**NYSERDA** **New York State Energy Research and Development Authority**

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August 29, 2008

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The Honorable Jaclyn A. Brilling
Secretary
New York State Public Service Commission
Three Empire State Plaza
Albany, New York 12223-1350

*Case 05-M-0090, Order Continuing the System Benefits Charge (SBC) and the SBC-Funded Public Benefit Programs*

Dear Secretary Brilling,

Pursuant to the December 21, 2005 Order approving the continuation of the System Benefits Charge Program in the above-referenced proceeding, enclosed please find an original and five copies of the quarterly report for the period ending June 30, 2008, prepared by the New York State Energy Research and Development Authority.

Sincerely,

Jeffrey J. Pitkin
Treasurer

Enclosures

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# NEW YORK ENERGY $MART[SM] PROGRAM

# QUARTERLY EVALUATION AND STATUS REPORT

QUARTERLY REPORT TO THE PUBLIC SERVICE COMMISSION

QUARTER ENDING JUNE 30, 2008

## FINAL REPORT

AUGUST 2008

New York Energy $mart℠

PUBLIC SERVICE COMMISSION

NYSERDA

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# 1 Introduction

This report provides an update on the progress of the **New York Energy $mart**[SM] public benefits Program (Program) toward meeting its stated goals. It contains evaluation results on Program activities through the quarter ending June 30, 2008. The last full annual report on progress (through December 31, 2007) was issued in March 2008.[1]

The 13-year Program, funded by a System Benefits Charge (SBC) and administered by the New York State Energy Research and Development Authority (NYSERDA), was initiated in 1998 by order of the New York State Public Service Commission[2] (the Commission) and embodies three funding cycles.[3] The Program portfolio consists of numerous initiatives promoting energy efficiency and demand management, facilitating renewable energy development, providing energy services to low-income New Yorkers, and conducting research and development. The activities pursued by the Program include disseminating information to increase consumer energy awareness, marketing, providing financial incentives, developing and testing new products, commercializing new technologies, and gathering data and information.

## 1.1 Organization of the Report

This report was prepared by NYSERDA staff with contributions from a team of independent third-party evaluation contractors. The contractors work closely with NYSERDA's program implementation staff and contractors, customers, and market and trade allies to develop an understanding of the Program offerings and to conduct independent assessments of the Program's impacts and progress toward the established public policy goals. The evaluation functions covered by the specialty contractor teams are: impact evaluation; market characterization and assessment; and process assessment and evaluation management. This report is divided into the following sections:

- Section 1 Introduction
- Section 2 Portfolio-Level Reporting
- Section 3 Commercial/Industrial Programs
- Section 4 Residential and Low-Income Programs
- Section 5 Research and Development Programs

[1] New York State Energy Research and Development Authority, ***New York Energy $mart***[SM] *Program Evaluation and Status Report, Final Report*, March 2008.

[2] Case 94-E-1052, *et al.*, In the Matter of Competitive Opportunities Regarding Electric Service, Opinion 98-3, issued January 30, 1998.

[3] The most recent cycle was initiated with the New York State Public Service Commission order in Case 05-M-0900, In the Matter of the System Benefits Charge III, *Order Continuing the System Benefits Charge (SBC) and the SBC-funded Public Benefit Programs*, issued and effective December 21, 2005.

# 2 Portfolio-Level Reporting

## 2.1 Budget and Spending Status

This section presents financial data for the **New York Energy $mart**[SM] Program from 1998 through June 30, 2008. Of the $1.87 billion, 13-year budget, $1.68 billion is allocated to four major program areas; Commercial/Industrial, Residential, Low-Income, and Research and Development (R&D), and a general awareness campaign. The percentage of each program area budget spent[1] to date is: 51.6% for Commercial/Industrial, 71.5% for Residential, 49.9% for Low-Income, and 40.2% for R&D. Budgets and spending are presented in Table 2-1 along with costs for program administration, evaluation, Environmental Disclosure[2], and the New York State Cost Recovery Fee[3]. Table 2-2 shows the budget and spending for individual **New York Energy $mart**[SM] programs.

**Table 2-1. Financial Status of New York Energy $mart[SM] Program through June 30, 2008 ($ million)**

| | Total 13-Year Budget [1] | Funds Spent | | | |
|---|---|---|---|---|---|
| | | SBC I & SBC II [2] | SBC III [3] | Total Spent | % of Budget Spent |
| Commercial/Industrial | 634.0 | 247.1 | 79.9 | 327.1 | 51.6% |
| Residential | 312.8 | 165.4 | 58.2 | 223.6 | 71.5% |
| Low-Income | 318.6 | 86.6 | 72.5 | 159.1 | 49.9% |
| Research and Development | 388.3 | 105.9 | 50.2 | 156.1 | 40.2% |
| General Awareness[4] (Marketing) | 31.0 | 15.9 | 4.0 | 19.8 | 63.9% |
| **Program Areas Total** | **$1,684.6** | **$620.9** | **$264.8** | **$885.7** | **52.6%** |
| Program Administration | 128.3 | 59.8 | 26.9 | 86.8 | 67.6% |
| Metrics and Evaluation | 34.4 | 14.5 | 5.3 | 19.8 | 57.6% |
| Environmental Disclosure | 1.9 | 0.8 | -0.8 | <0.1 | 2.5% |
| NYS Cost Recovery Fee | 25.4 | 9.2 | 5.2 | 14.4 | 56.7% |
| **Other Costs Total** | **$190.1** | **$84.3** | **$36.7** | **$121.0** | **63.6%** |
| **Total New York Energy $mart[SM]** | **$1,874.7** | **$705.2** | **$301.5** | **$1,006.7** | **53.7%** |

[1] Reflects reallocation of funding among programs as approved by the Public Service Commission.

[2] SBC I: July 1, 1998 through June 30, 2001; SBC II: July 1, 2001 through June 30, 2006.

[3] SBC III: July 1, 2006 through June 30, 2011.

[4] General Awareness previously included in Residential Program Area.

Totals may not sum exactly due to rounding. Source: NYSERDA

[1] Invoices paid.

[2] This program provides electricity commodity suppliers with data for informing customers about the fuel mix and associated environmental impacts of their electricity sources.

[3] The New York State Cost Recovery Fee is assessed for services to public authorities. The fee is determined by the New York State Division of Budget and imposed and collected by the Department of Taxation and Finance.

## Table 2-2 Individual Programs – Financial Status through June 30, 2008 ($ million)

| Program | Budget | Funds Spent | | | |
|---|---|---|---|---|---|
| | Total Budget [1] | SBC I & SBC II [2] | SBC III [3] | Total Funds Spent | % of Budget Spent |
| **Commercial/Industrial** | | | | | |
| Peak Load Management | 88.2 | 35.1 | 9.7 | 44.7 | 50.7% |
| Enhanced Commercial/ Industrial Performance | 238.2 | 100.3 | 20.2 | 120.6 | 50.6% |
| **New York Energy $mart**[SM] Business Partners | 43.9 | 21.1 | 6.0 | 27.1 | 61.7% |
| Loan Fund and Financing | 25.4 | 12.3 | 12.9 | 25.2 | 99.2% |
| Energy Smart Focus | 18.9 | 4.8 | 4.0 | 8.8 | 46.6% |
| New Construction Program | 164.4 | 53.1 | 22.5 | 75.5 | 45.9% |
| FlexTech Technical Assistance | 55.2 | 20.4 | 4.7 | 25.2 | 45.7% |
| **Total Commercial & Industrial** | **$634.0** | **$247.1** | **$79.9** | **$327.1** | **51.6%** |
| **Residential & Low-Income** | | | | | |
| Single Family Home Performance | 107.5 | 47.4 | 23.7 | 71.1 | 66.1% |
| Multifamily Building Performance | 44.5 | 18.3 | 10.6 | 28.9 | 64.9% |
| Market Support Residential | 148.9 | 96.5 | 20.4 | 116.9 | 78.5% |
| Communities and Education | 11.9 | 3.2 | 3.5 | 6.6 | 55.5% |
| **Subtotal Residential** | **$312.8** | **$165.4** | **$58.2** | **$223.6** | **71.5%** |
| Single Family Home Performance | 78.3 | 22.3 | 14.5 | 36.7 | 46.9% |
| Multifamily Building Performance | 160.0 | 45.4 | 31.1 | 76.5 | 47.8% |
| EmPower New York | 63.7 | 14.3 | 25.0 | 39.2 | 61.5% |
| Buying Strategies & Energy Awareness | 16.6 | 4.7 | 2.0 | 6.7 | 40.4% |
| **Subtotal Low-Income** | **$318.6** | **$86.6** | **$72.5** | **$159.1** | **49.9%** |
| **Total Residential and Low-income** | **$631.3** | **$252.1** | **$130.7** | **$382.7** | **60.6%** |
| **Research and Development** | | | | | |
| Public Benefit Power Transmission and Distribution | 10.0 | 0.0 | 0.1 | 0.1 | 1.0% |
| Clean Energy Infrastructure (includes closed program: End Use Renewables) | 91.1 | 19.0 | 22.8 | 41.8 | 45.9% |
| Distributed Energy Resources: Power Systems Product Development & DG-CHP Demonstrations | 149.2 | 34.0 | 15.1 | 49.1 | 32.9% |
| Demand Response and Innovative Research | 10.0 | 0.0 | <0.1 | <0.1 | 0.1% |
| Electric Transportation | 5.0 | 0.0 | 0.5 | 0.5 | 10.0% |
| Environmental, Monitoring, Evaluation, & Protection | 39.1 | 17.7 | 4.1 | 21.9 | 56.0% |
| Industrial and Municipal Process Efficiency | 15.0 | 0.0 | 0.6 | 0.6 | 4.0% |
| Next Generation and Emerging Technologies | 42.7 | 18.3 | 4.4 | 22.7 | 53.2% |
| Wholesale Renewable Energy Market | 22.7 | 16.5 | 2.2 | 18.7 | 82.4% |
| Other | 0.4 | 0.4 | 0.0 | 0.4 | 100.0% |
| Regional Greenhouse Gas Initiative | **3.0** | **0.0** | **0.3** | **0.3** | **10.0%** |
| **Total Research and Development** | **$388.3** | **$105.9** | **$50.2** | **$156.1** | **40.2%** |
| General Awareness (Marketing) | 31.0 | 15.9 | 4.0 | 19.8 | 63.9% |
| **Total New York Energy $mart**[SM] **Programs** | **$1,684.6** | **$620.9** | **$264.8** | **$885.7** | **52.6%** |

[1] Reflects reallocation of funding among programs as approved by the Public Service Commission.

[2] SBC I: July 1, 1998 through June 30, 2001; SBC II: July 1, 2001 through June 30, 2006.

[3] SBC III: July 1, 2006 through June 30, 2011.

Totals may not sum exactly due to rounding. Source: NYSERDA

## 2.2 Portfolio Level Findings

### *2.2.1 Progress Toward Goals*

Overall, the **New York Energy $mart**[SM] programs are performing well toward their five-year goals[4] in the areas of energy savings, demand reduction, and other key metrics. This section discusses general progress toward these goals. Sections 3, 4, and 5 contain more detailed information. In summary:

- Commercial/Industrial (C/I) programs are showing good progress toward their individual electricity and demand savings goals. Progress on the large majority of programs is at, or above, expected levels at this point in the five-year measurement period.
- Within the C/I program area, twelve different five-year goals have been set for metrics other than energy and peak demand savings. These metrics capture progress in key areas such as the number of customers served, allies participating, and dollars leveraged. The programs are performing well on these non-energy goals.
- The Residential and Low-Income programs are making good progress toward their individual electricity and fuel savings goals. The Multifamily Building Performance Program has been significantly revised and is still ramping up, and most of the other programs are performing at expected levels.
- Twenty-six long-term goals have been set for important non-energy metrics in the Residential and Low-Income areas, including the number of customers participating, outreach efforts and people affected, and dollars leveraged. Overall, the programs are making progress toward these goals.
- Almost 40 long-term non-energy goals have been set for the R&D portfolio. These goals address metrics such as solicitations released, projects funded, information dissemination, co-funding, and technology transfer. In general, the programs are tracking well toward these long-term non-energy goals.

Beyond the above stated goals, programs also continue to make excellent progress toward the following overarching public policy goals.

- Goal 1: Improve New York's energy system reliability and security by reducing energy demand and increasing energy efficiency, supporting innovative transmission and distribution technologies that have broad application, and enabling fuel diversity, including renewable resources.
    - Together, the **New York Energy $mart**[SM] programs are saving approximately 3,130 GWh of electricity annually.
    - Approximately 1,220 MW of peak demand reduction has been installed, including 650 MW from permanent measures and 570 MW from curtailable measures.
    - More than 100 GWh of clean, renewable energy is being generated annually, enough to power more than 17,000 homes per year.
- Goal 2: Reduce the energy cost burden of New Yorkers by offering energy users, particularly the State's lowest income households, services that moderate the effects of energy price increases and volatility and provide access to cost-effective energy efficiency options.

[4] Five-year goals were specified in the *System Benefits Charge Proposed Plan for **New York Energy $mart**[SM] Programs (2006-2011)*, March 2, 2006. These goals were set at the program level, and included energy savings, demand reductions and other important metrics. The five-year goals cover the time period from July 1, 2006 through June 30, 2011.

- The **New York Energy $mart**[SM] programs are saving customers approximately $590 million annually on their energy bills.
- In total, 67,071 low-income households have been served. On average, each household's energy bill has been reduced by $325 per year.
- The **New York Energy $mart**[SM] Program has achieved a benefit-cost ratio of 2.1 under the most conservative Total Resource Cost Test scenario.[5]

- Goal 3: Mitigate the environmental and health impacts of energy use by increasing energy efficiency, encouraging the development of support services for renewable energy resources, and optimizing the energy performance of buildings and products.
  - The emission reductions from the **New York Energy $mart**[SM] Program energy savings are more than 2,640 tons of nitrogen oxide, 4,810 tons of sulfur dioxide, and more than 2.0 million tons of carbon dioxide annually, the equivalent of removing more than 410,000 cars from the road.
- Goal 4: Create economic opportunity and promote economic well-being by supporting emerging energy technologies, fostering competition, improving productivity, stimulating the growth of New York energy businesses, and helping to meet future energy needs through efficiency and innovation.
  - The **New York Energy $mart**[SM] programs have led to the creation or retention of approximately 4,700 jobs.
  - Over the past 24 months, NYSERDA has worked with 19 companies to expand their renewable energy businesses (15) and renewable energy product manufacturing (4) in New York.

### *2.2.2 Summary of Program Benefits*

Table 2-3 shows the cumulative **New York Energy $mart**[SM] Program benefits through June 30, 2008 and through the last four calendar years. Cumulative annual electric savings have reached approximately 3,130 GWh. Peak demand reduction efforts have led to a total reduction of 1,220 MW that consists of permanent and curtailable demand reductions. Renewable energy generation now amounts to 106 GWh.

**Table 2-3. Cumulative Program Benefits from Installed Measures**

| Benefits | Through Year-End 2004 | Through Year-End 2005 | Through Year-End 2006 | Through Year-End 2007[2] | Through June 30, 2008 |
|---|---|---|---|---|---|
| Electricity Savings from Energy Efficiency and On-Site Generation (Annual GWh) | 1,400 | 1,950 | 2,350 | 3,060 | 3,130 |
| Renewable Energy Generation (Annual GWh) | 102 | 103 | 105 | 106 | 106 |
| Peak Demand Reduction (MW) | 860 | 1,040 | 1,113 | 1,200a | 1,220a |
| Permanent Measures (MW) | 325 | 445 | 495 | 650 | 650 |
| Curtailable | 535 | 595 | 618 | 550b | 570b |
| Net Fuel Savings (Annual MMBtu) | 2,600,000 | 4,000,000 | 4,049,000 | 4,660,000 | 5,230,000 |

[5] NYSERDA, ***New York Energy $mart***[SM] *Program Evaluation and Status Report, Final Report*, March 2008.

| Benefits | Through Year-End 2004 | Through Year-End 2005 | Through Year-End 2006 | Through Year-End 2007[2] | Through June 30, 2008 |
|---|---|---|---|---|---|
| Annual Energy Bill Savings to Participating Customers ($ Million) | $195 | $275 | $330 | $570 | $590 |
| Jobs Created and Retained per Year[1] | 2,500 | 3,100 | 3,700 | 4,700 | 4,700 |
| $NO_x$ Emissions Reductions (Annual Tons) | 1,280 | 1,750 | 2,060 | 2,570 | 2,640 |
| $SO_2$ Emissions Reductions (Annual Tons) | 2,320 | 3,170 | 3,800 | 4,720 | 4,810 |
| $CO_2$ Emissions Reductions (Annual Tons) | 1,000,000 | 1,400,000 | 1,600,000 | 2,000,000 | 2,050,000 |
| Equivalent number of cars removed from NY roadways | 200,000 | 275,000 | 320,000 | 400,000 | 410,000 |

[1] Figures in this row represent the average number of jobs created and retained through the most recently completed year-end. Results from 2004 and 2005 have been restated based on new analysis conducted in 2006.

[2] Due to the addition of 2005 and 2006 CFL energy savings and 2006 appliance savings from the ENERGY STAR Products program, the electricity savings and demand reductions for 3rd quarter 2007 show a significant increase from year-end 2006. Year-end savings for 2005 and 2006 were not back-adjusted to reflect these additional savings. The gains in savings also impact bill savings, gas and oil savings, and emissions reductions.

a Does not include 9.8 MW of renewable energy generation capacity.

b Curtailable MW decreased due to a reassessment of the impact of the Enabling Technologies Program. MWs enabled under the SBC2 Enabling Technologies for Price Responsive Load Program were not required to persist beyond the period of the contract. As such, the available MWs have steadily declined since the program's close.

## 2.3 Solicitations Update

Table 2-4 shows Requests for Proposals (RFPs) and Program Opportunity Notices (PONs) released during the third quarter of 2008. Only new solicitations released in the second quarter are included. Additional solicitations released prior to the second quarter could still be open.

### Table 2-4. Solicitations Issued in 2nd Quarter 2008

| Solicitation Number | Solicitation Name | Solicitation Release Date | Solicitation Closing Date |
|---|---|---|---|
| **Residential Efficiency and Affordability Program Area** | | | |
| PON 1196 | Clean Energy Technology Training | 5/12/08 | 6/24/08 |
| RFP 1211 | Media Services | 6/2/08 | 7/1/08 |
| **R&D Program Area** | | | |
| PON 1200A | Environmentally Preferred Power Systems Technologies | 5/5/08 | 7/16/08 |
| PON 1200B | Environmentally Preferred Power Systems Technologies | 5/5/08 | 7/16/08 |
| PON 1217 | Advanced Energy Systems for NYC Passenger Mass Transit | 5/19/08 | 7/24/08 |
| PON 1223A | Advanced Transportation Technologies | 5/12/08 | 7/8/08 |
| PON 1223B | Advanced Transportation Technologies | 5/5/08 | 12/17/08 |
| PON 1241 | Distributed Generation as Combined Heat and Power | 6/30/08 | 8/14/08 |

# 3 Commercial/Industrial Programs

## 3.1 Commercial/Industrial Evaluation Activities

### 3.1.1 Completed Evaluation Activities

During the second quarter of 2008, NYSERDA's Evaluation Team and independent evaluation contractors completed a process evaluation on the Enhanced Commercial Industrial Performance Program (ECIPP).

### 3.1.2 Evaluation Activities in Progress and Planned

In the coming quarters, NYSERDA expects to complete the following evaluation projects:

- Impact evaluation of the largest energy-saving projects across the portfolio of programs, including projects in PLMP, ECIPP, NCP, DG-CHP, and FlexTech TA
- Year-end impact evaluation database reviews for the NCP and Loan Fund
- Non-energy impacts from the Rate Analysis and Aggregation program efforts
- Process evaluation study on New York City market

## 3.2 Summary of C/I Evaluation Results

### 3.2.1 Progress Toward Non-Energy Goals

Across the C/I programs, 12 logic-model driven goals were set for other key metrics besides energy savings, such as the number of customers receiving assistance, funds leveraged, and allies participating. The programs are performing well with respect to these non-energy goals. Specifically, 24 months into the five-year measurement period:

- Three of the 12 goals exceed 99%
- Progress on four of the 12 goals has reached 40% or more
- Progress on three of the 12 goals has reached 20% or more
- Progress on the remaining two goals is below 20%

### *3.2.2 Energy, Peak Demand, and Fuel Savings*

Table 3-1 shows the electricity savings achieved by the C/I programs as well as progress toward the five-year goals that have been established for selected programs. Table 3-2 shows peak demand savings and progress toward several program-specific goals in that area. Table 3-3 shows other fuel savings.

