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Potsdam Community Resilience Microgrid REV Demonstration Project

Presented to:

ANCA Clean Energy Economy Conference

June 15, 2016



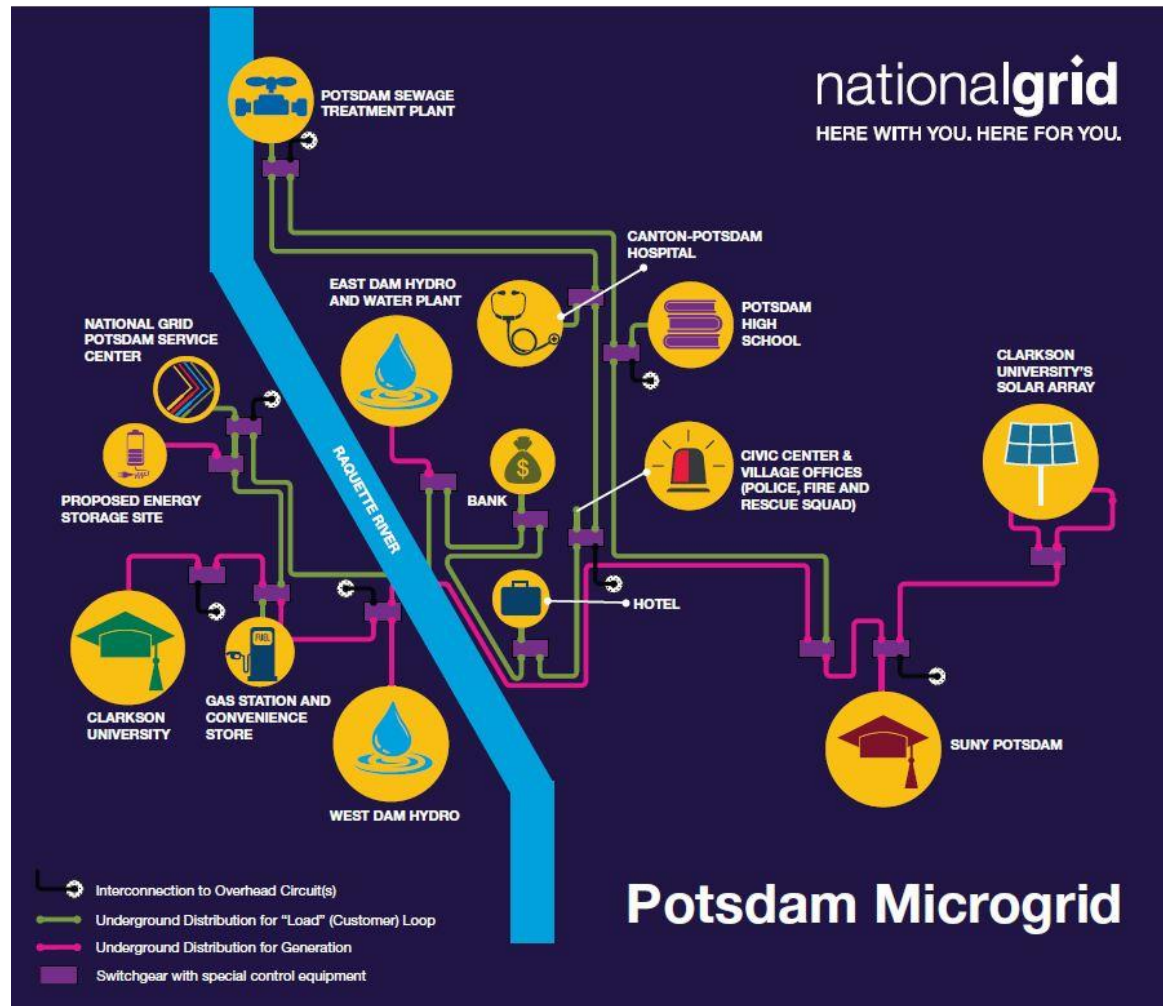
- REV Demonstrations
 - Community Resilience (Potsdam)
 - Neighborhood Solar (Buffalo's Fruit Belt)
 - Customer Convenience (Clifton Park)



