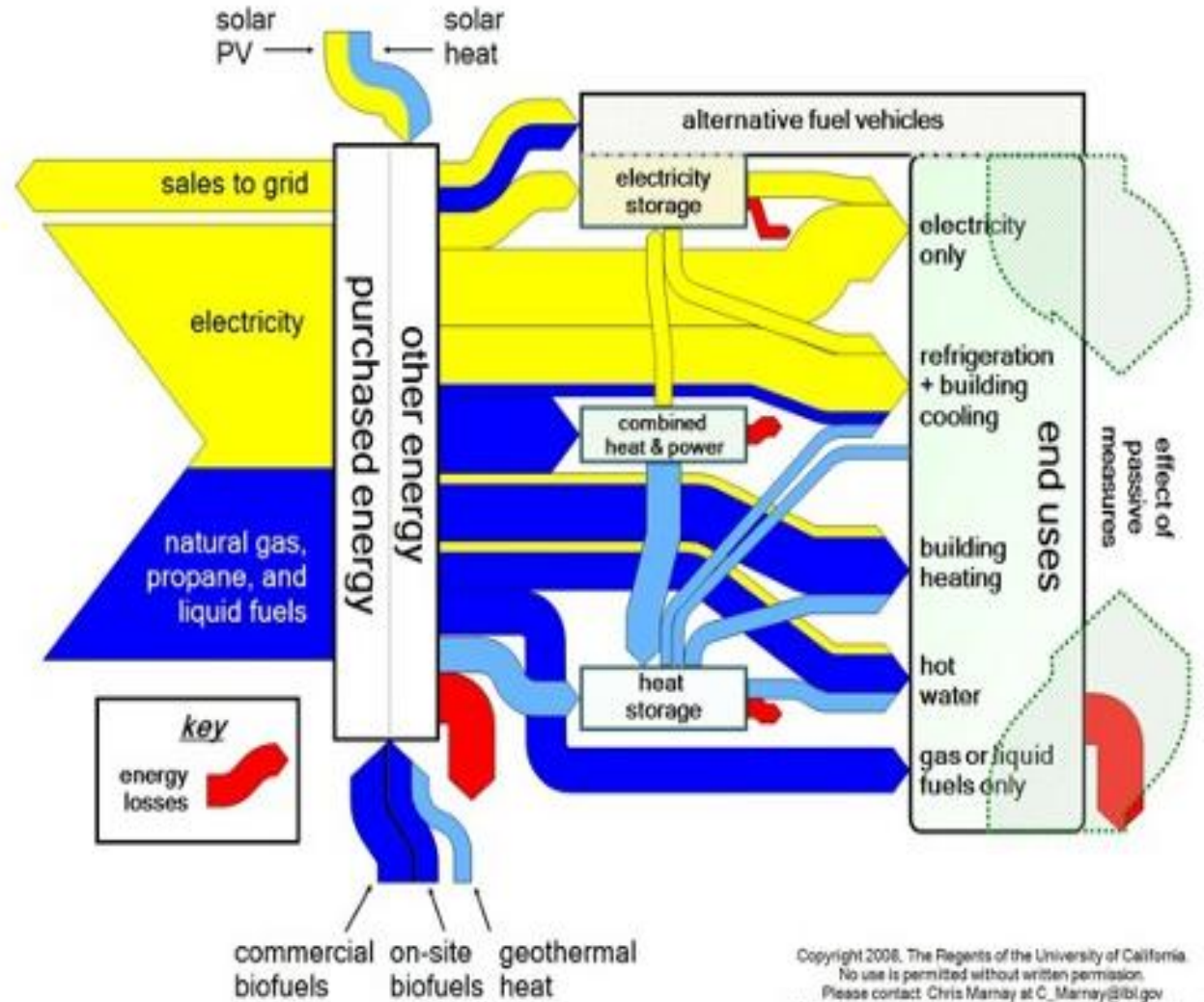


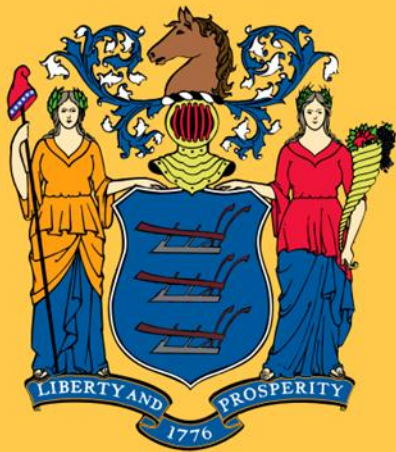
Government Hazardous Mitigation Grant Program (HMGP) Awardees Relative to Combined Heat & Power (CHP) and Public Solar Facilities





Super Storm Sandy October 29, 2012

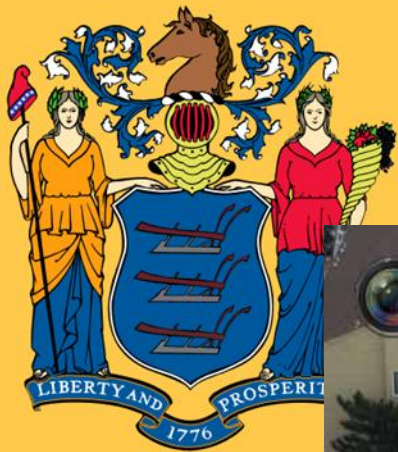




Resilient Energy System

We can help with

- Technical Assistance
- Initial Economic Modeling
- Incentives and Financing
- Permitting



Super Storm Sandy October 29, 2012

