



NYSERDA

NY Prize Community Grid Competition

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Agenda

- Microgrids 101
- NY Prize Design Parameters
- Competition Structure
- Stall Points / Uncertainties
- Interdependencies
- Q&A

“Use Cases” / Functionality - Microgrids:

- security/resiliency
- clean, distributed energy
- customer choice / community engagement
- lower costs
- coordinated grid support
- all of the above  ***NY Prize***

Community Grid Attributes



- Separating capabilities
- Efficient consumption
- Distributed, clean generation
- Multiple/unique customers
- Improved communication/controls for accelerated power restoration
- Utility system optimization/support
- Physicality

Staten Island
University Hospital

NY Prize

Design Parameters

- Process of discovery / quality sample (#'s, configurations)
- Minimal cost-sharing by participants in discovery phases
- Mix of customer types (at least one critical public facility must be included)
- Societal/community benefits are key attributes
- Data-driven outcomes/guidance
- Identify scalable and repeatable business models
- Stand-in as REV demonstration/laboratory

Its all about design;

Good Designs ⇒ *Good Decisions* ⇒ *Good Investments*

Multi-Stage Competition

NY Prize community microgrid competition comprised of three stages:

Stage 1: Feasibility Assessment (\$100K/project)(*closed*)

- Open enrollment structure of Stage 1 promoted a significant pipeline of projects – by design – 83 – quality sample (size, geographic diversity, teams)
- As Stage 1 assessments are completed, being posted on the NY Prize web site: <http://www.nyserda.ny.gov/All-Programs/Programs/NY-Prize/Feasibility-Studies>
- Contractor retained to review stage 1 assessments; publish key findings and other guidance; deliverable due end of 1st Qtr 2017

Multi-Stage Competition

Stage 2: Design and Financial /Business Plan (\$ up to 1M/project)
(proposals due October 12, 2016)

\$ 8+M available for Stage 2 RFP nyserda.ny.gov/microgrid

- A number of projects exhibiting a benefit-cost ratio in excess of 1 w/ positive IRR could potentially exit competition to move forward on their own....***this was anticipated and would be considered a good outcome.***
- Others w/less attractive societal benefits may also move forward (unaccounted for economic benefits may justify development)...***this too is a good outcome.***
- CDBG-DR funding potentially available for eligible projects

Stage 3: Microgrid Build-out and Operation (*pending*)

Expected Outcomes / Insights

- Benefit Cost Analysis
- Utility System Benefit
- Technical / Organizational challenges
- Resiliency of the community grid to projected impacts from climate change
- Regulatory impediments, legal viability, municipal procurement
- Financial and commercial bankability and viability

Resilience With a Payback

- Benefit-Cost analysis performed by Industrial Economics looks at net present value over 20 yrs at 7% discount rate (primary focus on societal benefits)
- IRR calculated + breakeven analysis(outage days per year to breakeven)
- Model reflects latest projections of energy, capacity, and emissions allowance prices, also looks at capacity reserve margin for bulk energy suppliers; standard assumptions for T&D losses; latest reliability metrics for NYS utilities; and estimates of the damages attributable to emissions of various pollutants

| Site | Scenario 1 B/C Ratio | Energy Impact (PV 20 Years) | | | | Emissions Impact (PV 20 Years) | | |
|--------|-------------------------|-----------------------------|--------------------------------|-----------------------|---------------------|--------------------------------|---------------------------|------------------------|
| | | DER Fuel Costs | Reduction in Bulk Energy Costs | Fuel Savings from CHP | Net Energy Benefits | Emissions Damages from DER | Avoided Emissions Damages | Net Emissions Benefits |
| Town A | 0.7 | \$13,700,000 | \$11,900,000 | NA | -\$1,800,000 | \$11,300,000 | \$9,500,000 | -\$1,800,000 |
| Town B | 0.8 | \$19,200,000 | \$16,000,000 | \$5,340,000 | \$2,140,000 | \$15,700,000 | \$16,800,000 | \$1,100,000 |
| Town C | 0.8 | \$19,200,000 | \$18,100,000 | \$2,860,000 | \$1,760,000 | \$15,700,000 | \$15,700,000 | \$0 |
| Town D | 1.0 | \$51,900,000 | \$91,400,000 | NA | \$39,500,000 | \$46,500,000 | \$74,600,000 | \$28,100,000 |

Potential Stall Points

- Unclear ownership structures / counter-party risks
- Aligning utility and microgrid project incentives / cost recovery for benefits provided to “non-participating community members”
- Municipal procurement rules
- Public service law, utility franchise, uncertainty around valuing grid resilience
- Microgrid control technologies and interconnection processes
- Financial market uneasiness

Interdependencies

- Smart Grid technology / DER integration
- Public sector incentive and research programs
- Distributed System Platform design-utility operations / REV

For More Information

| Website | | Email |
|--------------|---------------------------------------|------------------------|
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World-class resources on policy / tech / markets:

[NYS Microgrid Challenges & Opportunities \(2010\)](#)

[Microgrids for Critical Facility Resiliency \(2014\) - includes case studies](#)

<http://www.ny.gov/rev4ny>