



**NYSERDA**

# **NY Prize / Smart Grid**

**October 22, 2015**

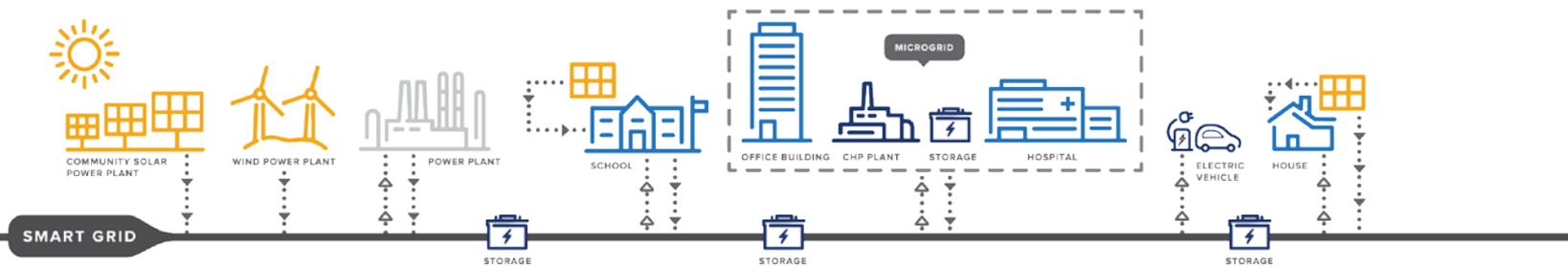
# Future of Energy



## Building a cleaner, more resilient and affordable energy system for all New Yorkers

Large- and small-scale renewables, demand management systems, energy efficiency, and energy storage are all part of a more cost effective and clean energy system.

# #REV4NY



REV  
initiatives  
helping to  
modernize  
the grid

### REV Regulatory Reform

Transforming the way utilities operate by incentivizing smart energy management, efficiency, and renewable energy.

### REV Demonstration Projects

Unprecedented partnerships between utilities and technology companies advancing private investment in clean energy.

### Energy Highway

Modernizing a statewide electricity transmission system.

### Large-Scale Renewables

Proposed \$1.5B funding commitment to spur private investment in utility-scale clean energy.

### Clean Energy Fund

A proposed 10-year, \$5 billion strategy that reshapes State programs to support clean energy market development and innovation.

### NY-Prize

\$40M competition to kick-start development of community microgrids.

### K-Solar

Helping K-12th grade schools statewide go solar at reduced costs.

### NY-Sun

\$1B commitment to deploy 3,000 MW of solar and develop a subsidy-free solar market in New York State.

### NY Green Bank

Unlocking financing for clean energy technologies.



**NYSERDA**

# NYSERDA Initiatives

Clean Energy Fund (10 year; **multiple R&D** and Mkt. Dev. programs)

- Distributed Energy Resources / Renewables
- Transportation
- Buildings
- Innovation & Business Development
- Smart Grid Systems RD&D (10 year) \$80 – 100m
  - Advanced Grid Modernization

# What Does a Community Grid Look Like?

- ✓ Separating Capabilities
- ✓ Operates in parallel w/grid
- ✓ Efficient Consumption
- ✓ Distributed Generation
- ✓ Backup Generation and Energy Storage
- ✓ Improved Communication for Accelerated Power Restoration

*Staten Island University Hospital*



# Opportunity Zone Map

[← Back to NY Prize](#)

## NY Prize Opportunity Zones

Print

### Awarded Feasibility Studies

NY Prize is a three-stage competition. During Stage 1, competitively selected communities receive funding to conduct engineering assessments that evaluate the feasibility of installing and operating a community microgrid at a proposed site in New York State. Stage 1 award winners are shown in numbered yellow dots, and are detailed by number per region in the list of All Awarded Projects.