**Table 3-1. C/I Program Cumulative Annual Electricity Savings through June 30, 2008 and Progress toward Five-Year Goals**

| Program | Energy Savings (GWh) | | | | |
|---|---|---|---|---|---|
| | Savings achieved through | | | | |
| | June 30, 2006a (Cumulative) | June 30, 2008 (Cumulative) | July 1, 2006 through June 30, 2008 | Five-Year Goal through June 30, 2011 | Progress Toward Five-Year Goal (% achieved) |
| Peak Load Management: Permanent | 106.4a | 135.0 | 28.7 | 107 | 27% |
| Con Edison | 61.9a | 75.7 | 13.8 | 55 | 25% |
| Enhanced Commercial and Industrial Performance Program | 730.6 | 1,009.9 | 279.3 | 320 | 87% |
| Con Edison | 224.1 | 254.2 | 30.0 | N/A | N/A |
| Business Partners Program | 54.1 | 75.5 | 21.3 | 80 | 27% |
| Con Edison | 4.3 | 8.9 | 4.6 | N/A | N/A |
| Loan Fund and Financing | 49.6 | 105.0 | 55.4 | N/A | N/A |
| Con Edison | 0.5 | 21.7 | 21.2 | N/A | N/A |
| New Construction Program | 223.2 | 327.6b | 104.4 | 210 | 50% |
| Con Edison | 48.2 | 83.6b | 35.4 | N/A | N/A |
| FlexTech TA | 644.1 | 804.8 | 160.7 | 400 | 40% |
| Con Edison | 115.2 | 217.3 | 102.1 | N/A | N/A |
| Overlap Removed[1] | 126.7 | 191.3 | 64.6 | N/A | N/A |
| **Con Edison C/I Total** | **454.3** | **661.4** | **207.1** | **N/A** | **N/A** |
| **Statewide C/I Total** | **1,681.3** | **2,266** | **585.2** | **N/A** | **N/A** |

Note: N/A means not applicable (*i.e.*, a goal has not been set for this program).

a Savings reported previously included projects funded through the Con Edison Power Savings Partners Program. These savings have been removed to more accurately reflect accomplishments.

b Update of database in progress, third quarter 2007 savings used here as a placeholder.

[1] Overlap factors were updated in Q1 2008.

## Table 3-2. C/I Program Cumulative Peak Demand Savings through June 30, 2008 and Progress toward Five-Year Goals

| Program | Peak Demand Savings (MW) | | | | |
|---|---|---|---|---|---|
| | Savings Achieved through | | | Five-Year Goal through June 30, 2011 | Progress Toward Five-Year Goal (% achieved) |
| | June 30, 2006a | June 30, 2008 | July 1, 2006 through June 30, 2008 | | |
| Peak Load Management: Permanent | 42.5a | 56.1 | 13.5 | 60 | 23% |
| Con Edison | 27.4a | 36.7 | 9.2 | 45 | 20% |
| Peak Load Management: Callable | 421.1a | 461.3 | 40.1 | 240 | 17% |
| Con Edison | 188.3a | 211.3 | 23.0 | 125 | 18% |
| Enhanced Commercial and Industrial Performance Program | 132.5 | 172.2 | 39.7 | 50 | 79% |
| Con Edison | 54.7 | 62.9 | 8.2 | N/A | N/A |
| Business Partners Program | 11.8 | 18.5 | 6.7 | 16 | 42% |
| Con Edison | 1.0 | 2.1 | 1.1 | N/A | N/A |
| Loan Fund and Financing | 14.3 | 55.7 | 41.4 | N/A | N/A |
| Con Edison | 0.5 | 9.2 | 8.6 | N/A | N/A |
| New Construction Program | 45.5 | 75.2b | 29.7 | 24 | 124% |
| Con Edison | 15.9 | 24.8b | 8.9 | N/A | N/A |
| FlexTech TA | 120.9 | 149.3 | 28.4 | 80 | 36% |
| Con Edison | 30.6 | 43.4 | 12.8 | N/A | N/A |
| FlexTech TA: Callable | 10.2 | 11.4 | 1.2 | N/A | N/A |
| Overlap Removed[1] | 24.5 | 39.6 | 15.1 | N/A | N/A |
| **Con Edison C/I Total** | **318.4** | **390.4** | **71.9** | **N/A** | **N/A** |
| **Statewide C/I Total** | **774.4** | **960.1** | **185.6** | **N/A** | **N/A** |

Note: N/A means not applicable (*i.e.*, a goal has not been set for this program).

a Savings reported previously included projects funded through the Con Edison Power Savings Partners Program. These savings have been removed to more accurately reflect accomplishments.

b Update of database in progress, third quarter 2007 savings used here as a placeholder.

[1] Overlap factors were updated in Q1 2008.

**Table 3-3. C/I Program Cumulative Annual Fuel Savings through June 30, 2008**

| Program | Fuel Savings (MMBtu) | |
|---|---|---|
| | Savings Achieved through | |
| | June 30, 2006 | June 30, 2008 |
| Enhanced Commercial and Industrial Performance Program | 3,252 | 9,964 |
| Con Edison | 420 | 1,285 |
| Loan Fund and Financing | 137,239 | 674,308 |
| Con Edison | 4,941 | 50,573 |
| FlexTech Technical Assistance[1] | 3,164,000 | 3,306,000 |
| Con Edison | 800,846 | 892,620 |
| Overlap Removed | 158,200 | 405,277 |
| **Con Edison C/I Total** | **806,207** | **944,478** |
| **Statewide C/I Total** | **3,146,291** | **3,584,995** |

Note: No five-year goals were established for fuel savings.

[1] The methodology to assess impacts focuses on developing samples based on electricity savings, rather than fuel, resulting in a less than optimal sample for fuel-savings projects and fluctuation over time in the calculated impacts. Also, the program recommends on-site generation, which would result in an increase in fuel use, offsetting fuel reductions achieved.

## 3.3 Peak Load Management Program (PLMP)

### *3.3.1 Progress Toward Goals*

As shown in Table 3-4, the Peak Load Management Program has a goal to assist 750 customers over five years. The program has now assisted more customers than anticipated, and the goal has nearly been met after two years.

**Table 3-4. Peak Load Management Program — Goal and Achievement**

| Activity | Program Goal (July 1, 2006 through June 30, 2011) | Achieved (July 1, 2006 through June 30, 2008 | % of Goal Achieved |
|---|---|---|---|
| Customers receiving assistance | 750 | 746 | 99% |

### *3.3.2 Energy, Peak Demand and Fuel Savings*

Table 3-5 shows the cumulative annual peak demand and electricity savings from the following PLMP components: the Dispatchable and Emergency Generator Initiative (DEGI), Load Curtailment/Shifting (LC/S), Interval Meters (IM), Permanent Demand Reduction Efforts (PDRE), and the discontinued Cooling Recommissioning element. A realization rate and net-to-gross ratio are applied to adjust the program reported savings based on the most recent Measurement and Verification (M&V) and Attribution evaluation studies. Net savings in the rightmost column are the total savings being claimed by the program after these evaluation activities.

**Table 3-5. PLMP Cumulative Annual Energy and Peak Demand Savings through June 2008**

| | Program Reported Savings | M&V Realiza-tion rate | Adjusted Gross Savings | Freerider-ship | Spillover | Net-to-Gross Ratio[1] | Net Savings |
|---|---|---|---|---|---|---|---|
| DEGI (MW) | 94.1 | 0.86 | 80.9 | 24% | 25% | 0.95 | 76.9 |
| LC/S (MW) | 152.6 | 0.92 | 140.4 | 24% | 25% | 0.95 | 133.4 |
| PDRE ( MW) | 49.2 | 0.94 | 46.2 | 25% | 37% | 1.03 | 47.5 |
| Cooling Recom-missioning (MW) | 8.6 | 1.0 | 8.6 | 0% | 0% | 1.0 | 8.6 |
| IM (MW) | 268.9 | 0.85 | 228.6 | 10% | 22% | 1.1 | 251.0 |
| **Total MW** | **573.4** | **N/A** | **504.8** | **N/A** | **N/A** | **N/A** | **517.4** |
| PDRE (MWh) | 107,366 | 1.0 | 107,366 | 25% | 37% | 1.03 | 110,319 |
| Cooling Recom-missioning (MWh) | 24,700 | 1.0 | 24,700 | 0% | 0% | 1.0 | 24,700 |
| **Total MWh** | **132,066** | **N/A** | **132,066** | **N/A** | **N/A** | **N/A** | **135,018** |

[1] Net-to-Gross Ratio = (1-Freeridership) * (1+Spillover).

N/A – Not Applicable

## 3.4 Enhanced Commercial and Industrial Performance Program (ECIPP)

### *3.4.1 Progress Toward Goals*

Table 3-6 shows the two five-year, non-energy goals for ECIPP and progress to date. Progress is good toward the goal for number of customer projects, while progress is somewhat slow on the goal for leveraging funds.

**Table 3-6. Enhanced Commercial and Industrial Performance Program — Goals and Achievements**

| Activity | Program Goals (July 1, 2006 through June 30, 2011) | Achieved (July 1, 2006 through June 30, 2008 | % of Goal Aehieved |
|---|---|---|---|
| Leveraged Funds ($ million) | $400-450 | $94.5 | 24% |
| Customer Projects | 3,300-3,500 | 1,307 | 40% |

### *3.4.2 Energy, Peak Demand and Fuel Savings*

Table 3-7 shows the cumulative annual energy and peak demand savings from the ECIPP. A realization rate and net-to-gross ratio are applied to adjust the program-reported savings based on the most recent Measurement and Verification and Attribution evaluation studies. Net savings in the rightmost column are the total savings being claimed by the program after these evaluation activities.

**Table 3-7. ECIPP Cumulative Annual Energy and Peak Demand Savings through June 2008**

| | Program Reported Savings | Realiza-tion Rate | Adjusted Gross Savings | Freerider-ship | Spillover | Net-to-Gross Ratio | Net Savings |
|---|---|---|---|---|---|---|---|
| **Commercial/Industrial Performance Program** | | | | | | | |
| MWh/year | 851,155 | 1.01 | 859,667 | 31% | 45% | 1.05a | 902,650 |
| MW On-Peak | 186.1 | 0.77 | 143.3 | 31% | 45% | 1.05a | 150.5 |
| **Smart Equipment Choices** | | | | | | | |
| MWh/year | 160,243 | 0.93 | 149,026 | 51% | 46% | 0.72h | 107,298 |
| MW On-Peak | 32.4 | 0.93 | 30.1 | 51% | 46% | 0.72b | 21.7 |
| MMBtu/year | 13,839 | 1.0 | 13,839 | 51% | 46% | 0.72b | 9,964 |
| **Enhanced Commercial/Industrial Performance Program (ECIPP) - Total** | | | | | | | |
| MWh/year | 1,011,398 | N/A | 1,008,692 | N/A | N/A | N/A | 1,009,948 |
| MW On-Peak | 218.5 | N/A | 173.5 | N/A | N/A | N/A | 172.2 |
| MMBtu/year | 13,839 | N/A | 13,839 | N/A | N/A | N/A | 9,964 |

a Net-to-Gross Ratio = 1-Freeridership + Spillover (a weighted average of the NTG ratios estimated in the previous MCAC analysis and the current analysis is shown here).

h Net-to-Gross Ratio = (1-Freeridership) * (1+Spillover).

N/A – Not Applicable

### *3.4.3 ECIPP Process Evaluation Results*

This study is the first process evaluation of the ECIPP after the CIPP and SEC programs were integrated to become Tier III and Tier I, respectively, of the ECIPP. A new Tier II offering was developed to cover all possible options and to provide a single program for customers. The process evaluation is structured to help NYSERDA decide on potential changes to its inspection and verification program administration process and the establishment of policies on incentivizing energy-efficient technologies. These issues resulted in three research objectives:

1. Investigate the current inspection practices for Tier III projects and their impact on NYSERDA's resources.

2. Investigate incentive design policies and inspection practices followed in regional energy efficiency programs.

3. Investigate whether current ECIPP infrastructure is robust enough to handle an anticipated increase in program participation in the future.

The evaluation team conducted in-depth interviews with five NYSERDA staff, 16 energy service companies (ESCOs), seven technical consultants (TCs), and five energy efficiency program managers at other energy efficiency organizations. The team also conducted 82 telephone surveys with Tier I participants. The evaluation team's conclusions and recommendations corresponding to the study objectives are as follows.

## Findings

The findings along with associated conclusions and recommendations are presented for the three areas of focus for the evaluation.

### Current Inspection Practices

Project coordination among TCs and ESCOs is streamlined and working smoothly. A change NYSERDA made to its inspection policy — the waiver of monitoring for lighting projects that save less than 600,000 kWh annually — has contributed to this process and does not appear to risk misreporting energy savings. The inspection practices and measurement and verification (M&V) requirements for Tier III projects are more rigorous than those followed in the surveyed regional programs whereas the inspection protocols for Tier I participants are comparable. Non-lighting projects on the other hand, require mandatory monitoring. The cost of mandatory monitoring for these small non-lighting projects appears disproportional to the amount of savings. The M&V methods and plans the TCs recommend for non-lighting projects, large or small, differ because NYSERDA encourages flexible M&V methods that best fit with the complexity of a project. However, a central repository of detailed measurement data at the meter/logger level does not exist; only summary data are available with TCs, ESCOs, and NYSERDA. Thus, TCs and ESCOs have limited ability to review past experience and streamline their M&V processes.

1. *Conclusion*: An opportunity exists to reduce the cost of M&V for small non-lighting projects. TCs have developed a rich experience of implementing a variety of M&V methods through the flexible approaches used by NYSERDA, yet this has not been institutionalized for future use. Increasing the threshold for the waiver of monitoring for lighting projects from 600,000 kWh in annual savings to 1 million might not be risky if NYSERDA continues to encumber incentives at the proposal stage.

   *Recommendation*: Institutionalize M&V knowledge by preparing case studies, discussing successful M&V methods at the annual meeting of TCs, and establishing a database of M&V results.

### Comparison with Regional Incentive Design and Inspection Practices

The evaluation team found that the process of selecting technologies and establishing prescriptive rebates and custom incentives used by the five regional programs is collaborative, systematic, and responsive to market practices for installing energy-efficient equipment. The basis of determining the amount of incentives in the surveyed regional programs is always the avoided cost of generation or procurement, although judgment is exercised as needed. NYSERDA's incentive design process is transitioning to a more formal model in which incentives are now reviewed at the technology and portfolio levels.

Tier 1 incentives for HVAC equipment are comparable to those offered in the reviewed programs but incentives for other technologies need a review and readjustment in order to account for standard market practices and to move the market to a higher level of efficiency. The evaluation team found that

participation expectation from the Tier II incentives in the ECIPP was not met because of low incentives and a lack of awareness among participants and market actors. Most ESCOs and more than half of surveyed participating firms in Tier I were not aware of Tier II and Tier III.

1. *Conclusion*: The current incentive design process and a lack of rapid market feedback appear to reduce NYSERDA's ability to adjust incentives.

   *Recommendation*: Accelerate the development of a more formal incentive design process that reflects local retrofit costs and the customer base by collecting retrofit cost data and conducting frequent and focused surveys/interviews to support program design.

2. *Conclusion*: There is interest in Tier II when firms are made aware of it, but currently low participation largely reflects lack of knowledge and lower incentive levels.

   *Recommendation*: Consider making Tier II more visible and increase the level of incentive; this would be an alternative to lowering the M&V requirements for small non-lighting projects.

### ***ECIPP Infrastructure Preparedness for Future Expansion***

The program processes used in the ECIPP have been adopted from those used in the CIPP and SEC programs and generally have not been changed. Tier I participants are largely satisfied with the program, but rate the processing of incentives and feedback from NYSERDA somewhat lower than other program processes. The evaluation team found that the current staffing level, the program database, and the application approval and payment processes are not robust enough to support a significantly higher level of Tier I participation.

The administrative infrastructure for Tier III is adequate, and the TCs and ESCOs can support a significantly higher level of Tier III participation. Administrative barriers however occur largely because some steps require multiple approvals; staff members express awareness of this problem. Two areas of concern for Tier III expansion are the database, which needs redesign and improvement to support increased participation, and the need to develop a focused marketing strategy and build marketing expertise.

1. *Conclusion*: ECIPP is currently functioning well however administrative practices need attention to prepare for expansion of services.

   *Recommendation*: Review the rebate processing practices at other organizations and consider outsourcing of Tier I incentive management. There should be a concerted effort to review the authorization requirements for various tasks in Tier III as well as development of enhancements to and interconnection of the Buildings Portal with NYSERDA's Enterprise Information System. The evaluation team also recommends that NYSERDA begin developing marketing expertise and launch a marketing and support strategy directed at high-potential areas, especially the New York City area.

## 3.5 New York Energy $mart[SM] Business Partners

### *3.5.1 Progress Toward Goals*

Table 3-8 shows the Business Partners Program goal to sign up 1,500 partners over five years. Although more than 770 allies are currently participating in the commercial lighting program element, a total of 109 new partners have signed up since July 1, 2006. Program staff expects an increase in allies as the core services and program elements ramp up.

**Table 3-8. New York Energy $mart[SM] Business Partners Program — Goal and Achievement**

| Activity | Program Goals (July 1, 2006 through June 30, 2011) | Achieved (July 1, 2006 through June 30, 2008) | % of Goal Achieved |
|---|---|---|---|
| Business Partners (signed up) | 1,500 | 109 | 7% |

### *3.5.2 Energy, Peak Demand and Fuel Savings*

Table 3-9 shows the cumulative annual energy and peak demand savings from the Business Partners Program. A realization rate and net-to-gross ratio are applied to adjust the program-reported savings, based on the most recent Measurement and Verification and Attribution evaluations. Net savings in the rightmost column are the total savings being claimed by the program after these evaluation activities.

**Table 3-9. New York Energy $mart[SM] Business Partners Cumulative Annual Energy and Peak Demand Savings (through June 2008)**

| | Program-Reported Savings | Realization Rate | Adjusted Gross Savings | Freeridership | Spillover | Net-to-Gross Ratio[1] | Net Savings |
|---|---|---|---|---|---|---|---|
| **Small Commercial Lighting** | | | | | | | |
| MWh/year | 49,569 | 0.94 | 46,595 | 39% | 80% | 1.10 | 51,254 |
| MW On-Peak | 12.9 | 1.0 | 12.9 | 39% | 80% | 1.10 | 14.2 |
| **Premium-Efficiency Motors[2]** | | | | | | | |
| MWh/year | 9,885 | 1.0 | 9,885 | 67% | 168% | 0.88 | 8,776 |
| MW On-Peak | 1.9 | 1.0 | 1.9 | 67% | 113% | 0.70 | 1.3 |
| **Commercial HVAC[3]** | | | | | | | |
| MWh/year | 6,767 | N/E | 6,767 | N/E | N/E | N/A | 6,767 |
| MW On-Peak | 2.0 | N/E | 2.0 | N/E | N/E | N/A | 2.0 |
| **Hospitality Lighting** | | | | | | | |
| MWh/year | 8,660 | N/E | 8,660 | N/E | N/E | N/E | 8,660 |
| MW On-Peak | 0.9 | N/E | 0.9 | N/E | N/E | N/E | 0.9 |
| **Total Business Partners** | | | | | | | |
| MWh/year | 74,880 | N/A | 71,906 | N/A | N/A | N/A | 75,457 |

| | Program-Reported Savings | Realization Rate | Adjusted Gross Savings | Freeridership | Spillover | Net-to-Gross Ratio[1] | Net Savings |
|---|---|---|---|---|---|---|---|
| MW On-Peak | 17.7 | N/A | 17.7 | N/A | N/A | N/A | 18.5 |

[1] Net-to-Gross Ratio = (1-Freeridership) * (1+Spillover).

[2] Savings from the prior motor incentive program were held constant since last year. Savings achieved in 2006 from the new motor management program and the STAC 100 Motors program, in the amount of 296,202 kWh and 48 kW, were added in the Net Savings column.

[3] Savings for the Commercial HVAC portion of the program were reduced as of 4th Quarter 2006 because short-term savings from advanced diagnostics and commissioning were part of the program.

N/A — Not Applicable N/E — Not Evaluated

### *3.5.3 Follow-up on Evaluation Recommendations*

In its May 2007 report on the SCLP, Nexant noted that on some projects the kW reduction was calculated by space types, while a single self-reported operating-hour number was used to estimate the electric energy savings for all the spaces covered by the project.[1] Nexant recommended that NYSERDA use space-specific operating hours for each project with the expectation that this would improve the accuracy of energy savings claimed by each project, and reduce variance observed in the results.

The SCLP will continue to use self-reported hours for now (the program is slated to end on December 30, 2008). A contractor has been hired to implement the new Commercial Lighting Program, and NYSERDA is considering using space-specific operating hours as part of the reporting requirements.

## 3.6 New York Energy $mart[SM] Loan Fund and Financing Program

### *3.6.1 Progress Toward Goals*

Three longer-term non-energy goals have been set for the Loan Fund and Financing Program. These five-year goals and progress are shown in Table 3-10. The Program has already achieved two of the three five-year goals, and is showing good progress toward the third goal.

