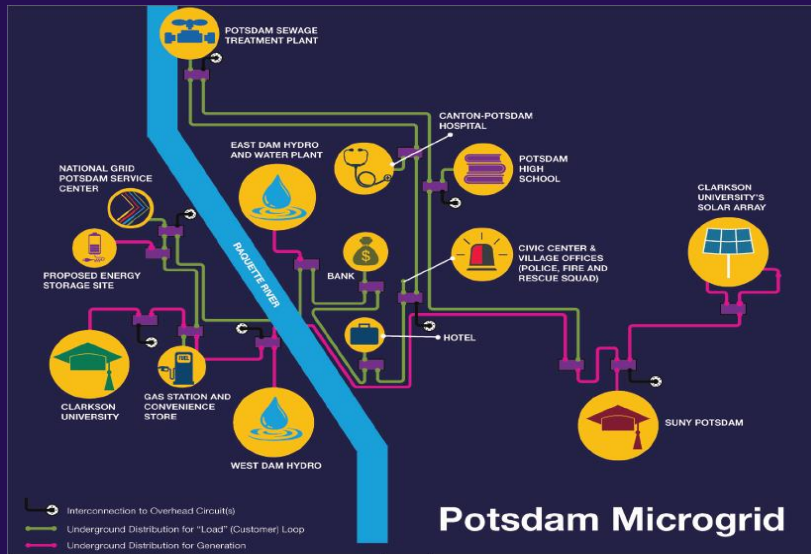


A Hybrid Business Model for NY-Prize Community Microgrids

October 30, 2018
Microgrid 2.0 Conference

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Complex Demonstrations
Customer Innovation
National Grid



Purpose

- To provide the background of currently developed microgrid projects in National Grid's NY service territory, and explain National Grid's proposed hybrid ownership and operational model for microgrids.

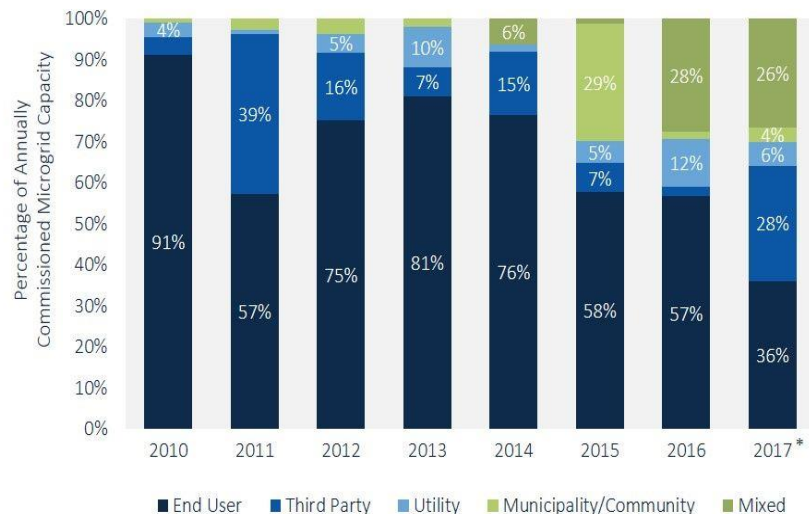
MG Industry Trends

- “Though virtually nonexistent in 2013, the share of microgrids owned by multiple entities jumped to 10% in 2014 and is expected to be 38% of the market this year.” - *Utility Dive August 30, 2016*
- 2017 Utility Survey rated distributed energy resources (DERs) including microgrids (MGs) as an important power sector issue today. – *Utility Dive 2017 Survey*

MG Industry Trends

- GTM Research predicts that U.S. microgrid market capacity could double to 6.5 gigawatts by 2022. The market will continue to diversify, adding multi-stakeholder community microgrids across a growing number of regions, with continued growth in the commercial market given new financing structures – *GTM January 18, 2018.*

Annually Commissioned Microgrids Capacity by Ownership, 2010-2017



Source: GTM Research, U.S. Microgrid Tracker Q3 2017

*2017 includes projects planned for completion by year's end

Potsdam Project Challenges

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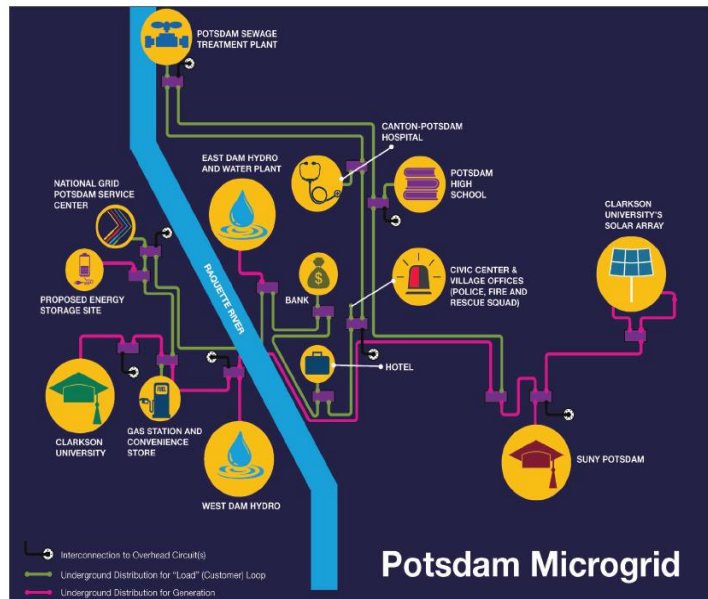


Potsdam Project Challenges

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Proposed Potsdam Project Design



DG in System

- Approx. 4 MW of natural gas-fired reciprocating engines.
- 2 MW solar PV and 0.8 MW hydro are existing, however given lack of reliability during storm events, MG design does not assume these DERs will be available.

