Understanding Hourly Electricity Pricing

NYSERDA Programs
Today’s Presentation

• General overview of Hourly Pricing
• Historical pricing information
• What does Hourly Pricing mean to the customer, price elastic/inelastic capability
• NYISO Demand Response Programs
• NYSERDA Programs
Overview of Hourly Pricing (Day Ahead)

- NYISO DA hourly price determination
  - Hourly bids due by 5AM for next day
  - Hourly bids accepted/notification by 11:00 AM for next day
  - Hourly prices available for public at 11:00 AM for next day on NYISO website
"Rest of State"* Average Hourly DA Electric Price
January 2000 through December 2005 (Nominal$)

$ per MWh

Mean for 2000 & 2001: $38.2
Mean for 2002 & 2003: $41.5
Mean for 2004 & 2005: $60.7

Standard Deviation for 2000 & 2001: 23.1
Standard Deviation for 2002 & 2003: 17.7
Standard Deviation for 2004 & 2005: 23.4

*Rest of State is an average prices of zones “A” through “I”
"Rest of State"* Average Hourly DA Electric Prices
Full Year 2005 Only (Nominal$$)

$ per MWh

Mean: $72.4
Standard Deviation: 25.2

*Rest of State is an average price in zones "A" through "I"
Statewide, Zone "A", and Zone "K" Monthly Day-Ahead Electric Price
January 2001 through April 2006

- Zone "K" Prices ~19% > Statewide Average
- Prices in Nominal $/$MWh
- Zone "A" Prices ~20% < Statewide Average

Graph showing monthly electric price trends from January 2001 to April 2006 for statewide, Zone "A", and Zone "K".
"Rest of State"* Day-Ahead Price Duration Curve
Full Year 2005 Only (Nominal$$)

*Rest of State is an average price for zones "A" through "I".
What Does Hourly Pricing Mean to Customers

- Commodity portion approximately 55-65% most commercial, lower residential, higher industrial
- Whether the customer remains with the incumbent utility (full bundled service) or purchases competitively, some will take no action in response to high price periods - price inelastic
- Regardless of who the commodity is purchased from, some customers will take action to reduce loads during high price periods - price elastic
NYISO Programs

- **EDRP** (reliability)
  - NYISO initiated
  - Voluntary

- **ICAP/SCR** (reliability)
  - NYISO controlled
  - Penalties for non-performance

- **DADRP** (economic)
  - Customer controlled
  - Penalties for non-performance

NYISO’s Demand Response Programs are aimed at wholesale electricity Market Participants, Aggregators and NYISO Direct Customers
NYISO EDRP

The Emergency Demand Response Program

- Reliability Program
- Minimum Resource Size: 100 kW, may aggregate within Zones to reach threshold
- Activated in Response to forecast or actual Operating Reserve Deficiency
- Payment for Energy (kWh) Reduction
- Provider notified of activation 2 hours ahead, if possible
  - Paid the greater of real-time marginal price or $500/MWh & guaranteed 4 hour minimum
  - May set real-time market price at $500
- Available to curtailable load & emergency backup generation (including generation in excess of host load)
- Open to Load Serving Entities (LSEs), Direct Customers, and Aggregators (Curtailment Service Providers - CSPs)
- Activated after ICAP SCR resources if deemed necessary by Operations
- Voluntary Response – No Penalties for Non-Performance
- Credit Requirements: None
- Fee to become CSP: None
ICAP/SCR

The ICAP Special Case Resources Program

• Reliability Program
• Minimum Resource Size: 100 kW, may aggregate within Zones to reach threshold
• Activated in response to a forecast or actual Operating Reserve Deficiency
• Payment for Capacity (kW) Reduction plus Payment for Energy (kWh)
• Provider advised with day-ahead advisory and a 2-hour in-day notification
  – Paid for energy reduction: real-time market price or Strike Price (maximum $500/MWh), whichever is greater & guaranteed 4 hour minimum
  – May set real time market price under scarcity pricing rules
• Available to curtailable load & emergency backup generation (including generation in excess of host load)
• Open to Load Serving Entities (LSEs), Direct Customers, and Aggregators (Responsible Interface Providers – RIPS)
• Activated prior to Emergency Demand Response resources
• Mandatory Response – Subject to penalties and derated for non-compliance
• Credit Requirements: None
• Fee to become RIP: None
DADRP

The Day-Ahead Demand Response Program

- Economic Program
- Minimum Resource Size: 1 MW, may aggregate within Zones
- Load Bids curtailment in Day-Ahead Market just like a generator - if chosen, can set marginal price. $75/MWh minimum bid.
- Payment for Energy (kWh) Reduction
- Parties submitting accepted bids get:
  - Notified by 11:00 a.m. schedule commitment for the next day (midnight-midnight)
  - paid greater of marginal price or bid for actual interruption
- Available to interruptible load only (generation excluded)
- Open to Load Serving Entities (LSEs), Direct Customers, and Aggregators (Demand Reduction Providers – DRPs)
- Activated prior to Emergency Demand Response resources
- Mandatory Response – Penalties Assessed for Non-Compliance
  - penalized for buy-through at Day-Ahead or Real-Time marginal price, whichever is greater
- Credit Requirements: Relaxed from Generator Levels
- Fee to become DRP: None
# NYSERDA Programs

