# **Commercial / Industrial Programs**

# 3.1 Overview of Commercial/Industrial Programs

New York's commercial and industrial sectors account for nearly 50 percent of the State's primary energy use and have a significant impact on the State's economy, environment, and demand for electricity. NYSERDA's programs target commercial and industrial sectors, covering new and existing schools, hospitals, office buildings, government buildings, commercial establishments, not-for-profit facilities and industrial plants. The Energy Efficiency, Peak Load Management, and Outreach and Education programs promote competitive markets for energy efficiency services, engender widespread adoption of high-efficiency technologies, and result in increasing customer participation in peak demand response initiatives.

A number of the programs have been specifically designed for electric resource acquisition. Deployment programs offering technical assistance and financial incentives are also part of the program portfolio. NYSERDA helps the energy service companies (ESCOs) and curtailment service providers to incorporate real-time pricing opportunities into their business models. To help improve the reliability of the State's electric system, the programs include aggressive electric-system and peak-load reduction initiatives. These initiatives reduce the risk of energy supply disruptions and price volatility by implementing long-term energy efficiency improvements that have impact during system peaks and by improving load management capabilities of commercial and industrial facilities.

Market intervention and development strategies for commercial and industrial customers are designed to induce lasting structural and behavioral changes in the marketplace that result in increasing adoption of energy-efficient technologies and practices. Long-lasting, sustainable changes are achieved by reducing barriers to adoption of energy efficiency measures to the point where further public-funded interventions are no longer appropriate. Market development initiatives, including financial incentives for increasingly efficient products, increase the availability, promotion, retail stocking practices, and sales of energy-efficient products and services in end-use markets and sectors by changing the behavior of upstream market participants, including retailers, dealers, vendors, distributors, contractors, installers, trade associations, and manufacturers.

Specific program offerings are briefly described below:

**Peak Load Management Program.** The Peak Load Management Program (PLMP) works to improve New York's energy system reliability and security by reducing energy demand. Formerly known as the Peak Load Reduction Program (PLRP), in 2006 the program was renamed to reflect an increasing focus on enhanced building automation and dynamic retail pricing strategies. PLMP encourages measures for demand management by offering financial incentives to allow participation in dynamic retail pricing, commodity purchase, and managing financial risk. The program provides incentives for equipment and technical solutions that enable significant demand reduction (MW) resources and requires participation in New York Independent System Operator demand response programs. In addition the incentives for load curtailment and shifting (LC/S), distributed generation (DG), and interval meters (IM), are also given for permanent demand reductions that are coincident with the electric system peak.

**Enhanced Commercial/Industrial Performance Program.** The Enhanced Commercial and Industrial Performance Program (ECIPP) serves commercial and industrial businesses, healthcare facilities, and State and local governments. It provides information and incentives to improve existing building loads, non-building loads, and process equipment. Building off the successful Commercial and Industrial Performance Program (CIPP) and Smart Equipment Choices (SEC), ECIPP is a consolidation of the two programs that simplifies customer access to incentives by having a single point of entry into NYSERDA and by providing to customers a streamlined and simplified process to the marketplace. ECIPP has three tiers of incentives, and adds a custom project incentive path serving industrial process opportunities, system approaches, and unique applications. Allowing customers, ESCOs, and contractors access to multiple incentive strategies to support their energy projects will enable the New York ESCO community to continue to grow the market for energy efficiency in existing buildings, process equipment and non-building leads.

**New York Energy \$mart<sup>SM</sup> Business Partners.** The **New York Energy \$mart<sup>SM</sup>** Business Partners Program is a consolidation of the Small Commercial Lighting Program (SCLP), Premium Efficiency Motors (PEM) Program, the Commercial HVAC Program, and the Innovative Opportunities Program. This new program focuses on market development. **New York Energy \$mart<sup>SM</sup>** business partners are allies that agree to work with NYSERDA to promote energy-efficient products and services. In exchange, business partners gain access to special training, tools, guidelines, and performance incentives. NYSERDA works with its business partners to help them differentiate their business in a highly competitive marketplace, while assuring that appropriate quality control mechanisms are in place. The strategy of partnering with businesses helps to strengthen the market infrastructure leading to increased energy-efficient product and service availability and demand. Thus, business partner efforts will also help to increase activity in NYSERDA's customer-targeted programs.

**New York Energy \$mart<sup>SM</sup> Loan Fund and Financing Program.** The **New York Energy \$mart<sup>SM</sup>** Loan Fund and Financing Program expands the availability of low-interest capital to help implement energy-efficiency projects and process improvements. Lenders enroll in the program by signing participation agreements and agreeing to reduce the interest rates on energy-related loans in exchange for a lump sum subsidy paid by NYSERDA. The Program's ongoing training of the financial sector includes tools to allow lenders to calculate the cash flow advantages their customers will gain from making energy-efficiency improvements. While the Loan Fund has met the needs of customers who do not avail themselves of other NYSERDA programs, the reduced-interest financing will also continue to be available to program participants.

**Energy Smart Focus Program.** Energy Smart Focus provides services to facilitate and encourage sector-specific energy efficiency improvements and practices. The program is a marketing and information transfer effort that will use existing core **New York Energy \$mart<sup>SM</sup>** programs and services to sponsor deployment, demonstration, research, and development projects in conjunction with sector customized strategies. Such strategies include benchmarking, targeted marketing materials and messages, training, partnerships with trade associations, and integration with regional and national efforts.

**High Performance New Buildings Program.** The High Performance New Buildings Program (formerly operating as the New Construction Program) was established to encourage energy-efficient design and

building practices among architects and engineers and to urge them to inform building owners about the long-term advantages of building to higher energy efficiency standards. The program aims to create long-term changes in design practices by integrating energy efficiency and green building concepts into new building designs. The program offers a performance-based approach in which incentives are determined by total electricity savings and are tiered to reward progressively better designs. Through design team incentives and recognition, the program promotes green building projects and projects planned for Leadership in Energy and Environmental Design (LEED) certification.

**FlexTech Technical Assistance Program.** The FlexTech Technical Assistance Program is a consolidation of services previously offered under the FlexTech, Technical Assistance, and the Energy Audit Programs. The Program provides customers with objective and customized information to facilitate wiser energy efficiency, energy procurement, and financing decisions. The Program is available to all commercial and industrial customers. Cost-shared technical assistance is provided for detailed energy efficiency studies from energy engineers and experts. Small customers are eligible for quick walk-through energy audits, with the cost share reimbursed upon implementation of recommendations. Participants may use NYSERDA-contracted or customer-selected consultants.

# 3.2 Commercial/Industrial Evaluation Activities

The Commercial/Industrial (C/I) program evaluation activities conducted in the past year are shown in Table 3-1. The table includes only new evaluation activities conducted in 2006. However, findings from earlier evaluations are also discussed in Section 3 to the extent that they contribute to the cumulative assessment of these programs.

Program Name	Predecessor Program (if applicable)	Theory & Logic	Measurement and Verification (M&V)	Market Characteriza- tion, Assessment and Causality (MCAC)	Process Evaluation
Peak Load Management	Peak Load Reduction Program (PLRP) Enabling Technology	Peak Load Reduction Program (PLRP)-Database reviewEnabling Technology-		-	-
Enhanced Commercial and Industrial Performance Program	C/I Performance Program (CIPP) Smart Equipment Choices (SEC)	-	Database review	Update	-
<b>New York Energy \$mart<sup>SM</sup></b> Business Partners Program	Premium-Efficiency Motors Commercial HVAC Small Commercial Lighting (SCLP) Innovative Opportunities	Database review for SCLP - Motor management implementation rate		-	-
New York Energy \$mart <sup>SM</sup> Loan Fund and Financing	New York Energy \$mart <sup>SM</sup> Loan Fund	-	-	-	-

## Table 3-1. 2006 C/I Program Evaluation Activities

Program Name	Predecessor Program (if applicable)	Theory & Logic	Measurement and Verification (M&V)	Market Characteriza- tion, Assessment and Causality (MCAC)	Process Evaluation
New York Energy Smart <sup>SM</sup> Focus	Energy Smart Schools Program	-	-	-	-
High Performance New Buildings	New Construction Program	Full	Database review	Update	Update
Flex Tech Technical Assistance	Technical Assistance, FlexTech, & Energy Audit Programs	Full	Update	Update	-

# 3.3 Key Commercial/Industrial Evaluation Findings

Significant progress is being made as the C/I portfolio transitions to the new, streamlined set of programs. This section summarizes key evaluation findings from the latest set of evaluation activities, and from the cumulative body of work conducted by NYSERDA and its evaluation contractors over the past several years.