**Table 3-10. New York Energy $mart[SM] Loan Fund and Financing Program — Goals and Achievements for Commercial/Industrial Projects**

| Activity | Program Goals (July 1, 2006 through June 30, 2011) | Achieved (July 1, 2006 through June 30, 2008) | % of Goal Achieved |
|---|---|---|---|
| Customers receiving assistance (closed commercial/industrial loans) | 500 | 230 | 46% |
| Participating lenders (signed participation agreements) | 75 | 131 | >100% |
| Leveraged loan amount (for closed commercial/industrial loans) | $60 million | $86.5 million | >100% |

[1] Nexant, *M&V Evaluation Small Commercial Lighting Program*, Prepared for NYSERDA, May 2007.

### *3.6.2 Energy, Peak Demand, and Fuel Savings*

Table 3-11 shows the cumulative annual energy and peak demand savings from the Loan Fund and Financing Program. A realization rate and net-to-gross ratio are applied to adjust the program reported savings based on the most recent Measurement and Verification and Attribution evaluation studies. Net savings in the rightmost column are the total savings being claimed by the program after these evaluation activities.

**Table 3-11. Loan Fund Cumulative Annual Energy and Peak Demand Savings (through June 2008)**

| | Program-Reported Savings | Realization Rate | Adjusted Gross Savings | Freerider-ship | Spillover | Net-to-Gross Ratio[1] | Net Savings |
|---|---|---|---|---|---|---|---|
| MWh/year | 135,492 | 0.81a | 112,935 | 27% | 20% | 0.93 | 105,030 |
| MW On-Peak | 37.1 | 1.73a | 59.9 | 27% | 20% | 0.93 | 55.7 |
| MMBtu | 456,014 | 1.59 | 725,062 | 27% | 20% | 0.93 | 674,308 |

[1] Net-to-Gross Ratio = 1-Freeridership+Spillover.

a As calculated, the realization rates apply only to custom measure kWh and kW savings. Savings from pre-qualified measures have a realization rate of 1.0.

## 3.7 Energy Smart Focus Program

### *3.7.1 Progress Toward Goals*

Table 3-12 shows the Energy Smart Focus Program five-year goal for participants receiving assistance. A number of programmatic and procedural issues have delayed program ramp-up, and thus the participation level to date is less than initially anticipated.

**Table 3-12. Energy Smart Focus Program — Goals and Achievement**

| Activity | Program Goals (July 1, 2006 through June 30, 2011) | Achieved (July 1, 2006 through June 30, 2008) | % of Goal Achieved |
|---|---|---|---|
| Participants Receiving Assistance | 21,000 | 1,720[2] | 8% |
| Focus Sector Partnerships[1] | N/A | 187 | NA |

[1] This metric is new and was not part of the original SBC3 Operating Plan goals.

[2] This metric does not include updates from the Local Government and Colleges and Universities sectors as these sectors are ramping up.

### *3.7.2 Energy, Peak Demand and Fuel Savings*

Energy Smart Focus is primarily a sector-based energy information and services program. Services provided vary by sector, but ultimately many customers will elect to participate in other **New York Energy $mart**[SM] programs. Energy and demand savings that may be attributable to the Focus Program are tracked and reported under the other **New York Energy $mart**[SM] programs.

### *3.7.3 Sector Highlights*

As a sector-based energy information and services program, many achievements of the Focus Program cannot be quantified and are presented as sector highlights. Sector highlights indicate success in penetrating markets and influencing the energy efficiency of individual sectors. As the Focus Program matures and the sector activities evolve, sector highlights will be revised to show successes and milestones.

#### ***Focus on Commercial Real Estate***

*Partnerships*

- Ongoing support was provided to the New York City Mayor's Office of Long Term Planning and Sustainability and the New York City Economic Development Corporation in the preparation of legislation to mandate benchmarking for buildings over 50,000 square feet and the potential for the Focus on Commercial Real Estate Toolkit to support NYC building owners.
- Ongoing support was also provided to representatives of the Real Estate Board of New York (REBNY) as they consider how to respond to the city's plans to mandate benchmarking.
- Bi-weekly coordination conference calls were held with U.S. EPA staff to coordinate between users of the Focus on Commercial Real Estate benchmarking tool and the U.S. EPA Portfolio Manager.
- Staff collaborated with representatives of Con Edison to access commercial property meter counts. This data are currently being used to support and verify HR&A's benchmarking projects.

*Program Training*

- HR&A conducted the first training of NYSERDA contractors on May 30, 2008 at 1515 Broadway, New York. The training will serve as the template for future training sessions.
- An on-line benchmarking Webinar was conducted for Grubb & Ellis commercial real estate brokers; they are responsible for managing and operating approximately 20 million square feet of commercial office space.
- Staff beta tested and launched the Commercial Real Estate Benchmarking Toolkit on April 30, 2008. The Focus on Commercial Real Estate marketing Website was also launched on that date.

*Benchmarking, Energy Scan, & Financial Analysis*

- HR&A team members focused on Brookfield and SL Green properties to produce the most thorough benchmarks for large buildings to date. The benchmarks will be used to support future efforts by Focus Program staff and representatives of New York City.
- SL Green staff have refined the benchmarking of 26 buildings and two buildings have undergone Energy Scans; two more are scheduled for the coming weeks. The 26 buildings represent more

than 2.9 million square feet.

- Brookfield staff have refined the benchmarking of six buildings, and four buildings, representing more than six million square feet, are scheduled for Energy Scans within the next month.

### ***Focus on K-12 Schools***

- Staff facilitated 32 K-12 ENERGY STAR Building Labels to date, out of a potential 130 across New York. One school was listed under the Focus on State Facilities sector for a total of 33.
- An additional 37 eligible schools were qualified and are being processed through the U.S. EPA ENERGY STAR Building Label process.
- Nine Leader Awards were facilitated for seven school districts accounting for 15% of the 59 ENERGY STAR Leader Awards earned nationally. Three additional districts have been qualified and are being processed.
- More than 30% of all eligible school space in New York has received the Focus on K-12 Schools Benchmarking Service; 770 schools, out of the estimated 2,200 schools that pay into the SBC, are participants representing 70 million square feet and 400,000 students.
- As a result of program activities, statewide average school energy use has been reduced 22%, representing average annual cost savings of approximately $38,000 for a typical 100,000 square foot school. In the 2002 – 2003 school year, the average school energy use per square foot was 0.091 MMBtu while in the 2006 – 2007 school year, the average school energy use per square foot was 0.071 MMBtu.
- Benchmarking service staff have calculated an 18.3% reduction statewide in average school $CO_2$ emissions, equivalent to average annual carbon emissions reductions of approximately 122 tons for a typical 100,000 square foot school heated with natural gas.
- Individual copies of the *New York Collaborative for High Performance Schools* (NY-CHPS) were delivered to New York State public school superintendents and school boards contemplating new construction and major renovation projects.
- NY-CHPS verification processes and protocols were developed for use by the New York State Education Department in reviewing proposed new schools and for use by NYSERDA staff reviewing applications for its New Construction Program. NY-CHPS verification will be free for schools.
- Testing is under way of a NY-CHPS Scorecard for school districts to submit for NY-CHPS points during goal-setting charrettes. The Scorecard will be one of the tools used to demonstrate compliance for NY-CHPS verification and, eventually, will be integrated into the New York State Education Department's electronic plan review system.
- A NY-CHPS Criteria Interpretation Process for public and private schools was drafted and testing is ongoing.
- A NY-CHPS training program for architects and engineers was offered to support development of a "green-collar" workforce in New York. The training is being coordinated with a newly developing National-CHPS individual certification for designers.
- 120 people have completed all High Performance School On-line Design Training courses, and an additional 470 completed at least one course.
- Two advanced courses in the Building Operations Certification training program were delivered.

Based on the most recent impact evaluations performed by independent evaluators, savings from this training are being delivered at a cost of $0.02 per kilowatt hour.

- The New York State Superintendents of Buildings and Grounds Association partnered with NYSERDA to develop and deliver a successful series of NY-CHPS training seminars. The Association also partnered with NYSERDA to develop and deliver a series of Energy Management 101 seminars around the state and discussions are under way about incorporating other energy and sustainability related training efforts into their Certified Director of Facilities certification and ongoing Continuing Education Units (CEU) requirements.
- For the third year in a row, the School Facilities Management Institute has asked NYSERDA to be platinum sponsor and has established an Energy and Sustainability Showcase to highlight NYSERDA, NYSERDA projects, and NYSERDA training and outreach efforts in energy efficiency, renewable energy, sustainability, and transportation.
- For the second year in a row, the New York State School Boards Association has asked NYSERDA to sponsor and deliver training highlighting school districts' accomplishments at its annual convention.

### ***Focus on Hospitality***

- Two roundtables were conducted with hospitality owners and operators to gather direct input and insights into perceptions and attitudes regarding energy efficiency, payback tolerances, and green practices. The first was held March 26 in Syracuse with members of the Greater Syracuse Hotel and Tourism Association, and a second roundtable was completed for the Albany area on June 20 with members of the Albany County Convention and Tourism Bureau. Attendees at both sessions were interested and supportive of the roundtable efforts and offered continued support in pointing members toward NYSERDA programs and services.
- Work continues to expand outreach to the hospitality industry, particularly through member associations and foodservice equipment vendors. In particular, work with the Consortium for Energy Efficiency (CEE) and U.S. EPA ENERGY STAR staff has focused on commercial kitchen equipment eligibilities and vendor support strategies.
- Collaborative work continues with the New York State Restaurant Association (NYSRA) and the New York State Hotel and Tourism Association (NYSHTA). Upcoming informational workshops and outreach activities are planned with both.
- Staff met with the Downtown Schenectady Improvement Corporation to present NYSERDA's Focus on Hospitality initiative and to support restaurant and hotel and motel owners in downtown Schenectady.
- Staff worked with economic development agencies in Oswego and Onondaga counties and with representatives of the Bronx Economic Development Corporation. A number of referrals regarding New Construction and the Small Commercial Audit Program resulted from the meetings and were forwarded program staff.
- Two Kitchen Audit Workshops were performed for 15 participants. The workshops presented the kitchen equipment assessment tool to existing program partners. Most participants were from the Small Commercial Energy Audit Program and FlexTech. Four attendees were also from Ft. Drum kitchen operations. A second round of workshops is now being planned for the metropolitan New York City area.
- A case study was finalized and submitted to U.S EPA in June 2008 on the success of Saratoga

Foodservice Equipment with the sales of high efficiency foodservice equipment. The case study will be placed on the ENERGY STAR Website as an example of successful program/vendor relationships.

### ***Focus on Industry***

- Lockheed Martin, the program contractor, is working with local utility account representatives to promote the program.
- To date, nearly 400 customers have been contacted about the program.

### ***Focus on Water and Wastewater***

- Five presentations and nine operator training sessions were delivered on energy efficiency to approximately 370 elected officials, engineers, operators, and utility managers from predominately small to mid-sized facilities across New York. Energy checklists, a case study, and program information were distributed at each event.
- The Gloversville-Johnstown Joint Wastewater Treatment Facility authored an article describing its use of NYSERDA programs to achieve energy efficiency improvements. This article and others published this quarter reached more than 3,000 individuals through the New York Association of Town's *Talk of the Towns* and the New York Water Environment Association's journal *Clearwaters.*
- A Train the Trainer event provided a full day of training to more than nine trainer organizations and approximately 35 trainers. Participating organizations included the New York State Department of Health (NYS DOH), the New York State Department of Environmental Conservation (NYS DEC), the New York Rural Water Association (NYRWA), RCAP Solutions Inc., United States Department of Agriculture Rural Utilities Services (USDA RUS), the New York State Environmental Facilities Corporation (NYS EFC), the Southern Tier East Regional Development and Training Board (STE), the New York City Department of Environmental Protection (NYC DEP), and the New York American Water Works Association (AWWA). Each participant received a CD with a copy of the Basic Operator Training complete with comprehensive trainer's notes, energy checklists, a case study, and NYSERDA program information sheets. In the next two years, several additional Train the Trainer events will increase the number of trainers able to deliver presentations and technical assistance to operators across the state.
- Confirmation was received from officials at the NYSDOH and the NYSDEC with respect to their commitment to incorporate the program's Basic Operator Training course into the NYSDEC Wastewater Operator Certification curriculum and NYSDOH Initial Operator Training curriculum.

### ***Focus on Colleges and Universities***

- A technical evaluation panel, held in May 2008, selected a contractor, and contract negotiations are ongoing.

## 3.8 New Construction Program[2]

### *3.8.1 Progress Toward Goals*

Three long-term non-energy goals have been set for the New Construction Program (NCP). The program is showing good progress to involve A&E firms, but progress is slower than expected on the other two goals. Table 3-13 shows the five-year goals and progress to date.

**Table 3-13. New Construction Program — Goals and Achievements**

| Activity | Program Goals (July 1, 2006 through June 30, 2011) | Achieved (July 1, 2006 through June 30, 2008) | % of Goal Achieved |
|---|---|---|---|
| Customers receiving assistance (completed projects) | 750 | 198 | 26% |
| Construction market affected (square feet) | 75 Million | 21.2 million | 28% |
| Participating A&E firms (completed projects) | 800 | 317 | 40% |

### *3.8.2 Energy, Peak Demand and Fuel Savings*

Table 3-14 shows the cumulative annual energy and peak demand savings from the New Construction Program. A realization rate and net-to-gross ratio are applied to adjust the program reported savings, based on the most recent Measurement and Verification and Attribution evaluation studies. Net savings in the rightmost column are the total savings being claimed by the program after these evaluation activities.

**Table 3-14. New Construction Program Cumulative Annual Energy and Peak Demand Savings (through June 2008)**

| | Program-Reported Savings[1] | Realization Rate | Adjusted Gross Savings | Freerider-ship | Spillover | Net-to-Gross Ratio[2] | Net Savings |
|---|---|---|---|---|---|---|---|
| MWh/year | 253,345 | 1.06 | 268,546 | 40% | 85% | 1.22 | 327,626 |
| MW On-Peak | 58.1 | 1.06 | 61.6 | 40% | 85% | 1.22 | 75.2 |

[1] An update of the Program database is in progress. Third quarter 2007 savings are used in this table as placeholders.

[2] Net-to-Gross Ratio = 1-Freeridership+Spillover (a weighted average of the NTG ratios estimated in the previous MCAC analysis and this current analysis is shown here).

### *3.8.3 Follow-up on Evaluation Recommendations*

The June 2007 process evaluation report by Research Into Action cited several recommendations for program improvement.[3] Program staff provided initial responses to these recommendations[4]; however a

[2] The program, which operated under the name "High Performance New Buildings Program" for a short time, recently reverted to its old name, which has greater market recognition.

[3] Research Into Action, *Best Practices Review New Construction Programs*, Prepared for NYSERDA, June 2007.

[4] New York State Energy Research and Development Authority, ***New York Energy Smart***$^{SM}$ *Program Evaluation and Status Report, Final Report*, March 2008.

few longer-term actions or responses were followed-up on this quarter. These recommendations and responses or actions by program staff are noted below:

- In response to a recommendation to increase the leveraging of market opportunities and trends, program staff noted that they are attempting to bring more industry leaders into the program and highlight accomplishments on their projects that others can emulate. This strategy has worked particularly well in certain end-use sectors such as libraries and grocery stores.

  *Response.* Regarding this recommendation, since the last update NCP staff have brought more industry leaders into the program and highlighted accomplishments (*e.g.*, Food Market Industry) of their projects. Staff will continue this practice.

- In response to a recommendation to make service delivery as effective as possible, NCP staff recognized that efficiency gains are possible under the current program delivery scheme and would like to implement more sophisticated project tracking, coordination, and communication systems. In addition they noted that more internal support, especially in the area of information technology, is necessary to achieve these goals.

  *Response.* Regarding this recommendation, since the last update, NCP staff has continued to review the program delivery, tracking, coordination, and communication systems, and ongoing improvements will be implemented.

## 3.9 FlexTech Technical Assistance Program

### *3.9.1 Progress Toward Goals*

Shown in Table 3-15 is the FlexTech Technical Assistance five-year goal and progress for the number of customers served. The Program is making good progress toward its goal.

**Table 3-15. FlexTech Technical Assistance Program — Goal and Achievement**

| Activity | Program Goal (July 1, 2006 through June 30, 2011) | Achieved (July 1, 2006 through June 30, 2008) | % of Goal Achieved |
|---|---|---|---|
| Customers receiving assistance (approved proposals) | 3,000 | 1,275 | 43% |

### *3.9.2 Energy, Peak Demand and Fuel Savings*

Table 3-16 shows the cumulative annual energy and peak demand savings from the FlexTech Technical Assistance Program. The adjustments resulting from the Measurement and Verification evaluation study are applied within the program-reported figure. A net-to-gross ratio is applied to adjust the program-reported savings based on the most recent Attribution evaluation study. Net savings in the rightmost column are the total savings being claimed by the program after these evaluation activities.

**Table 3-16. FlexTech Technical Assistance Program Cumulative Annual Energy and Peak Demand Savings (through June 2008)**

| | Program-Reported Savings | Realization Rate | Adjusted Gross Savings | Freerider-ship | Spillover | Net-to-Gross Ratio[1] | Net Savings |
|---|---|---|---|---|---|---|---|
| MWh/year | 706,000 | 1.0 | 706,000 | 25% | 48% | 1.14 | 804,840 |
| MW On-Peak | 131.0 | 1.0 | 131.0 | 25% | 48% | 1.14 | 149.3 |
| MW Enabled | 10.0 | 1.0 | 10.0 | 25% | 48% | 1.14 | 11.4 |
| MMBtu | 2,900,000 | 1.0 | 2,900,000 | 25% | 48% | 1.14 | 3,306,000 |

[1] Net-to-Gross Ratio = 1-Freeridership+Spillover (a weighted average of the NTG ratios estimated in the previous MCAC analysis and this current analysis is shown here).

### *3.9.3 Follow-up on Evaluation Recommendations*

A February 2008 Technical Assistance Program Impact memo by Megdal and Associates cited recommendations for program improvement.[5] Each of these recommendations and responses or actions by program staff is noted below:

- Review the method of calculating and recording the waste heat penalty for commercial and industrial lighting

  *Response.* Regarding this recommendation, TA staff responded that there is text in the customer's report that states that the waste heat penalty exists but is negligible. The engineer writing the report makes the decision whether or not this is worthwhile.

- Review methods for calculating KW demand reductions, particularly for lighting

  *Response.* TA staff noted that, when this issue was looked at by the previous M&V contractor, staff decided to develop a kWh/kW factor since the demand reductions calculated for the customer's report are a mix of annual and monthly demand reductions, *i.e.*, not summer peak. The implementation staff decided that improving the method used to calculate demand has a lower priority than achieving kWh accuracy and is not useful to the customer.

- Add a field to the measure database to record recommended quantities.

  *Response.* TA staff responded that the recommendation will be considered during design of the Buildings Portal.

- Add more detail to measure descriptions, particularly to identify fuel switches.

  *Response.* TA staff noted that supplemental information is currently included in the notes field.

[5] Megdal and Associates, *2007 Year End Review of the Technical Assistance Project Database*, Prepared for NYSERDA, February 2008.

# 4 Residential and Low-Income Programs

## 4.1 Residential and Low-Income Evaluation Activities

### 4.1.1 Completed Evaluation Activities

During the second quarter of 2008, NYSERDA's independent evaluation contractor teams completed two major evaluations on the Residential and Low-Income programs:

- Market characterization for the ENERGY STAR Labeled Homes Program
- Process evaluation on Energy Smart Communities

### 4.1.2 Evaluation Activities in Progress and Planned

In the coming quarters, NYSERDA expects to complete the following evaluation projects:

- Market assessment for the Home Performance with ENERGY STAR Program
- Prospective benefits for the Home Performance with ENERGY STAR Program
- Market assessment for the ENERGY STAR Homes Program
- An update of the ENERGY STAR appliance and lighting product unit sales and associated energy savings caused by the Market Support efforts
- Process evaluation on Market Support and Outreach
- Arrearage reduction benefits from the EmPower Program

## 4.2 Summary of Residential and Low-Income Evaluation Results

### 4.2.1 Progress Toward Non-Energy Goals

Across the Residential and Low-Income programs, 26 additional logic-model driven goals were set for other key metrics besides energy savings, such as the number of customers receiving assistance, funds leveraged, allies participating, and outreach activities completed. The programs are making progress toward achieving these goals. Specifically, 24 months into the five-year measurement period:

- Five of the 26 goals have been surpassed
- Progress on three of the 26 goals has reached 80% or more
- Progress on two goals has reached 70% or more
- Progress on three goals has reached 50% or more

- Progress on two goals has reached 40% or more
- Progress on two goals has reached 30% or more
- Progress on the remaining nine goals is at 20% or less

### *4.2.2 Energy, Peak Demand, and Fuel Savings*

Table 4-1 shows Residential and Low-Income program electric savings through June 30, 2008 and progress toward the five-year goals. Table 4-2 and Table 4-3 show, respectively, peak demand reductions and fuel savings. Table 4-3 also includes progress toward five-year fuel savings goals.