## Commercial Buildings Services

### Existing Buildings

<table>
<thead>
<tr>
<th>Energy Efficiency</th>
<th>Load Management</th>
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<tbody>
<tr>
<td>• Technical Assistance</td>
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### New Bldgs/Major Renovations

| • Reimbursement Incentives |
| • Financing Assistance |
| • New Construction Services |
Technical Assistance Services

FlexTech and Technical Assistance

- **Studies to assist customers to make energy decisions**
- **50% cost share, NYSERDA share up to $50K**
- **FlexTech Contractors**
  - 35 pre-qualified by NYSERDA
  - Open program,
- **Technical Assistance Contractors**
  - Customer choice of contractor to perform services
  - Customer reimbursed after study approval
Technical Assistance Services

FlexTech and Technical Assistance

- Energy Operations Management
- Comprehensive Energy Audits
- Energy Procurement
- Combined Heat and Power
- Renewables
- Load Curtailment
- Feasibility Studies
- Process Improvements

1-866-NYSERDA(697-3732)

FlexTech

http://www.nyserda.org/programs/flextech.asp

Technical Assistance

http://www.nyserda.org/programs/Technical_Assistance/default.asp
Technical Assistance Services

FlexTech and Technical Assistance

Hourly Pricing Studies

- Strategies to minimize costs
- Real Time Pricing vs. Competitive Offerings
  - Hedge products for dynamic rates
- Identify and develop implementation plans for load shifting opportunities

1-866-NYSERDA(697-3732)

FlexTech

http://www.nyserda.org/programs/flextech.asp

Technical Assistance

http://www.nyserda.org/programs/Technical_Assistance/default.asp
Peak Load Management Services

Peak Load Reduction Program

- Permanent Demand Reduction
  - Time sensitive energy efficiency, lighting cooling, motors, etc.
  - Fuel switch (electric to other)
- Load Curtailment/Shifting (NYISO programs)
- Interval meters up to $2,000 (NYISO programs)
Peak Load Management Services

Permanent Demand Reduction

- Implement projects that result in long term demand reduction/permanent shift
- Common measures include lighting, motors, cooling system upgrades, prescriptive lighting option, high efficiency chiller bonus
- Equipment efficiencies must meet or exceed minimum energy codes (ASHRAE 90.1 & NEMA)
- Fuel switch (electric to other)
- Simplified participation process for prescriptive lighting projects
- Bonus for super high efficiency chillers
Peak Load Management Services

Load Curtailment/ Shifting

- Supports NYISO ICAP/SCR or DADRP or TO demand response programs
- Identify and control discretionary loads
- Common measures include EMS, duty cycling, cooling load reductions, process shifting, lighting reductions, etc.
- Automated process/direct load control encouraged (100% reimbursement)
Peak Load Management Services

Interval Meters

- Interval metering primarily intended for primary electric service entry
- Proof of registration in NYISO DRP, LSE LM, TOU/RTP program for no less than two years
- PSC revenue grade - $2,000/meter
- NYISO compliant - $1,500/meter
## Peak Load Management Services

### Peak Load Reduction Program

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<tr>
<th>PDR</th>
<th>LOS</th>
<th>DG</th>
<th>IM</th>
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<td>Con Edison Territory</td>
<td>Non-Con Edison Service Territory</td>
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</tr>
<tr>
<td>$500+/kW² Electric-to-Steam COP³ &gt; 1.02 $1,000kW</td>
<td>$225+/kW² $200kW</td>
<td>$45/kW</td>
<td>$120kW existing DR</td>
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<tr>
<td>COP³ &lt;= 1.02 $600kW</td>
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- **http://www.nyserda.org/programs/peak-load.asp**
- **1-866-NYSERDA(697-3732)**
Reimbursement Incentives Services

Smart Equipment Choices

- Helps buy down the cost of capital equipment, existing/new bldgs
- Similar to rebate, reimbursement upon installation
- Incentives for pre-qualified/custom measures
- Applicant may be owner or tenant
- Cap of $25,000/applicant

http://www.nyserda.org/programs/SmartEC/default.asp
1-866-NYSERDA(697-3732)
Financial Assistance Services

Loan Fund

• Buy-down interest rate by 4.0% for energy efficiency measures
• 70 participating lenders
• Existing bldgs, new bldgs (measures incented under NCP/SEC to be eligible)
• Can be used in combination with other incentives
• $1M cap. Additional $500,000 for green building improvements
• Measure(s) must have simple payback <10 yr

http://www.nyserda.org/loanfund/default.asp
1-866-NYSERDA(697-3732)
Performance-Based Incentives Services