- **Conceptual Design: Design of a Resilient Underground Microgrid in Potsdam**
 - Budget: ~\$1.1 Million, including NYSERDA support
 - Project Lead: Clarkson University
- **Microgrid Controller Project: Microgrid Plant Control Design and Development**
 - Budget: \$1.5 Million, including DOE grant support
 - Project Lead: GE Global R&D
- **National Science Foundation Project:**
 - Budget: ~\$1 Million
 - Project Lead: Clarkson University

Community Resilience: Microgrid Design Infographic

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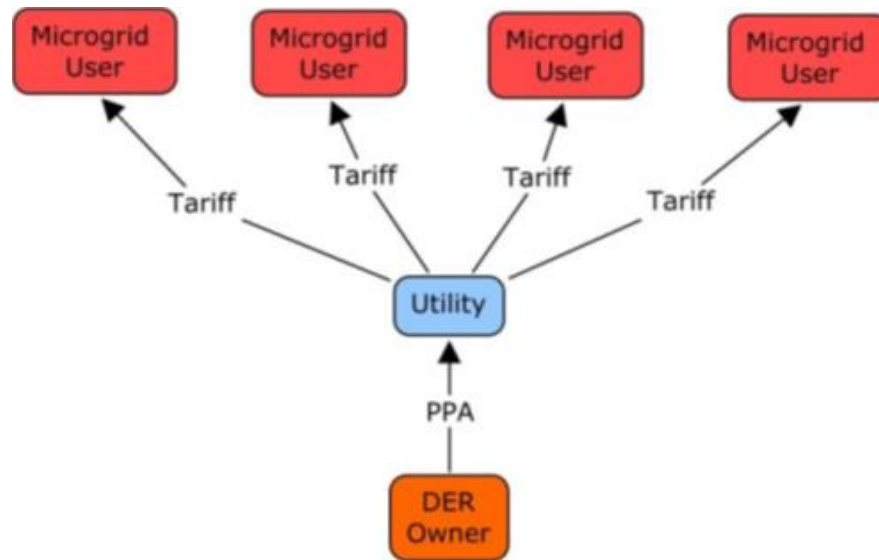
Community Resilience: REV Demonstration Scope

- Develop 4 utility services to support multi-customer microgrid development
 - Storm hardened wires & associated recovery model
 - Central procurement of distributed energy resources (DER)
 - Billing and financial transaction services
 - Microgrid control and operations services

Community Resilience: Storm Hardened Wires Recovery

- Cost allocation of the annual revenue requirement for microgrid underground wires investment determined by type of beneficiary
 - Direct beneficiary – microgrid connected customers, pay majority share
 - Indirect beneficiaries – pay minority share

Community Resilience: Central Procurement of DER



- Utility backstopping of incremental community DER
 - Utility company serves as DER provider of last resort
- This project requires an additional 4 MW of gas-fired generation to island the microgrid

Generation Data

Item	(kW)
Current Peak Net Load	9,452
Existing Generation Included in the Microgrid	3,460
Load Curtailment during Emergency	2,000
Required Additional Generation	3,992
New Generation (2 x 2000 kW)	4,000

- Total Peak Microgrid Load: 9.5 MW
- Proposed new generation: 4 MW
 - At least 2 units w/ dual fuel capability and at least 1 with black start capability
- Demand Response/Load Shed: 2 MW

Community Resilience: Additional Services

- Billing and Financial Transactions
 - Collecting payment from all microgrid customers
 - Issuing payments to DER owners
 - All transactions handled on-bill for customer convenience
- Microgrid Control and Operations
 - Operator of microgrid controller
 - Dispatch customer & community DER during island mode
 - Assure adequate power quality, voltage support and frequency regulation
 - Ties to DOE/GE Microgrid Controller grant and the NSF/Clarkson grant

