

# RCX Summit

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## Northeast Chapter

## Building Commissioning Association

February 16, 2006

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# New York State Energy Research and Development Authority (NYSERDA)

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- Established in 1975 by State Legislature
- Mission: To identify solutions to State's energy challenges in ways that benefit the State's economy and environment
- Forge public and private partnerships with businesses, municipalities, residents, and other energy stakeholders to accomplish this goal.

# NYSERDA Responsibilities

- Research and Development
- System Benefits Charge
- Con Edison Electric and Gas
- US DOE and Federal Programs
- Energy Planning & Analysis
- West Valley Demonstration Project
- Executive Order #111
- Saratoga Technology & Energy Park (STEP)
- Renewable Portfolio Standard



# SBC Utilities

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Central Hudson Gas & Electric

Consolidated Edison Company of New York, Inc.

New York State Electric & Gas

National Grid

Orange and Rockland

Rochester Gas and Electric

# SBC

## Money, Jobs, Energy and Environment

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- SBC III 5-yr budget - \$875 million
  - EE Programs \$85.3 million
  - R&D Programs \$36.4 million
  - Low-Income \$38.0 million
- Operating Plan - Feb 15, 2006
- Operating Period:  
July 2006 – June 2011



# SBC Program Assistance

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## Technical Assistance Programs

- FlexTech
- Technical Assistance
- Energy Audits

## Implementation Programs

- New Construction
- C/I Performance
- Smart Equipment Choices
- Peak Load Reduction
- Loan Fund



# Technical Assistance and FlexTech

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## **Objective:**

- Promote electric demand reduction and electric and gas efficiency improvements through technical support.

## **Services:**

- Energy Feasibility studies
- Rate Analysis and Aggregation
- Long-Term Energy Management
- Energy Efficiency Retro-Commissioning

# FlexTech Program

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## FlexTech Objectives:

- Provide cost-shared technical assistance, including retro-commissioning
- 35 consultants under contract with NYSERDA
- Expand services in Con Edison territory with several new consultants

## Services:

- Applications accepted first-come, first-serve
- Project starts with phone call or referral
- Cost sharing 50% up to \$50,000

[www.nyserda.org/programs/flextech.asp](http://www.nyserda.org/programs/flextech.asp)

Contact: Jaime Ritchey ext. 3517

# Technical Assistance Program

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## PON 963 Objective:

- Provide cost-shared assistance for technical studies, and retro-commissioning investigation

## Services:

- Cost sharing 50% up to \$50,000
- First-come, first-serve
- Applicants use their own contractor
- Submit application and complete scope of work

[http://www.nyserda.org/programs/technical\\_assistance/](http://www.nyserda.org/programs/technical_assistance/)

Contact: Greg Lampman ext. 3372

# Energy Audit Program

**Objective:** Provide low cost “Walk Through Audits”

**Services:**

- Low cost energy audit
- Applicant must pay into the SBC Program
- Facility annual Electric Bills must be <\$50,000

Annual Electric Bills

- Less than \$12,000
- Less than \$50,000

Energy Audit Fee

\$100  
\$400

**<http://www.nyserda.org/programs/energyaudit.asp>**

Contact: Mark Gundrum ext. 3256

## Technical Assistance Case Study

### **The New York Marriott Marquis:**

- Variable Frequency Drives
- Insulation on exposed piping

**Projected savings of \$100,000  
annually with an installed cost of  
\$91,000; less than one year  
simple payback**

**Currently Retro-Commissioning  
with NYSERDA assistance**



# New Construction Program

## **PON 913 Objective:**

- Transform the way buildings are designed and built

## **Services:**

- Technical assistance
- Incentives to offset costs for energy efficient equipment and systems
- Commissioning

**Requirements:** A&E design team must be hired for project,  
Space unoccupied for 30 days

[http://www.nyserda.org/programs/New\\_Construction/default.asp](http://www.nyserda.org/programs/New_Construction/default.asp)

Contact: Marcia Ruth ext. 3412



## New Construction Program (cont.)

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### Technical Assistance:

- TA - NYSERDA pays first \$5,000, then 50% cost-share up to max \$100,000 NYSERDA contribution
- Other Services - NYSERDA pays first \$5,000, then 50% cost-share up to max \$50,000
  - Building Cx Services
  - Green Building Services
  - Peak Load Reduction Services
- Applicant Design Team Incentives – up to \$15,000

## New Construction Program (cont.)

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### **Applicant LEED® Incentives:**

Applicants receive flat rate incentive for projects that score minimum 2pts in LEED® Optimize EE category

- \$7,500 for projects under 50,000 sq ft
- \$15,000 for projects equal to or larger than 50,000 sq ft

### **Energy Benchmarking Incentives:**

Post-occupancy evaluation of building's energy performance within two years – max incentive 10% of capital cost incentives

