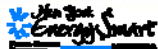




Integrating Energy Efficiency with Demand Response in NY

September 26, 2005

Christopher Hall
NYSERDA



Overview of NYSERDA

- The New York State Energy Research and Development Authority (NYSERDA) -- public benefit corporation
- Created in 1975 by the New York State Legislature
- NYSERDA administers the Energy \$martSM Program on behalf of the State Public Service Commission (PSC)
 - *Achieve energy efficiency and peak demand reduction*
 - *Promote environmental protection initiatives*
 - *Implement low-income residential energy programs*
- Annual budget of approximately \$200 million





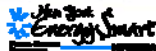
NYS Electricity Landscape

- NYISO managed competitive market since 1999
- Current Capacity & Reserves Situation
- New plant siting regulations expired in 2003
- Significant T-constraints
 - Eastern vs. Western NY
 - NYC and surrounding areas
- Net imports represent 10% of supply
- Avg. summer prices during peak hours: ~\$66/MWh Upstate and ~\$100/MWh in NYC

	Demand + 18%	Existing Generation
Statewide	37,394 MW	37,548 MW
NYC	13,271 MW	8,981 MW

Need Demand Response to Improve Reliability & Mitigate Market Power

NYSERDA



Wholesale DR at NYISO

Emergency DR *Called During Operating Reserves Deficiency ..*

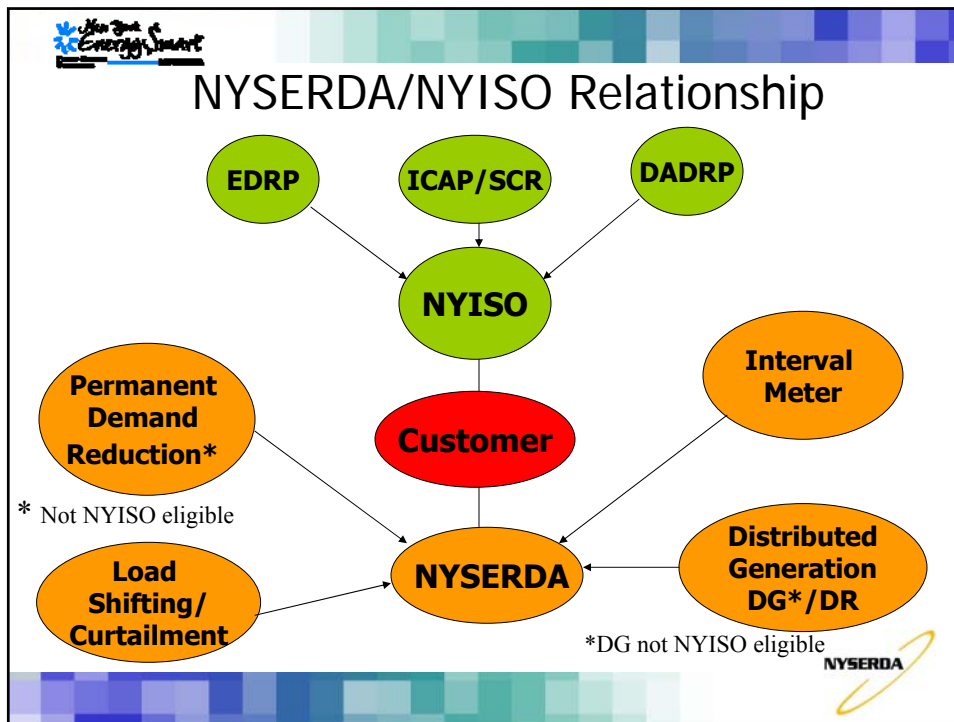
- **Special Case Resources (SCR)** – a reserve capacity program that pays retail electricity customers to reduce load over a specified contract period.
- **Emergency Demand Response Program (EDRP)** – a short-notice program relying on the ability of many to voluntarily reduce demand for a short period of time in exchange for payment.