[View All Awarded Projects \[PDF\]](#)

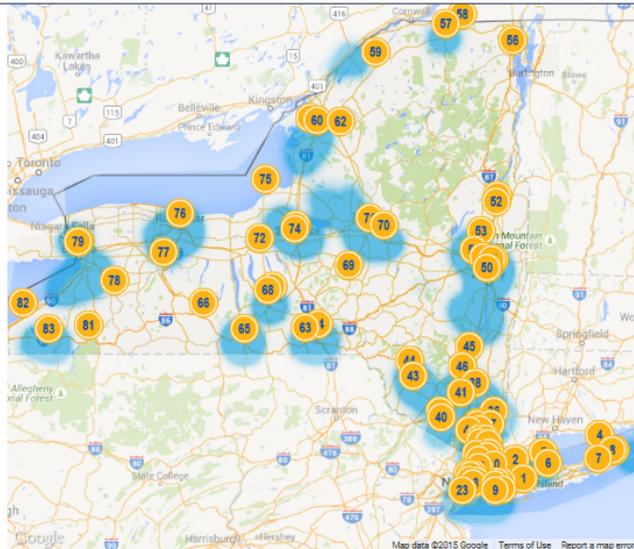
### Select a Region

Select a region to see NY Prize Opportunity Zones. Drill down into each zone to find potential partners and contacts for your community microgrid project. \*

The target areas in the NY Prize Opportunity Zone Map show approximate geographic areas that have been identified by the local electric distribution companies in New York where microgrids may reduce utility system constraints, and defer expensive infrastructure investment costs. [MORE](#)

[Resources for Applicants](#)

[Read About Microgrids](#)



### Legend

- Opportunity Zones
- Awarded Feasibility Studies

### New York State Regions

[← Back to NY Prize](#)

## NY Prize Opportunity Zones

14 Resources for **PSEG Long Island - Montauk, Suffolk County**

Filter By: **All Resources**

Print

### Awarded Feasibility Studies

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### Utility Company

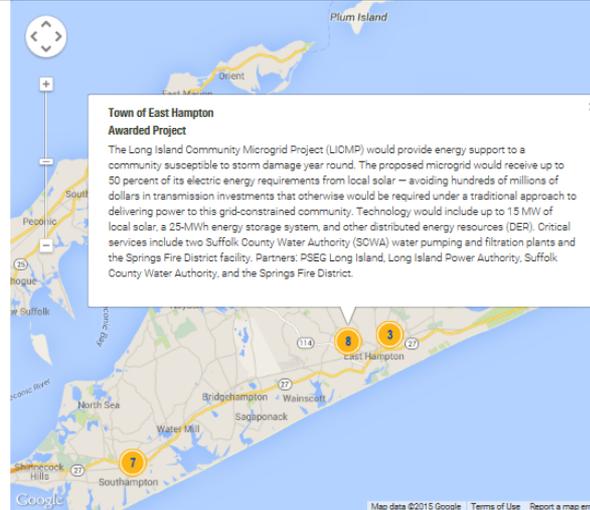
**Steve Cantore**  
516-949-8295  
[steve.cantore@pseg.com](mailto:steve.cantore@pseg.com)

### Regional Outreach Contractors

**Beth Fitini**  
Community Development  
Corporation of Long Island  
631-471-1215 x166  
[efitini@cdcli.org](mailto:efitini@cdcli.org)

### Community Contacts

Organizations or members of your community who want to collaborate with other



**Legend** Click on the icons within the map for more information.

- Awarded Feasibility Studies
- Schools & Universities
- Community Contacts
- Shelters
- Fire Stations
- Hospitals
- Libraries
- Wastewater Treatment Plants
- Police Departments

# NY Prize – Stage 1 Feasibility Study

- ✓ Minimum feasibility specifications (technical, financial, commercial, regulatory) are prescribed; **all** communities work to same scope
- ✓ High level analysis (+/- 30% accuracy)
- ✓ Local distribution utility involvement a necessity
- ✓ Competition produces “winners” – NYSERDA and its partners will follow up w/those that do not move on in competition
  - studies become “starting place” for alternate, bottom up innovations at the community level

# 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/ resiliency of the proposed microgrid configuration
- The use of clean and renewable generation resources in the project
- Overall financial and managerial capabilities of the developer

