



NYSERDA

NY Prize for Grid Resilience

Micah Kotch

**Director, NY Prize & Strategic Advisor, Innovation
NYSERDA**

Agenda

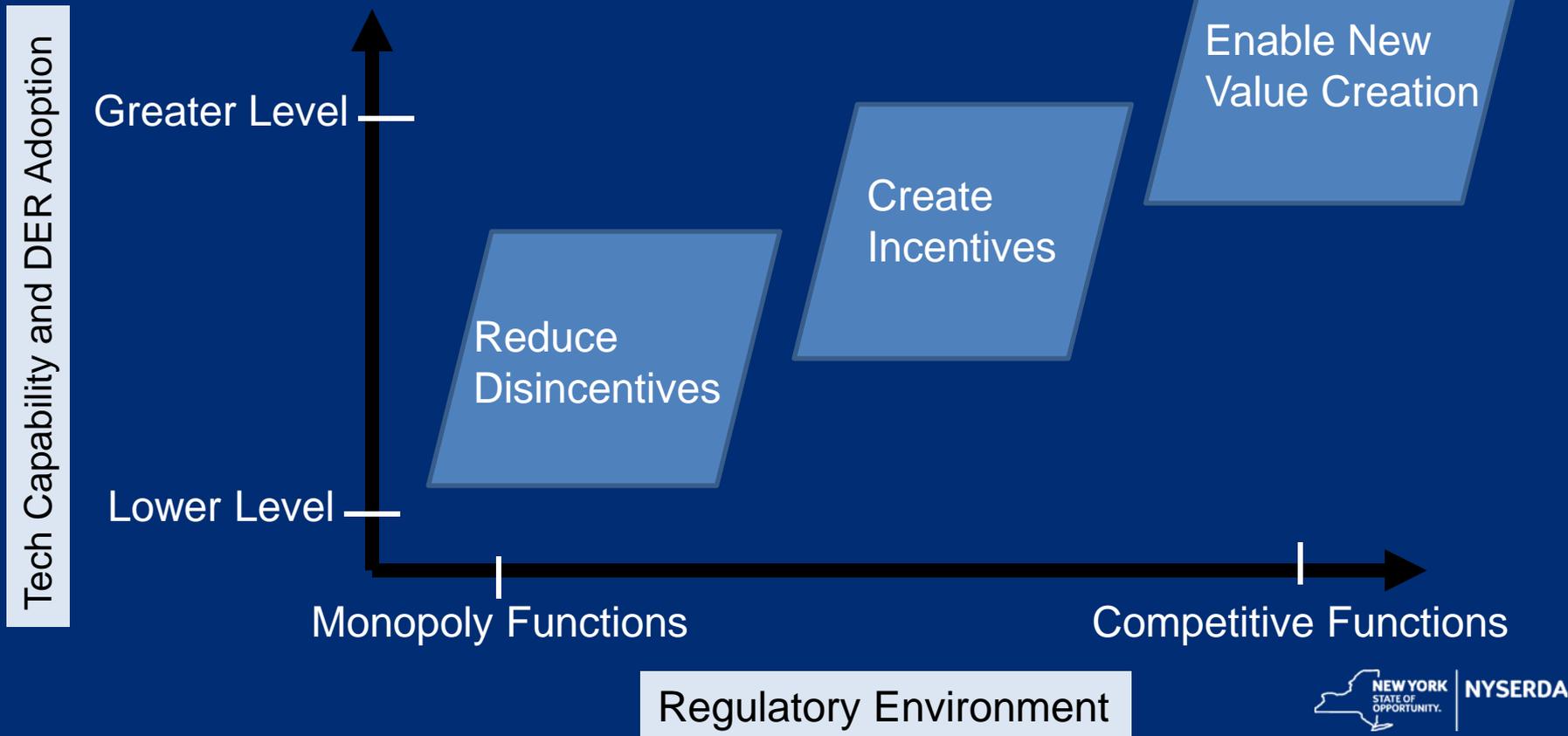
An aerial photograph of the New York City skyline at sunset. The sky is filled with orange and yellow clouds, and the sun is low on the horizon. The Empire State Building is prominent in the center-right. A semi-transparent white box is overlaid on the lower-left portion of the image, containing the agenda text.

