The Changing Demand Management Economics

Colin Smart

Section Manager, Commercial Customer Solutions

Lucas Finco

Manager, Program Analytics

January 23, 2014

Agenda

- Drivers
- Highlights
- Deep Dive – Demand Response Economics
- Q & A

Drivers

Drivers – Demand Reduction

- Indian Point nuclear power plant potentially closing prior to summer 2016
- ~ 20% of NYC base load
- Contingency plan caters for supply and demand
- 125 MW allocation to system peak demand reduction (100 MW) and CHP (25 MW)
- Jointly administered Con Edison / NYSERDA program
- Team effort – Con Edison / NYSERDA / NYPA / DPS
- Total funding $285 million

Drivers – Demand Response

- Demand Response enrollment down in 2013 from 2012 for both Con Edison and NYISO
- Demand Response market dominated by third parties (Curtailment Services Providers aka CSPs aka Aggregators)
  - CSPs see NYC incentives as too low, costs too high
  - CSPs are mobile and will go where the best market economics exist
  - Program consistency important (reduce regulatory risk) to CSPs
  - Program simplicity helps customer engagement

Drivers – Targeted Demand Side Management

- Areas of distribution system constraint to be mitigated with “non-traditional” solutions (energy efficiency, demand reduction, load shifting and demand response)
- Existing funding $100 million over four years
- Generally network by network
- Incentives case by case (reliability, life, coincidence)
- Opportunity in East Brooklyn/Queens area

ENHANCED LOAD REDUCTION PROGRAM

The below base incentives will now be offered in addition to the current program offerings.

Project Type	Current Offering	Base Offering	Total Offering
Thermal Storage	$600/kW	$2,000/kW	$2,600/kW
Battery Storage	$600/kW	$1,500/kW	$2,100/kW
DR Enablement	$200/kW	$600/kW	$800/kW
Chiller/HVAC/BMS/Controls	$0.16/kWh	$1,250/kW	$0.16/kWh + $1,250/kW
Lighting	$0.16/kWh	$800/kW	$0.16/kWh + $800/kW
Fuel Switching	-	$700/kW	up to $1,000/kW
CHP	Please refer to existing program offerings.		

The below Bonus Incentives are available for large (>500 kW) or comprehensive projects with a maximum bonus amount of $10 mill. All bonus funds are first installed; first paid.

Load Reduction	Bonus	Notes
500 kW or greater	an additional 10% of base incentive	eg. if a thermal project reduced 500kW, the base incentive would be 500*$2,000 and the bonus would be 10% of 500*$2,000
1 MW or greater	an additional 15% of base incentive	

Notes:

1. Projects must be installed and operational by June 1, 2016.

2. Incentives are given on a first come, first served basis. Once funding runs out, funding structure for this program will stop.

3. The incentives shown are subject to change.

4. Subject to PSC approval.

conEdison GREEN TEAM ENERGY EFFICIENCY EXPERTS

nyserda Energy. Innovation. Solutions

Proposed Contingency Demand Response Program Changes

Current	Proposed
Reservation payment	Reservation payment
$3/kW for Tier 1 Networks	$10/kW for Tier 1 Networks
$6/kW for Tier 2 Networks	$25/kW for Tier 2 Networks
Performance payment $0.50/kWh	**Performance payment $1.00/kWh**
Bonus Hour Payment $1.00/average kW (based on capacity)	Bonus Hour Payments $6.00/kWh (based on performance)
No incentive for customers enrolling for multiple years	Three Year Incentive payment for customers who successfully complete three years. Payment is calculated as $2.00 per kW per month per season for the three year incentive period.
Standard event window: five hours	Standard event window: four hours
Program duration: May 1 – Oct. 31	Program duration: May 1 – Sept. 30
Possible event window is between 6:00 AM and 11:00 PM	Possible event window is between 6:00 AM and 12:00 AM

Proposed Peak Shaving Demand Response Program Changes

Current	Proposed
Reservation payment	**Reservation payment**
$5/kW for 4 or fewer events	$20/kW for 4 or fewer events
$10/kW for 5 or more events	$25/kW for 5 or more events
Performance payment $0.50/kWh	**Performance payment $1.00/kWh**
Unplanned Event Payment $5.00/highest kW (based on capacity)	Unplanned Event Payment $6.00/kWh (based on performance)
No incentive for customers enrolling for multiple years	**Three Year Incentive payment for customers who successfully complete three years. Payment is calculated as $2.00 per kW per month per season for the three year incentive period.**
Standard event window is five hours	Standard event window is four hours
Program duration: May 1 – Oct. 31	**Program duration: May 1 – Sept. 30**
Performance penalty based on a 2:1 ratio	Performance penalty based on a 1:1 ratio

Timing is Everything!

- Four Event Call Windows for CSRP in 2014
  - 11:00 AM – 3:00 PM
  - 2:00 PM – 6:00 PM
  - 4:00 PM – 8:00 PM
  - 7:00 PM – 11:00 PM

Drivers – Big Picture (aka Utility Death Spiral aka Utility Polar Vortex)

- Desire to grow interaction at the “grid edge” – Utility of the Future
- State Energy Plan
- New solutions create new potential
  - Thermal Storage (i.e. Ice)
  - Energy Storage (i.e. Batteries)
  - BMS/Control Systems
  - IP addressable LED
  - Fuel Switching (i.e. fuel cells)
- Customer Centric – tenant comfort, “sexy” environments, more effective management, simple information

Deep Dive

Demand Response Economics

Demand Response Economic Analysis

- Con Edison retained the services of Freeman, Sullivan and Co. (FSC) to
  - Develop a model for Con Edison to conduct demand response program design and apply five cost tests
    - Total Resource Cost (TRC)
    - Utility Cost Test (UCT)
    - Participant Cost Test (PCT)
    - Ratepayer Impact Measure (RIM)
    - Societal Cost Test (SCT)
  - Produce a report on the cost-effectiveness of Con Edison's demand response programs

The Model - Fundamental Logic of Model and Incentive Results

- Time-differentiate distribution capacity value by program based on load distribution across highest load hours of the year (top 100 hours per year averaged over 3 years)
- This value is then matched with historical reduction data and avoided costs per kW-year
- Following this methodology, used the newly developed TRC test to analyze cost effectiveness and optimize incentive levels for programs

The Report - Benefits of Economic Analysis

- Previous valuation of costs and benefits based on system-wide average
- Different cost tests (TRC / UCT) applied to DR resources
- New approach to understanding value based on:
  - Location (Network Groups vs. Radial)
  - Resource Availability (Event Duration, Performance, etc.)
  - Timing (Day vs. Night, Coincidence with Peak, etc.)
- Informs targeting of high value locations and time periods
- Flexibility to test cost effectiveness through scenario analysis

Conclusions

- Model identified the opportunity for increased level of program incentives
- Market animating (We hope!) program changes made based on new understanding of appropriate program economics
- Quick or Perfect?

Q&A

Thank you!

coned.com/DR

DR@coned.com

877-870-6118