**Table 4-1. Residential and Low-Income Program Cumulative Annual Electricity Savings through June 30, 2008 and Progress toward Five-Year Goals**

| Program | Energy Savings (GWh) | | | | |
|---|---|---|---|---|---|
| | Savings Achieved through | | | Five-Year Goal through June 30, 2011 | Progress Toward Five-Year Goal (% achieved) |
| | June 30, 2006a | June 30, 2008 | July 1, 2006 through June 30, 2008 | | |
| Single Family Home Performance Program: Existing Homes[1] | 13.5 | 18.3 | 4.8 | 26.1 | 18% |
| Con Edison | 0.2 | 0.3 | 0.1 | N/A | N/A |
| Single Family Home Performance Program: New Homes | 7.3 | 16.4 | 9.1 | 8.9 | 102% |
| Con Edison | 0.7 | 1.0 | 0.3 | N/A | N/A |
| Multifamily Performance Program: Existing Buildings[2] | 31.0 | 41.2 | 10.3 | 225.5 | 5% |
| Con Edison | 19.0 | 24.1 | 5.1 | N/A | N/A |
| Multifamily Performance Program: New Buildings | 0 | 1.7 | 1.7 | 24 | 7% |
| Con Edison | 0 | 0 | 0 | N/A | N/A |
| Market Support Program | 539.1a | 647.0 | 108.0 | 200 | 54% |
| Con Edison | 305.2 | 359.4 | 54.2 | N/A | N/A |
| EmPower New York | 20.1 | 40.9 | 20.8 | 51.1 | 41% |
| Con Edison | 1.6 | 5.2 | 3.6 | N/A | N/A |
| **Con Edison Residential & Low-Income Total** | 326.7 | 390.0 | 63.3 | N/A | N/A |
| **Statewide Residential & Low-Income Total** | 610.9 | 765.6 | 154.6 | N/A | N/A |

a This baseline savings figure does not match the 2nd quarter 2006 published value. The impacts for Energy Star Products are derived annually from market data, and the 2nd quarter savings value was estimated retrospectively to provide a more accurate baseline for measuring progress.

[1] Savings for the low-income Assisted Home Performance Program (6.4 GWh) are included in this row.

[2] Savings for the low-income Assisted Multifamily Program (21.6 GWh) are included in this row, the remainder are savings from the closed Residential Comprehensive Energy and Direct Install programs.

N/A Not Applicable

## Table 4-2. Residential and Low-Income Program Cumulative Peak Demand Savings through June 30, 2008

| Program | Demand Savings (MW) | |
|---|---|---|
| | Savings Achieved through | |
| | June 30, 2006 | June 30, 2008 |
| Single Family Home Performance Program: Existing Homes[1] | 2.0 | 2.5 |
| Con Edison | 0.0 | 0.0 |
| Single Family Home Performance Program: New Homes | 0.9 | 5.1 |
| Con Edison | 0.2 | 0.3 |
| Multifamily Performance Program: Existing Buildings[2] | 3.9 | 6.8 |
| Con Edison | 1.7 | 2.7 |
| Multifamily Performance Program: New Buildings | N/A | 0.2 |
| Con Edison | N/A | 0.1 |
| Market Support Program | 104.3 | 121.6 |
| Con Edison | 56.4 | 69.0 |
| EmPower New York | 2.5 | 6.2 |
| Con Edison | 0.0 | 0.9 |
| **Con Edison Residential & Low-Income Total** | 58.3 | 73.0 |
| **Statewide Residential & Low-Income Total** | 113.7 | 142.3 |

Note: No goals were set for peak demand savings.

[1] Includes 0.8 MW from the low-income Assisted Home Performance Program.

[2] Savings for the low-income Assisted Multifamily Program are included in this row. They represent 4.4 MW of these savings.

N/A – Not Applicable

## Table 4-3. Residential and Low-Income Program Cumulative Annual Fuel Savings through June 30, 2008 and Progress toward Five-Year Goals

| Program | Fuel Savings (MMBtu) | | | | |
|---|---|---|---|---|---|
| | Savings Achieved through | | | | |
| | June 30, 2006a | June 30, 2008 | July 1, 2006 through June 30, 2008 | Five-Year Goal through June 30, 2011 | Progress Toward Five-Year Goal (% achieved) |
| Single Family Home Performance Program: Existing Homes[1] | 454,958a | 809,162 | 354,204 | 1,199,000 | 30% |
| Con Edison | 8,599 | 71,773 | 63,174 | N/A | N/A |
| Single Family Home Performance Program: New Homes | 376,103b | 624,607 | 248,505 | 518,500 | 48% |
| Con Edison | 30,088 | 49,969 | 19,880 | N/A | N/A |
| Multifamily Performance Program: Existing Buildings[2] | 43,932 | 279,741 | 235,809 | 6,014,500 | 4% |
| Con Edison | 12,581 | 97,909 | 85,328 | N/A | N/A |

| Program | Fuel Savings (MMBtu) | | | | |
|---|---|---|---|---|---|
| | Savings Achieved through | | | Five-Year Goal through June 30, 2011 | Progress Toward Five-Year Goal (% achieved) |
| | June 30, 2006a | June 30, 2008 | July 1, 2006 through June 30, 2008 | | |
| Multifamily Performance Program: New Buildings | 0 | 39,371 | 39,371 | 649,000 | 4% |
| Con Edison | 0 | 25,802 | 25,802 | N/A | N/A |
| Market Support Program | 341,920 | 621,260 | 279,340 | N/A | N/A |
| Con Edison | 184,945 | 336,039 | 151,095 | N/A | N/A |
| EmPower New York | 59,341 | 166,208 | 106,867 | 108,500 | 98% |
| Con Edison | 0 | 497 | 497 | N/A | N/A |
| **Con Edison Residential & Low-Income Total** | 236,212 | 581,989 | 345,776 | N/A | N/A |
| **Statewide Residential & Low-Income Total** | 1,276,254 | 2,540,349 | 1,264,095 | N/A | N/A |

[1] Energy savings for the low-income Assisted Home Performance Program are included in this row. They represent 283,207 MMBtu of these savings.

[2] Energy savings for the low-income Assisted Multifamily Program are included in this row. They represent 240,370 MMBtu of these savings.

a This value does not match an earlier published value due to changes made to the program tracking database in response to evaluation completed by the M&V contractor.

b This value does not match earlier published values as the realization rate for MMBtu was reassessed during this period to a lower level and applied retroactively in order to accurately reflect progress made during the year.

N/A – Not Applicable

## 4.3 Single Family Home Performance Program

### *4.3.1 Progress Toward Goals*

As shown in Table 4-4, several long-term production goals have been set for the Single Family Home Performance Program. The Program is making good progress on most of its goals.

**Table 4-4. Single Family Home Performance Program — Goals and Achievements**

| Activity | Program Goals (July 1, 2006 through June 30, 2011) | Achieved (July 1, 2006 through June 30, 2008) | % of Goal Achieved |
|---|---|---|---|
| **New York ENERGY STAR Labeled Homes Initiative** | | | |
| New ENERGY STAR Labeled Homes built | 10,750 | 4,497 | 45% |
| New low-income ENERGY STAR Labeled Homes built | 4,000 | 13 | <1% |
| **Home Performance with ENERGY STAR Initiative** | | | |
| Existing homes served (receiving treatment) | 16,125 | 8,710 | 54% |
| Existing low-income homes served (receiving treatment) | 10,500 | 2,753 | 26% |

### *4.3.2 Energy, Peak Demand and Fuel Savings*

Table 4-5 shows the cumulative annual energy and peak demand savings from the Single Family Home Performance Program. A realization rate and net-to-gross ratio are applied to adjust the program-reported savings based on the most recent Measurement and Verification and Attribution evaluation studies. Net savings in the rightmost column are the total savings being claimed by the program after these evaluation activities.

**Table 4-5. Single Family Home Performance Program Cumulative Annual Energy and Peak Demand Savings (Through June 2008)**

| | Program-Reported Savings | Realization Rate | Adjusted Gross Savings | Freeridership | Spillover | Net-to-Gross Ratio[1] | Net Savings |
|---|---|---|---|---|---|---|---|
| **New York ENERGY STAR Labeled Homes Initiative** | | | | | | | |
| MWh/year | 12,722 | 1.01 | 13,994 | 28% | 47.6% | 1.17 | 16,373 |
| MW On-Peak | 1.9 | 2.32 | 4.3 | 28% | 47.6% | 1.17 | 5.1 |
| MMBtu | 721,422 | 0.74 | 533,852 | 28% | 47.6% | 1.17 | 624,607 |
| **Home Performance with ENERGY STAR[2]** | | | | | | | |
| MWh/year | 16,341 | 1.0 | 16,341 | 26% | 41% | 1.12 | 18,302 |
| MW On-Peak | 2.1 | 1.04 | 2.2 | 26% | 41% | 1.12 | 2.5 |
| MMBtu | 840,077 | 0.86 | 722,466 | 26% | 41% | 1.12 | 809,162 |
| **Single Family Home Performance Program – Total** | | | | | | | |
| MWh/year | 29,360 | N/A | 30,335 | N/A | N/A | N/A | 34,675 |
| MW On-Peak | 4.0 | N/A | 6.5 | N/A | N/A | N/A | 7.5 |
| MMBtu | 1,561,499 | N/A | 1,256,318 | N/A | N/A | N/A | 1,433,769 |

[1] Net-to-Gross Ratio = 1-Freeridership+Spillover (a weighted average of the NTG ratios, estimated in the previous MCAC analysis and this current analysis, is shown here).

[2] Savings for the low-income Assisted Home Performance Program are included in these figures. They represent approximately 6,406 MWh, 0.8 MW, and 283,207 MMBtu of these savings. The fuel savings for a small number (550) of projects funded partially under the National Grid utility rate settlement are included in these savings.

N/A – Not Applicable

### *4.3.3 New York ENERGY STAR Labeled Homes Market Characterization Findings*

In August 2008, the Summit Blue Market Characterization and Assessment (MCA) team completed a market characterization analysis for the residential new construction market. The MCA Team primarily relied on secondary data to assess the growth trends and specific attributes of the statewide residential new construction market and the potential for further penetration of the market for energy-efficient building equipment and practices. Results are summarized in this section.

#### ***Market Description***

According to the latest available U.S. Census data, more than 3.4 million one- to four-family and multifamily homes in the state of New York represent slightly more than 55% of the state's total

residential home market.[1] The growth rate of the residential new construction market is directly impacted by economic and market conditions in New York. While over 21,000 new one- and two-family homes were constructed in 2002, that number has decreased in each subsequent year and in 2007 fell to less than 13,000 new construction projects, as shown in Table 4-6.[2] Although total housing starts have decreased over the stated period, the average value per project has risen steadily.[3] Figure 4-1 shows the decline in both the one- and two-family home markets from 2002 to 2007.

**Table 4-6. Summary of One- and Two- Family Building Projects, NYSERDA Territory, 2002-2007**

| Year | Number of Projects | Area (Sq. Ft. thousands) | Value ($ thousands) | Average Sq. Ft. per Project | Average Value per Project |
|---|---|---|---|---|---|
| 2002 | 21,309 | 45,529 | $4,065,118 | 2,137 | $190,770 |
| 2003 | 21,287 | 45,747 | $4,065,118 | 2,149 | $202,419 |
| 2004 | 20,908 | 44,772 | 4,504,288 | 2,141 | $215,434 |
| 2005 | 19,210 | 41,186 | $4,305,566 | 2,144 | $224,131 |
| 2006 | 15,760 | 33,766 | $3,839,035 | 2,143 | $243,594 |
| 2007 | 12,616 | 26,966 | $3,180,348 | 2,137 | $252,088 |

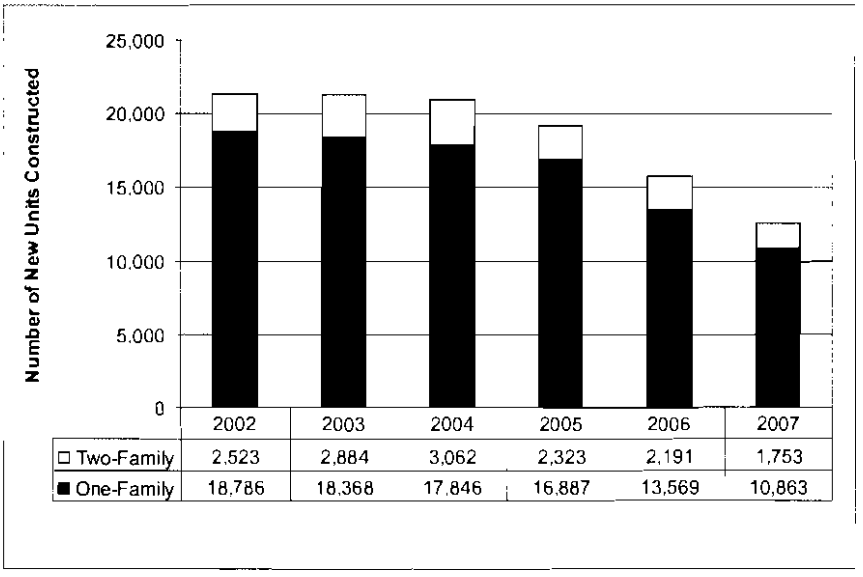
Source: McGraw Hill Construction Dodge Database

[1] U.S. Census Data, 2006

[2] McGraw Hill Construction Dodge New, Addition and Alteration Database. Data were recategorized in the current version of this database from previous versions. Current Dodge data include data for 2002 to 2007, no longer includes information for 2001, and groups housing stock into one-family, two-family, and multifamily (three + units – including large apartment buildings). Previously, data were presented as one family and two-to-four family and included 2001 data. With this new recategorization of data, indicators, such as market penetration, cannot be directly compared to those presented in the 2006 New York ENERGY STAR® Labeled Homes Market Characterization, Market Assessment and Causality Evaluation Report. Thus, the MCA team has re-calculated indicators, such as market penetration, for this more recent effort using the new data categories.

[3] Value is measured as "market price" (as reported directly in the McGraw Hill Construction Dodge Database) and has not been adjusted for inflation.

**Figure 4-1. New One- and Two-Family Construction in the NYSERDA Territory, 2002-2007, by Type of Dwelling**



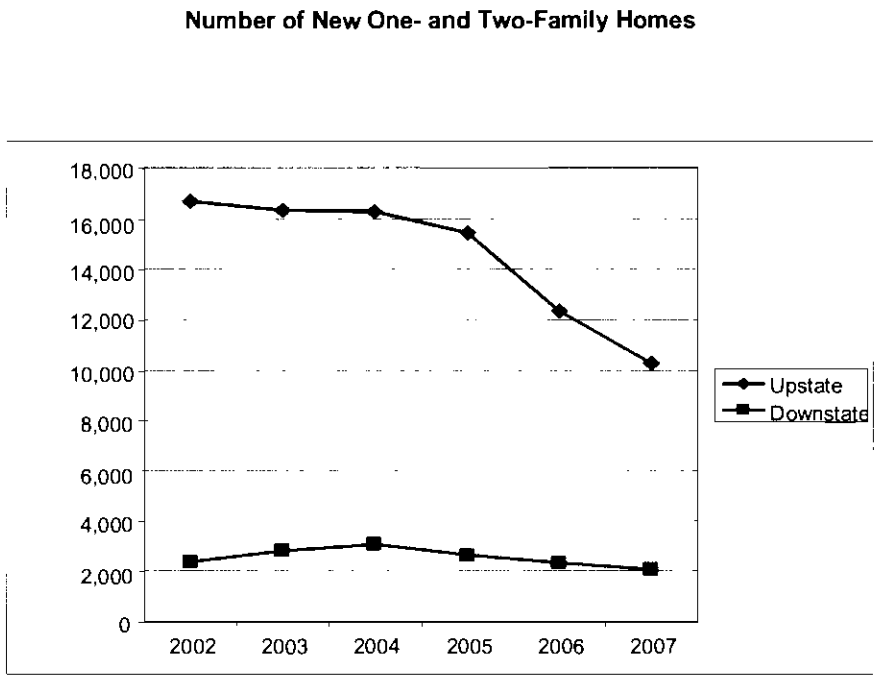

| | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 |
|---|---|---|---|---|---|---|
| □ Two-Family | 2,523 | 2,884 | 3,062 | 2,323 | 2,191 | 1,753 |
| ■ One-Family | 18,786 | 18,368 | 17,846 | 16,887 | 13,569 | 10,863 |

Source: Dodge New, Addition, and Alteration Database.

Figure 4-2 shows the trend in new one- and two- family homes in upstate and downstate regions of New York, and clearly indicates that new home construction has declined faster upstate than downstate.[4]

[4] "Upstate" represents all New York counties except Westchester, Kings, Queens, Bronx, and Richmond, which are considered "downstate" counties. Note Nassau and Suffolk counties are excluded from this analysis completely as they are not part of the **New York Energy $mart**[SM] Program area.

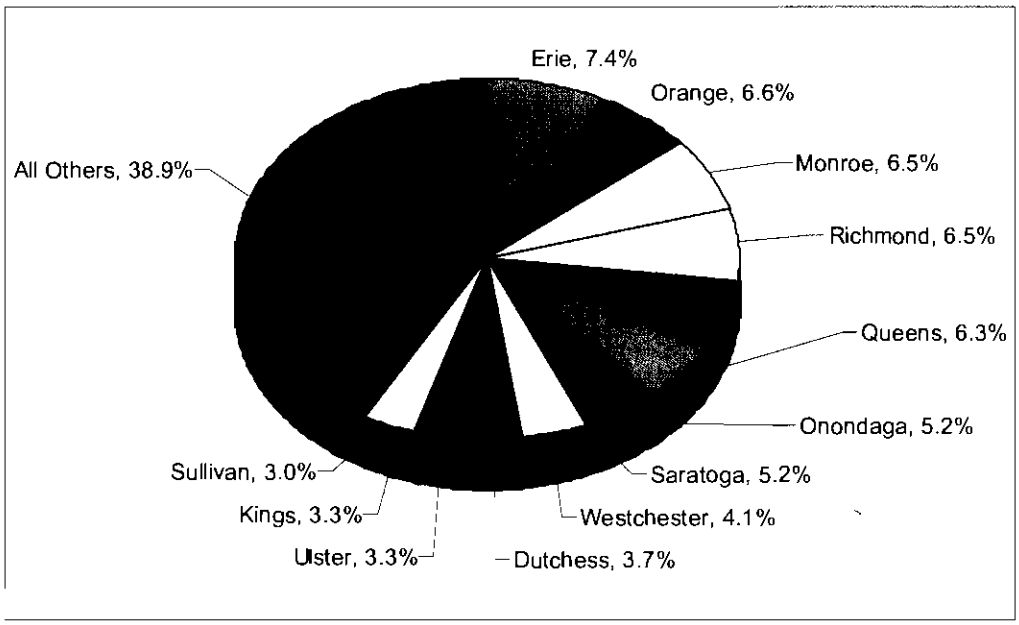
**Figure 4-2: Upstate vs. Downstate One- and Two-Family Market Trends**




Source: McGraw Hill Construction Dodge Database

Figure 4-3 shows the top twelve counties of New York producing the greatest number of one- and two-family new construction projects over the 2002 to 2007 period. Among these top twelve producing counties, four are located within the downstate region. This heavily concentrated area of growth in the one- and two-family residential home market presents a potentially untapped opportunity for additional energy efficiency and a possible target area for the NYESH Program.