- I. REV /NY Context**
- II. Community Anchors**
- III. Microgrid Benefits**
- IV. NY Prize Mechanics**
- V. Market animation**
- VI. Q & A**

Reforming the Energy Vision

New York's comprehensive strategy to enable self-sustaining clean energy markets supporting a cleaner, more reliable, and affordable energy system.

Landscape Evolution



Uber → The world's largest taxi company, owns no vehicles.

← **Facebook** The world's most popular media owner, creates no content.

Alibaba → The most valuable retailer, has no inventory.

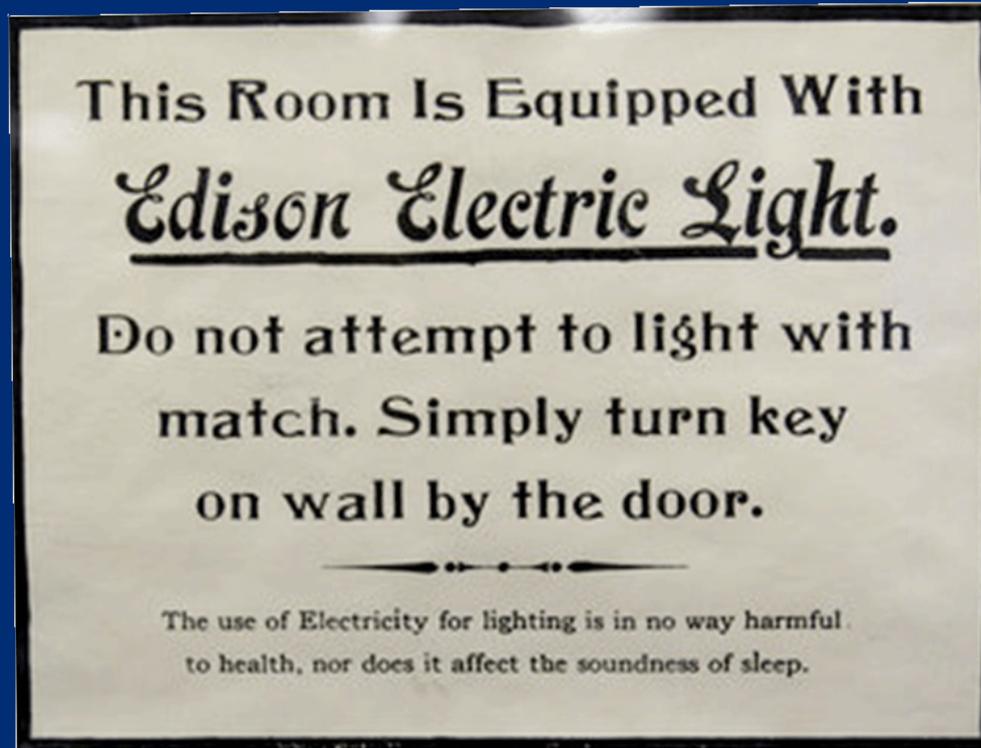
← **Airbnb** The world's largest accommodation provider, owns no real estate.

Something interesting is happening.
TOM GOODWIN

wetp@int
creative digital solutions

WetpaintMENA

New York is the birthplace of the modern electric grid



“We were all part of a majestic endeavor and we were making history happen.” – Tom Kelly



What's Different Now?