### 3.3.1 Energy, Peak Demand and Fuel Savings

NYSERDA's Measurement and Verification (M&V) contractor assessed the energy and peak demand savings reported for the C/I programs. Methods used in this assessment included on-site verification of equipment installation and functionality, and review of NYSERDA's files for reasonableness and accuracy of recorded energy and demand savings. Based on this review, the M&V contractor adjusted the savings reported by NYSERDA. In turn, the MCAC contractor further adjusted these figures to account for freeridership and spillover. Tables 3-2 through 3-4 summarize the estimated electricity savings, peak demand reduction and other fuel savings for each of the C/I sector programs. Note that individual program savings are not adjusted for program overlaps. To avoid double counting in the total, sector-level savings estimate, the amount of overlap among the individual program savings estimates is subtracted at the bottom of the table.

As reported earlier in Section 2, overall, NYSERDA's M&V and MCAC contractor teams have found that savings for the C/I sector should be adjusted as follows:

- Electricity savings were adjusted downward by 4%.
- Peak demand savings were adjusted downward by 5%.
- Other fuel savings were adjusted upward by 14%.

These adjustments include changes in program reported savings due to database reviews and field work to measure and verify savings, as well as survey research and other activities to quantify freeridership and spillover. For most of the largest energy-saving programs (including ECIPP, High Performance New Buildings, and FlexTech Technical Assistance) spillover outweighs any freeridership that is occurring.

Several near-term goals were set for the first year of the third **New York Energy \$mart<sup>SM</sup>** Program funding cycle. These goals established levels to reach, by June 30, 2007, for energy and peak demand savings as well as several other key metrics of program success. Overall, the C/I portfolio is performing well in terms of the energy savings and peak demand reduction goals. In the first six months of the one-year measurement period, the C/I portfolio has exceeded its goal for energy savings (123%) and reached the half-way point (47%) for the peak demand reduction goal. Table 3-2 shows progress for each applicable program toward the one-year goal for electricity savings. Table 3-3 shows progress for each program toward the one-year goal for peak demand reductions. There was no goal for other fuel savings.

Energy Savings (GWh)				
Program	Savings Ac	hieved through	One-Year Goal	al Progress
0	June 30, 2006	Dec. 31, 2006	through June 30, 2007	Toward One- Year Goal (% achieved)
Peak Load Management: Permanent	96.5	118.0	19.0	113%
(ConEdison)	(74.9)	(77.9)	(9.0)	(33%)
Enhanced Commercial and Industrial Performance Program	730.6	836.3	24.0	440%
(ConEdison)	(224.1)	(241.7)	(n/a)	(n/a)
Business Partners Program	54.1	60.7a	10.0	65%
(ConEdison)	(4.3)	(6.1)a	(n/a)	(n/a)
Loan Fund and Financing	49.6	51.3	n/a	n/a
(ConEdison)	(0.5)	(9.8)	(n/a)	(n/a)
Focus Program	0	0	5.0	0%
(ConEdison)	(0)	(0)	(n/a)	(n/a)
High Performance New Buildings	223.2	250.3	35	78%
(ConEdison)	(48.2)	(54.1)	(n/a)	(n/a)
Flex Tech Technical Assistance	644.1	697.6	70	76%
(ConEdison)	(115.2)	(124.8)	(n/a)	(n/a)
Overlap Removed	126.7	141.9	n/a	n/a
ConEdison C/I Total	467.3	514.4	n/a	n/a
Statewide C/I Total	1,671.5	1,872.2	163.0	123%

 Table 3-2. Cll Program Electricity Savings through December 31, 2006 and Progress

 toward One-Year Goal

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

a Savings for the Commercial HVAC portion of the program have been reduced as of 4<sup>th</sup> Quarter 2006. This approach was taken due to the known short-term nature of savings from advanced diagnostics and commissioning, which were part of the program.

	Peak Demand Reductions (MW)			V)
Program	Savings Ac	hieved through	One-Year Goal	Progress
	June 30, 2006	Dec. 31, 2006	through June 30, 2007	Toward One- Year Goal (% achieved)
Peak Load Management: Callable	461	470.5	53	18%
(ConEdison)	(203.3)	(217.6)	(28)	(51%)
Peak Load Management: Permanent	44.7	54.5	13	75%
(ConEdison)	(31.1)	(38.3)	(8.0)	(90%)
Enhanced Commercial and Industrial Performance Program	132.5	142.0	12.0	79%
(ConEdison)	(54.7)	(58.8)	(n/a)	(n/a)
Business Partners Program	11.8	13.3	2.5	59%
(ConEdison)	(1.0)	(1.2)	(n/a)	(n/a)
Loan Fund and Financing	14.3	15.0	n/a	n/a
(ConEdison)	(0.5)	(1.5)	(n/a)	(n/a)
Focus Program	0	0	1.0	0%
(ConEdison)	(0)	(0)	(n/a)	(n/a)
High Performance New Buildings	45.5	53.5	4.0	201%
(ConEdison)	(15.9)	(18.8)	(n/a)	(n/a)
Flex Tech Technical Assistance	120.9	130.0	14.0	65%
(ConEdison)	(30.6)	(20.5)	(n/a)	(n/a)
Flex Tech Technical Assistance: Callable	10.2	10.2	n/a	n/a
Overlap Removed	24.5	26.1	n/a	n/a
ConEdison C/I Total	337.1	356.6	n/a	n/a
Statewide C/I Total	816.5	862.9	99.5	51%

 Table 3-3. C/I Program Peak Demand Savings through December 31, 2006 and Progress toward One-Year Goal

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

	Fuel Savings (MMBtu)		
Program	Savings Achieved through		
	June 30, 2006	Dec. 31, 2006	
Enhanced Commercial and Industrial Performance Program	3,252	4,615	
(ConEdison)	(495)	(703)	
Loan Fund and Financing	137,239	139,621	
(ConEdison)	(4,941)	(7,966)	
Flex Tech Technical Assistance <sup>1</sup>	3,164,000	2,864,903	
(ConEdison)	(800,846)	(725,141)	
ConEdison C/I Total	806,282	733,810	
Statewide C/I Total	3,304,491	3,009,140	

Table 3-4. Cll Program Fuel Savings through December 31, 2006

Note: There were no one-year goals for fuel savings.

<sup>1</sup> 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 impacts.

## 3.3.2 Summary of Other Key Program Impacts

Across the programs, twelve additional logic model-driven near-term goals were set for other key metrics besides energy savings such as the number of customers receiving assistance, funds leveraged, allies participating, and percentage of target markets affected by programs. Overall, the programs are also performing well with respect to these other goals. In fact, two of the goals have already been exceeded. The results of each program's progress toward its stated goals are shown in table format in the subsequent sections.

Other key findings from studies of participants, non-participants and other market actors include the following:

- Participant surveys found that NYSERDA programs are being cited more often as an important factor in the decision to install energy efficiency measures and equipment in C/I facilities. Respondents are citing NYSERDA unaided, making these findings especially significant.
- End-use customers continue to gain more experience, education, and trust in energy efficiency measures, equipment, and services. Historically, these were lacking among end-use customers and were often cited as reasons for not taking action on energy-efficient purchases or services.
- Even customers who have not participated directly in NYSERDA program offerings have shown increasing levels of familiarity with energy-efficient measures and equipment.
- Surveys indicate high levels of awareness of **New York Energy \$mart<sup>SM</sup>** C/I Programs, with 88% of end-use customers and 81% of contractors reporting awareness of at least one program offering.
- Respondents were more familiar with NYSERDA programs in general, and were less aware of specific program offerings. This indicates that NYSERDA is achieving a greater degree of brand recognition than are the numerous individual program names.