MG Backbone

- MG would be an underground system.

Additional Customers

- 6 construction stages.
- Blend of generating and non-generating customers.
- Flexible: Could add additional customers.

Islanding

- MG controller would trigger island mode.
- Designed to meet 100% of non-gen. customer load + majority of load of gen. customers.

NY Prize Competition

- NY Prize Competition is administered by the New York State Energy Research and Development Authority (NYSERDA) with support from the Governor's Office of Storm Recovery to foster the planning and development of community microgrids.
- **Mission:** NY Prize endeavors to help NY communities reduce costs, promote clean energy, and build reliability and resiliency into the electric grid.
- **What is NY Prize:** A first-in-the-nation competition to help communities create microgrids - standalone energy systems that can operate independently in the event of a power outage during extreme weather events or emergencies, providing power to individual customers and crucial public services such as hospitals, first responders, and water treatment facilities.

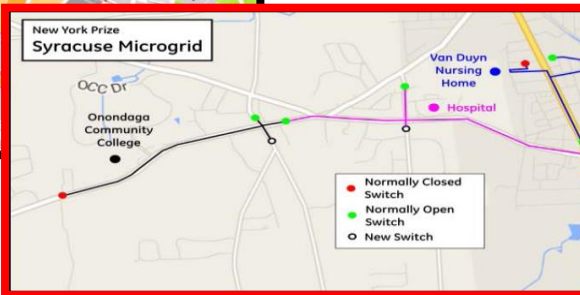
**NY Prize Competition Projects in
National Grid's Service Territory**

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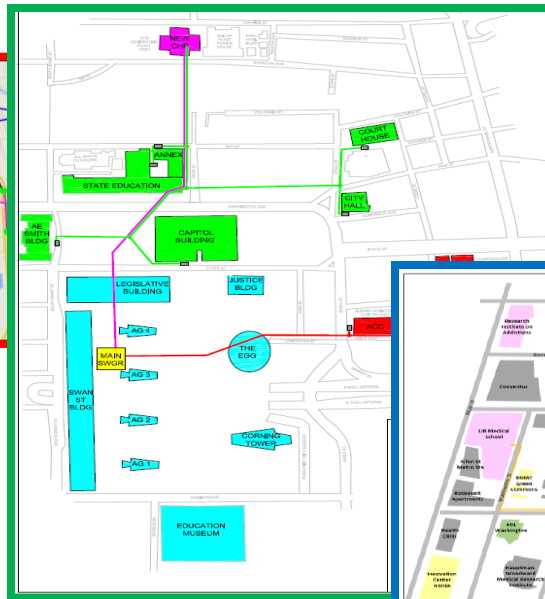
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University Heights (Albany)

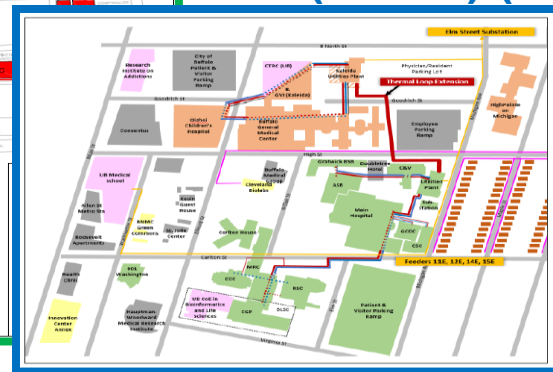


Syracuse Community (City of Syracuse)



Empire State Plaza (ESP) (Albany)

**Buffalo Niagara
Medical Center
(BNMC) (Buffalo)**



National Grid's Proposed Hybrid Ownership and Operation Model

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National Grid



3rd Party/Customer



Benefits of Proposed Hybrid Model

Customers

- Obtain customer-owned DER market participation benefits via third-party aggregation.
- Opportunity for lower cost of electricity.
- High reliability and resiliency from utility operation.

Third Parties

- Sell third party-owned DER output to participating customers .
- Sell aggregated MG grid support benefits to utility and markets (NYISO/retail).
- No operational control responsibility or liability.

National Grid

- Cost recovery for portion of MG wire backbone assets.
- Continue franchise and operational control (during both grid-connected and islanding modes of MG) responsibilities.
- Increased reliability and resiliency of the electrical system.

MG Stakeholder Next Steps

- Perform detailed financial model and benefit-cost analysis (BCA).
- Design new MG tiered tariff proposal.
- Identify the value of resiliency for each MG site.
- Regulatory review of hybrid model.
- Identification of suitable wholesale market products.
- Perform system impact study and construction design for the MG.

Questions and Contact Info

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