Commercial/Industrial Performance Program

- Standard performance contract between NYSERDA and contractor
- Incentives to contractors that deliver verifiable electric energy savings
  - Lighting $0.05 per kWh saved
  - Motors/EMS/VSDs $0.10 per kWh saved
  - Cooling $0.20 per kWh saved
- Contractor Cap - $5 million, Customer - $1 million
- Project Cap – 30% of project costs

http://www.nyserda.org/programs/Commercial_Industrial/cipp.asp
1-866-NYSERDA(697-3732)
New Bldg/ Major Renovations

New Construction Services

- New construction and substantial renovations (30 days vacant)
- Financial incentives offset added costs for more energy-efficient equipment
- Technical Assistance for:
  - Energy-Efficiency opportunity
  - Green Building
- Commissioning, LEED incentives
- Building cap $1M, 3 projects/customer

1-866-NYSERDA(697-3732)
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Website

NEW YORK STATE

Click Here to View the TEXT ONLY Version of this Web Site

NYSERDA
New York State Energy Research and Development Authority

George E. Pataki
Governor

Vincenzo A. DeLucia, Esq.
Chairman

Peter B. Smith
President

Other NYSERDA Related Sites
GetEnergySmart | HVAC Program | Power...Naturally | Premium Efficiency Motors | Small Commercial Lighting | The Right Light™

Board of Directors | Privacy Policies | Disclaimer | NYSERDA Regulations | Comments?

17 Columbia Circle, Albany, NY 12201-0300
Toll-Free: 1-888-NYSERDA or Local: 518-482-1080 Fax: 518-482-1081
Website

NEW YORK STATE

NYSERDA works to help New York State save energy, reduce energy costs, protect the environment and improve the economy.

**FIND IT**

**SEARCH**

**ABOUT NYSERDA**

**FUNDING OPPORTUNITIES**

**EVENTS**

**CONTACT US/DIRECTIONS**

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### NEWS AND NOTES

- Check out our latest energy saving tips and materials for schools!
- School Energy Benchmarking
- Wind Energy Toolkit: Community Resources for Wind Development
- Fuel-Saving Tips from NYSERDA
- New Con Edison Gas Efficiency Program
- Minimum Energy Efficiency Standards Enacted for State Purchased

### WHERE CAN I FIND...

- Funding Opportunities: Agricultural, Commercial / Industrial
- Energy Prices: Commercial / Industrial
- Events: Con Edison Gas
- State Energy Planning: Hospitals / Institutions
- Success Stories: Municipal
- Forms/Applications: Residential
- Contact Us: Residential Family

### INCENTIVES FOR...

- Energy Analysis
- Research & Development
- Energy Efficiency
- Small Commercial Lighting Program - The Right Light

### PROGRAMS

- Commercial / Industrial
- Economic Development
- HVAC
- Premium-Efficiency Motors Program

### OTHER NYSERDA SITES

- GetEnergySmart.org (Residential Info.)
- Renewable Energy - Power. Naturally.org
- NYSERDA Home Page
# Current Funding Opportunities

Technical questions should be directed to the appropriate project managers. The main NYSERDA phone number is **toll-free 1-866-NYSERDA or Local (518) 862-1090**, extensions and e-mail addresses for the project managers are listed below.

Sign up to receive e-mail updates for new Funding Opportunities.

<table>
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<th>DESCRIPTION</th>
<th>CONTACT NAME</th>
<th>DATE DUE</th>
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<tr>
<td><strong>Flexible Technical Assistance (Flex Tech)</strong></td>
<td>Customers seeking FlexTech assistance for buildings. Provides consulting on technical assistance services tailored to answer customer-specific energy questions. Services are performed by pre-qualified FlexTech Consultants.</td>
<td>Jaime Ritchey ext. 3517</td>
<td>Continuous</td>
</tr>
<tr>
<td><strong>EnVest Program</strong></td>
<td>Provides State-owned and operated buildings a streamlined method to use an energy-performance contract to complete energy-efficiency improvements.</td>
<td>Tom Barone Ext. 3307</td>
<td>Continuous</td>
</tr>
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Questions?

- General program information, 1-866-NYSERDA (697-3732)
- Hourly Pricing information PLRP 518-862-1090
  - Chris Smith ext 3360-CJS@NYSERDA.ORG
  - Pete Savio ext 3334-PPS@NYSERDA.ORG
  - Lee Smith ext 3313-LLS@NYSERDA.ORG
  - Ann Travison (administrative) ext 3241 AMT@NYSERDA.ORG
- FlexTech/Technical Assistance
  - Jaime Ritchey ext 3517 –JJR@NYSERDA.ORG