- Survey results indicate that NYSERDA is becoming a trusted source for information and support in the adoption of energy-efficient practices. Respondents report that NYSERDA brings credibility to the various services offered through its programs and contractors. This year's evaluations of the Technical Assistance and Commercial/Industrial Performance Programs reaffirmed NYSERDA's trust and credibility in the market.
- Survey results for key C/I programs indicate that end use customers and contractors credit the programs with having an impact on decision making regarding incorporation of high-efficiency measures.
- C/I customers who participated in **New York Energy \$mart<sup>\$M</sup>** programs expressed high satisfaction levels of 80%-90% with project results. This suggests that they are likely to continue working with NYSERDA in the marketplace to improve efficiency.
- Process evaluation surveys and interviews indicate that the New Construction Program (NCP) compares favorably to other new construction programs on most process elements examined. Findings also suggest the NCP could increase savings "per building" and encourage market transformation by placing even greater emphasis on personal outreach to the design community and upon its whole building and LEED® certification components.

# 3.4 Peak Load Management Program

### 3.4.1 Program Description

The main goal of the Peak Load Management Program (PLMP) is to improve New York's energy system reliability and security by reducing energy demand. Formerly known as the Peak Load Reduction Program (PLRP), in 2006 the program was renamed to reflect the program's increasing focus on enhanced building automation and dynamic retail pricing strategies.

PLMP encourages measures for demand management by offering financial incentives to allow participation in dynamic retail pricing, commodity purchase, and managing financial risk. The program provides incentives for equipment and technical solutions that enable significant demand reduction (MW) resources and requires participation in NYISO demand response programs. In addition the incentives for load curtailment and shifting (LC/S) and distributed generation for Demand Response (DR), and interval meter (IM), incentives are also given for permanent demand reductions that are coincident with the system peak.

PLMP targets commercial, industrial, and institutional customers and mission critical facilities such as data centers, communications facilities, government locations, and academic research facilities that are interested in participating in reliability and dynamic pricing. The program is offered statewide, with marketing emphasis in areas of demonstrated need, *e.g.*, where electricity demand is growing and where local power needs are nearing capacity.

The 13-year program budget is \$82.7 million.

## 3.4.2 Recent Program Accomplishments

Two near-term, annual goals have been set for the PLMP. These goals and progress for the first six months are shown in Table 3-5.

Activity	Program Goals (July 1, 2006 through June 30, 2007)	Achieved July 1, 2006 through December 31, 2006
Customers receiving assistance	145	47
Demand reductions (MW)	66	8.5

#### Table 3-5. Peak Load Management Program – Near-Term Goals and Achievements

In November 8-9, 2006, NYSERDA sponsored the Peak Load Management Association's Fall 2006 conference focusing on demand response technologies, services, and practices. Conference attendees included representatives of international and regional Independent System Operators, New York utilities, demand response providers, and large energy users.

### 3.4.3 Long-Term Program Accomplishments

This section highlights key indicators of market progress. All values reported are cumulative since program inception. Table 3-6 presents a sample of key logic model-driven indicators of program success, as tracked by the evaluation and program activities. An earlier study assessed market indicators for other elements of the Peak Load Reduction Program (including Load Curtailment/Shifting, Dispatchable Emergency Generation Initiative, and Permanent Demand Reduction Efforts). These earlier findings were presented in the May 2004 *New York Energy Smart<sup>SM</sup> Program Evaluation and Status Report* (Volume 2).

Торіс	Indicator	Value (2004)
Awareness and	Change in awareness of demand response, the NYSERDA and NYISO programs, and related benefits	IM providers felt 88% of participating customers were slightly or somewhat familiar with IM and IM services 77% of IM providers felt their familiarity with IM and IM services had increased in the past five years
Knowledge	Change in knowledge of the benefits of demand response for NYSERDA and NYISO programs	67% of IM providers felt customer awareness of the capabilities and benefits of IM and IM services had increased significantly or somewhat over the past five years
Availability of Services	Increase in services and availability	IM providers and PLRP staff felt there was a modest increase in IM and IM services
Change in Practices	Change in behavior	29% of IM participants made equipment changes, and 43% made operating changes after the installation of the IM equipment
	Change in participation in NYSERDA and NYISO programs	50% of IM participants said they were participating in the NYISO demand response program The IM program increased (from 14% to 50%) participation in NYISO demand response programs for IM program participants

Table 3-6. PLMP – Key Market Indicators and Program Cumulative Progress

## 3.4.4 Program Impact Evaluation

This section presents cumulative annual energy savings for the program from inception through December 31, 2006.

#### <u>Gross Savings</u>

The objective of the M&V evaluation review is to verify the estimate of the program's cumulative savings. Based on Nexant's review, as of December 31, 2006, the program has resulted in the energy savings and demand reductions shown in Table 3-7.

#### Net Savings

The final step to determining net energy savings is attribution analysis. Attribution analysis determines, through various methods, whether the gross savings estimate from the M&V activities should be adjusted downward or upward for freeridership or spillover. Adjustments for freeridership and spillover, and the ultimate program net-to-gross ratio and net savings are shown in Table 3-7.

	Program Reported Savings	M&V Realiza- tion rate	Adjusted Gross Savings	Freerider- ship	Spillover	Net-to- Gross Ratio <sup>1</sup>	Net Savings
LC/S & DEGI (Demand Response Measures) MW	242.4	1.02	247.2	24%	25%	0.95	234.9
PDRE (MW)	43.7	1.02	44.5	25%	37%	1.03	45.9
Cooling Recom- missoning (MW)	8.6	1.0	8.6	0%	0%	1.0	8.6
IM (MW)	245.7	0.88	216.2	10%	22%	1.09	235.7
Total MW	540.3	-	516.5	-	-	-	525
PDRE (MWh)	88,784	1.02	90,560	25%	37%	1.03	93,276
Cooling Recom- missoning (MWh)	24,700	1.0	24,700	0%	0%	1.0	24,700
Total MWh	113,484	-	115,260	-	-	-	117,977

 Table 3-7. PLMP Cumulative Annual Energy and Peak Demand Savings (through December 2006)

<sup>1</sup> Net-to-Gross Ratio = (1-Freeridership) \* (1+Spillover).

# 3.5 Enhanced Commercial and Industrial Performance Program

#### 3.5.1 Program Description

The ECIPP serves commercial and industrial businesses, healthcare facilities, and state and local governments. It provides information and incentives to improve existing building loads, non-building loads, and process equipment. Building off the successful CIPP and SEC Program, ECIPP is a consolidation of the two programs that simplifies customer access to incentives by having a single point of entry into NYSERDA and by providing to customers a streamlined and simplified process to the marketplace.

When separate programs, CIPP and SEC focused on different customers. CIPP provided incentives to ESCOs and other contractors to promote energy efficiency-related capital improvement projects. NYSERDA provides financial incentives on a performance-basis through the ESCO's measurement and

verification activities. A main objective of the CIPP program was to help build a robust ESCO and energy efficiency service industry in New York. Overall ESCO activity in New York has increased during the past eight years. Recent evaluation studies report increased ESCO activity and improved quality of work and a significant increase in the familiarity of energy efficient products. The SEC program provided financial incentive awards to defray part of the incremental capital cost to purchase and install energy-efficient equipment. The goal of SEC was to produce permanent improvement in standard equipment specifications and drive cost-effective demand reduction by encouraging the purchase and installation of energy-efficient equipment, particularly for small renovation and equipment-replacement projects. Both CIPP and SEC achieved success in New York.

ECIPP has three tiers of incentives and adds a custom project incentive path serving industrial process opportunities, system approaches, and unique applications. It improves the performance-based incentive structure used in CIPP by adding increased incentives to better support permanent peak-demand-reduction measures. To help alleviate the growing electric load downstate, the ECIPP has an increased presence in New York City. Allowing customers, ESCOs, and contractors multiple incentive strategies to support their energy projects will enable the New York ESCO community to continue to grow that market. Customers have the option of using ESCOs or applying directly and receiving incentives from NYSERDA.

By providing a structured approach to the existing buildings market, NYSERDA can provide customers sustainable performance improvement strategies. With the single-entry point to ECIPP, NYSERDA can strengthen links to other **New York Energy \$mart** efforts, such as Technical Assistance, Loan Fund and Financing, and Energy Smart Business Partners.

The thirteen-year program budget is \$246.6 million.

#### 3.5.2 Recent Program Accomplishments

Near-term, annual goals have been set for the ECIPP Program. These goals and progress for the first six months are shown in Table 3-8.