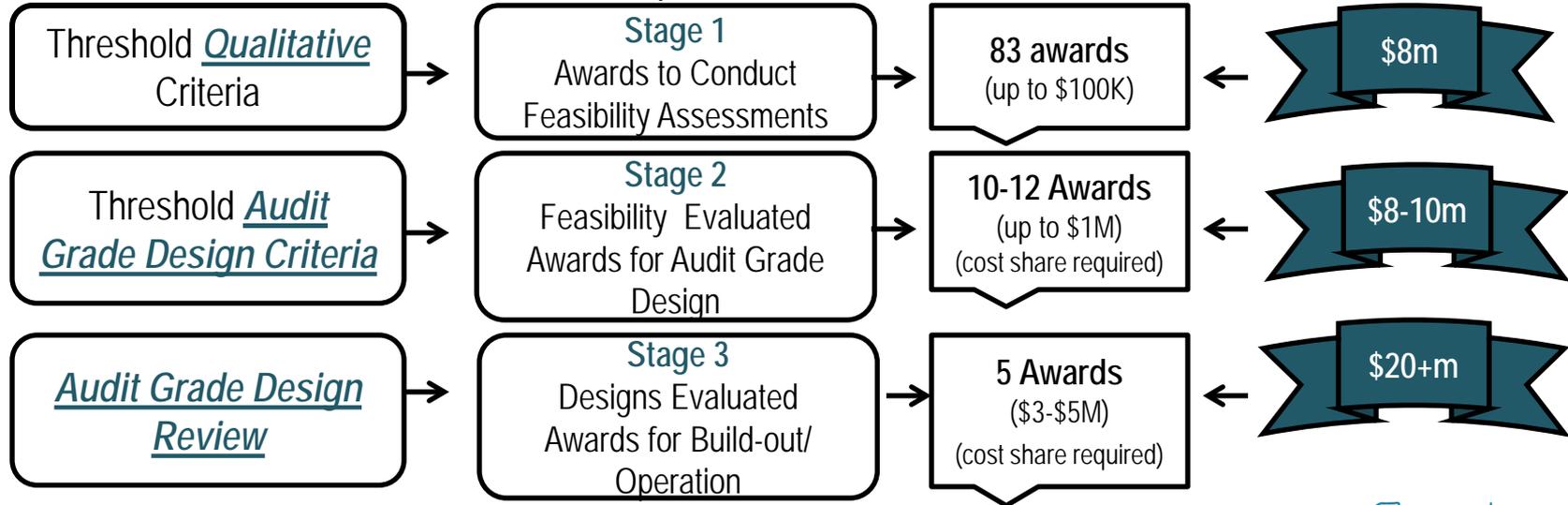
# NY Prize Award Process

communities enter competition and  
are evaluated at each stage by selection panel

Critical project partners:  
Municipalities and Utilities

Allocations

Evaluation Panel(s)



# NY Prize – Competition Schedule

Milestone	Date
<b>Stage 1 Proposals Accepted</b>	<b>Completed</b>
Stage 1 Proposals Evaluated	Completed
<i>Stage 2 Proposals Accepted</i>	<b>March 2016</b>
Stage 2 Proposals Evaluated	April 2016
<b>Stage 3 Proposals Accepted</b>	<b>November 2017</b>
Stage 3 Proposals Evaluated	Dec 2017
Project Commissioning	24 – 36 months after contract execution

RFP 3044

# NY Prize – Stage 2 Detailed Design

- ✓ Minimum feasibility specifications (technical, financial, commercial, regulatory) are prescribed; **all** communities work to same scope
- ✓ High level analysis (+/- 10% accuracy)
- ✓ Local distribution utility involvement a necessity
- ✓ Competition produces “winners” – NYSERDA and its partners will follow up w/those that do not move on in competition