- Sense of urgency
- Extreme weather events
- Aging infrastructure
- Increased energy demand



Extreme Weather – The New Normal



Power outages cost New Yorkers \$9 billion/year

New Yorkers pay the highest average residential electric rates in the continental U.S., *2X the national average*

No Grid Resilience without Community Resilience



New Paltz Times
NEWS OF NEW PALTZ, HIGHLAND, GARDINER, ROSENDALE & BEYOND

Community | Schools | Government | Almanac | Sports | Opinion | U

DO SOMETHING **BIG** HOME EQUITY LENDING Rates as low as **1.99%*** APR

NEW PALTZ TOWN GOVERNMENT f t v s

New Paltz town, village agree to move forward on water/sewer infrastructure, Comprehensive Plan and microgrid proposal

by FRANCES MARION PLATT on Mar 5, 2015 - 5:00 pm No Comments



“At no time in recent memory have the leaders of the two municipalities demonstrated such willingness to set aside incompatibilities of personal style, roll up their sleeves and get to work on common challenges as they did at the joint board meeting held on February 26.”

- New Paltz Times

Communities – Utilities - Developers



Evolution of Resilience Investments

Energy
Efficiency

CHP

Solar /
Storage

Enhanced
Controls

Advanced
Microgrid

NYSERDA Microgrid Study Benefits

Economic

Direct

- Energy cost reductions
 - Reduced purchases of electric generation, transmission, and distribution services
 - Reduced purchases of fuel for on-site thermal energy demand
 - Reduced purchases of ancillary services
- Sales of excess electricity to macro-grid
- Participation in demand response programs
- Provision of ancillary services to macro-grid

Indirect

- Reduced electric T&D losses
- Deferred electric T&D capacity investments
- Utility option value for long-term planning purposes
- Enhanced electricity price elasticity
- Support for deployment of renewable generation

NYSERDA Microgrid Study Benefits

Environmental

- Reduced emissions of greenhouse gases
- Reduced emissions of criteria pollutants