Table 3-8.	Enhanced Commercial and Industrial Performance Program – Near-Term
	Goals and Achievements

Activity	Program Goals (July 1, 2006 through June 30, 2007)	Achieved July 1, 2006 through December 31, 2006
Leveraged Funds (\$ million)	\$80	\$75.0 million for CIPP
Customer projects	680	353

## 3.5.3 Long-Term Program Accomplishments

This section highlights key program outputs and market progress. All values reported are cumulative since program inception. Table 3-9 presents the key outputs for ECIPP through December 31, 2006. Table 3-10 presents a sample of key logic model-driven indicators of program success, especially those related to market progress, as tracked by the evaluation and program activities. Together, these tables indicate the most important ways that program progress is being measured, and report how those values are changing due to program activities.

Table 3-9.	Enhanced Commercial and Industrial Performance Program – Key Program
	Outputs

Output	Value			
	(Cumulative through December 2006)			
CIPP				
Number of CIPP applications received and approved	1,200			
Number of projects completed	980 installed and 810 with completed M&V			
Dollar value of incentives paid and total project cost	\$83 million for incentives and \$683 million in total project cost			
	SEC			
Number of SEC projects completed	3,244			
Dollar value of incentives for completed projects	\$8.6 million			
Average project incentive	\$2,640			

# Table 3-10. Enhanced Commercial and Industrial Performance Program – Key Market Indicators and Program Cumulative Progress

Торіс	Indicator	Initial Value (year)
	Customer familiarity with energy-efficient measures and equipment	97% of participants (n=31) were extremely or somewhat familiar with energy- efficient measures and equipment compared to 68% of non-participants (n=120) (2004)
		37% of participants (n=31) said their familiarity increased significantly during the past five years compared to 22% of non-participants (n=120) (2004)
Awareness and Knowledge	Customer becomes aware of CIPP	31% of participating end-use customers learned about CIPP through an ESCO or electrical contractor, followed by equipment vendors (9%) and program marketing materials (7%) (2006)
Contractor (ESCO) familiarity with energy- efficient measures and equipment	80% of participants (n=46) were extremely familiar with energy efficiency measures, equipment, and services, compared to only 11% of non-participants (n=51) (2004)	
	equipment	46% of participants (n=46) believe their familiarity increased significantly in the past five years, compared to only 21% of non-participants (n=51) (2004)
Availability of Services	Customer and contractor perception of availability	55% of customers and 41% of ESCOs participating in CIPP said availability of energy efficiency measures is becoming less of a barrier (2004)
	Level and quality of ESCO activity in New York	Nearly half of the participating and non-participating contractors reporting higher ESCO activity and improved quality of work by ESCOs (2004)
Change in practices	Increased marketing and promotion of energy efficiency measures	More than 60% of participating ESCOs (n=46) were significantly or somewhat increasing their marketing of energy-efficient measures, compared to only 38% of the non-participant Contractor group (n=51) (2004)
Perceived Value to the	Role of energy efficiency in decision making	74% of SEC participants said the role of energy efficiency in the selection of equipment has increased over the past five years compared to 65% of non-participants (2004)
Customer	Satisfaction with energy efficiency measures	Nearly all SEC participants were either extremely (65%) or somewhat (31%) satisfied with the measures installed through the program (2004)
Decision- Making	Criteria for deciding to undertake a project	90% of respondents indicated that payback was considered as part of the decision-making process and as a "make or break" criterion (2006)
Market Penetration	CIPP market penetration in terms of total project cost	$1999 - 2000 = \sim 1\%$ 2001 - 2004 = $\sim 2\%$
. eneration	1 5	2001 - 2004 2/0

### 3.5.4 Program Impact Evaluation

This section presents cumulative annual energy savings for the program from inception through December 31, 2006. Savings estimates and adjustments are shown in Table 3-11.

#### **Gross Savings**

The objective of the M&V evaluation review is to verify the estimate of the program's cumulative savings. Based on Nexant's review, as of December 31, 2006, the program has resulted in the energy savings and demand reductions shown in Table 3-11.

### <u>Net Savings</u>

The final step to determining net energy savings is attribution analysis. Attribution analysis determines, through various methods, whether the gross savings estimate from the M&V activities should be adjusted downward or upward for free ridership or spillover. Adjustments for free ridership and spillover, and the ultimate program net-to-gross ratio and net savings are shown in Table 3-11.

	Program Reported Savings	Realiza- tion Rate	Adjusted Gross Savings	Freerider- ship	Spillover	Net-to- Gross Ratio	Net Savings
	Commercial/Industrial Performance Program						
MWh/year	724,649	1.01	731,900	31%	44%	1.04a	757,427
MW	157.2	0.77	121.0	31%	44%	1.04a	125.3
Smart Equipment Choices							
MWh/year	121,288	0.94	112,640	51%	45%	0.7b	78,848
MW On-Peak	25.5	0.93	23.9	51%	45%	0.7b	16.7
MMBtu/year	6,593	1.0	6,593	51%	45%	0.7b	4,615
Enhanced Commercial/Industrial Performance Program (ECIPP) - Total							
MWh/year	845,937	N/A	844,540	N/A	N/A	N/A	836,275
MW On-Peak	182.8	N/A	144.9	N/A	N/A	N/A	142.0
MMBtu/year	6,593	N/A	6,593	N/A	N/A	N/A	4,615

 Table 3-11. ECIPP Cumulative Annual Energy and Peak Demand Savings (Through December 2006)

a 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).

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

## Non-Energy Impacts

The Summit Blue MCAC team evaluated non-energy impacts for both the CIPP and SEC programs. Key results are presented in Table 3-12. Non-energy impacts (NEIs) are expressed as a percentage of energy savings.

#### Table 3-12. ECIPP NEI Results

Results from Direct Query Approach (year of study)	Percentage of Energy Savings
Commercial/Industrial Performance Program (2005)	46%
Smart Equipment Choices Program (2004)	42-45%

# 3.6 New York Energy \$mart<sup>sM</sup> Business Partners

#### 3.6.1 Program Description

The **New York Energy \$mart**<sup>SM</sup> Business Partners Program is a consolidation of four prior programs. These programs are described below.

- Small Commercial Lighting Program: Promoting effective, energy-efficient lighting "The Right Light" in commercial and industrial spaces up to 25,000 square feet by partnering with lighting practitioners. The program has provided training, field support, project incentives and demonstration awards to participating lighting practitioner allies, including contractors, distributors, manufacturer representatives, lighting designers, architects and engineers.
- Premium Efficiency Motors Program: Working with suppliers and providers of motors and motor repair services to promote sales of NEMA Premium® motors, quality motor repairs, and motor management services. Motor management includes motor assessments, planning for future repair and replacement, and consideration of drives. The Program has worked with vendors to present the case for a motor management program to their customers, to conduct motor assessments, and to facilitate implementation of motor management plans and policies whenever possible.
- Commercial HVAC Program: Program activities have focused in two areas. First, NYSERDA has provided training, workshops, outreach events, information and support to HVAC contractors, distributors and commercial building owners to increase the market share of energy-efficient unitary HVAC units and to work with market participants to become more successful in selling related energy-efficient products and maintenance services. Second, NYSERDA offered study incentives, conducted outreach meetings and provided technical training for service providers with a particular focus on the downstate metropolitan region surrounding New York City to increase demand for retro-commissioning (RCx) services in existing commercial buildings.
- Innovative Opportunities Program: Competitively selected projects on emerging and under-used technologies to increase market adoption and penetration. Past projects have focused on technologies such as light-emitting-diode-powered (LED) traffic signals, efficient commercial refrigeration equipment, ENERGY STAR® transformers, and computer power management.

**New York Energy \$mart**<sup>SM</sup> business partners are allies who agree to work with NYSERDA to promote energy-efficient products and services. In exchange, business partners gain access to special training, tools, guidelines, and performance incentives. NYSERDA works with its business partners to help them differentiate their business in a highly competitive marketplace, while assuring that appropriate quality control mechanisms are in place. This involves creating a brand identity that conveys the theme that midmarket businesses are vital to the growth of the energy efficiency industry and important to the economy of the State.

The Business Partners Program activities, such as training, tools and field support, help improve the awareness of and familiarity with targeted technologies and services. The strategy of partnering with businesses helps to strengthen the market infrastructure leading to increased product and service availability and demand. Additionally, business partner efforts will also help to increase activity in NYSERDA's customer-targeted programs.

The thirteen-year program budget is \$41.3 million.