**Figure 4-3: Percentage of New One- and Two-Home Construction Projects in New York, by County, for 2002-2007**




Source: Dodge New, Addition, and Alteration Database

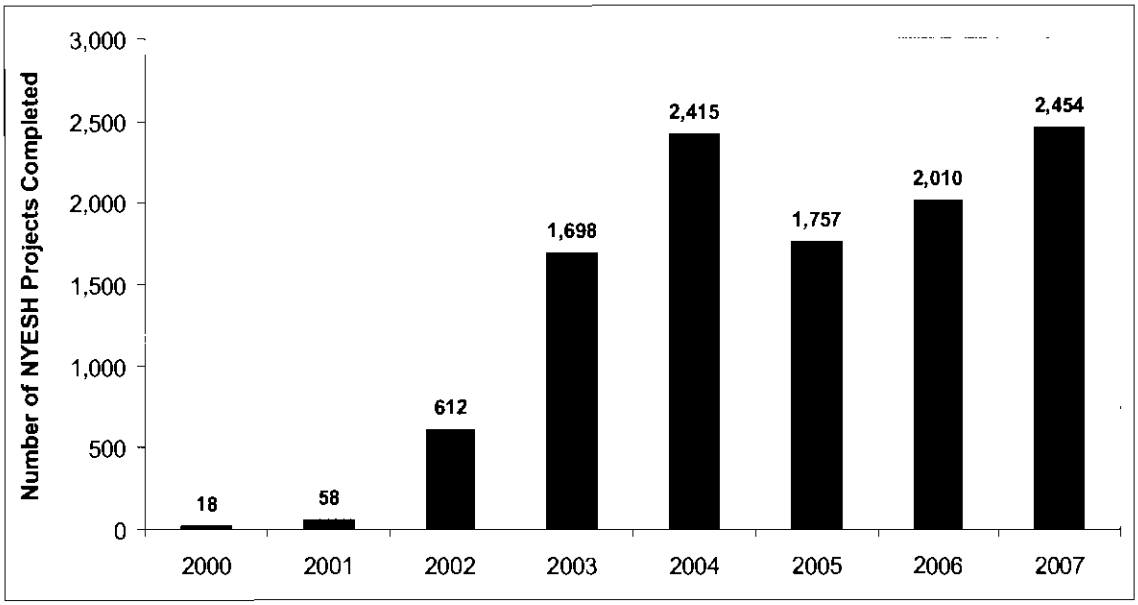
From the program's inception in 2000 through December 2007, 11,022 ENERGY STAR homes have been constructed through the NYESH Program.[5] Despite the slowing of the new construction market in New York, the NYESH Program achieved its greatest annual participation to date with 2,454 participants during the 2007 program year, as shown in Figure 4-4. One possible explanation for this trend is that builders are responding to the needs of buyers who are reacting to the economic conditions of the market, by promoting the cost-saving energy efficiency benefits of NYES homes. An increased desire among new home buyers to be green may also be a contributing factor.[6] Figure 4-5 shows that, during 2007, the overall market penetration for one- and two-family NYESH projects reached a program year high of 19.9%. Figure 4-6 shows that the penetration rates are as high as 29.1% in the Finger Lakes region and 28.6% in the Western region, with an overall average participation rate of 13.1% across the entire **New York Energy $mart**[SM] Program area; which is well above the NYESH Program goal of 10%.[7]

[5] Based on a NYSERDA Database summary, which identified the program to date total (through December 31, 2007) as 11,022, the CSG Quarterly Report (Q4 2007) shows a total of 11,058. This discrepancy is likely due to the fact that program databases are constantly updated with new information, and depending on when data are pulled from the database, updated values for the same metric may result.

[6] More information on the potential role that the consumer's desire to be green may have on this trend will be gathered as part of the Market Assessment analysis currently being conducted on the NYESH Program.

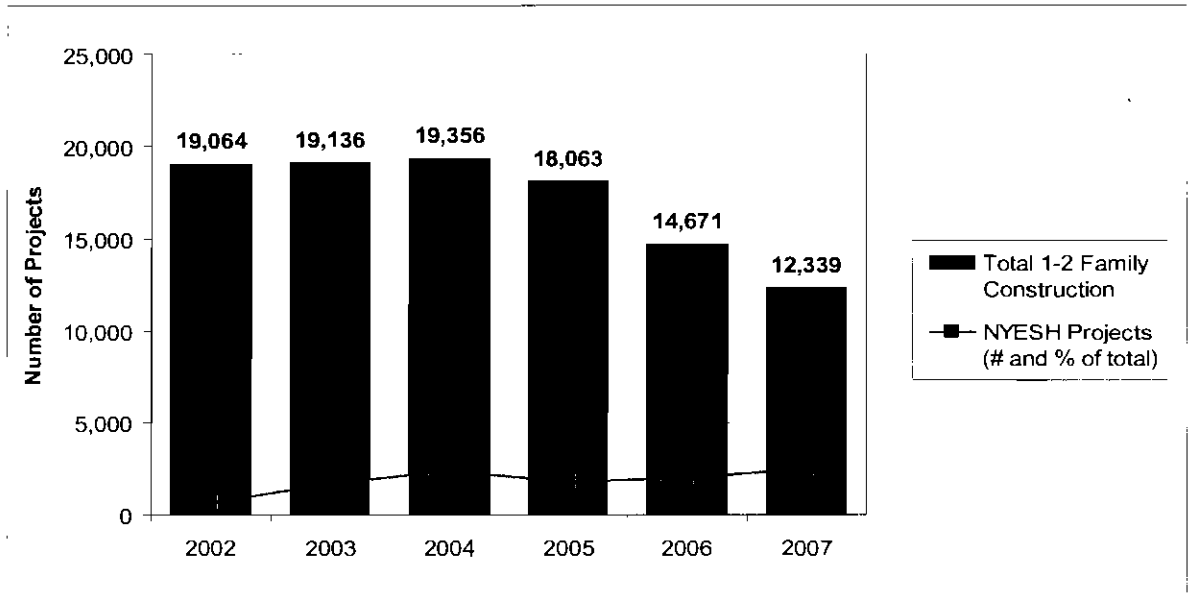
[7] For program marketing and implementation purposes, the **New York Energy $mart**[SM] program territory is often divided into areas referred to as Energy $mart Communities or regions. These regions include Finger Lakes, Western, Central, Capital, Northern, Mid Hudson, Southern, and New York City (downstate). When comparing region-specific data to program territory-wide completions, the total number of homes will not match. This is due to timing and source issues regarding when and where this information has been pulled.

**Figure 4-4: NYESH Program Projects Completed, 2000-2007**



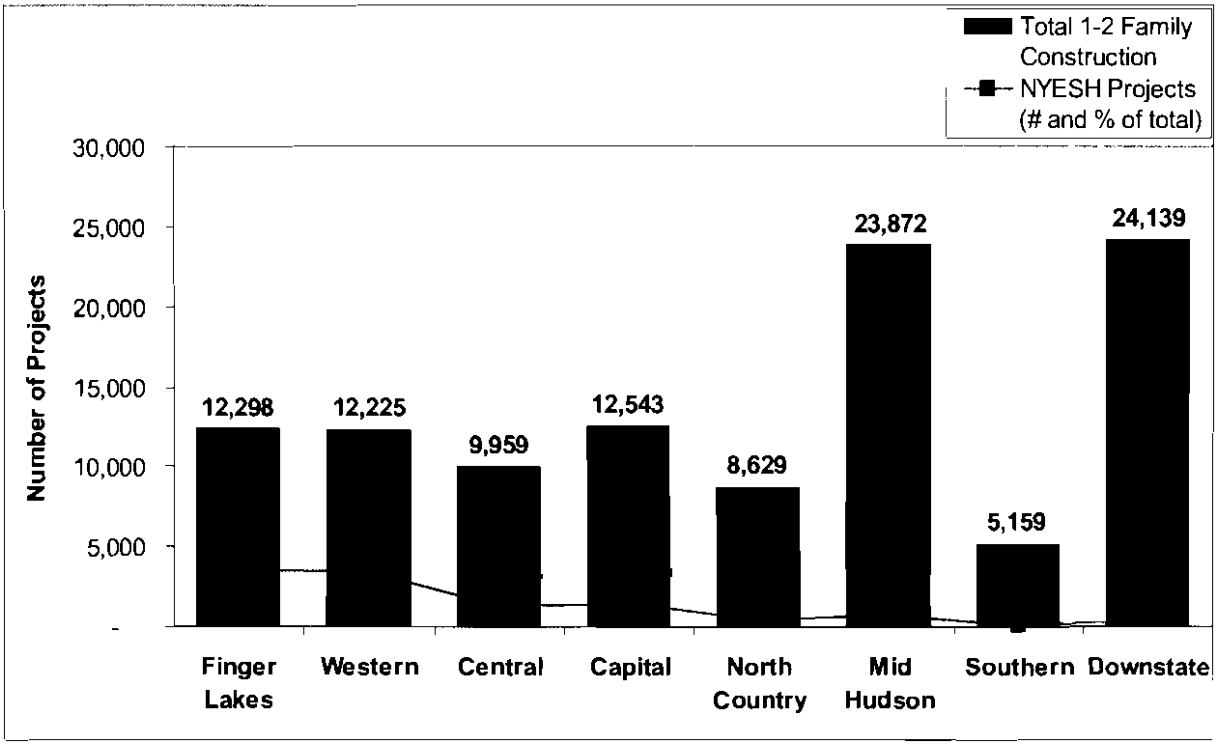

Source: NYSERDA Database.

**Figure 4-5: Market Penetration of NYESH Projects as a Percentage of Total One- and Two-Family Construction, 2002-2007**




Source: McGraw Hill Dodge Database

**Figure 4-6: Market Penetration Rate by New York Energy $mart[SM] Program Region as a Percentage of all One- and Two-Family New Construction, Cumulative for 2002-2007**

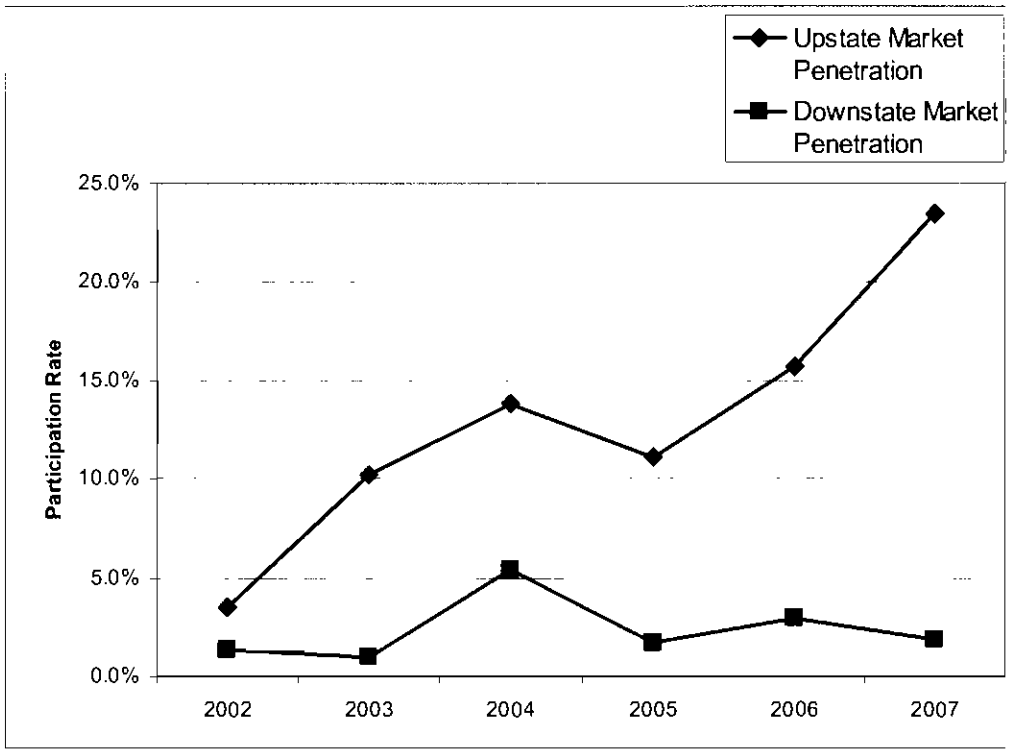



Source: Dodge New Source: Dodge New, Addition, and Alteration Database and NYSERDA NYESH Project Database.

As seen in Figure 4-7, market penetration for the NYESH Program is significantly higher in upstate regions than downstate, and the gap has been increasing steadily, even though the growth of residential new construction of one- and two-family housing is greater in the downstate region than upstate. One possible reason for this market penetration disparity is that there are few active NYESH participating builders in the downstate region (as illustrated in Figure 4-12). However, as Figure 4-12 also illustrates, there are a large number of single family home builders located downstate, which presents an opportunity to increase builder participation in this market.[8]

[8] In the downstate region, significant differences should be noted between counties within New York City and Westchester county, which is also part of the downstate region. The participation percentage in Westchester was 13% and the percentage in New York City was 0-2%.

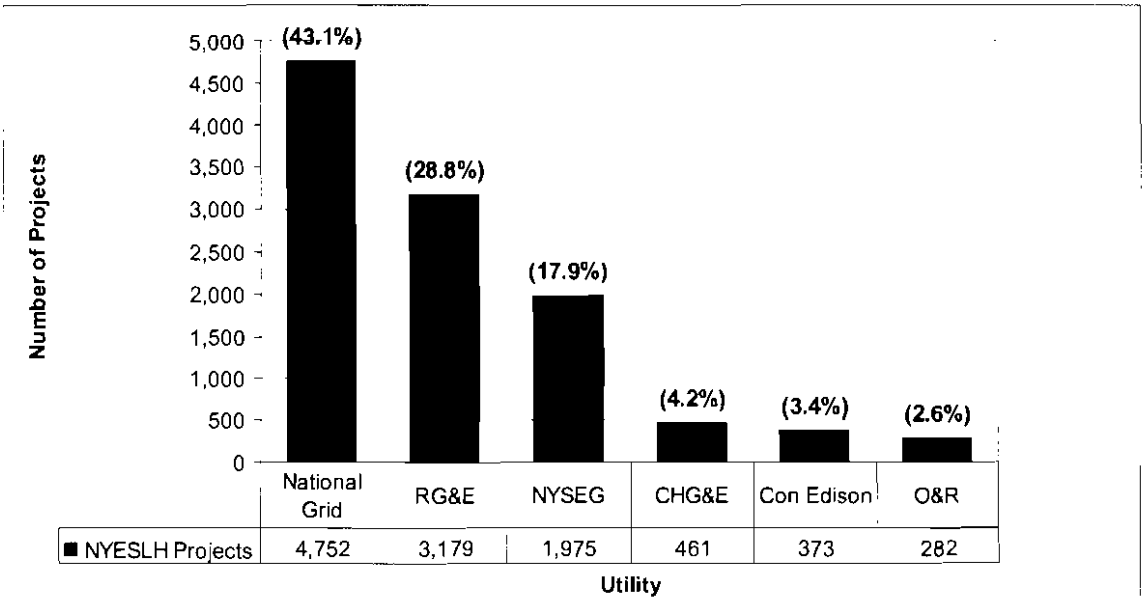
**Figure 4-7: NYESH Program Market Penetration, 2002-2007, Upstate vs. Downstate**




Source: McGraw Hill Dodge Database

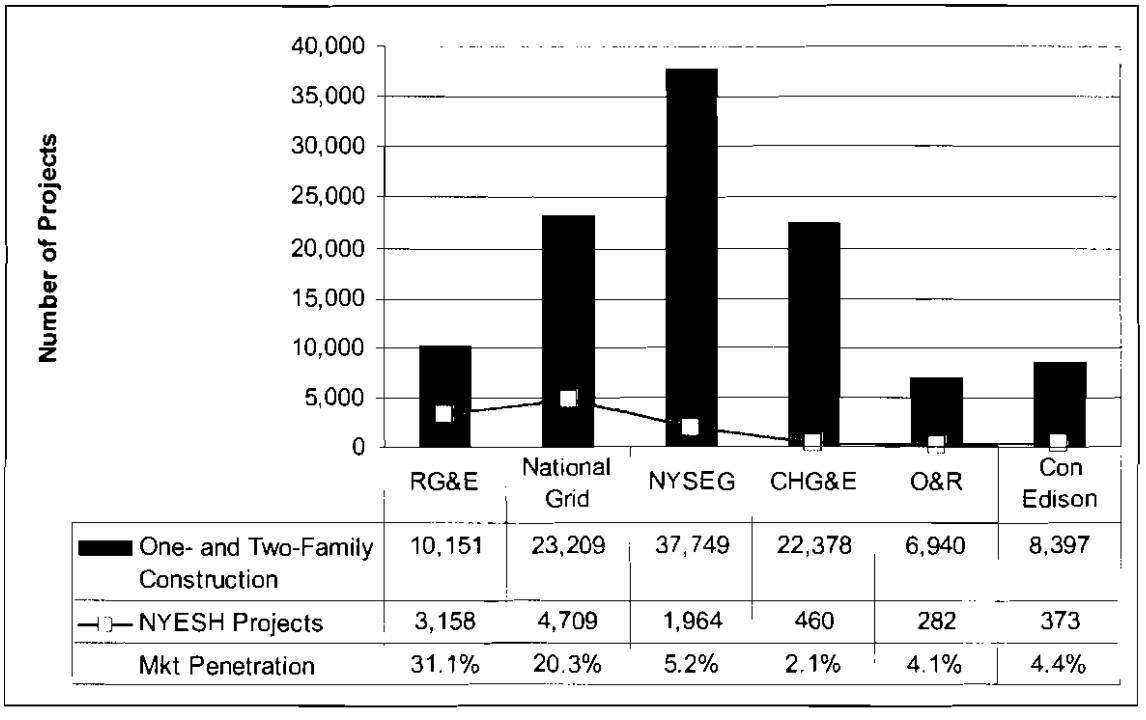
The National Grid and Rochester Gas and Electric service territories had the most residential new construction projects participating in NYSERDA's NYESH Program (71.9% combined, of the total 11,022 projects completed), far exceeding construction in the other utility service territories, as shown in Figure 4-8. In 2007, the most active builder in the NYESH Program was based in Rochester Gas and Electric's utility service territory, demonstrating the influence of a large production builder on market share for the Program. Participation was lowest in O&R, Con Edison, and CHG&E. Figure 4-9 shows the market penetration of the NYESH Program within individual utility service territories. Rochester Gas and Electric has the highest market penetration of projects completed through the NYESH Program, at 37.6%, followed by National Grid, 12.5%.

**Figure 4-8: Number and Percentage of Projects Completed through NYESH Program by Utility Area, 2000-2007**




Source: NYSERDA Database (for period 2000 through 2007)

**Figure 4-9: Market Penetration by Utility, 2002 - 2007**

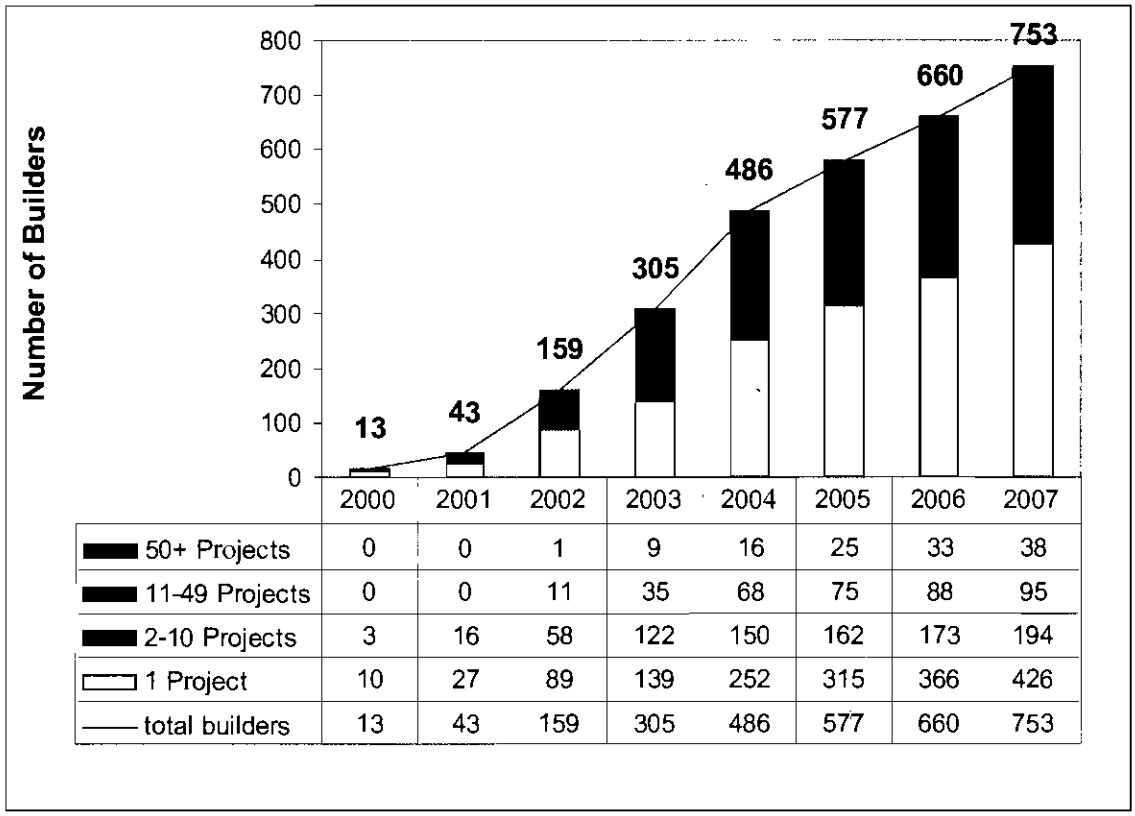



Source: McGraw Hill Dodge Database and NYSERDA Database (for period 2002 through 2007)

## ***New York Single Family Builder Market and Participating Builders***

A small number of builders complete a majority of the NYESH projects. For example, as shown in Figure 4-10, 38 builders have constructed more than 50 homes each, representing 69.4% of all program activity through December 2007. Further, 426 builders completed only one project during this same time period. Finally, a significant number of builders who have signed the NYESH Program's Participation Addendum and agreed to participate in the program have remained inactive; 186 participating builders (19%) have not yet constructed a single program home.[9]

**Figure 4-10: Cumulative Distribution of Builders by Number of NYESH Projects Completed, Program Inception through December 2007.**




| | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 |
|---|---|---|---|---|---|---|---|---|
| 50+ Projects | 0 | 0 | 1 | 9 | 16 | 25 | 33 | 38 |
| 11-49 Projects | 0 | 0 | 11 | 35 | 68 | 75 | 88 | 95 |
| 2-10 Projects | 3 | 16 | 58 | 122 | 150 | 162 | 173 | 194 |
| 1 Project | 10 | 27 | 89 | 139 | 252 | 315 | 366 | 426 |
| total builders | 13 | 43 | 159 | 305 | 486 | 577 | 660 | 753 |

Source: CSG 4th Quarter NYESH Report

As shown in Figure 4-11, approximately 4,200 one- to four-family residential new construction building firms are located in the downstate region (over 40% of all such firms) compared with nearly 5,900 firms located upstate.[10] Also, the upstate region experienced a single family home growth rate of only 0.4%[11], from 2002 to 2006 compared to 13%[12] downstate. These results imply that the new construction market remains strong downstate in number of new projects and the size of the single family homes builder

[9] According to the NYSERDA database, there are 787 active builders and according to the CSG 4th Quarter Report for 2007 there are 186 builders who constructed zero projects, totaling 973 builders.