# Strategies - Catalyst

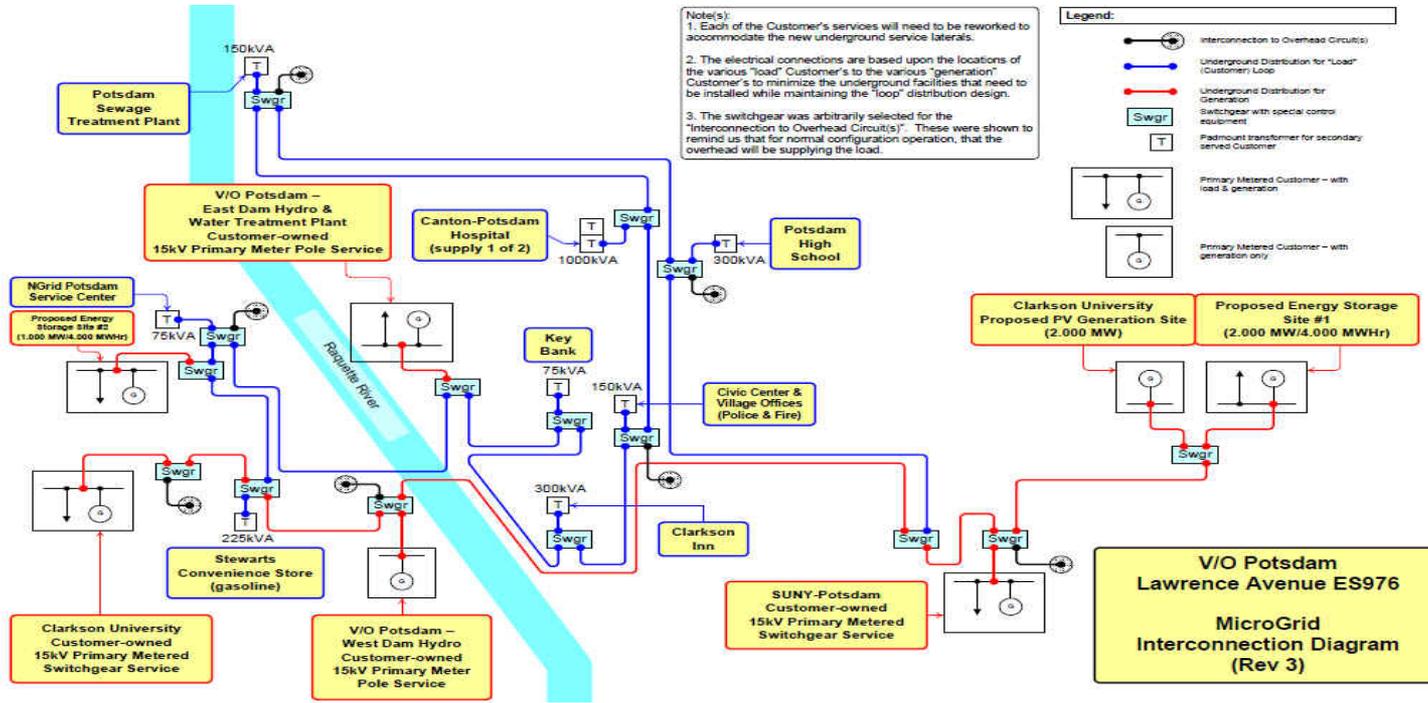
- Integration
- Solutions
- Barriers
- Information / Knowledge
- Transparency
- Leverage / Convergence
- Efficiencies
- Priorities
- Impact
- Partnerships

# Resilient Underground Microgrid Assessments in Potsdam and Buffalo



- Potsdam Microgrid Project – Design of an underground microgrid to provide essential services during disaster situations for restoration and operations (NYSERDA, Clarkson, GE, Nova, NG)
- Buffalo Niagara Medical Campus – Identify power quality and efficiency improvements, renewable and energy storage additions, and the feasibility of microgrid operation (NYSERDA, EPRI, BNMC, UB, NG)

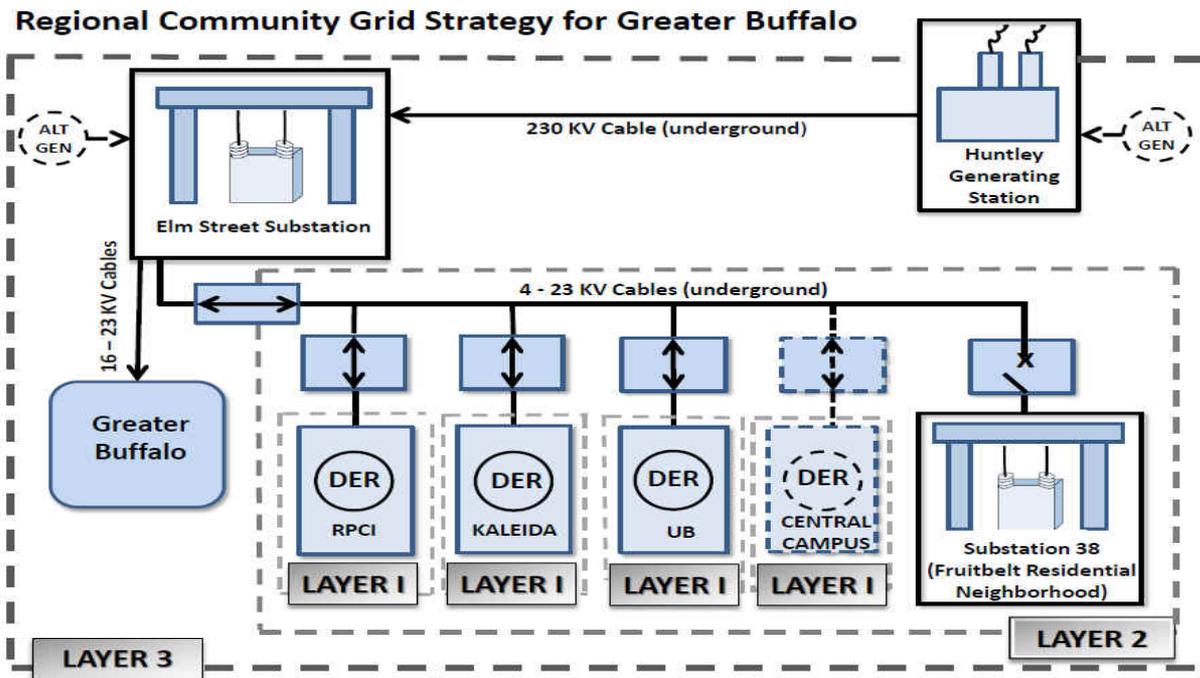
# Design of a Resilient Underground Microgrid in Potsdam, NY