## 3.6.2 Recent Program Accomplishments

Several near-term, annual goals have been set for the **New York Energy \$mart<sup>\$M</sup>** Business Partners Program. These goals and progress for the first six months are shown in Table 3-13. The former SCLP, PEM and Commercial HVAC programs have all built strong ally networks and encouraged mid-market actors to use customer incentives and other sales tools to maximize customer participation and project implementation.

# Table 3-13. New York Energy \$mart<sup>SM</sup> Business Partners Program – Near-Term Goals and Achievements

Activity	Program Goals (July 1, 2006 through June 30, 2007)	Achieved July 1, 2006 through December 31, 2006
Business Partners (signed up)	300	737
Demand Reductions (MW)	2.5	1.9
Energy Savings (GWh)	10	8.3

NYSERDA is in the process of developing solicitations to hire contractors to implement the various program elements. Other program highlights from the last six months include:

- NYSERDA's motor management activities have generated interest across the country. Program administrators at one California utility recently requested information on NYSERDA's program approach with the intent of possibly using NYSERDA's model for developing a new program.
- The Small Commercial Lighting Program launched its The Right Light<sup>TM</sup> marketing campaign to end users in Syracuse, the Capital District, and Westchester County.
- Under the power management program efforts, NYSERDA has worked with the New York Power Authority and the Vermont Energy Investment Corporation (VEIC) (contractor for LIPA) to assist them in launching Computer Power Management programs. This program is now a statewide effort.
- A major milestone was recently reached for the 80 PLUS power supply activities when HP—the world's largest PC vendor—announced that it plans to offer customers an 80 PLUS certified power supply option on its 7000 and 5000 Series of business PCs as early as January 2007. When the Program first launched in the fall of 2004, it had only one sponsor, one certified power supply and little interest from the major computer manufacturers in participating. Today, there are 87 power supplies from 22 manufacturers certified 80 PLUS. In addition to HP, there are 14 other participating computer manufacturers currently offering qualified computer models to customers. This is a direct result of the commitment by New York and other regions to support purchasing of 80 PLUS compliant products.

- Between July and December 2006, NYSERDA's Business Partners program implementation contractor conducted group information sessions on the **New York Energy \$mart** Offices Project at four sites around the State that included 18 state universities, community colleges, and private colleges. From those group sessions, 11 colleges signed up to participate in the on-site data collection and analysis. In addition, three other colleges are participating in the 2006 program for a total of 14.
- Based on the success of the Capital District Commercial Kitchens pilot, the program was extended to the New York metropolitan market in early November 2006.
- In total 20 retro-commissioning projects were completed representing 10.5 million square feet, resulting in six projects submitted directly to the Technical Assistance Program, and an additional six projects funded under the Building Performance Program for full scale retro-commissioning investigation and implementation.

#### 3.6.3 Long-Term Program Accomplishments

This section highlights key program outputs and market progress. All values reported are cumulative since program inception. Table 3-14 presents the key outputs for the program through December 31, 2006. Table 3-15 presents a sample of key logic model-driven indicators of program success, especially those related to market progress, as tracked by the evaluation and program activities. Together, these tables indicate the most important ways that program progress is being measured, and report how those values are changing due to program activities.

Outputs	Value (Cumulative through December 2006)					
Small Commercial Lighting						
Number of participating allies	711					
Dollar value of incentives awarded	\$454,525					
Number of completed projects	695					
Square footage of projects completed	5,354,746					
Total persons trained on effective, energy-efficient lighting	1,496					
Number of individuals at SCLP ally companies that have taken the National Council on Qualifications for Lighting Professions (NCQLP) certification exam	11					
Premium-Efficiency Mot	ors					
Number of motors incented under the former Premium-Efficiency Motor vendor incentive program	11,004					
Number of participating vendors (vendors who have participated in at least one customer ride along visit)	26					
Number of vendor motor management training sessions held and number of people attending training sessions	7 sessions with 26 attendees					
Number of completed customer motor inventories using MotorMaster and number of motors inventoried	65 completed inventories representing 6,749 motors					
Number of written motor management plans developed by customers	1					
Commercial HVAC						
Number of participating vendors	26					
Number of commissioning and retrocommissioning providers trained	289 Commissioning and 134 Retrocommissioning					
Number of HVAC contractors and distributors trained	292 (93 DCV, 89 Advanced Diagnostics, 110 Spec and Sell)					
Number of unitary HVAC RTUs tested with advanced diagnostics	1,240					

# Table 3-14. New York Energy \$mart<sup>SM</sup> Business Partners Program – Key Program Outputs

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Торіс	Indicator	Value (2004 unless noted)
	Small Commercial Light	ing
	Allies are aware of the benefits of effective-energy- efficient lighting	95% indicated that they were either "extremely familiar" or "somewhat familiar" with effective, energy-efficient lighting applications
		74% of allies said their familiarity had either "increased significantly" or "increased somewhat" over the past two years
Awareness		Active allies were more likely than inactive allies to say familiarity increased (79% for active vs. 64% for inactive)
Knowledge	Customer awareness of the benefits of effective- energy-efficient lighting	55% of allies reported that small commercial customers were either "extremely aware" or "somewhat aware" of the benefits
		54% of allies indicated that small commercial customers' awareness of the benefits of effective, energy-efficient lighting applications had increased over the past two years, 42% indicated that customer awareness stayed the same
Market Share and Sales	Promotion by market actors of effective, energy- efficient lighting	55% of inactive trade ally survey respondents and 69% of the active allies indicated that their promotion had "increased significantly" or "increased somewhat" over the past two years
	Premium-Efficiency Mot	ors
	Awareness of the NEMA Premium efficiency standard	57% of active participating vendors and 43% of inactive vendors were very familiar
Awareness and Knowledge	Increase in end-use customer familiarity with NEMA Premium efficiency standard	In 2004, 42% were extremely familiar or familiar (the percentage who were "extremely familiar" increased by 22 percentage points (to 27.8%) over the past two years)
		In 2005, 60% were extremely familiar
Availability of Services	Number of vendors actively promoting NEMA Premium motors	Nearly 66% of active participating vendors' sales staff informs customers of NEMA motors most or all of the time, while only 23% of inactive participating vendors do
	Stocking of NEMA Premium motors by participating vendors	40% of participating vendors said stock increased since joining the program
Market Share	Estimated sales of integral motors and NEMA	~67,700 total motors sold
and Sales	Premium motors, and market share of NEMA Premium motors in New York	~14,825 NEMA Premium motors sold ~22% market share NEMA Premium
Incremental Cost	Average price difference (per HP) between EPACT and NEMA motors	\$12.91 (2004)
COSI and NEWIA INDIOIS		\$18.05 (2005)

# Table 3-15. New York Energy \$mart<sup>SM</sup> Business Partners Program – Key Market Indicators and Program Cumulative Progress

Торіс	Indicator	Value (2004 unless noted)
	Commercial HVAC	
		Advanced Diagnostics = 0% Demand Control Ventilation =0% Dual-Enthalpy Economizers = 13% ENERGY STAR HVAC Equipment =16% Commissioning = 13% Retrocommissioning = 9%
Awareness and		Advanced Diagnostics = 20% Demand Control Ventilation =41% Dual-Enthalpy Economizers = 9% ENERGY STAR HVAC Equipment =58% Commissioning = 57% Retrocommissioning = 74%
Knowledge	Service provider familiarity with various HVAC applications	Advanced Diagnostics = 3.77 Demand Control Ventilation = 4.01
	Across all types of providers, mean on a 1-to-5 scale (where 1=no/low awareness and 5=high awareness)	Dual-Enthalpy Economizers = 3.89 ENERGY STAR HVAC Equipment = 4.18 Commissioning/Retrocommissioning = 3.17
	Change in service provider awareness of various HVAC applications	Advanced Diagnostics = 3.62 Demand Control Ventilation = 3.77 Dual Enthalpy Economizers = 3.37
	Across all types of providers, mean on a 1-to-5 scale (where 1=no change in the past two years and 5=significant change)	ENERGY STAR HVAC Equipment = 3.86 Commissioning/Retrocommissioning = 3.53
Availability of Services	Increased market interest in HVAC services/applications	81% of program allies surveyed indicated that the market for their HVAC application had increased over the past two years
Market Share and Sales	Prevalence of commissioning in newly constructed facilities	Respondents indicate that 29% of newly constructed facilities are commissioned each year. This equates to approximately 21.3 million square feet commissioned per year.
		Program participants active in commissioning likely worked on 38% of new whole building commissioning projects in the State during the past several years
	Sales HVAC packaged units	Participating allies sold approximately 7,000 packaged HVAC units in the past year. This accounts for only 5.4% of the estimated shipments to New York.
	Change in market for various HVAC applications over past two years	Advanced Diagnostics = 74% Demand Control Ventilation =91%
	Percentage of allies reporting market increased significantly or somewhat	High Efficiency HVAC Sales = 88% Commissioning and Retrocommissioning = 82%

#### 3.6.4 Program Impact Evaluation

This section presents cumulative annual energy savings for the program elements from inception through December 31, 2006.