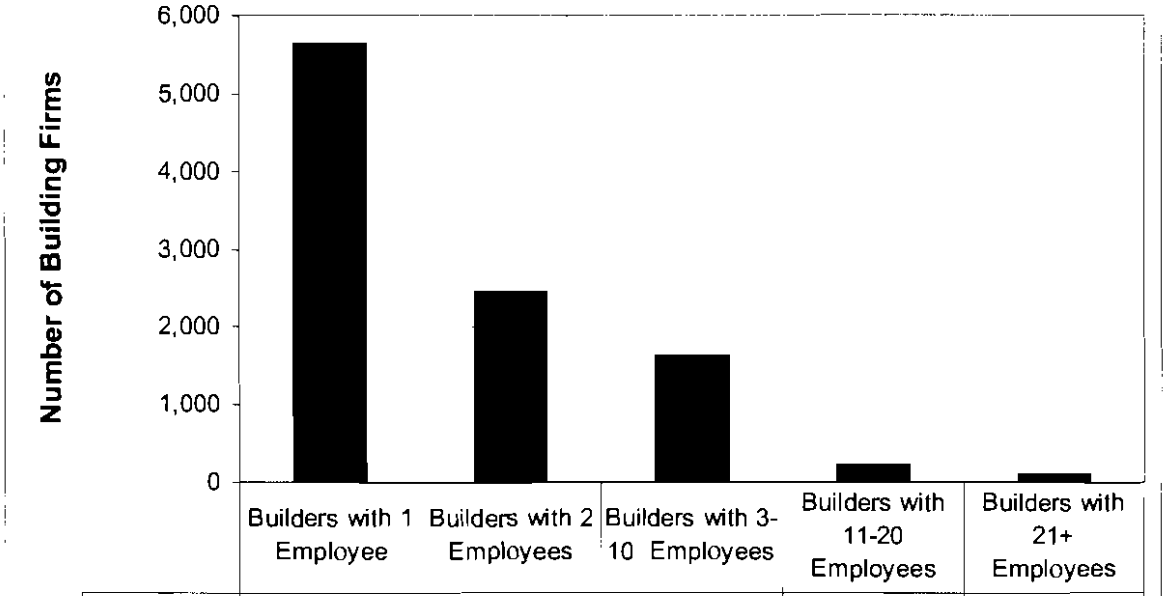
[10] Based on data provided by APPRISE entitled, "New York Builders with Imputed Values", and collected from a combination of sources including SIC codes analysis. The actual number of builders is likely lower due to findings being uncovered as part of associated phone survey screening questions, where a number of firms in the original sample frame have been found to no longer be in business, or were mis-categorized as residential home builders but actually only work in the commercial sector.

[11] State and region growth rates: U.S. Census Data, 2000 to 2006, American Fact Survey of one and two to four family homes.

[12] State and region growth rates: U.S. Census Data, 2000 to 2006, American Fact Survey of one and two to four family homes.

market, and presents an opportunity for NYSERDA to further penetrate the market through the NYESH Program.

**Figure 4-11: Distribution of Builders Upstate vs. Downstate, by Size of Firm**




| | Builders with 1 Employee | Builders with 2 Employees | Builders with 3-10 Employees | Builders with 11-20 Employees | Builders with 21+ Employees |
|---|---|---|---|---|---|
| ■ Upstate | 3,151 | 1,462 | 1,078 | 123 | 58 |
| ■ Downstate | 2,495 | 1,002 | 544 | 114 | 49 |

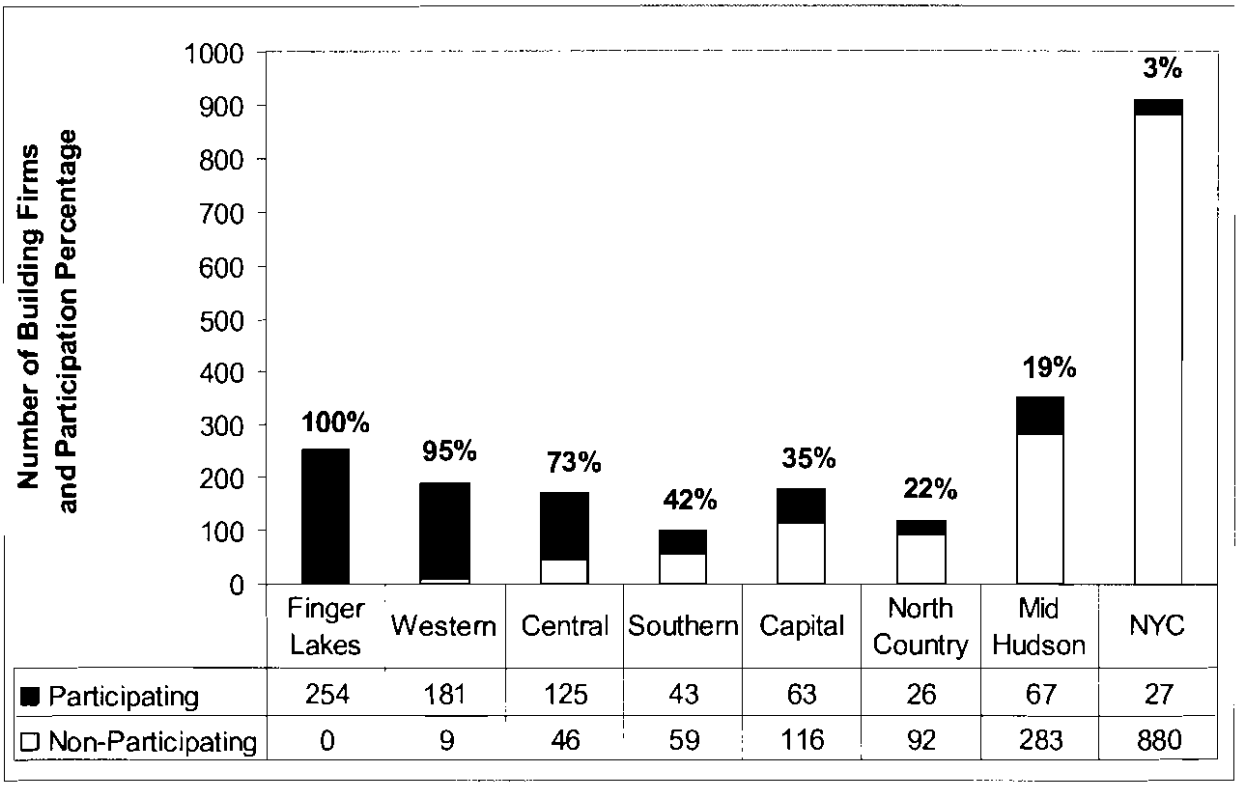
Source: List of Single Family New Homes Builders, supplied by APPRISE

As of the end of 2007, the NYESH Program had captured up to 35% of the total builder market in the NYSERDA territory. As shown in Figure 4-12, the market penetration of participating home builders by region varies greatly, with 73% to 100% participation in the Finger Lakes, Western, and Central communities, but only 19% to 22% participation in Mid Hudson and North County communities and just 3% downstate.[13, 14] These findings indicate that market opportunities remain, particularly downstate.

[13] The number of participating building firms is cumulative for 2000-2007 and is derived from the database of NYESH completed projects. The number of eligible building firms is for 2007 only. The exact number is unknown, as many firms registered in the state of New York are no longer in the business of constructing one-to-four family dwellings. Using a database of all registered building firms, an adjustment factor was applied based on call disposition results from a market assessment NYESH program MCA telephone survey of non-participating builders that was being fielded during development of this report. For the Finger Lakes region, the estimate resulted in a figure smaller than the actual number of participating builders; the number of non-participating builders for that community was therefore further adjusted to zero.

[14] Using data from APPRISE, NYSERDA's evaluation consultant responsible for fielding NYSERDA's NYESH non-participating contractor telephone surveys, adjustments were made to the total potential builder population to remove builders who, as a result of relevant phone survey screening questions, were found already to be participants in NYSERDA's NYESH program, no longer in business, and not building one- to four-family homes (*i.e.*, not in the residential new construction business or building new commercial and industrial buildings). For example, call disposition results showed that 33% of the firms listed as small home builders by Dun & Bradstreet actually built small homes. Of the remainder, approximately 65% build only commercial buildings and multifamily homes, and 3% are no longer in business. Of the 33% who built homes, 21% were current or former program participants and 12% were actual nonparticipants eligible for interview. Results were used to compute, for each county and based on the number of builders registered in that county, a weighted adjustment factor ranging from 19% to 27% depending on the county that was applied to the registered number of builders to produce an estimate of the actual number of eligible builders in that county. Numbers of eligible builders were then combined by region.

**Figure 4-12: Building Firm Participation Percentage, by New York Energy $mart[SM] Region, 2002-2007**




| | Finger Lakes | Western | Central | Southern | Capital | North Country | Mid Hudson | NYC |
|---|---|---|---|---|---|---|---|---|
| ■ Participating | 254 | 181 | 125 | 43 | 63 | 26 | 67 | 27 |
| □ Non-Participating | 0 | 9 | 46 | 59 | 116 | 92 | 283 | 880 |

Source: NYSERDA Database

Further study reveals that there is a direct correlation between the location of the ten most active builders in the NYESH Program and the level of overall program participation of that region. For example, according to the NYSERDA database, 31% of participating homeowners and three of the ten most active builders are located in the Finger Lakes region, and 30% of participating homeowners and five of the ten most active builders, are located in the Western region. However, only 11% of participating homeowners are located in the Mid Hudson, Southern, and New York City regions and none of the most active builders are located in these regions.

### *4.3.4 Follow-Up to Evaluation Recommendations*

***Home Performance with ENERGY STAR***

As described in the March 2008 **New York Energy $mart[SM]** Evaluation and Status Report, the following recommendation from the June 2007 Home Performance with ENERGY STAR measurement and verification report was shared with program staff[15]:

- The program should require contractors to obtain baseline billing data and enter annual baseline consumption into HomeCheck and TREAT. Both software modeling packages have the ability to use billing data as an input when calculating energy savings. At least one full year of data would be preferable, but even partial year data would be helpful in calculating and verifying modeled savings.

[15] Nexant, M&V Evaluation Home Performance with ENERGY STAR, Prepared for NYSERDA, June 2007

*Response.* In response to this recommendation, and as reported in the March 2008 Evaluation Report, customer billing release forms have been collected for every completed project since May 2005. However, gaining approval to collect billing data from utilities had not occurred. In a recent update to this response, program staff noted that although utility billing data still remains unavailable, the TREAT contractor will be holding training sessions with participating Home Performance contractors to improve methods for inputting baseline energy savings estimates into the database in the absence of utility billing data.

## 4.4 Multifamily Building Programs

The Multifamily Building Programs include the closed Low-Income Direct Installation and Comprehensive Energy Management (CEM) programs, the currently operating Assisted Multifamily Program (AMP), and the new Multifamily Performance Program (MPP).

### *4.4.1 Progress Toward Goals*

As shown in Table 4-7, several long-term non-energy goals have been set for the new Multifamily Performance Program. Achievements include ongoing activities completed during this time period for the AMP.

**Table 4-7. Multifamily Performance Program — Goals and Achievements**

| Activity | Program Goals (July 1, 2006 through June 30, 2011) | Achieved (July 1, 2006 through June 30, 2008 | % of Goal Achieved |
|---|---|---|---|
| Number of existing market rate multifamily units receiving energy efficiency services (completed projects) | 39,000 | 929 | 2% |
| Number of new market rate multifamily units receiving energy efficiency services | 7,500 | 0 | 0% |
| Tenant energy savings per year (at $250/unit) | $34,875,000 | $232,250 | 1% |
| Number of existing low-income multifamily units receiving energy efficiency services (completed projects) | 148,200 | 12,654 | 9% |
| Number of new low-income multifamily units receiving energy efficiency services | 12,700 | 0 | 0% |
| Low-income tenant energy savings per year (at $195/unit) | $31,375,500 | $2,467,530 | 8% |

### *4.4.2 Energy, Peak Demand and Fuel Savings*

Table 4-8 shows the cumulative annual energy and peak demand savings from the Multifamily Building Programs. A realization rate and net-to-gross ratio are applied to adjust the program-reported savings based on the most recent Measurement and Verification and Attribution evaluation studies. Net savings in the rightmost column are the total savings being claimed by the program after these evaluation activities.

**Table 4-8. Multifamily Building Programs Cumulative Annual Energy and Peak Demand Savings through June 2008**

| | Program-Reported Savings | Realization Rate | Adjusted Gross Savings | Free-ridership | Spillover | Net-to-Gross Ratio[1] | Net Savings |
|---|---|---|---|---|---|---|---|
| **Multifamily Performance Program (MPP)** | | | | | | | |
| MWh/year | 1,723 | N/E | 1,723 | N/E | N/E | N/E | 1,723 |
| MW On-Peak | 0.2 | N/E | 0.2 | N/E | N/E | N/E | 0.2 |
| MMBtu | 39,371 | N/E | 39,371 | N/E | N/E | N/E | 39,371 |
| **Assisted Multifamily Program (AMP)** | | | | | | | |
| MWh/year | 26,551 | 0.97 | 25,754 | 27% | 15% | 0.84 | 21,621 |
| MW On-Peak | 4.1 | 1.26 | 5.2 | 27% | 15% | 0.84 | 4.4 |
| MMBtu | 286,625 | 1.0 | 286,325 | 27% | 15% | 0.84 | 240,370 |
| **Comprehensive Energy Management (CEM) Program2** | | | | | | | |
| MWh/year | 5,712 | 0.97 | 5,541 | 2% | 18% | 1.16 | 6,408 |
| MW On-Peak | 0.3 | 1.77 | 0.5 | 2% | 18% | 1.16 | 0.6 |
| **Low-income Direct Installation2** | | | | | | | |
| MWh/year | 11,494 | 1.0 | 11,494 | N/E | N/E | N/E | 11,494 |
| MW On-Peak | 1.6 | 1.0 | 1.6 | N/E | N/E | N/E | 1.6 |
| **Multifamily Building Programs – Total** | | | | | | | |
| MWh/year | 45,480 | N/A | 44,512 | N/A | N/A | N/A | 41,245 |
| MW On-Peak | 6.2 | N/A | 7.5 | N/A | N/A | N/A | 6.8 |
| MMBtu | 325,696 | N/A | 325,696 | N/A | N/A | N/A | 279,741 |

[1] Net-to-Gross Ratio = (1-Freeridership) * (1+Spillover).

[2] Closed program

N/A — Not Applicable N/E — Not Evaluated

### *4.4.3 Other Evaluation Findings*

The timeline for completing MPP projects is at least one year. However, the Program is beginning to report savings. Table 4-9 shows the number of housing units involved in each point of the Program pipeline.

**Table 4-9. Number of Units Participating in MPP According to Status through June 2008**

| Status | Number of Housing Units | |
|---|---|---|
| | Existing Buildings | New Construction |
| Application Submitted | 3 | 0 |
| Participation Agreement Signed | 288 | 101 |
| Design 75% Complete | N/A | 18 |
| Construction Complete | 9 | 0 |
| **Totals** | 300 | 119 |

### 4.4.4 Follow-up on Evaluation Recommendations

The April 2008 Process Evaluation by Research Into Action[16] made several recommendations for program improvements. Those recommendations are listed below along with program staff responses.

- The MPP should consider additional training activities especially geared towards the specific requirements of the program. The current training for the modeling software is conducted by the software firm and is designed as a general introduction to the software. Sessions that are specifically targeted to the needs of the program would be more helpful and would reduce the need for iterative filing of program Energy Reduction Plans (ERP) and other filing requirements. To be successful, these training sessions should be focused on hands-on sessions using actual case studies that show attendees exactly how to perform a particular program requirement.

  *Response.*: NYSERDA has worked with Performance Systems Development (PSD), the developer of one of the major software modeling tools, and Maria Karpman to develop trainings on both TREAT and eQuest that are more specifically geared toward Program requirements. At the 2008 Partner Conference in May, Partners were surveyed to determine whether they felt that ongoing, in-person or Web-based, half- day or full-day training on Program documentation would be useful and they overwhelming rejected the idea.

- The MPP should consider strengthening its communication to building owners. In general, the philosophy of depending on the Partner to educate and inform the building owner is working, but there are times when a building owner needs independent information or wants to seek answers that a Partner is not supplying. The MPP should consider developing a Building Owner Portal that would give each building owner access to information about the project and archive questions and answers, as is done for Partner questions.

  *Response.* NYSERDA program staff feel this is an excellent idea and will work to pursue the recommendation of an owners' portal once work on the development of the Partner Portal is complete. In the meantime, NYSERDA staff have taken steps to strengthen the relationship between the owner and the TRC Case Manager assigned to every project to help facilitate better communication.

- To further encourage tenant space investment, the MPP should consider raising the incentive level. In addition, there could be a sliding-scale supplemental benefit based on the percentage of units actually treated. NYSERDA could help encourage greater investment in tenant spaces in public housing, where owners making these types of major capital improvements can often get permission to raise the rent.

  *Response.* Given that an earlier analysis conducted for the Con Edison Gas SBC Collaborative showed that refrigerators were recommended in 77%, compact fluorescent lightbulbs in 50%, and hardwired lighting in 73% of the existing building projects with completed Electric Reduction Plans at the time, this may not be an issue. NYSERDA will continue to track these metrics and start reviewing them by building ownership type to better discern where true program deficiencies might lie.

- The implementation contractor should log the name and contact information of all inquiries received by phone or email from non-Partner entities.

  *Response.* The implementation database tracks information on all qualified leads.

[16] Research Into Action, *Multifamily Process Evaluation*, April 2008.

## 4.5 Market Support Program

### *4.5.1 Progress Toward Goals*

Table 4-10 shows the Program's four long-term non-energy goals and progress. The program has already far surpassed its goal for new independent retail partners, and is making excellent progress toward the other goals.

**Table 4-10. Market Support Program — Goals and Achievements**

| Activity | Program Goals (July 1, 2006 through June 30, 2011) | Achieved (July 1, 2006 through June 30, 2008) | % of Goal Achieved |
|---|---|---|---|
| New manufacturing partners signed up | 20 | 18 | 90% |
| New retail partners (independent) signed up | 100 | 226 | >100% |
| New retail partners (big box, mass merchandisers) signed up | 6 | 5 | 83% |
| ENERGY STAR market share increase on targeted products (on average, across products) | 25% | 22% | 88% |

### *4.5.2 Energy, Peak Demand and Fuel Savings*

Table 4-11 shows the cumulative annual energy and peak demand savings from the Market Support Program.

**Table 4-11. Market Support Program Cumulative Annual Energy and Peak Demand Savings through June 2008**

| | Program-Reported Savings | Realization Rate | Adjusted Gross Savings | Free-ridership | Spillover | Net-to-Gross Ratio[1] | Net Savings |
|---|---|---|---|---|---|---|---|
| **ENERGY STAR Products and Marketing (through 2006)** | | | | | | | |
| MWh/year | Not applicable[2] | | | | | | 604,843 |
| MW On-Peak | | | | | | | 107.4 |
| MMBtu | | | | | | | 604,951 |
| **Keep Cool[3]** | | | | | | | |
| MWh/year | 5,159 | 1.0 | 5,159 | 18% | 15% | 0.94 | 4,865 |
| MW On-Peak | 8.8 | 1.0 | 8.8 | 18% | 15% | 0.94 | 8.3 |
| **Bulk Purchase[3]** | | | | | | | |
| MWh/year | 19,451 | 2.03 | 39,486 | 10% | 5% | 0.95 | 37,314 |
| MW On-Peak | 3.9 | 1.62 | 6.3 | 10% | 5% | 0.95 | 6.0 |
| MMBtu | 24,307 | 0.71 | 17,258 | 10% | 5% | 0.95 | 16,309 |
| **Market Support Program — Total** | | | | | | | |
| MWh/year | N/A | N/A | N/A | N/A | N/A | N/A | 647,022 |
| MW On-Peak | N/A | N/A | N/A | N/A | N/A | N/A | 121.6 |

| | Program-Reported Savings | Realization Rate | Adjusted Gross Savings | Free-ridership | Spillover | Net-to-Gross Ratio[1] | Net Savings |
|---|---|---|---|---|---|---|---|
| MMBtu | N/A | N/A | N/A | N/A | N/A | N/A | 621,260 |

[1] Net-to-Gross Ratio = (1-Freeridership) * (1+Spillover).