# Assessing Microgrids in an Urban Environment

## – Multi-Layer Approach

*Multi-layer microgrid concept encompassing different customer numbers and groups.*



# Assessing Microgrids in an Urban Environment - Layer 1: Customer-centric

## Single customer facility – Behind the meter (may be up to 8MW)

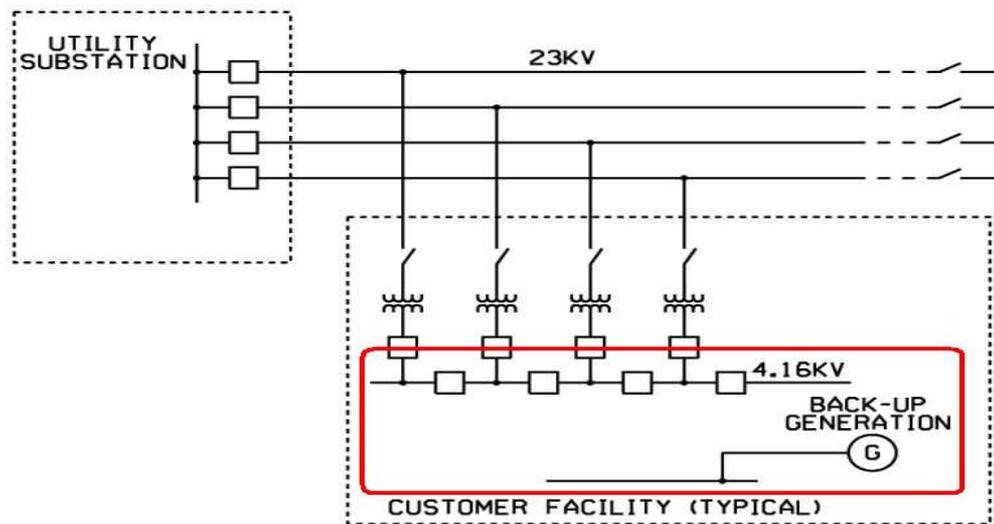
Isolated from grid

Selected critical, or all facility loads

Makes use of existing back-up generators

Electrical reconfiguration to optimize generation and loads

Consideration for emergency lodging, food, services, etc.



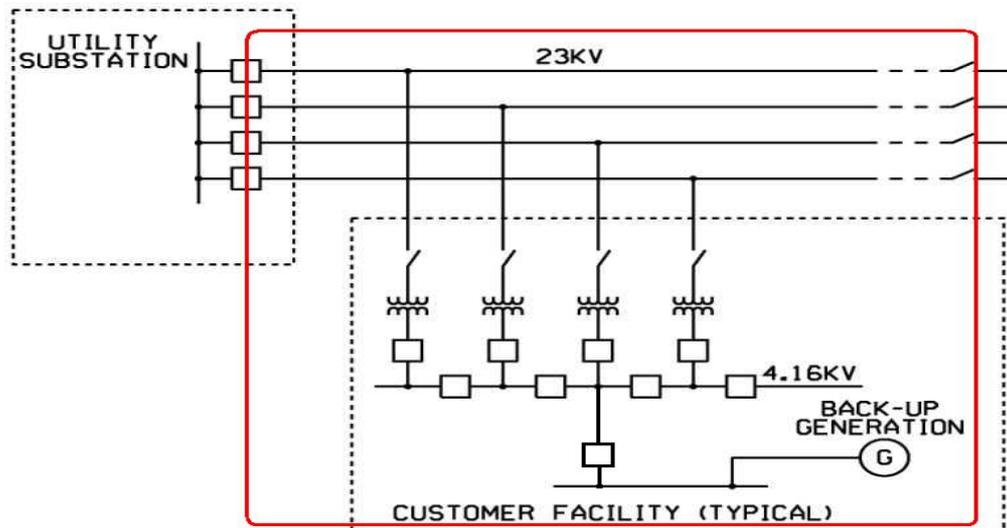
# Assessing Microgrids in an Urban Environment - Layer 2: Circuit Connected