#### **Gross Savings**

The objective of the M&V evaluation review is to verify the estimate of the program's cumulative savings. Based on Nexant's review, as of December 31, 2006, the program has resulted in the energy savings and demand reductions shown in Table 3-16. Note that the realization rate shown is applicable to the entire program period.

#### Net Savings

The final step to determining net energy savings is attribution analysis. Attribution analysis determines, through various methods, whether the gross savings estimate from the M&V activities should be adjusted downward or upward for freeridership or spillover. Adjustments for free ridership and spillover, and the ultimate program net-to-gross ratio and net savings are shown in Table 3-16. Adjustments for freeridership and spillover were not estimated for the Hospitality Lighting Program. For Commercial HVAC, the savings estimates were determined by the MCAC team based on market research.

	Program- Reported Savings	Realization Rate	Adjusted Gross Savings	Freeridership	Spillover	Net-to- Gross Ratio <sup>1</sup>	Net Savings
			Small Comme	ercial Lighting			
MWh/year	33,541	1.0	33,541	39%	79%	1.09	36,559
MW On- Peak	8.3	1.0	8.3	39%	79%	1.09	9.0
	Premium-Efficiency Motors <sup>2</sup>						
MWh/year	9,689	1.0	9,689	67%	168%	0.88	8,822
MW On- Peak	1.8	1.0	1.8	67%	113%	0.70	1.3
	Commercial HVAC <sup>3</sup>						
MWh/	6,767	N/A	6,767	N/A	N/A	N/A	6,767
year							
MW On- Peak	2.0	N/A	2.0	N/A	N/A	N/A	2.0

 Table 3-16. New York Energy \$mart<sup>SM</sup> Business Partners Cumulative Annual Energy and

 Peak Demand Savings (through December 2006)

Hospitality Lighting							
MWh/ year	8,505	Not Evaluated	8,505	Not Evaluated	Not Evaluated	Not Evaluated	8,505
MW On- Peak	0.9	Not Evaluated	0.9	Not Evaluated	Not Evaluated	Not Evaluated	0.9
			Total Busin	ess Partners			
MWh/ year	58,497	N/A	58,497	N/A	N/A	N/A	60,653
MW On- Peak	13.0	N/A	13.0	N/A	N/A	N/A	13.3

<sup>1</sup>Net-to-Gross Ratio = (1-Freeridership) \* (1+Spillover).

<sup>2</sup> Savings from the prior motor incentive program have been 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, have been added in the Net Savings column.

<sup>3</sup> Savings for the Commercial HVAC portion of the program have been reduced as of 4<sup>th</sup> Quarter 2006. This approach was taken due to the known short-term nature of savings from advanced diagnostics and commissioning, which were part of the program.

#### Non-Energy Impacts

Past non-energy impacts studies by the MCAC team have focused on the Small Commercial Lighting Program and Commercial HVAC. Results are shown in Table 3-17.

#### Table 3-17. Business Partners NEI Results

Results from Direct Query Approach (year of study)	Percentage of Energy Savings
Small Commercial Lighting Program (2005)	51%
Commercial HVAC Program (2004)	25-55%

# 3.7 New York Energy \$mart<sup>SM</sup> Loan Fund and Financing Program

#### 3.7.1 Program Description

The **New York Energy \$mart<sup>SM</sup>** Loan Fund and Financing Program expands the availability of lowinterest capital to help implement energy-efficiency projects and process improvements. Lenders enroll in the program by signing participation agreements and agreeing to reduce the interest rates on energyrelated loans in exchange for a lump sum subsidy paid by NYSERDA. Interest rate reductions range from 4% in most of the State to 6.5% in parts of the Con Edison utility area. The Loan Fund has been an implementation tool for many types of projects, allowing reduced interest rate financing for cutting edge technologies. The Program has been especially beneficial in encouraging lender financing of photovoltaic and wind turbine projects, and in promoting green building measures in new construction. These types of activities will continue to be promoted.

The Program's ongoing training of the financial sector includes tools to allow lenders to calculate the cash flow advantages their customers will gain from making energy-efficiency improvements. Going forward, NYSERDA will work with ENERGY STAR<sup>®</sup> to develop new or modify existing ENERGY STAR tools to meet this goal. While the Loan Fund has met the needs of customers who do not avail themselves of

other NYSERDA programs, the reduced-interest financing will also continue to be available to customers participating in other NYSERDA programs.

NYSERDA has worked with over 100 lenders and leasing companies across the State to increase the availability of low-interest capital for energy efficient equipment and process improvements through the New York Energy \$mart<sup>\$M</sup> Loan Fund program.

The thirteen-year program budget is \$21.0 million.

#### 3.7.2 Recent Program Accomplishments

Several near-term, annual goals have been set for the Loan Fund Program. These goals and progress for the first six months are shown in Table 3-18.

# Table 3-18. New York Energy \$mart<sup>SM</sup> Loan Fund and Financing Program – Near-Term Goals and Achievements for Commercial/Industrial Projects

Activity	Program Goals (July 1, 2006 through June 30, 2007)	Achieved July 1, 2006 through December 31, 2006
Customers receiving assistance (closed loans)	100	39
Participating lenders (signed participation agreements)	25	14
Leveraged loan amount	\$12,000,000	\$12,693,552

Other highlights from the past six months include:

• An RFP for a Loan Fund support contractor was issued in December 2006 to obtain a contractor to continue NYSERDA's efforts to provide outreach and training, and support lenders participating in the program.

#### 3.7.3 Long-Term Program Accomplishments

This section highlights key program outputs as identified through the logic model development work and associated market progress. All values reported are cumulative since program inception. Table 3-19 presents the key outputs for Loan Fund and Financing Program through December 31, 2006. Table 3-20 presents a sample of key logic model-driven indicators of program success, especially those related to market progress, as tracked by the evaluation and program activities. Together, these tables indicate the most important ways that program progress is being measured.

 Table 3-19. Loan Fund and Financing Program – Key Program Outputs for

 Commercial/Industrial Projects

Outputs	Value (Cumulative through December 2006)
Number of loans closed	388
Value of loans closed	\$85,104,504
Average loan value	\$219,342

Outputs	Value (Cumulative through December 2006)
Number of lenders with signed participation agreements	109
Number of lenders actively processing loans	109
Number of lenders with multiple loans	95
Number of lenders with statewide coverage	24

# Table 3-20. Loan Fund and Financing Program Key Program – Key Market Indicators and Program Cumulative Progress

Торіс	Indicator	Value (2005)
	Increasing awareness among lenders about the financial benefits of energy efficiency	85% of lenders surveyed have at least some familiarity with energy efficiency, compared to only 62% for renewable energy
		Of those lenders claiming some knowledge, about two- thirds have become more familiar with the technologies and related economics over the past five years
Awareness and	Awareness of the Loan Fund among contractors and vendors	More than half of borrowers (51% of commercial and 85% of residential) report that their contractor or vendor had either referred them to the Loan Fund or was aware of the program.
Knowledge	Lenders are able to speak accurately about the economic benefits of energy efficiency and renewable energy investments	35% of lenders consider it important (4 or 5 on a 5-point scale where 5 is the highest) that they understand "the technologies and economics related to energy efficiency equipment and measures" before making loans for new construction or renovation projects that incorporate high efficiency. Lenders have similar views on renewable energy projects.
	Lenders include energy savings within cash flow analysis when reviewing loans	11 out of the 21 commercial lenders surveyed "always" or "often" include energy costs in the cash flow analysis for new construction and renovation projects
	Value of energy efficiency investments is based on principles similar to other business investments ( <i>e.g.</i> , ROI, payback)	75% of commercial borrowers say they evaluate energy efficiency investments on the same basis as other business investments
Perceptions and Practices	Property owners perceive that renewable energy technology or efficiency products will provide adequate payback	39% of commercial borrowers and 10% of residential borrowers were confident that high efficiency equipment would pay back quickly enough without a financial incentive
	Lenders have confidence that new renewable energy technology or efficiency products will be improve ability of borrower to repay loan	Lenders were evenly split on the importance of reduced energy costs improving borrowers' ability to repay loans and only 7% consider it "extremely important"

## 3.7.4 Program Impact Evaluation

This section presents cumulative annual energy savings for the program from inception through December 31, 2006.