## New Construction Program (cont.)

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### **Direct Capital Incentives:**

- Pre-qualified equipment – max \$50,000/project
- Custom Measures – max \$120,000/project
- Whole Building Design - max \$300,000/project
  - Up to \$330,000 for LEED® certified
  - Up to \$375,000 for >4 pts LEED® Optimize EE category
- Advanced Solar and Daylighting - max \$200,000
- Peak Load Incentives - \$100/kW curtailed summer peak load (Con Edison), or \$50/kW outside Con Ed

# New Construction Program Case Study

- Major expansion from 75,000 ft<sup>2</sup> to 130,000 ft<sup>2</sup>
- FlexTech\* and NCP Recommendations
  - Variable air-volume and supply systems with direct digital controls (DDC)
  - Run-around heat recovery for cooling-ventilation load reduction
  - Primary/secondary hot-water pumping
  - Geothermal groundwater cooling system\*
- Cost shared \$33,220 of the study cost and \$400,000 to offset installation costs
- Savings of \$139,745 annually; 397,453 kWh/ yr reduction
- Provided \$9,320 to commission the installation and start-up of this equipment.



*Albany Molecular  
Research, Inc.*

# Commercial/Industrial Performance Program

## PON 984 Objective:

- Build Robust ESCO Industry

## Services:

- Provide incentives to contractors that deliver verifiable electric energy savings
- Contractor - Energy Service Company (ESCO)
- Standard Performance Contract is between NYSERDA and contractor
- Contract between ESCO and Customer can be performance-based or fee-for-service



[http://www.nyserda.org/programs/Commercial\\_Industrial/CIPP.asp](http://www.nyserda.org/programs/Commercial_Industrial/CIPP.asp)

Contact: Eric Mazzone ext. 3371

# Commercial/Industrial Performance Program

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## Incentives:

- Lighting – \$0.05/kwh
- Motors, VSDs, EMS - \$0.10/kwh
- Chillers and Packaged A/C - \$0.20/kwh
- Incentives for custom measures determined by NYSERDA
- Incentives 20% higher for customers with consumption under 1 million kWh/year
- Incentive cap \$400,000, less than 30% project cost

# CIPP Case Study

## Recommendations from Technical Assistance Study:

- 1) Variable Frequency Drives
- 2) Replacement of 90-ton electric chiller
- 3) Energy efficient motors
- 4) LED exit signs, T-12 lighting



### **Total Recommendations:**

- 707,000 kWh saved
- 1.8 million kW saved
- \$310,000 saved

**NYSERDA contributed \$50,000 toward the study and more than \$146,000 in incentives from CIPP.**



*Jewish Home and Hospital  
Lifecare System*

# Peak Load Reduction Program

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## PON 955 Objectives:

- Control and reduce loads on specific NY electric utility systems
- Enable customers to participate in NYISO emergency programs
- Educate public on EE to shift consumption to off-peak periods

## Services:

- Permanent Demand Reduction incentives
- Load Curtailment/Shifting (LC/S) and Distributed Generation (DG) incentives to offset technologies to participate in NYISO's Installed Capacity/Special Case Resource Program
- Interval Meter (IM) incentives to offset portion of metering cost to participate in demand response or Real Time Pricing (RTP)

**<http://www.nyserda.org/programs/peak-load.asp>**

Contact: Chris Smith ext. 3360

## Peak Load Reduction Case Study

- 41 story property in Manhattan
- 28 tank ice storage system
- Ice slurry created at night.  
Circulated through cooling coils during daytime
- Shifted 350 ton load off-peak
- \$300,000 incentives
- Night electric rates much lower than day rates



*The Durst Organization*

# Smart Equipment Choices

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## PON 968 Objectives:

- Reduce demand and improve EE by market transformation through incentives for Lighting and Controls, Motors, VSD's, HVAC, Economizers, Clothes Washers, Kitchen Equipment

## Services:

- Helps cover capital replacement w/cash-back upon install
- Applicant may be owner or tenant
- Capped at \$10,000/applicant for Electric Conservation Measures.

<http://www.nyserda.org/programs/SmartEC/default.asp>

Contact: Kim Lenihan ext. 3410

# Smart Equipment Choices

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## **PON 968 Addendum B Objective:**

- Provide incentives for natural gas efficiency measures for **Con Edison Firm Gas Customers ONLY**

## **Services:**

- Incentives for Furnaces, Boilers, Heaters, Kitchen Equipment, and O&M measures including Boiler Tune-ups, Steam Trap Replacement
- Cap is \$25,000/applicant for Gas Efficiency Measures on list
- Up to additional \$100,000/applicant for “custom” gas measures submitted to NYSERDA w/qualified TA Study

# Smart Equipment Choices Examples

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## Village of Endicott

- Received \$10,000 for installing VSD's on their primary intake pumps at the WWTP

## N. Syracuse Schools

- Received \$9,460 for installing high efficiency lighting, daylight dimming controls, CO2 sensors for “demand control ventilation”



# Energy Smart Loan Fund

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## **PON 941 Objective:**

- Provides interest rate reductions on loans for energy-efficiency projects and renewable technologies.