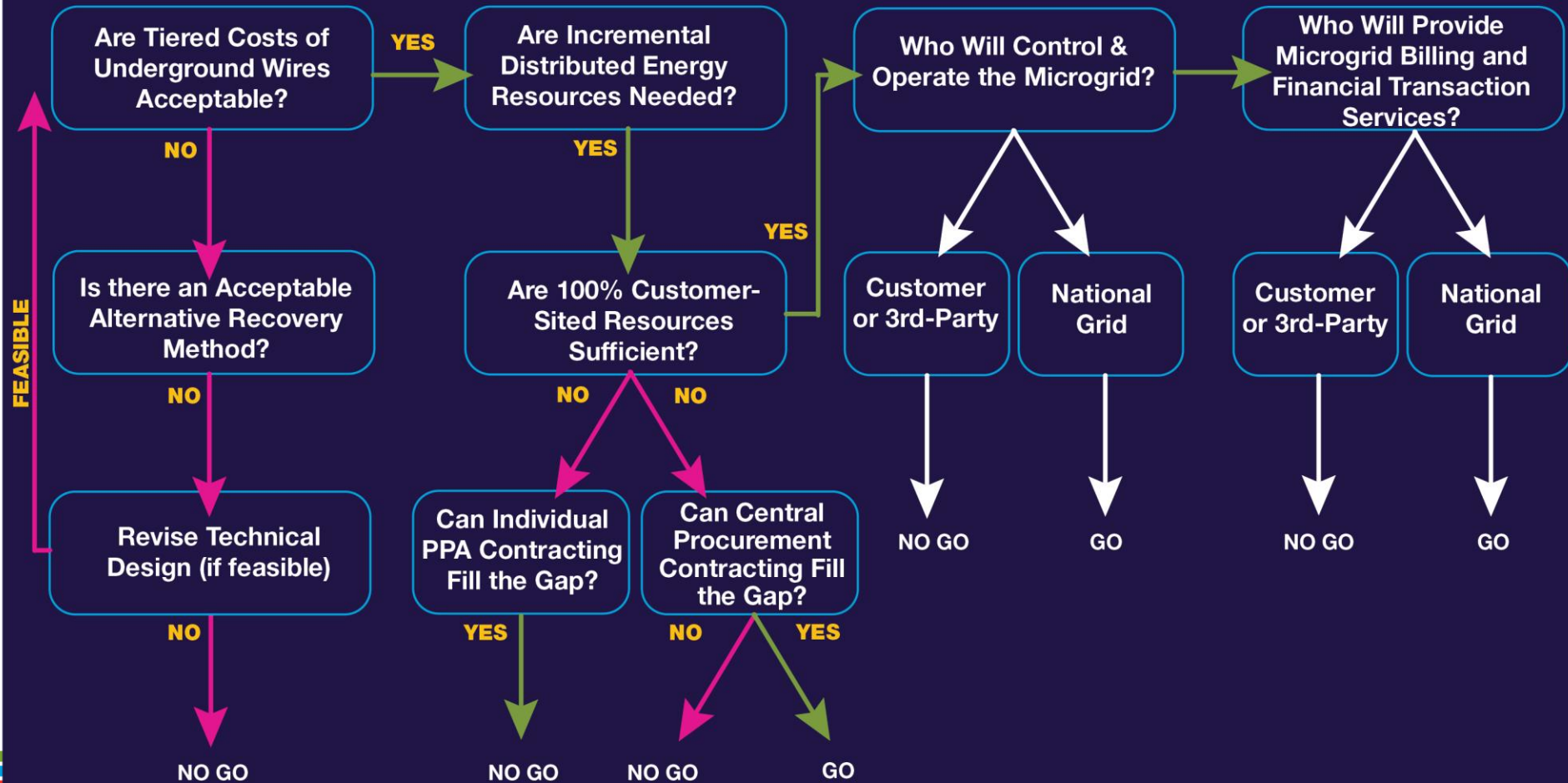
Resiliency REV Demonstration Go/No-Go Decision Tree

#1 Tiered Recovery for Underground Wires

#2 Central Procurement for DER

#3 Microgrid Control & Operations

#4 Billing & Financial Transaction Services



Community Resilience: Milestones and Budget

■ Key Milestones

- Conceptual Design Completion – Summer 2016
- Preliminary Service Proposals & Pricing – Winter 2016-2017
- Completion of Financial/Business Plan – Summer 2017

■ Budget

- Includes \$1 million for detailed design and other technical work
 - Design work to comply with NY Prize Stage 2 RFP

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Questions?