#### **Gross Savings**

The objective of the M&V evaluation review is to verify the estimate of the program's cumulative savings. Based on Nexant's review, as of December 31, 2006, the program has resulted in the energy savings and demand reductions shown in Table 3-21. Note that the realization rate shown is applicable to the entire program period.

#### Net Savings

The final step to determining net energy savings is attribution analysis. Attribution analysis determines, through various methods, whether the gross savings estimate from the M&V activities should be adjusted downward or upward for freeridership or spillover. Adjustments for freeridership and spillover, and the ultimate program net-to-gross ratio and net savings are shown in Table 3-21.

 Table 3-21. Loan Fund Cumulative Annual Energy and Peak Demand Savings (Through December 2006)

	Program- Reported Savings	Realiza- tion Rate	Adjusted Gross Savings	Freerider- ship	Spillover	Net-to-Gross Ratio <sup>1</sup>	Net Savings
MWh/year	65,549	0.85	55,717	27%	19%	0.92	51,260
MW	11.8	1.39	16.3	27%	19%	0.92	15.0
MMBtu	111,590	1.36	151,762	27%	19%	0.92	139,621

<sup>1</sup> Net-to-Gross Ratio = 1-Freeridership+Spillover.

# 3.8 Energy Smart Focus Program

#### 3.8.1 Program Description

Energy Smart Focus is a sector-specific effort to facilitate and encourage greater energy efficiency awareness and energy efficiency market penetration to the targeted sectors. The program is a marketing and information transfer effort that will use existing core New York Energy Smart programs and services to sponsor deployment, demonstration, research, and development projects in conjunction with sector customized strategies, including:

- Outreach and one-on-one interactions
- Targeted marketing materials and messages
- Training
- Partnerships with trade associations
- Integration with regional and national efforts
- Benchmarking

Efforts will center on each sectors' core mission, and increasing productivity while improving energy efficiency and reducing demand. Strategies will vary by sector, and will be developed to leverage non-energy benefits such as environmental benefits, indoor air quality, productivity and maintenance savings, which often drive energy efficiency decisions. These efforts will be augmented by sector-independent web support services.

The 5-year program budget is \$19.9 million.

### 3.8.2 Recent Program Accomplishments

Near-term, annual goals have been set for the Energy Smart Focus Program. These goals and progress for the first six months are shown in Table 3-22.

Table 3-22. Energy Smart Focus Program – Near-Term Goals and Achievements

Activity	Program Goals (July 1, 2006 through June 30, 2007)	Achieved July 1, 2006 through December 31, 2006
Participants Receiving Assistance	2,000	550a

a Participants of the Comprehensive Energy Strategies (Energy Smart Schools) Program, a precursor to the institutional sector of the Energy Smart Focus Program, were provided assistance and are thus represented in this table.

### Program Highlights

This new initiative will provide services to facilitate and encourage sector-specific energy efficiency improvements and practices.

- An internal team developed the program, refined the program goals, and identified individual sector needs.
- The internal NYSERDA team allocated funding to each sector of the program as follows: Institutions - \$4.0 million; Industrial Manufacturing - \$2.0 million; Commercial Real Estate -\$2.5 million; Municipal Water/Wastewater \$ 1.0 million; Hospitality - \$1.0 million; Healthcare -\$1.0 million; Colleges and Universities - \$ 1.0 million; and other sector Support Services - \$0.5 million.
- An RFP was released to selected contractors to service: the hospitality sector; the institutional sector, including K-12 schools, State government facilities; commercial real estate; industrial manufacturing, and municipal water and wastewater facilities. Twenty-four proposals were received.

#### 3.8.3 Program Impact Evaluation

To date, direct energy impacts have not been tracked for the Comprehensive Energy Strategies (Energy Smart Schools) Program, a precursor to the institutional sector of the Energy Smart Focus Program. It is anticipated that the evaluation team will attempt to quantify the direct impacts for the Energy Smart Focus Program and data will be provided as it becomes available.

# 3.9 High Performance New Buildings Program

#### 3.9.1 Program Description

The New Construction Program (NCP) was established to encourage energy-efficient design and building practices among architects and engineers and to urge them to inform building owners about the long-term advantages of building to higher energy standards. The program was renamed the High Performance New Buildings Program in 2006.<sup>1</sup> The name change to High Performance New Buildings reflects greater emphasis on whole building approaches to energy efficiency and green concepts. A revised program logic diagram is included at the end of Section 3.

The program objective is to create long-term changes in design practices by mainstreaming energy efficiency and green building concepts. The program is structured upon a performance-based approach in which incentives are determined by total building performance and are tiered to reward progressively more efficient designs. Through design team incentives and recognition, the program promotes Green building projects and projects planned for LEED<sup>®</sup> certification. Enhancements under the High Performance New Buildings Program include prescriptive and fast-track approaches using detailed custom analysis tools to ensure that smaller, simpler projects can be reviewed and incentives quickly awarded.

This mature and multi-faceted program addresses a complex and technically sophisticated market segment. The NYSERDA program staff has been working within the design and new construction community since 1999, and the program has evolved to better meet the unique needs of this market segment.

The 13-year program budget is \$150.8 million.

#### 3.9.2 Recent Program Accomplishments

Several near-term, annual goals have been set for the High Performance New Buildings Program. These goals and the progress for the first six months are shown in Table 3-23.

Table 3-23.	High Performance New Buildings Program – Near-Term Goals and
	Achievements

Activity	Program Goals (July 1, 2006 through June 30, 2007)	Achieved July 1, 2006 through December 31, 2006
Customers receiving assistance (completed projects)	140	43
Construction market affected (sq.ft.)	14,000,000	5,700,000
Participating A&E firms	180	160

<sup>&</sup>lt;sup>1</sup> Within this section, the old program name (NCP) is used when discussing evaluations that occurred prior to the name change.

## 3.9.3 Long-Term Program Accomplishments

This section highlights key program outputs as identified through the logic model development work and associated market progress. All values reported are cumulative since program inception. Table 3-24 presents the key outputs for High Performance New Buildings through December 31, 2006. Table 3-25 presents a sample of key logic model-driven indicators of program success, especially those related to market progress, as tracked by the evaluation and program activities. Together, these tables indicate the most important ways that program progress is being measured, and report how those values are changing due to program activities.

Table 3-24. High Performance New Buildings Program – Key Program Outputs

Outputs	Value
	(Cumulative through December 2006)
Number of buildings participating	1,357 active projects (913 with encumbered dollars)
Square footage affected	Nearly 138 million
Number of completed projects	670
Number of projects receiving TA studies	879
Number of projects receiving commissioning	182

#### Table 3-25. High Performance New Buildings Program – Key Market Indicators and Program Cumulative Progress

Торіс	Indicator	Initial Value (2003, unless noted)	Most Recent (2006, unless noted)
Availability of Services	Number of unique A&E firms participating	526	750
	Awareness of NYSERDA among <i>non-participating</i> A&E firms and owners	A&Es: 58%	A&Es: 81% Owners: 73%
Awareness and Knowledge	A&E firm familiarity with energy efficiency measures and designs	Participant: 88% (n=44) Non-participant: 89% (n=85)	Participant: 92% (n=48) Non-participant: 74% (n=30)
	Building owner familiarity with energy efficiency measures and designs	Participant: 92% (n=26) Non-participant: 61% (2004)	Participant: 85% (n=48) Non-participant: 73% (n=30)
	Importance of technical assistance for achieving savings according to participating designers and owners	Designers: 38% critically important or important (n=40) Owners: 76% critically important or important (n=31)	Designers: 67% critically important or important (n=48) Owners: 88% critically important or important (n=48)
Value of Program Services	Importance of incentives for achieving savings according to participating designers and owners	Designers: 70% said incentives were important or critically important (n=44) Owners: 80% said incentives were important or critically important (n=32)	Designers: 98% said incentives were helpful or critical (n= 48) Owners: 90% said incentives were helpful or critical (n= 48)

Торіс	Indicator	Initial Value (2003, unless noted)	Most Recent (2006, unless noted)
	Percentage of New York market participating in the program.		Approximately 12% (2005)
Market	Percentage of New York A&E community participating	18% of the ~2,900 A&Es working on non-residential projects over the past 2 years have participated	30% of the ~2,500 A&Es working on non-residential projects over the past 2 years have participated
Penetration	Percentage of top architecture and engineering firms, by dollar value and number of projects, participating in the program	<ul> <li>50% of architects by dollar value</li> <li>60% of architects by number of projects</li> <li>40% of engineers by dollar value and number of projects</li> </ul>	<ul> <li>80% of architects by dollar value</li> <li>40% of architects by number of projects</li> <li>60% of engineers by dollar value</li> <li>50% of engineers by number of projects</li> </ul>

#### 3.9.4 Program Impact Evaluation

This section presents cumulative annual energy savings for the program from inception through December 31, 2006.