## Multiple BNMC customers – $\approx 30\text{MW}$

Utilizes the 23kV utility infrastructure for customer interconnection (breakers open at substation)

Customer generation energizes all four circuits which allow all customers connected on those circuits to be part of the microgrid

May pick-up adjacent areas if sufficient generation exists



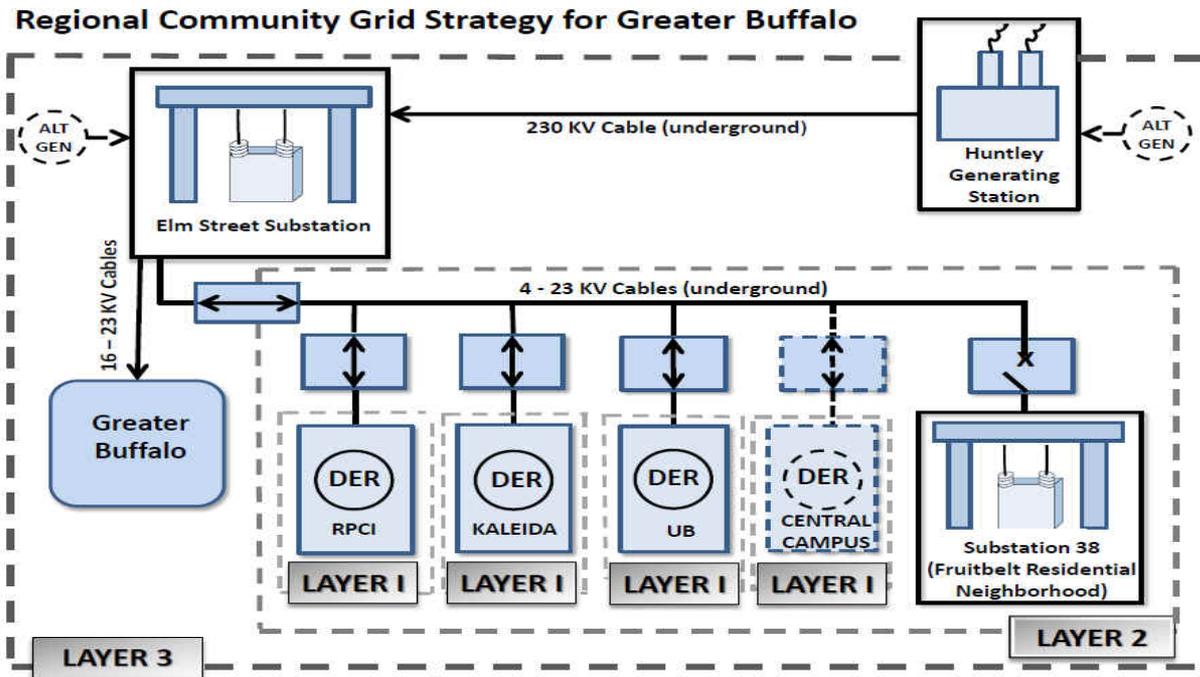
# Assessing Microgrids in an Urban Environment – Layer 3: Utility Substation

Major substation in the city  
of Buffalo -  $\approx 150\text{MW}$

Underground transmission  
circuit from source to  
substation

“Normal” power flow

Island operation  
transparent to  
downstream customers



# Information/Assistance

*prize.ny.gov*

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John Saintcross @ [john.saintcross@nyserda.ny.gov](mailto:john.saintcross@nyserda.ny.gov)

Micah Kotch @ [micah.kotch@nyserda.ny.org](mailto:micah.kotch@nyserda.ny.org)

Microgrid Assessment (2010)

<http://on.ny.gov/1ukZOa8>

Microgrids for Critical Facilities (2014)(includes case studies)

<http://www.nyserda.ny.gov/-/media/Files/Publications/Research/Electric-Power-Delivery/Microgrids-for-Critical-Facility-NYS.pdf>

Microgrids for Critical Facilities (2014)(Benefit Cost Model)

<http://www.nyserda.ny.gov/All-Programs/Programs/NY-Prize>