## **Services:**

- Program buys down the interest rate on the loan by 4%
- Must use a participating lender (~70 across the state)
- Up to 10 year term
- Up to \$1,000,000 loan

<http://www.nyserda.org/loanfund/default.asp>

NYSERDA Contact: Marcia Ruth ext. 3412

# Future Building Performance Programs

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## **Innovative Opportunities Projects (PON 922)**

- Linkages to Improve Building Performance
- CUNY Building Performance Laboratory
- EE for Hospitals and Healthcare
- Self Benchmarking for High Tech Facilities

## **Other Funded Projects**

- Building Commissioning Pilot (STAC Funding)
- Small Commercial HVAC Research

## **Building Performance Programs**

- Building Performance Program for Con Edison (RFP 970)
- Business Partners for Building Performance

# Linkages to Improve Building Performance

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## Objectives:

- Continue adoption of RCx in NY
- Develop building owner Peer Exchange Network
- Coordinate with BOMA, REBNY and others
- Facilitate benchmarking using ENERGY STAR®

## Next Steps:

- Building Owners should contact Adam Hinge,  
HingeA@aol.com

# CUNY Building Performance Laboratory

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## Objectives:

- Establish institutional base for the promotion of Building Performance and Commissioning/Retro-commissioning
- Support long term workforce development and market transformation
- Build-out Local 94 Building Operators Training Center
- Advance new technologies in Building Performance

## Next Steps:

- Hold stakeholder meetings
- Begin BPL build-out and curriculum development
- Establish CUNY and private-company internships

**NYSERDA Contact:** Kim Lenihan (518)-862-1090 ext 3410

# EE within Hospitals and Healthcare

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## Objectives:

- Demonstrate savings through operational and behavioral changes in healthcare industry
- Provide specific benchmarking data and results

## Next Steps:

- Sites selected by NYSERDA
- Results: Best practices will be documented for building systems optimization in Healthcare

# Benchmarking for High Tech

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## Objectives:

- LBNL to deploy self benchmarking protocols for labs, clean rooms, data centers
- Develop targeted audit for these facilities
- Compare metrics to reveal RCx potential

## Next Steps:

- Demonstration sites selected
- Results: Best practices and protocols to be available for high tech labs

# Building Commissioning - Pilots

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## Objectives:

- Deploy new RCx tools in Northeast region
- Demonstrate ABCAT tool at EO#111 sites, and prove concept for new construction (post-occupancy evaluation and continuous commissioning)

## Next Steps:

- Dormitory Authority of State of New York (DASNY) pilot is underway
- New construction site selected, project work to follow

# Small Commercial HVAC Program

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## Objectives:

- Support HVAC contractors in small C/I
- Provide technical HVAC training and outreach
- Promote advanced diagnostics “HVAC Tune-ups”

## Next Steps:

- NBI and KEMA Inc. completing in-field performance evaluation and program design recommendations
- Develop regional and/or NYSERDA Small HVAC Program

# Building Performance Program (RFP 970)

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## Objective:

- Deliver demand reduction in Con Edison service territory through selected RCx projects

## Next Steps:

- Issue RFP 970 late Spring 2006
- Present program plan at Energy Awareness Day
- Develop Building Owner/Provider partnerships
- Proposals submitted by late Summer 2006

**NYSERDA Contact:** Kim Lenihan (518)-862-1090 ext 3410

# Building Performance Program (RFP 970)

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## **Program Description:**

- \$3.6 million approved for implementation and incentives
- Up to six RCX service providers (RSP's)/building projects
- One implementation contractor for program oversight

## **Project Requirements:**

- Each project to deliver minimum peak reduction 125kw
- Buildings must have minimum summer peak demand of 1.5MW
- Priority given to buildings with an EMS, interval meters, and a high normalized demand of  $> 5$  W/sq ft

# Building Performance Program (RFP 970)

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## Incentives:

- Incentives for large portion of RCX service costs and related M&V, not to exceed \$100,000 per project
- Incentives to building owners to buy-down implementation costs for recommended measures
- Building owners must assume costs and expenses to achieve minimum peak demand savings identified by RSP
- Training for building staff, and systems documentation
- M&V and case study development

# Further NYSERDA Assistance:

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Website: [www.nysERDA.org](http://www.nysERDA.org)

General Information about any program:

1-866-NYSERDA