[2] The net savings attributable to the ENERGY STAR Products and Marketing Program are determined based on market research by the MCAC team. Thus, there are no program-reported savings, realization rate, or net-to-gross adjustments.

[3] Program closed.

N/A – Not Applicable

## 4.6 Communities and Education Program

### *4.6.1 Progress Toward Goals*

As shown in Table 4-12, seven long-term non-energy goals have been set for the Communities and Education Program. The Program is making excellent progress on most goals.

**Table 4-12. Communities and Education Program — Goals and Achievements**

| Activity | Program Goals (July 1, 2006 through June 30, 2011) | Achieved (July 1, 2006 through June 30, 2008) | % of Goal Achieved |
|---|---|---|---|
| Teachers trained | 5,000 | 1,542 | 31% |
| Total students reached | 150,000 | 185,558 | >100% |
| Portion of total estimated to be low-income students | 100,000 | 74,223 | 74% |
| Community events held statewide | 1,000 | 372 | 37% |
| Recruiting seminars held statewide | 500 | 29 | 6% |
| Home performance contractors, technicians, builders and raters recruited for the Single Family Home Performance Program | 800 | 614 | 77% |
| Building analysts, designers, energy consultants, equipment installers, etc. recruited for Multifamily Building Performance Program | 100 | 65 | 65% |

### *4.6.2 Energy $mart Communities Process Evaluation*

This evaluation was conducted by the process evaluation team (Research Into Action) and takes a multi-phased approach that will provide early and continued feedback on the **New York Energy $mart**[SM] Communities Program (Energy $mart Communities). This synopsis provides a brief summary of the process evaluation objectives and methodology.

Energy $mart Communities is a program originally brought to NYSERDA under the U.S. Department of Energy's Rebuild America program. Energy $mart Communities brings together community organizations and agencies to develop model projects demonstrating how energy efficiency and renewable energy activities create economic, social, and environmental benefits for communities. All of these efforts are guided by the Energy $mart Communities coordinators (coordinators) in the following designated regions: Capital/Saratoga; Central New York; Finger Lakes; Mid-Hudson; North Country;

Southern Tier; Western New York; and New York City.

In 2006, a new contract was signed to provide services and support to the program. NYSERDA envisioned that this would reduce the workload of its project managers and enhance the support available to the regional coordinators. Also, changes in the program management structure at NYSERDA occurred in late 2007, consolidating responsibility for the coordinators under one project manager rather than two. These changes frame the research issues for this evaluation, which is designed to assess the effects of these transitions on the coordinators in 2007 — early in the transition period — and at two points in 2008, following execution of several program campaigns under the new structure.

The second phase of the three-phase process evaluation was completed in June 2008. The focus of the second phase was to continue to assess the impact of changes in program structure, management, support, and implementation. In-depth telephone interviews were conducted with ten individuals in June 2008, including eight of the regional coordinators and two program support representatives from the services and support contractor, Lockheed Martin.

Preliminary results were reviewed with NYSERDA program staff and a member of NYSERDA's evaluation team. These results provided NYSERDA staff with information about ongoing issues and updated them on (1) Phase 1 baseline data collected in January 2008 and (2) Phase 3 data to be collected in fall 2008. A final report documenting each phase of the process evaluation will be submitted in December 2008.

## 4.7 EmPower New York[SM]

### *4.7.1 Progress Toward Goals*

As shown in Table 4-13, one long-term non-energy goal has been set for the EmPower Program. Performance is on track for this goal.

**Table 4-13. EmPower New York[SM] Program — Goal and Achievement**

| Activity | Program Goal (July 1, 2006 through June 30, 2011) | Achieved (July 1, 2006 through June 30, 2008 | % of Goal Achieved |
|---|---|---|---|
| Households served (completed) | 31,500 | 18,626 | 59% |

### Energy, Peak Demand and Fuel Savings

Table 4-14 shows the cumulative annual energy and peak demand savings from the EmPower Program. A realization rate is applied to adjust the program-reported savings based on the most recent Measurement and Verification evaluation studies. These programs have not undergone any attribution evaluation, so no adjustment is made for net-to-gross.

**Table 4-14. EmPower New York[SM] Program Cumulative Annual Energy and Peak Demand Savings (through June 2008)**

| | Program Reported Savings | Realization Rate | Adjusted Gross Savings | Net-to-Gross Ratio | Net Savings |
|---|---|---|---|---|---|
| **EmPower New York** | | | | | |
| MWh/year | 40,322 | 0.81 | 32,660 | N/E | 32,660 |
| MW On-Peak | 4.9 | 1.0 | 4.9 | N/E | 4.9 |
| MMBtu | 166,208 | 1.0 | 166,208 | N/E | 166,208 |
| **Weatherization Network Initiative[1]** | | | | | |
| MWh/year | 8,242 | 1.0 | 8,242 | N/E | 8,242 |
| MW On-Peak | 1.3 | 1.0 | 1.3 | N/E | 1.3 |
| **Total** | | | | | |
| MWh/year | 48,563 | N/A | 40,902 | N/A | 40,902 |
| MW On-Peak | 6.2 | N/A | 6.2 | N/A | 6.2 |
| MMBtu | 166,208 | N/A | 166,208 | N/A | 166,208 |

N/A — Not Applicable. N/E — Not Evaluated.

[1] Closed program.

## 4.8 Buying Strategies and Energy Awareness Program

### *4.8.1 Progress Toward Goals*

Four long-term non-energy goals have been set for the Buying Strategies and Energy Awareness Program. These five-year goals and progress are shown in Table 4-15. The Program already exceeded three of its four goals.

**Table 4-15. Buying Strategies and Energy Awareness Program — Goals and Achievements**

| Activity | Program Goals (July 1, 2006 through June 30, 2011) | Achieved (July 1, 2006 through June 30, 2008) | % of Goal Achieved |
|---|---|---|---|
| Funds leveraged through Buying Strategies initiative | $20 million | $7.5 - 6 million | 38 - 48% |
| Additional low-income individuals reached via newsletters, weekly newspapers, etc. (readership) | 5 million | 6.9 million | >100% |
| Additional low-income individuals reached via seminars and workshops (attendees) | 15,000 | 39,135 | >100% |
| Additional contractors and other partners recruited in low-income districts | 50 | 295 | >100% |

# 5 Research and Development Programs

## 5.1 Research & Development (R&D) Program Evaluation Activities

### 5.1.1 Completed Evaluation Activities

No major evaluation studies were completed this quarter for R&D programs. However, major efforts are underway, as described in the next section.

### 5.1.2 Evaluation Activities in Progress and Planned

In the R&D program area, the Distributed Generation/Combined Heat and Power Program is represented in the impact evaluation project to assess the net effects of the largest energy saving projects across NYSERDA's portfolio. Additionally, a major impact evaluation of the R&D portfolio is under way and was summarized in the 1st Quarter 2008 *New York Energy $mart$^{SM}$ Program Evaluation and Status Report.*

## 5.2 Summary of R&D Evaluation Results

### 5.2.1 Progress Toward Non-Energy Goals

A number of long-term goals were set for all the R&D programs with key metrics such as: number of solicitations, studies, and projects; number of workshops; number of companies doing business in New York; new products developed and launched; and other important knowledge creation, information dissemination, and commercialization progress metrics. Overall, the programs are performing well with respect to these goals. Results of each program's progress toward its stated goals are shown in table format in this section. Many of these goals are qualitative in nature. However, some key areas of progress in the past 24 months include the following:

- The Public Benefit Power Transmission and Distribution Research Program issued a program opportunity notice (PON) that received 21 proposals.
- The Clean Energy Infrastructure Program has released 14 competitive research solicitations — 280% of its goal. With 15 companies expanding their renewable businesses, the Program has accomplished 60% of its goal of 25 companies developing and manufacturing clean energy technologies in New York.
- 40%, or eight projects, funded by the Power Systems Product Development Program are successfully completing milestones.
- The DG-CHP Demonstration program has funded 29 operational projects, or 58% of its goal, representing more than 138 MW of generation capacity.
- 930 units, or 13%, of the goal for participating multifamily apartments have been accomplished

by the Demand Response and Innovative Rate Research Program.

- The Environmental Monitoring, Evaluation, and Protection Program has accomplished 100% of its goal by co-sponsoring five workshops and hosting and sponsoring three conferences.
- 83%, or 25, cost-shared demonstrations planned by the Industrial Process and Product Innovation Program have been contracted.
- The Municipal Water and Wastewater Efficiency Program has achieved 100% of its goal for technology transfer.

### *5.2.2 Energy, Peak Demand, Fuel Savings, and Clean Generation*

Table 5-1 shows the energy savings and renewable energy production achieved by the R&D portfolio through June 30, 2008. Table 5-2 highlights demand reduction achievements, and Table 5-3 shows impacts for other fuels such as natural gas and oil. These tables also show the change since June 30, 2006.

**Table 5-1. R&D Program Electricity Savings and Clean Generation through June 30, 2008**

| Program | Energy Savings (GWh) | |
|---|---|---|
| | Savings Achieved through | |
| | June 30, 2006 | June 30, 2008 |
| DG-CHP Demonstration Program | 82.7 | 109.5 |
| Con Edison | 42.0 | 60.3 |
| Renewable Energy Production | 103.8 | 106.2 |
| Con Edison | 0.5 | 0.9 |
| Overlap Removed | 6.6 | 8.8 |
| **Con Edison R&D Total** | **42.5** | **61.2** |
| **Statewide R&D Total** | **179.9** | **206.9** |

**Table 5-2. R&D Program Cumulative Peak Demand Savings through June 30, 2008**

| Program | Demand Savings (MW)[1] | |
|---|---|---|
| | Savings Achieved through | |
| | June 30, 2006 | June 30, 2008 |
| DG-CHP Demonstration Program | 18.1 | 23.7 |
| Con Edison | 8.5 | 12.1 |
| Demand Response and Innovative Rate Research | 137.2 | 99.0 |
| Con Edison | 68.6 | 21.0 |
| Renewable Energy Production | 8.1 | 9.8 |
| Con Edison | 0.4 | 0.5 |
| Overlap Removed | 1.3 | 1.7 |
| **Con Edison R&D Total** | **77.5** | **33.7** |
| **Statewide R&D Total** | **162.1** | **130.8** |

[1] MWs enabled under the SBC2 program Enabling Technologies for Price Responsive Load were not required to persist beyond the period of the contract. As such, the available MWs have steadily declined since the program's close.

**Table 5-3. R&D Program Cumulative Annual Fuel Savings through June 30, 2008**

| Program | Fuel Savings (MMBtu) | |
|---|---|---|
| | Savings Achieved through | |
| | June 30, 2006 | June 30, 2008 |
| DG-CHP Demonstration Program[1] | -571,310 | -853,933 |
| Con Edison | -266,937 | -470,145 |
| **Con Edison R&D Total** | **-266,937** | **-470,145** |
| **Statewide R&D Total** | **-571,310** | **-853,933** |

[1] Because the electricity saved by the DG/CHP projects replaces electricity purchased from the grid, the program has reduced fuel used at central generating stations, for a net decrease statewide due to greater efficiency of the DG/CHP systems at sites where imported fuel is used. The fuel avoided at the central generating plant is determined from the electricity generated by the DG/CHP installations. Furthermore, at projects such as wastewater treatment plants, electricity generation is powered fully or partially by digester gas produced on site. Fuel switching achieves natural gas conservation beyond the amount achieved only through efficieney.

## 5.3 Public Benefit Power Transmission and Distribution Research

### *5.3.1 Progress Toward Goals*

Two long-term goals have been set for the Public Benefit Power Transmission and Distribution Program. These goals and progress are described in Table 5-4.

**Table 5-4. Public Benefit Power Transmission and Distribution Research Program — Goals and Achievements**

| Activity | Program Goals (July 1, 2006 through June 30, 2011) | Achieved (July 1, 2006 through June 30, 2008) |
|---|---|---|
| Issue annual solicitations | 12 or more projects resulting in progress toward program objectives | A total of 21 proposals were received in the first funding round of PON 1208. A TEP meeting is scheduled for 8/5/08 to review all of the proposals. |
| Technology transfer | Identify successful projects, undertake specific outreach and knowledge transfer activities aimed at utilities | The program team continues to work closely with the electric utilities and EPRI to identify projects that provide significant statewide benefit. |

## 5.4 Clean Energy Infrastructure

### *5.4.1 Progress Toward Goals*

Several long-term non-energy goals have been set for the Clean Energy Infrastructure Program. These five-year goals, as well as progress, are shown in Table 5-5. The Program is performing well with respect to most of its goals.

**Table 5-5. Clean Energy Infrastructure Program — Goals and Achievements**

| Activity | Program Goals (July 1, 2006 through June 30, 2011) | | Achieved (July 1, 2006 through June 30, 2008) | % of Goal Achieved |
|---|---|---|---|---|
| **Education, Consumer Awareness and Market Development** | | | | |
| New accredited training institutions | 3 | Self-sustaining accredited training and certification programs for clean energy technologies in addition to PV | 1 | 33% |
| New certification exams | 5 | | 1 | 20% |
| Training workshops | 25 | | 26 | >100% |
| **Renewable Resource Applications** | | | | |
| Stakeholder workshops | 7 | Reduce knowledge and technical barriers currently affecting installation and operation of wholesale and end-use clean energy technologies | 12 | >100% |
| Competitive research solicitations | 5 | | 14 | >100% |
| **Clean Energy Technology Manufacturing and Business Development** | | | | |
| Companies expanding renewable business networks | 25 | Increase the number of companies developing and manufacturing clean energy technologies and serving clean energy businesses in New York | 15 | 60% |
| Companies expanding manufacturing | 10 | | 4 | 40% |

### *5.4.2 Clean Energy Generation*

The installation of PV and small wind is now part of the RPS program and the information in this section reflects the installations prior to the transition to the RPS. Table 5-6 shows the cumulative annual clean generation from the Clean Energy Infrastructure Program. A realization rate and net-to-gross ratio are applied to adjust the program-reported savings based on the most recent Measurement and Verification and Attribution evaluation studies. Net savings in the rightmost column are the total savings being claimed by the program after these evaluation activities.

**Table 5-6. Clean Energy Infrastructure Program Cumulative Annual Clean Generation (through June 2008)**

| | Program-Reported Savings | Realization Rate | Adjusted Gross Energy Generations | Net-to-Gross Ratio | Net Energy Generation |
|---|---|---|---|---|---|
| **End Use Renewables** | | | | | |
| MWh/year | 5,930 | 1.04 | 6,167 | 1.0 | 6,167 |
| MW On-Peak | 4.2 | 0.85 | 3.6 | 1.0 | 3.6 |
| **Wholesale Renewables** | | | | | |
| MWh/year | 99,995 | 1.0 | 99,995 | 1.0 | 99,995 |
| MW On-Peak | 6.2 | 1.0 | 6.2 | 1.0 | 6.2 |

| | Program-Reported Savings | Realization Rate | Adjusted Gross Energy Generations | Net-to-Gross Ratio | Net Energy Generation |
|---|---|---|---|---|---|
| **Clean Energy Totals** | | | | | |
| MWh/year | 105,925 | N/A | 106,162 | N/A | 106,162 |
| MW On-Peak | 10.4 | N/A | 9.8 | N/A | 9.8 |

N/A – Not Applicable

### *5.4.3 Follow Up on Evaluation Recommendations*

The following recommendations were a result of the Process Evaluation conducted by Research Into Action in March 2008 for the PV Workforce Development Program. The recommendations, with responses from program managers, are summarized below.

- NYSERDA should continue to support installer training and encourage certifications by the North American Board of Certified Energy Practitioners (NABCEP).

  *Response.* NYSERDA plans to continue training and the promotion of NABCEP certification.

- NYSERDA can best increase the market for customer-sited PV systems, the number of PV installations, and the number of NABCEP installers by increasing its program funding.

  *Response.* Incentives are necessary to bring the cost of PV systems down to a level that is reasonably affordable to customers. All major PV markets in the country are based on aggressive incentive programs. Additional funding is necessary to build a market in New York and support an expanding workforce. The authority to provide significant additional funding for PV rests with the New York State Public Service Commission, the Governor, or the New York State Legislature.

- The PV team should consider the suggestions of its training partners to make available additional PV equipment and practice roofs at the training institutions, either permanently or as mobile equipment. NYSERDA could facilitate field training experience and job placement by adding a job board to its Website and adding a restricted-access list of students completing PV training at partnering institutions that could only be accessed by NYSERDA-eligible installers.

  *Response.* NYSERDA has no plans to pursue this recommendation at this time.

- As the review of programs suggests that no approach dominates quality assurance, and program implementers all expressed confidence in their methods, NYSERDA should base its quality assurance requirements on practical considerations, such as administrative simplicity, efficiency, and clarity.

  *Response.* The NYSERDA PV program will continue to strive for clarity in every aspect of program implementation. Many of the quality assurance issues are the results of National Electric Code violations. Increasing the number of workshops on the NEC might help address the issue.

- Scoring protocols were developed that assigned values for installer credentials related to training, education, and experience. The protocols also assigned values for problems that were identified as a result of design reviews and on-site inspections. The protocols could be used by NYSERDA to assess installer applications and reviews of PV system designs. In future, the protocols could

augment the current installer and installation review procedures by providing documentation in numerical format. Such protocols could provide NYSERDA with data about current market conditions, installer qualifications at the time of application, and common pitfalls in proposed PV system designs and installations. NYSERDA could use the data in support of its workforce development activities.

*Response.* PV program staff will continue to develop methods to simplify the application process and keep all decisions as transparent as possible. An important step that has been implemented is providing the capability of installers to complete their applications on-line.

- NYSERDA should consider encouraging its training partners to offer courses in NABCEP exam preparation.

  *Response.* NYSERDA supports this recommendation.

## 5.5 Power Systems Product Development

### *5.5.1 Progress Toward Goals*

Several long-term non-energy goals have been set for the Power Systems Product Development Program. Goals and accomplishments are shown in Table 5-7. Unless noted, achievements are associated with proposals received between July 2006 and September 2007. Program Opportunity Notice (PON) 1200 (Environmentally Preferred Power Systems and Energy Storage Technologies) was issued in January 2008 with two proposal due dates, July 2008 and January 2009. Thirty-three proposals were received in July 2008.

**Table 5-7. Power Systems Product Development Program — Goals and Achievements**

| Activity | Program Goals (July 1, 2006 through June 30, 2011) | Achieved (July 1, 2006 through June 30, 2008) | % of Goal Achieved |
|---|---|---|---|
| Product development contracts awarded | 75 | 15 | 20% |
| New products commercially launched since July 1, 2006[1] | 5 | 1 | 20% |
| Cumulative sales ($) since July 1, 2006[1] | $50 million | $2 million | 4% |
| Successful new product field tests and demonstrations | 15 | 3 | 20% |
| Projects successfully completing milestones | 25 | 8 | 40% |
| Assessments and studies of new technologies completed | 20 | 5 | 25% |

[1] From proposals received since 2000.

## 5.6 DG-CHP Demonstration

### 5.6.1 Progress Toward Goals

Two important long-term non-energy goals have been set for the DG-CHP Program. These five-year goals and progress are shown in Table 5-8.

**Table 5-8. DG-CHP Demonstration Program — Goals and Achievements**

| Activity | Program Goals (July 1, 2006 through June 30, 2011) | Achieved (July 1, 2006 through June 30, 2008) | % of Goal Achieved |
|---|---|---|---|
| Issue annual solicitations and incentive offers | Fund 50 or more CHP demonstrations with a cumulative capacity of 100 MW and associated efficiency and environmental benefits, and with 50 MW downstate. | 29 active projects represent more than 138 MW of generation capacity including:<br>• PON 1043 – 6 approved, 5 active<br>• PON 1178 – 8 approved<br>• PON 984 – 16 approved. Included a CHP component for the downstate region.<br>PON 1241 was issued in June 2008, with 3 due dates beginning on August 14, 2008. | 58% |
| Technology transfer | Conduct technology transfer and outreach activities to broaden acceptance of DG and CHP. Hold annual workshops and publish at least 10 final reports per year. | Site-specific performance data is posted on http://chp.nyserda.org for 34 projects.<br>A CHP Conference highlighting lessons learned was held in New York City during June, 2008. | N/A |

### 5.6.2 Energy, Peak Demand and Fuel Savings

Table 5-9 shows the cumulative annual energy and peak demand savings from the DG-CHP Program. A realization rate and net-to-gross ratio are applied to adjust the program-reported savings based on the most recent Measurement and Verification and Attribution evaluation studies. Net savings in the rightmost column are the total savings being claimed by the program after these evaluation activities.