Reliability & Power Quality

- Reduced power interruptions
- Enhanced power quality

Security & Safety

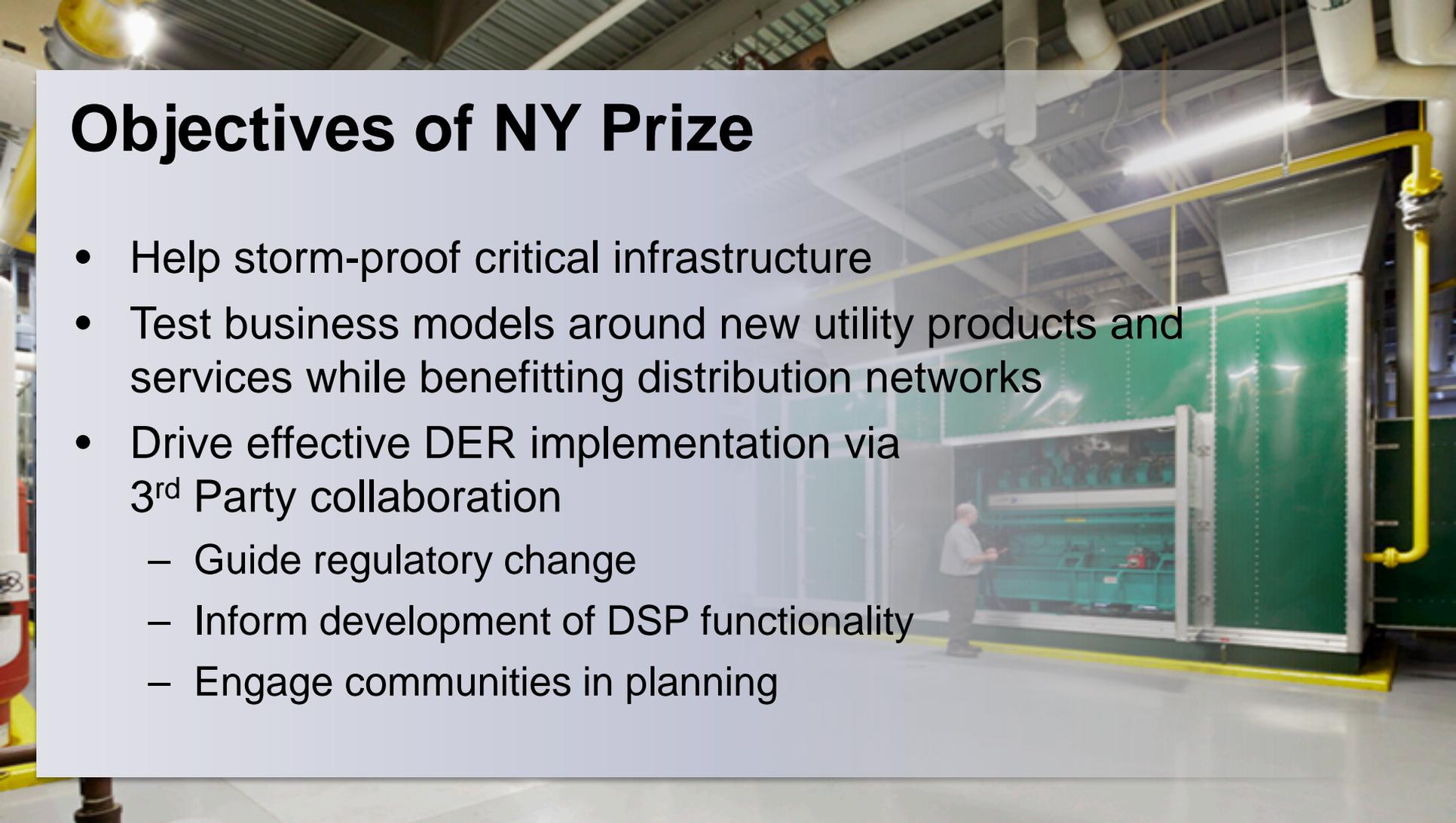
- Safe havens during power outages

NY Prize: A New Generation of Local Power

- Pipeline of ~25 feasibility studies
- 10 designs selected
- At least 5 projects constructed
- Replicable strategies (“playbook”) for communities in NY and beyond



Objectives of NY Prize

The background of the slide is a photograph of a utility control room. A person is standing in front of a large green control panel with many buttons and screens. The room has a high ceiling with industrial lighting and pipes. The overall scene is brightly lit and appears to be a modern utility facility.

- Help storm-proof critical infrastructure
- Test business models around new utility products and services while benefitting distribution networks
- Drive effective DER implementation via 3rd Party collaboration
 - Guide regulatory change
 - Inform development of DSP functionality
 - Engage communities in planning