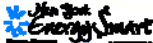
Economic DR *Customer Dictates Terms of Curtailment . . .*

- **Day-Ahead Demand Response Program (DADRP)** – customer submits bid with “strike price,” curtailment amount, start time and duration.

NYSERDA






 **NYISERDA – Wholesale DR Initiatives**

Facilitate Participation in NYISO DR Programs . . .

- **Peak Load Reduction Program (Deployment)**
 - Provides Incentives for Installing Equipment at Sites:
 - Permanent Demand Reduction
 - Short Duration Load Curtailment, Interval Meters
 - Dispatchable Emergency Generation
- **Enabling Technologies for Price Responsive Load Management (R&D)**
 - Promotes Effective Aggregation of Customers Using:
 - Advanced metering and verification applications
 - Energy Information Systems
 - Communications infrastructure

Comprehensive Approach to Broaden Participation





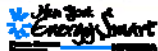
Integrating EE with DR Peak Load Reduction Program

Program Goal:

Improve reliability, increase load factor, and reduce electric costs by reducing peak demand.

- **Integrated approach to offer customers a range of strategies, including:**
 - ▶ **curtailment opportunities for NYISO programs**
 - ▶ **permanent electric efficiency improvements and associated demand reductions**

NYSERDA



Integrating EE with DR Peak Load Reduction Program

Permanent Demand Reduction

- **Implement projects that result in long term demand reduction/permanent shift**
- **20 kW minimum demand reduction (can be aggregated)**
- **Common measures include lighting, motors, cooling system upgrades**

NYSERDA

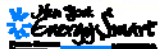




Integrating EE with DR Peak Load Reduction Program

Load Curtailment

- Identify and control discretionary loads
- Proof of registration in NYISO ICAP/SCR or DADRP for no less than two years
- Common measures include cooling load reductions, process shifting, lighting reductions, etc.
- 100 kW minimum (may be aggregated)
- Direct load control encouraged (Strong Incentives)



Integrating EE with DR Peak Load Reduction Program

- **Best Practice**
 - ▶ Education and outreach
- **Lesson Learned**
 - ▶ Gauging level of incentive is critical
- **Next Steps**
 - ▶ Target economic DR to help meet load growth
 - ▶ Con Edison Order





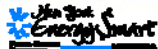
Integrating DR & EE in New York **Westchester \$mart Homes Pilot**

Program Goal:

Allow residents of Westchester County to take advantage of in-home diagnostics, technology, rate structures and next-day energy prices to shift load and reduce their overall energy consumption.

- ▶ **Use advanced meter to document energy use patterns and encourage peak reduction and EE improvements (RT Pricing).**

NYSERDA



Westchester Pilot “Firsts” **Westchester Smart Homes Pilot**

- **First residential deployment of daily time-sensitive pricing in the nation.**
- **First non-utility market-based rate offering in the nation.**
- **First residential remotely-read, interval metering project in New York**

NYSERDA

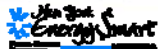




Integrating DR & EE in New York Westchester Smart Homes Pilot

Participants in the pilot program receive the following benefits:

- Advanced interval electric meter
- Billing based on four daily blocks of time.
- Next day's electricity prices available in late afternoon.
- Historical energy use profile available.
- "Whole House" energy assessment performed by a qualifying contractor.



Integrating DR & EE in New York Westchester Smart Homes Pilot

- **Best Practice**
 - ▶ 30 minute educational home visits
- **Lesson Learned**
 - ▶ Management of information flow
- **Next Steps**
 - ▶ Analyze pilot results
 - ▶ New York City RT Price Pilot for multi-family buildings.
 - ▶ Could lead to statewide program





Integrating DR & EE in New York Future Plans

- **Fleet managed window ACs for whole building demand management**
- **Program enhancements to provide kW incentive in addition to kWh incentive**
- **SBC III – Third Round of Public Funding**

