

ADVANCED ENERGY GROUP, LLC

Aligning Market and Policy for Critical Grid Transformation

Washington [] Chicago [] New York City

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Drivers towards System Efficiency

- Congestion / Growth
 - > Growth and Movement
- Infrastructure
 - Aging, Central vs Distributed, RE penetration
- Technology
 - IoT, DERs, New System Platforms
- Climate
 - GHG Emissions, Air Quality, Resiliency

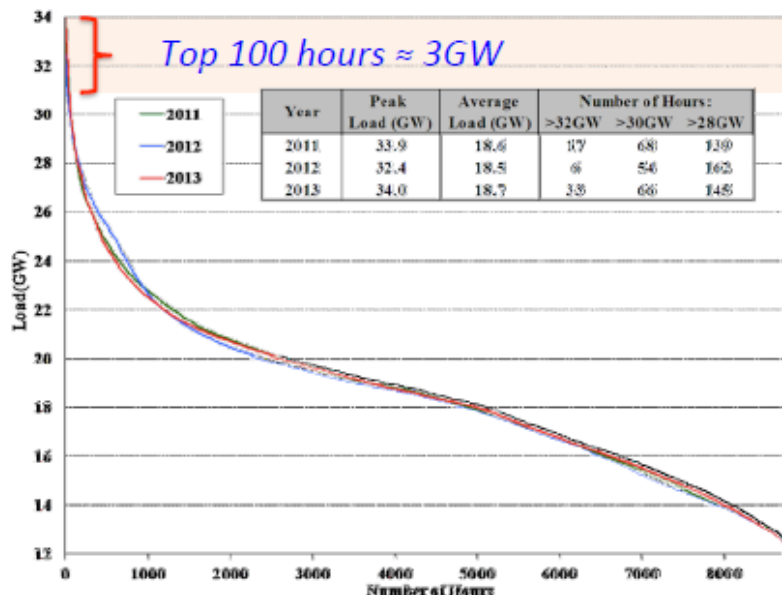
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Trapped Value in Peak Demand

"If, for example, the 100 hours of greatest peak demand were flattened, long term avoided capacity and energy savings would range between \$1.2 billion and \$1.7 billion per year."

-NY PSC Order Adopting Regulatory Policy Framework and Implementation Plan [REV], 2/26/15

NY ISO Load Duration Curves, 2011 -2013



Source: 2013 NYISO SOM Report, Potomac Economics.

Cost of NYS Peak Demand

Top 100 hours = 3 GW statewide
(1.4 GW NYC alone)

Low Average @
\$1.2 billion

High Average
@\$1.7 billion

\$400 / kW

\$567 / kW

\$0.40 / kWh

\$0.57 / kWh

Reforming the
Energy Vision



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Distribution Load Relief Program – 2 Hr Notification Program

- Called on a network basis for contingencies



- Premium paid for 10 networks with higher need for demand response ("Tier 2" networks)

Commercial System Relief Program – 21 Hr Notification Program

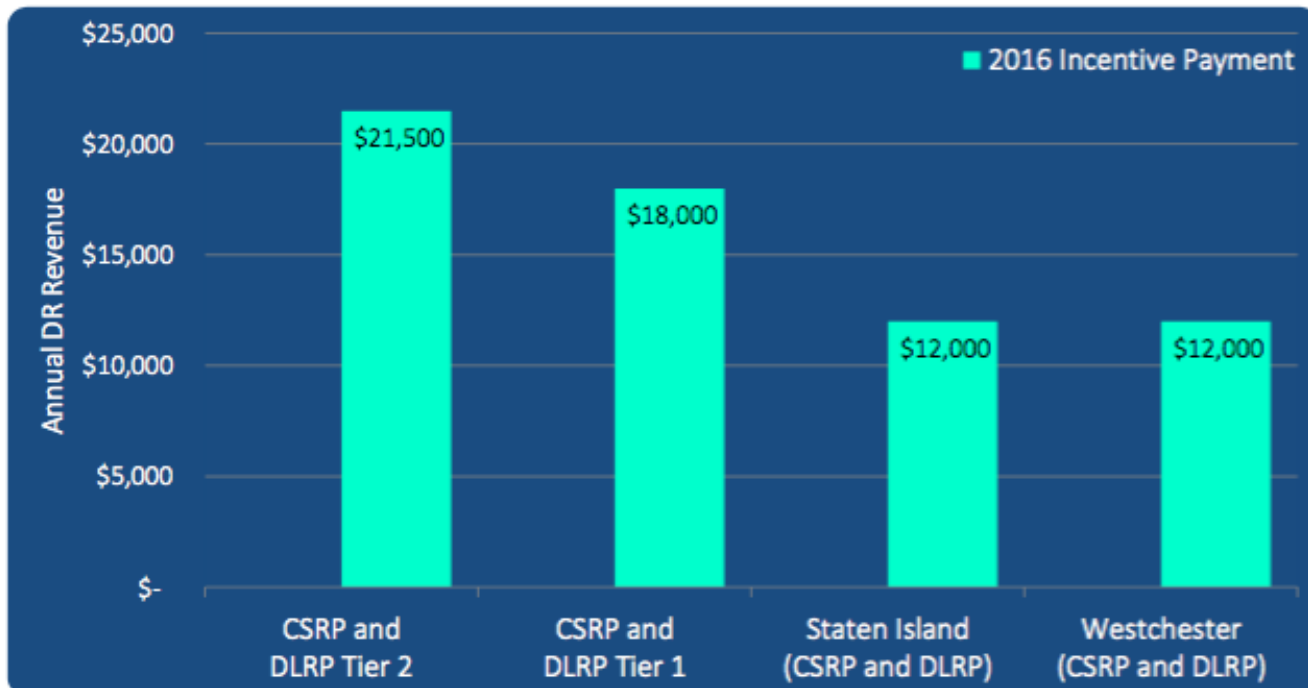
- Called for network peak shaving



- 4 call windows to coincide with network peaks
- 3 events per year expected on average

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Reservation Payment Example 100 kW Enrollment in CSRP and DLRP



Incentives are based on current tariff rules, 100% performance in events, and enrolling directly with Con Edison.
Consult the program tariff (Rider T) for more information.

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Why Microgrids?

- ✓ Increased frequency of severe weather events
- ✓ Rising concerns over physical and cyber security
- ✓ The growth of digital technology and Internet of Things placing a higher priority on power reliability and quality
- ✓ Leads to reduction in CO2 and other harmful emissions by relying on sustainable generation sources

ComEd.

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Environmental Benefits - Source: Green Corp

Chicago



Value Proposition for Microgrids

Microgrids provide numerous and wide reaching benefits

Resiliency, Security & Safety:

- Improved physical and cyber security
- Increased resiliency through localized system control and operations



Reliability & Power Quality:

- Reduced interruptions
- Shorter outages
- Enhanced power quality

Economic:

- Greater system efficiency
- Deferred or avoided capacity investments
- Create new jobs

Environmental:

- Reduced CO2 and other harmful emissions
- Increases sustainable generation resources
- Reduced system losses

Washington, DC



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