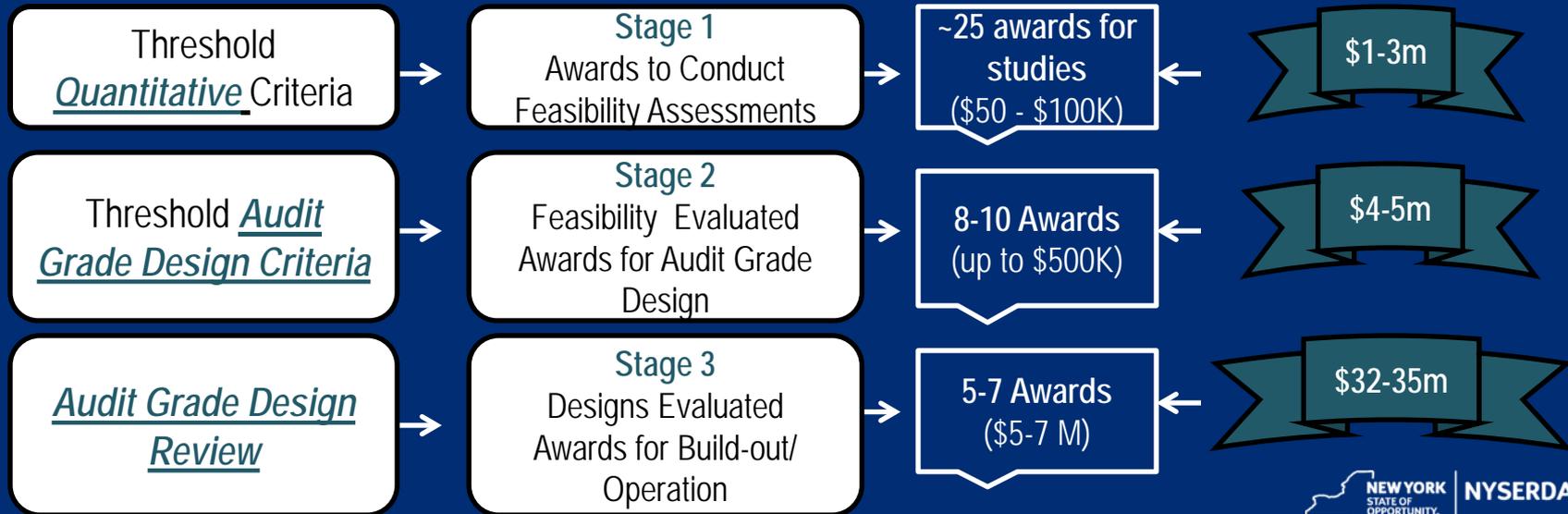
Award Process

All communities enter/apply to competition and are evaluated at each stage by external judges

Critical project partners:
Municipalities and Utilities

Allocations

Evaluation Panel(s)



Screening Process

Stage Zero

Project Concept/Definition

- Identify stakeholder needs
- Prepare statement of needs
- Preliminary business case
- Prepare outline project brief
- Appoint project team

Gateway 1:
Approval or denial
to proceed with
feasibility

Stage One

Feasibility

- Site constraints and opportunities
- Select and appoint consultants
- Develop project brief
- Preliminary project master program
- Options, appraisal and selection
- Funding investment and appraisal
- Project organization and control
- Procurement strategy
- Cost planning and management
- Prepare full business case

Gateway 2 – Approval or denial
to proceed with detailed
design

Stage Two

Detailed Design

- Prepare detailed consultant RFPs
- Select bidders list
- Bid projects
- Evaluate bids
- Approval to proceed
- Appoint consultants
- Detailed design
- Design team briefing
- Detailed proposals
- Final proposals
- Product information
- Variations to traditional forms of contract

GATEWAY 3 – Approval or denial to
proceed to build

Community Roadmap



Evaluation Criteria

- The overall cost and benefits of the project
- The project's contribution to public need (increasing safety and quality of life for residents in an outage situation)
- The technical and operational performance of the project
- The demonstrated reliability of the proposed microgrid configuration
- The use of clean and renewable generation resources in the project
- Overall financial and managerial capabilities of the developer

Opportunity Zones Across NYS

Pin your project at:
on.ny.gov/1FLhLF3

18 Resources for **PSEG Long Island - Port Jefferson, Suffolk County** Filter By: **All Resources** [Print](#)

Utility Company
Steve Cantore
 516-949-8295
steve.cantore@pseg.com

Regional Outreach Contractors
Beth Fiteni
 Community Development Corporation of Long Island
 631-471-1215 x166
efiteni@cdcli.org

Potential Microgrid Partners
Port Jefferson Fire Department
Firestation
 115 Maple Pl, Port Jefferson