### Table 5-9. DG-CHP Program Cumulative Annual Energy and Peak Demand Savings (through June 2008)

| | Program-Reported Savings | Realization Rate | Adjusted Gross Savings | Freerider-ship | Spillover | Net-to-Gross Ratio[1] | Net Savings |
|---|---|---|---|---|---|---|---|
| MWh/year | 113,057 | 0.90 | 102,237 | 15% | 26% | 1.07 | 109,496 |
| MW | 22.5 | 0.98 | 22.1 | 15% | 26% | 1.07 | 23.7 |
| MMBtu/year[2] | -898,654 | 0.89 | -797,323 | 15% | 26% | 1.07 | -853,933 |

[1] Net-to-Gross Ratio = (1-Freeridership) * (1+Spillover).

[2] Because the electricity saved by the DG/CHP projects replaces electricity formerly purchased from the grid, the program has reduced fuel used at central generating stations, for a net decrease statewide due to greater efficiency of the DG/CHP systems at sites where imported fuel is used. The fuel avoided at the central generating plant is determined from the electricity generated by the DG/CHP installations. Furthermore, at additional projects such as waste water treatment plants, electricity generation is powered fully or partially by digester gas produced on site. Such fuel switching achieves natural gas conservation above and beyond what is achieved through efficiency alone.

## 5.7 Demand Response and Innovative Rate Research

### *5.7.1 Progress Toward Goals*

Two long-term non-energy goals have been set for the Demand Response and Innovative Rate Research Program. These five-year goals and progress are shown in Table 5-10.

### Table 5-10. Demand Response and Innovative Rate Research Program — Goals and Achievements

| Activity | Program Goals (July 1, 2006 through June 30, 2011) | % of Goal Achieved |
|---|---|---|
| **Achievements (July 1, 2006 through June 30, 2008)** | | |
| Increase small customer participation in wholesale and local demand response programs (MW) | 100 MW | 1% of MW goal |

**Achievements (July 1, 2006 through June 30, 2008)**

One MW enabled.

The program is still ramping up to meet long term goals of demonstrating enabling load shed technologies. NYSERDA R&D staff began meeting with utilities to understand the existing programs and customer pilots that may offer opportunities for demonstration of enabling technologies or innovative rates.

Demonstration of an advanced, remotely activated, load shed ballast was completed at the Con Edison Rye facility. Additional demonstration projects have been funded at five different types of commercial or institutional buildings.

Innovative Power demonstrated tools to identify demand response opportunities in schools and other building types.

Completed demonstration of central air conditioning thermostats configured to allow remote load reduction. The demonstration was hosted by Gateway Energy Services (formerly Econergy) to assess feasibility of including a load curtailment option bundled with residential and small customer service.

| Activity | Program Goals (July 1, 2006 through June 30, 2011) | % of Goal Achieved |
|---|---|---|
| Increase the number of multifamily apartment units participating in real-time and other time-sensitive electric rate pilot | 3,000 apartment units | 13% (with the 930 units participating in the demonstration) |

**Achievements (July 1, 2006 through June 30, 2008)**

Developing solicitation to pilot on-premise Energy Information Display devices and assess their impact on customer energy use. Working with Con Edison and other organizations to coordinate with Advanced Metering Initiative meter pilots, load aggregation portfolios and stand-alone applications.

Completed a feasibility study to compare various time-based rates (including Con Edison Rider M) in two all-electric multi-family developments (3,100 apartment units, 20MW peak demand). Within the period of analysis, customers would have paid less under the Rider M tariff without any price responsive behavior.

Began installation of 26 remote control-enabled window air conditioners for load management in Pratt Institute college dormitories.

Continued demonstration of load management technologies and of time-of-use rate at Georgetown Mews (37 buildings, 930 apartment units, 2,000 KW peak load). Technologies include submetering, fleet-managed window air conditioning, energy information display, and heating. The site will also pilot test a time-sensitive rate.

Completed a three-year time sensitive rate pilot at Clinton Hills cooperative (1,221 units). The load reduction impact of submetering (required for TSP rates) was a 23% load reduction. The load shift impact was approximately 1% from peak to off-peak and shoulder periods.

### *5.7.2 Energy, Peak Demand and Fuel Savings*

As shown in Table 5-11, the cumulative annual energy and peak demand savings from the Demand Response and Innovative Rate Research Program. A realization rate and net-to-gross ratio are applied to adjust the program reported savings based on the most recent Measurement and Verification and Attribution evaluation studies. Net savings in the rightmost column are the total savings being claimed by the program after these evaluation activities.

Enabling Technology was a research and development program that sought innovative ways of aggregating, dispatching and reporting demand response. Projects were selected in part for their ability to demonstrate and commercialize new methods of aggregating load. The program did not require maintenance of the enabled demand reduction. Enabled demand reduction is a potential quantity that may or may not translate into curtailed load in response to a New York Independent System Operator call for emergency resources. These factors contribute to the low realization rate (0.50) shown in Table 5-11.

**Table 5-11. Demand Response and Innovative Rate Research Program Cumulative Annual Energy and Peak Demand Savings (through March 2008)**

| | Program-Reported Savings | Realization Rate | Adjusted Gross Savings | Net-to-Gross Ratio | Net Savings |
|---|---|---|---|---|---|
| Enabled MW | 208.3 | 0.50 | 104.2 | 0.95 | 99.0 |

## 5.8 Electric Transportation

### *5.8.1 Progress Toward Goals*

As shown in Table 5-12, five non-energy metrics are being monitored for the Electric Transportation Program.

**Table 5-12. Electric Transportation Program — Achievements**

| Activity | Achieved (July 1, 2006 through June 30, 2008) |
|---|---|
| Solicitations released | 3 closed; 2 open. |
| Proposals reviewed | 19 |
| Projects funded | 12 approved; 9 contracted |
| Funding | $3.5 million approved, $2.5 million contracted |
| Co-funding | $5.3 million approved, $4.1 million contracted |

## 5.9 Environmental Monitoring, Evaluation, and Protection (EMEP)

### *5.9.1 Progress Toward Goals*

Several long-term goals have been set for the Environmental Monitoring, Evaluation and Protection Program. These five-year goals and progress are shown in Table 5-13.

**Table 5-13. Environmental Monitoring, Evaluation, and Protection Program — Goals and Achievements**

| Activity | | |
|---|---|---|
| **Program Goals (July 1, 2006 through June 30, 2011** | **Achieved (July 1, 2006 through June 30, 2008)** | **% of Goal Achieved** |
| **Develop detailed multi-year EMEP research plan with input from policymakers, scientists, and stakeholders** | | |
| Update research plan as needed to ensure relevancy | One planning meeting was held with the EMEP advisors, and three other major research planning meetings were held to assist in plan development. All of the attendees at the planning meetings were state or nationally recognized experts from the policy and scientific communities. NYSERDA contracted with the New York Academy of Sciences to assist in the development of the research plan, which was finalized and released in September 2007.<br>The Alternative Energy section was updated in April 2008, with details discussing the impacts of wind power development on wildlife in NYS. | N/A |
| **Develop, contract, and manage research projects aimed at priority energy-related environmental research areas** | | |
| Issue 6 to 10 solicitations | Seven solicitations that included EMEP funding have been issued focusing on sequestration, impacts of renewable energy, ecosystems, air quality, and climate change | 70-100% of solicitation goal |

| Activity | | |
|---|---|---|
| **Program Goals (July 1, 2006 through June 30, 2011** | **Achieved (July 1, 2006 through June 30, 2008)** | **% of Goal Achieved** |
| Contract 40 projects | Nineteen projects have been contracted | 47% of projects goal |
| Leverage $20 million into New York, help build a knowledge-based research infrastructure in New York. | Leveraged $2.5 million in outside co-funding | 12% of leveraged funds goal |
| **Sponsor workshops, conferences, and seminars** | | |
| 5 to 10 | Co-sponsored two workshops on the creation of a soil-monitoring network in the Northeast; a conference on climate change at MIT's Endicott House; a workshop at Columbia University on offshore carbon sequestration; and the America's Response to Climate Change conference held in Tupper Lake in June 2008.<br>Hosted, with IPCC member Dr. Cynthia Rosenzweig, a seminar and Webinar for agency staff on recent findings from the Intergovernmental Panel on Climate Change and its two-day biennial conference on Linking Science and Policy at the Albany Marriott<br>Sponsored two Adirondack Research Consortium conferences. | 100% |
| **Provide Web-based EMEP data and information** | | |
| 200,000 total customer visits, inquiries, and downloads to the EMEP Web page | The EMEP Website tracking system is being reconstructed. | |
| **Publish NYSERDA research reports** | | |
| 40 | Ten research reports and five executive summaries were published, including a study of options for the design of the emission allowance auction under the Regional Greenhouse Gas Initiative (RGGI) | 37% |
| **Publish peer-reviewed journal articles** | | |
| 100 | 17 articles were published in the area of air quality and health effects, 14 articles were published in the area of ecosystems, and one article was published in the area of crosscutting research | 32% |
| **Provide briefings to decision makers** | | |
| 15 | Held two day-long sessions for environmental stakeholders on EMEP's and NYSERDA's activities.<br>Sponsored a meeting with policymakers concerning wind and wildlife.<br>Briefed the new Department of Environmental Conservation (DEC) Climate Change Program Director on EMEP program activities.<br>Arranged for a briefing to DEC staff on carbonaceous fine particle issues in New York and the region.<br>Gave two briefings to NYSDEC and the Governor's Office regarding the results from the Environmental Impacts of Liquid Biofuels project. | 46% |

## 5.10 Industrial Process and Product Innovation Program

### *5.10.1 Progress Toward Goals*

Table 5-14 shows long-term goals and progress for the Industrial Process and Product Innovation (IPPI) Program. The Program is making excellent progress with regard to the first goal. The second and third goals are being monitored over the longer term.

**Table 5-14. Industrial Process and Product Innovation Program — Goals and Achievements**

| Activity | Program Goals (July 1, 2006 through June 30, 2011) | Achieved (July 1, 2006 through June 30, 2008) | % of Goal Achieved |
|---|---|---|---|
| Issue annual solicitations | Fund 30 to 40 cost-shared demonstrations | PON 998 was issued with two due dates (June 8, and October 5, 2006). Eleven proposals were approved and 7 resulted in signed contracts.<br>PON 1130 was issued with three due dates (March 28, July 16, and November 8, 2007). Thirteen projects have been approved for funding.<br>PON 1190 was issued with three due dates (March 5, July 2, and November 5, 2008). Five projects were approved for funding from the March 5 due date. | 83% |
| Technology transfer | Conduct technology transfer and outreach activities to broaden the acceptance of successful technologies and technical approaches via participation in at least two workshops.<br>Publish at least six final reports per year. | This ongoing activity usually occurs near the end of a project; no projects have been completed for this new program. | Not applicable |
| Program metrics | Industrial Process and Productivity Improvement (IPPI) projects supported during the SBC III period are expected to result in cumulative energy savings of $5 million, and project-related incremental sales of $10 million. | Projects are being contracted with requirements for documentation of performance metrics. Projects have not yet been completed; therefore, metrics cannot be ascertained at this time. | Not applicable |

## 5.11 Municipal Water and Wastewater Efficiency

Sixteen SBC-funded water and wastewater projects are under contract and four projects are in the contract development phase. The 20 projects resulted from nine solicitations, which were developed jointly by NYSERDA's research and development and energy efficiency services staff.

- Six of the nine solicitations were PONs that solicited proposals to demonstrate and evaluate innovative and underused energy-efficient water and wastewater technologies.
- An RFP solicited proposals to demonstrate real-time monitoring of energy and environmental performance at wastewater treatment plants to attract energy services companies to participate in the municipal wastewater market.

- Another RFP solicited proposals to benchmark energy use and evaluate the potential for energy efficiency and energy production improvements in the sector.
- One PON sought to establish the Energy Smart Focus program in the municipal water and wastewater sectors.

In addition to the nine solicitations, a technology transfer project to increase the use of an energy-efficient filtration technology was initiated.

NYSERDA's Technical Assistance (TA) Program, offered through the Energy Efficiency Services program area has served municipal water and wastewater customers since 1997, offering 70 site-specific analyses. Municipal water and wastewater customers also are eligible to participate in the Enhanced Commercial/Industrial Performance program.

Table 5-15 provides a summary of approved projects, funds awarded, and co-funding.

**Table 5-15. Summary of Projects, Funding, and Co-Funding**

| | Number of Projects Approved | Funds Awarded ($ million) | Co-funding ($ million) |
|---|---|---|---|
| RFP 769 Energy Efficiency Improvements at Water and Wastewater Treatment Plants | 1 | $0.13 | $0.05 |
| RFP 601 Submetering [2] | 2 | $1.1 | $0.4 |
| Demonstration Projects [2] | 16 | $2.99 | $4.09 |
| Technical Assistance [3] | 79 | $1.3 | $1.3 |
| Technology Transfer | 1 | $0.1 | $0.1 |

[1] Table does not include metrics on the Energy Smart Focus PON.

[2] Funded in part under the general Technical Assistance Program.

[3] Funded under the general Technical Assistance Program.

### *5.11.1 Progress Toward Goals*

Several long-term goals have been set for the Municipal Water and Wastewater Efficiency Program. These five-year goals and progress are shown in Table 5-16.

## Table 5-16. Municipal Water and Wastewater Efficiency Program — Goals and Achievements

| Activity | Program Goals (July 1, 2006 through June 30, 2011 | % of Goal Achieved |
|---|---|---|
| Issue annual solicitation | Select and fund 25 or more projects.<br>Provide assistance to a minimum of 25 municipal wastewater and water treatment facilities. | 24% |

**Achievements (July 1, 2006 through June 30, 2008)**

PON 1040 was issued and 17 proposals were received requesting $3.9 million in NYSERDA funding. Five projects were developed from the solicitation; two using SBC funds.

PON 1171 was issued and 12 proposals were received requesting $3.4 million in NYSERDA funding. Four projects are in the contract-development stage; all will be funded with SBC3 monies. The PON has a second round due date in September 2008.

PON 1040 generated two SBC-funded projects directly affecting three facilities in the near term.

PON 1171 generated four SBC-funded projects. While these projects will directly affect facilities in the near term, they were selected also to provide long-term assistance to projects that will produce results with widespread applicability to the municipal wastewater and water sectors in New York. Projects recommended for funding come from proposals received in response to an annual solicitation.

| | | |
|---|---|---|
| Technology transfer | Provide critical information on ways to optimize energy use at municipal wastewater and water treatment facilities.<br>Provide information to 1,000 individuals serving the municipal wastewater and water treatment sector in New York. | 100% |

**Achievements July 2006 – December 2006**

Four presentations were given to approximately 300 individuals throughout the state as part of New York co-funding for Water and Sewer Infrastructure conferences.

A presentation was given as part of a Webcast bosted by the Comptroller's Office.

An energy management training conference was co-developed with Global Energy Partners, a firm associated with the Electric Power Research Institute, and the New York Water Environment Association (NYWEA). Approximately 70 individuals, including municipal operators, elected officials, consultants, and engineers, attended the two-day session held in Cooperstown in November.

**Achievements January 2007 – December 2007**

The submetering and evaluation of 20 wastewater treatment plants were completed. The final site reports and summaries of findings were posted online.

Four presentations were given to approximately 300 individuals throughout the state as part of New York co-funding for Water and Sewer Infrastructure conferences.

**Achievements January 2008 – March 2008**

Five presentations were given to approximately 300 individuals — three to Congresswoman Gillebrand's constituents, one at the annual NYWEA conference in New York City, and one to local elected officials in White Plains.

| Activity | Program Goals (July 1, 2006 through June 30, 2011 | % of Goal Achieved |
|---|---|---|
| **Achievements April 2008 – June 2008**<br>An Energy Management issue of NYWEA's journal *Clearwaters* was developed by NYSERDA staff. NYWEA is the new state chapter of the nation's premier professional organization for the wastewater treatment profession, the Water Environment Federation. The Energy Management issue was published in spring 2008.<br>Five presentations to approximately 250 individuals were given during the second quarter of 2008:<br>• The New York section of the American Water Works Association (AWWA) spring meeting<br>• The Genesee/Finger Lakes Regional Planning Commission summer conference<br>• The Adirondack Research Consortium annual meeting<br>• The NYWEA spring meeting<br>• The national AWWA conference<br>**Ongoing**<br>The Energy Smart Focus program (see Section 3.7) provides customized services to support energy efficiency in the water and wastewater sectors. The program offers outreach materials and training to individuals statewide. | | |
| Technical Assistance | Develop, review and approve 30 projects | 23% |
| **Achievements July 2006 – December 2007**<br>Five projects receiving $112,000 in NYSERDA funds were approved to begin work. Five projects that received $63,000 were completed.<br>**Achievements January 2008 – March 2008**<br>A project using approximately $40,500 in NYSERDA funds was completed.<br>**Achievements April 2008 – June 2008**<br>Two projects were approved to begin work using $35,000 in NYSERDA funds. Two projects using approximately $60,000 in NYSERDA funds were completed. | | |

### *5.11.2 Energy, Peak Demand and Fuel Savings*

The program goal is to ultimately lead to $2-3 million in energy and cost savings per year. On average, projects take from five to seven years from conception to implementation. Once implementation is complete, the projects should yield nearly 42,980 MWh of electricity savings and 14,785 kW of peak demand reduction. Depending on the effectiveness of information disseminated as a result of knowledge created through implementation of these projects, substantial MWh savings and demand reductions could extend to the New York municipal water and wastewater market sectors.

## 5.12 Next Generation and Emerging Technologies

### *5.12.1 Progress Toward Goals*

Several long-term goals have been set for the Next Generation and Emerging Technologies Program. These five-year goals and progress are shown in Table 5-17.

## Table 5-17. Next Generation and Emerging Technologies Program — Goals and Achievements

| Activity | Program Goals (July 1, 2006 through June 30, 2011) | % of Goal Achieved |
|---|---|---|
| **Achievements (July 1, 2006 through June 30, 2008)** | | |
| Advanced Building Program | Two solicitations<br>Two or more demonstration test beds | >100%<br>>100% |
| **Achievements (July 1, 2006 through June 30, 2008)**<br>Four solicitations completed and one of them, PON 1232 Super Insulated Residential Building Opportunities for New and Existing Construction, is expected to be released in Fall 2008.<br>Eighteen projects are contracted consisting of four feasibility studies, six product development projects, and eight demonstrations.<br>RFP 1032 Reference Design Guidebook. This project identified incremental measures needed to raise energy performance of new residential construction. The final report was submitted in October 2007.<br>PON 1062 Advanced Building Envelopes and Energy Systems. These projects monitor and demonstrate advanced building systems that substantially reduce central air conditioning loads.<br>PON 1126 Next Generation Technologies for Residential Buildings. Two rounds of solicitations have been completed and seven projects from the first round are under way. Under round two, two projects are under way and three contracts are still being negotiated. The projects will develop and demonstrate technologies that reduce air conditioning loads, on-site power production systems, design strategies for reducing electric load, and other energy efficient technologies.<br>PON 1096 Demonstration of High Performance Residential Homes. Four teams were formed to design, build, and demonstrate as many as 23 high-performance residential homes illustrating the importance of tight building envelopes and improving on-site construction practices. One house has been built to date. | | |
| Lighting Applications | 50-100 design assistance projects<br>Five daylighting implementations in buildings | 4%<br>20% |
| **Achievements (July 1, 2006 through June 30, 2008)**<br>Two clients have received daylighting design assistance services. Four projects for design assistance are under way.<br>One daylighting implementation project is under way.<br>PON 1079 Daylight Technical Services, Training and Demonstrations. All five contracts have been signed and work is under way.<br>RFP 1068 Establishment of a Lighting Incubator Center to Support Lighting Start-up Companies in New York. The Lighting Green House incubator, to be located at STEP, has been established and development work has begun.<br>PON 1122 Innovation in Lighting: New Products, Demonstrations, and Testing: all five contracts have been signed and work is under way.<br>PON 1207: Solid State Lighting Research and Demonstration was released for the first time. Twenty proposals were received for total funding of $4 million. | | |
| Solar Thermal Applications | Two solicitations<br>Five demonstrations | 50 %<br>>100% |
| **Achievements (July 1, 2006 through June 30, 2008)**<br>One solicitation is completed. PON 1248: Solar Thermal Demonstrations and Product Development is currently under development; its expected release date is Fall 2008.<br>One feasibility study and five demonstration projects are under contract.<br>PON 1085 — Solar Thermal Demonstrations. Six contracts are signed; three are being negotiated. Eight of the nine projects are demonstrations focusing on combinations of solar thermal collectors, radiant floor heating systems, and storage. | | |