NYSERDA - PON 1151 Innovations in DR, LM & Dynamic Price

Introduction

- Tony Abate Project Manager for Demand-side resources in NYSERDA Buildings R&D
- \$5M funding available, 3 rounds all or none in any round
- Due 5 PM EST June 15th, 2010

NYSERDA Overview

- NYS public benefit corp. (1975) not policy makers
- "facilitate change through the widespread development and use of innovative technologies to improve the State's energy, economic, and environmental wellbeing"
- primarily funded by rate payers via System Benefits Charge
- NYSERDA Energy Efficiency Services vs. R&D <u>http://www.nyserda.org/incentives.asp</u>

Overview of DR

What is Demand Response (DR)?

- DR is a mechanism to reduce demand in response to certain conditions

Why DR?

- To hedge against high market prices
- To avoid significantly higher costs and waiting time required for additional generation investment
- To provide "safety cushions" for system supply
- To deal with reliability issues

Who administers DR?

 Generally administered by ISOs or other entities such as utilities, planning agencies and/or commercial corporations

CITATION: Sheldon Fulton Executive Director, IPCAA November 4, 2008 http://www.aeso.ca/downloads/Economic DR Nov 4 08 v3.ppt

Definitions - PON 1151 Innovations in DR, LM & Dynamic Price

1. ISO products – Capacity, energy, reserves & regulation

2. Demand Response types

- Curtailment via ISO / utility program: NYISO ICAP SCR, EDRP, DSASP, DADRP; ConEd - DLRP, CSLRP, CPRP, DLC, etc.
- Large (Commercial) vs. Small (i.e. residential & aggregations)
- Duration (long vs. short) & dispatchable (i.e. ancillary services)

3. Load Management

- Watch facility kW as seen on a demand/interval meter
- Manage load profile daily, monthly and annually
- load shifting (i.e. storage), but not fuel switching (i.e. back-up gen)
- 4. **Dynamic Price** (aka economic demand response)
 - C&I Mandatory Hourly Day-ahead Pricing (MHP)
 - Time-of-use
 - Retail energy supplier; block and index
 - Submetered multifamily or non-owner occupied

NYS - great place for energy mgmt

- 1. NYSERDA provides incentives for efficiency and DR DR http://www.nyserda.org/incentives.asp \$.12/.16 kWh & \$100/200 kW ICAP-SCR and DSASP
- 2. NYISO mature capacity & emergency market, existing DA energy and new (09) ancillary service market
- 3. Commercial and Industrial drivers
 - Strong utility time-of-day peak kW price signal; \$14 to \$35 kW-month summer (SC9 Rate II)
 - NYS DPS and utilities are lowering the thresholds for DA MHP
 - Reactive power (kVARs) tariff for <95% power factor
 - 3rd party energy suppliers; block (hedge) and index (variable) to balance risk
- 4. Utilities have various DR programs
 - ConEd: DLRP & CLRP capacity + energy; CPRP \$1-1.50 kWh
 - <u>http://www.coned.com/energyefficiency/DR_comparison_chart.pdf</u>

How to value load control?

- 1. Cost \$ per kW, availability (i.e. seasonal)
- 2. Benefit
 - DR program income ISO or utility. Capacity, day-ahead energy, reserves, regulation, network load relief. Check exclusivity.
 - Demand charge avoidance reshape load profile and reduce kW peak billed by utility tariff
 - Capacity tag avoidance from you energy supplier
 - Low energy pricing lower prices for more price risk; DA MHP (roughly over 500kW), voluntary TOU tariff or retail energy supplier block & index.

BEWARE: Load controls for conservation (i.e. BMS) is not load control!

Objective: Get NYS loads/customers to be responsive & controlled

Who?

•ISO market participants, CSP's, energy management services companies, ESCOs, technology vendors, commercial, industrial and multifamily facilities, etc.

How much?

- Max \$500K development/demonstrations & \$100K technical studies (paper)
- Cost share 50% and 30% respectively

What?

- Innovative technologies/techniques, cost-effective, useful in NYS
- Solve problem shared by many; No fundamental research or policy
- Incremental innovations and novel applications of commercially available systems that will help expand adoption in NYS

What is an R&D project?

- 1. Development New product/innovation (recoupment)
- 2. Demonstration (proof-of-concept) How to overcome some barrier? (project that would not otherwise happen)
- 3. Technical Study..... innovation where the deliverable is paper (i.e. protocol or an approach)
- Identify a problem, conceive a novel solution, form a hypothesis, check it on the 'back of a napkin', how do the results of the R&D applicable to NY

Innovations may include novel;

- 1. Sources of curtailable load,
- 2. Load control technologies and techniques,
- 3. Communications, protocols and standards,
- 4. Metering, measurement and verification, and
- 5. Implementation and management of dynamic rates (i.e. voluntary or mandatory time of use rates)

Proposing

- Non-NYS entities OK.... having the ability to benefit NYS
- More than one proposal per round OK
- Phased approaches encouraged within funding limits
- Multiple phases in different proposals not recommended
- Resubmissions OK
- Download forms from http://www.nyserda.org/funding/1151pon.asp
- Follow proposal outline
- One paper copy / one electronic

Evaluation

- Technical Evaluation Panel
- NYSERDA review and selection for contract negotiation
- Letters go out to proposers not 'awards'
- Negotiation, contract development and execution

Proposal Teams Encouraged

- One primary proposer with whom NYSERDA contracts
- Include partners w/ necessary skills; commitments
- Letters of support

Cost Share

- 50% development and demo / 30% technical study
- 'Skin in the game'
- Co-funding
- In-kind; services, labor, materials, discounts

PON 1151 Proposal Do's & Don'ts

- Be clear without being general: What is your innovation and its objective?
- Scope project appropriately: Don't develop an end-to-end product for a need that is not clear. Not to small, not to large.
- Justify benefit estimations: Be specific and know what the value streams are. Can this make economic sense? (i.e. small distributed loads)
- Include necessary capabilities (i.e. being a NYISO market participant, technology/market partners)
- Clearly state what you want NYSERDA funds to pay for. Use NYSERDA dollars for R&D costs, not for start-up costs, site audit/feasibility study, EE equipment, projects that pay for themselves.
- Justify why the load type is appropriate for the application; load management or DR product

Remember

Go to PON 1151 website http://www.nyserda.org/demandside

Further Questions

- PON 1151 website <u>http://www.nyserda.org/demandside/contactUs.asp</u>
- Email <u>demandside@nyserda.org</u> subject line: question
- Tony Abate <u>awa@nyserda.org</u> 518-862-1090 x3522

Looking forward to Your proposals!!!