Port Jefferson Hq Fs
Firestation
 115 Maple Pl, Port Jefferson

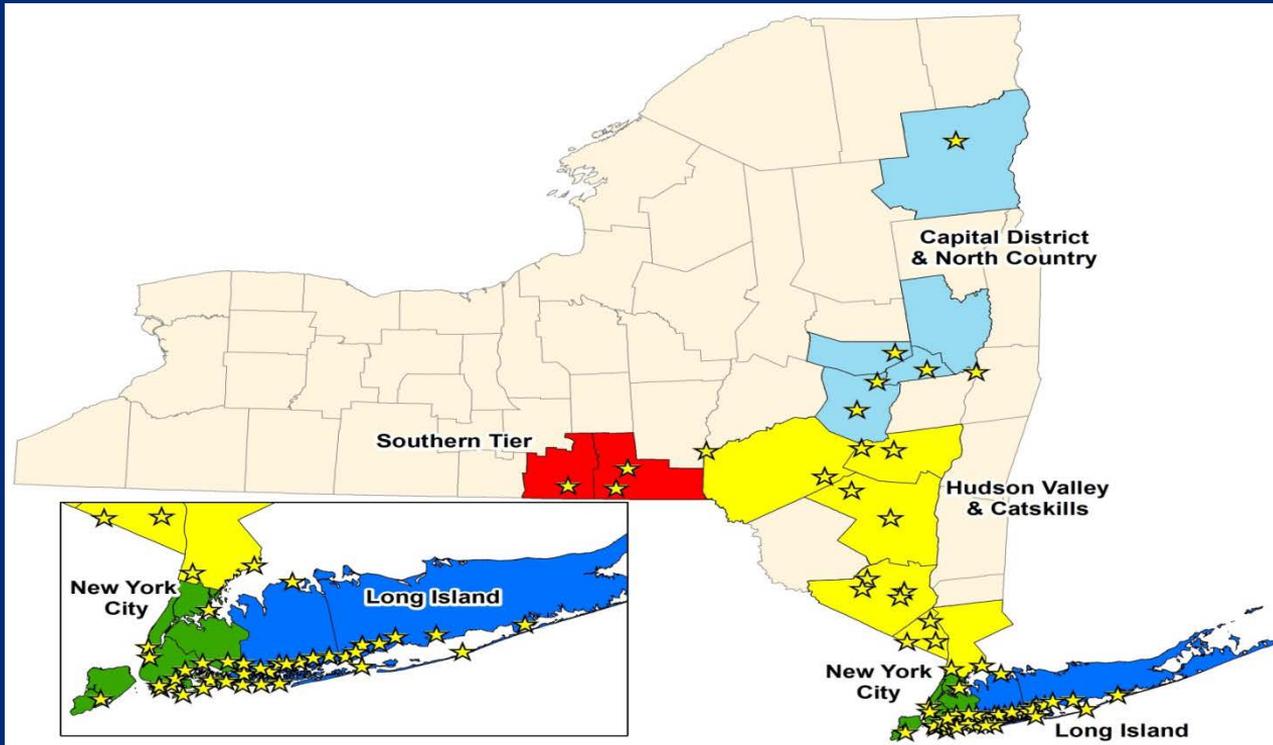
Portjefflibrary@Goodtimes
Library
 150 E Main St, Port Jefferson

Port Jefferson Free Library
Library
 100 Thompson St, Port Jefferson

Legend

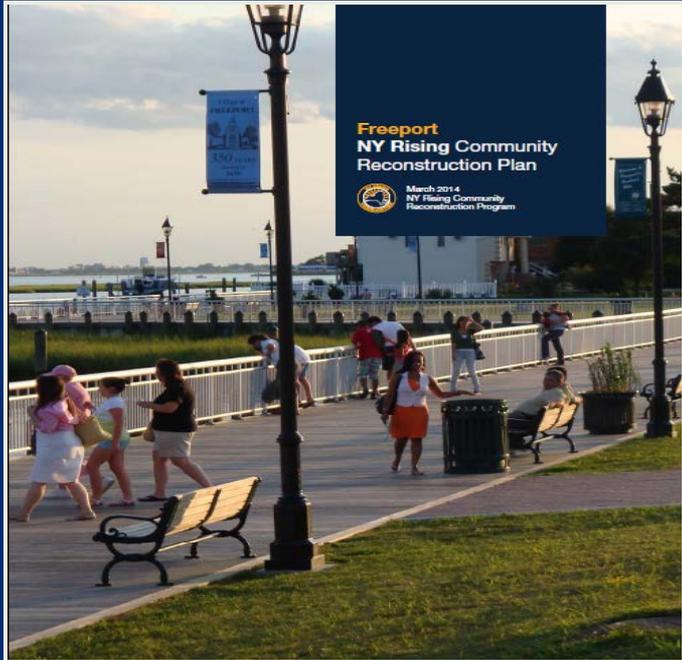
Fire Stations	Shelters
Libraries	Hospitals
Police Departments	Wastewater Treatment Plants

NY Rising Communities



Microgrid Projects in NYRCR Plans

Microgrid projects are prominent across New York State



Freeport NY Rising Community Reconstruction Plan

Proposed Project: Downtown Microgrid Feasibility Study, Phase 1: Financial and Engineering Feasibility Study



Freeport Electric, the Village of Freeport's power authority, owns and maintains power generation and distribution infrastructure throughout the village. As a village-owned utility, Freeport Electric is committed to providing reliable and affordable energy, and investigating innovative ways to sustain these core features of being and doing business in Freeport. After Superstorm Sandy, nearly 80% of Freeport Electric's customers had their power restored within three days. Because power was restored so quickly, many people from surrounding communities came to Freeport to use the library and other public facilities to charge mobile phones, make cash, and access the internet.

An emerging trend for small scale and contained energy distribution is the development of microgrids. A microgrid is a small scale version of the centralized electricity system that includes all the necessary components to operate in isolation of the centralized grid. Microgrids operate independently, allow for the import or export of electricity when connected to the wider electricity grid. This creates power continuity in critical areas when power outages and shocks disrupts across the water grid. Downtown Freeport has been identified by Freeport Electric as an ideal location for a microgrid demonstration project.

The proposed project will investigate the engineering and financial feasibility of installing the following power generation and transmission components of the microgrid:

- Replace an outdated diesel generator at Freeport Power Plant with a dual fuel (natural gas/gas generator) with "load-start" capability, which is the ability to create a generator after a steady-state without the use of external electrical power inputs. (See Microgrid Phase 2 project)
- Four new underground circuits around the border of the microgrid.
- Four new overhead lines that cross at Freeport's power water pump station.

Superstorm Sandy, heavy winds and flooding damaged Freeport Electric's power distribution network, resulting in outages lasting multiple critical facilities that lacked sufficient backup power sources were adversely affected. As a result, residents across centers experienced delays in obtaining the supporting supplies such as food, fuel, medications.

D-3 Cost: Freeport Hazard Mitigation Plan for Village of Freeport planning documents identifies an important area for continued economic growth and the certainty of power supply businesses and community services to recover after storm events and spur economic development.

Estimated Project Cost
The proposed project will cost an estimated \$10M.

Benefits
The proposed project supports the Recovery in Functions of Infrastructure, Health and Services, Natural and Cultural Resources, Urban Planning and Capacity Building, Housing, Income, and Employment.

Resilience and Feasibility Benefits
Installing a central location with a cluster of renewables that can effectively extend power area that is after an event is valuable to Community resilient businesses. Securing the rate of power supply generating energy source and creating long-term value for the distribution network provides certainty to residents and business owners, it allows to move about the community and resources and business safely with the aid of all streets and functioning traffic signals.

Job Benefits
Installing a microgrid provides an opportunity to create jobs in the existing Freeport Electric grid to Freeport Electric and public employees. The village, business community can also invest and more quickly restore after a storm, help reducing losses to business revenues.



NEW YORK STATE OF OPPORTUNITY. | NYSERDA

Next Steps

1. Download RFP at <http://www.nyserda.ny.gov/nyprize>
2. Assemble working group / core team
3. Identify local cluster of assets including critical infrastructure
4. Organize and educate core stakeholders
5. Identify FlexTech resources or other project consultants for feasibility study and/or design by emailing flextech@nyserda.ny.gov

Contact Me

micah.kotch@nyserda.ny.gov

[@cleantechnyc](#)

[#nyprize](#)

prize.ny.gov