#### **Gross Savings**

The objective of the M&V evaluation review is to verify the estimate of the program's cumulative savings. Based on Nexant's review, as of December 31, 2006, the program has resulted in the energy savings and demand reductions shown in Table 3-26. The realization rate of 1.06 is applicable to the entire program period, and indicates that the program records were slightly under-estimating the actual energy savings. These results are from the M&V analysis conducted in 2005.

#### Net Savings

The final step to determining net energy savings is attribution analysis. Attribution analysis determines, through various methods, whether the gross savings estimate from the M&V activities should be adjusted downward or upward for freeridership or spillover. Adjustments for freeridership and spillover, and the ultimate program net-to-gross ratio and net savings are shown in Table 3-26. The net-to-gross ratio for the High Performance New Buildings Program is 1.22, meaning that freeridership that is occurring is outweighed by spillover. These findings are from attribution analyses conducted in 2005.

			· · ·				
	Program- Reported Savings	Realiz- ation Rate	Adjusted Gross Savings	Freerider- ship	Spillover	Net-to- Gross Ratio <sup>1</sup>	Net Savings
MWh/year	193,586	1.06	205,201	40%	85%	1.22	250,345
MW	41.4	1.06	43.9	40%	85%	1.22	53.5

# Table 3-26. High Performance New Buildings Cumulative Annual Energy and Peak Demand Savings (through December 2006)

<sup>1</sup> 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).

#### Non-Energy Impacts

The MCAC team last evaluated non-energy impacts (NEIs) for the New Construction Program in 2005. The study found that customers valued NEIs at 40% of the value of the energy savings achieved in their new buildings. This value is similar to the value of NEIs found in an earlier study on the NCP.

## 3.9.5 Process Evaluation

A best practices study, the third in a series of process evaluation reports for the NCP, was conducted by Research Into Action. The prior reports, completed in 2004 and 2005, showed the NCP was a valuable and effective program focused on acquiring energy savings within a market transformation framework. The program and project managers currently report that several factors, including the threat of insufficient power supplies in New York, have changed their emphasis to resource acquisition and demand reduction, with market transformation as an important but secondary goal. The managers requested this best practices review of other notable new construction programs throughout the country to compare various approaches and to uncover useful insights and ideas that might benefit the program. The following topics were addressed in this study:

- Balancing resource acquisition with market transformation
- Emphasizing LEED<sup>®</sup> or green projects
- Alternative program delivery models
- Reaching the right decision-makers
- Conducting successful scoping meetings
- Benchmarking and monitoring usage over time
- Coordinating with other programs

After working with the program managers to identify nine other exemplary new construction programs,<sup>2</sup> evaluators gathered and analyzed information from best practices literature, program materials, and interviews with program managers. Results of this best practices study are provided below.

<sup>&</sup>lt;sup>2</sup> Programs include those from National Grid, NSTAR, Northeast Utilities, California, the Energy Trust of Oregon, MidAmerican, Xcel Energy, New Jersey, and Wisconsin.

#### Adjust Strategies for Greater Savings and Longer Term Market Transformation

Nationally, new construction programs are changing their strategies so that they can attract projects earlier and achieve greater "per project" savings. These approaches also support longer-term goals to transform the market. While the NCP already encourages whole building design and LEED<sup>®</sup> certification, it should consider a greater emphasis on:

- Building personal strategic relationships with owners and design firms: These outreach efforts include targeted education and training, including having a designated educational arm supporting existing "cutting edge" training through organizations such as the New Buildings Institute (NBI) offering lunch and learn presentations at A& E firms; identifying and maintaining relationships with the largest market players; and having a strong and consistent presence at professional meetings such as the American Institute of Architects (AIA) and American Society of Heating, Refrigeration, and Air Conditioning Engineers (ASHRAE). In some cases, specific market sectors with high potential for savings, such as hospitals or schools, might be targeted. These outreach efforts are intentional, coordinated, and wherever possible, personal. Targeted marketing materials are important tools to support person-to-person outreach strategies but cannot substitute for them.
- Increased leveraging of market trends and opportunities: One of the key market effects of new construction programs is the development of more stringent energy codes (e.g., California, MidAmerican, and Xcel) which in turn provides programs the opportunity to push for higher levels of efficiency.
- Other clear market trends reflect a greater concern for the environment. LEED<sup>®</sup> is an example of an environmentally-oriented market opportunity that some programs like the NCP and the Energy Trust have used to increase interest in and allegiance to the programs' efficiency goals. NYSERDA has been very aggressive in promoting LEED certified buildings with over 120 such projects in the pipeline. Global warming is another environmental issue that new construction programs can leverage. Architecture2030 has developed the 2030 Challenge to promote carbon-neutral buildings to help reduce greenhouse gas emissions to acceptable levels. Energy efficiency is at the center of these efforts. Key organizations have endorsed this challenge including the AIA, the U.S. Conference of Mayors, and ASHRAE.
- As suggested above, innovative training opportunities may also push the market; National Grid believes attendance at NBI's trainings has significantly affected the view of architects participating in their programs, moving them to the point of wanting to try more robust energy efficiency strategies.
- Making service delivery as efficient as possible: Moving to a less complex delivery model that relies on one or two program management consultants can result in less burden on program managers, more efficient, consistent and higher quality service delivery, and more time for program managers to focus on key program improvement strategies and critical projects. While the NCP is continuously working on improving its processes, its current delivery model for the NCP requires considerable effort to attract, recruit, and manage qualified firms. The program managers should further investigate the "single contractor" approach used by the programs at the Energy Trust of Oregon, MidAmerican, and Xcel to see if this program delivery model could be useful for improving its service delivery.
- Getting projects off to a good start: Effective project screening and scoping meetings need to be orchestrated events with everyone understanding and "buying into" the process. While the NCP program is an "open" solicitation that serves all program applicants regardless of their project

complexities, the program should consider using enhanced screening to help match program services with the project scope. It should also consider developing a "how-to" manual and sponsoring training (e.g., from the Weidt Group that implements MidAmerican's program) to fine tune scoping meeting skills, so that these meetings are as consistent and effective as possible.

#### Leverage Experience of Other Leading Programs Nationally

Leading commercial new construction programs across the country have much to offer each other in terms of specific experience and lessons learned but have limited exposure to one another. The program managers and staff should consider the following strategies to leverage the experience of other leading programs:

- Continue its review of materials from other programs, such as application packages, program manuals, marketing materials, and software, to see how these approaches might complement and improve the program's own efforts.
- Communicating with program managers identified in this study, along with others that might be recommended, to assess how communication of lessons learned and best practices might best be promulgated among the interested parties.
- NCP managers should consider initiating a forum with leading new construction program managers and implementation contractors nationwide that would allow attendees to present and discuss what they have learned. This might be accomplished through an existing national meeting structure, such as the ACEEE Summer Study for Efficiency in Buildings, Greenbuild, NEEP, NBI or other venues in which NYSERDA staff have already participated.

# 3.10 FlexTech Technical Assistance Program

#### 3.10.1 Program Description

The FlexTech Technical Assistance Program is a consolidation of services previously offered under the FlexTech, Technical Assistance, and the Energy Audit Programs. This change is part of a continuous stream of evolutionary revisions the program has undergone for the past eight years.

The purpose of the Program is to provide customers with objective and customized information to facilitate wiser energy efficiency, energy procurement, and financing decisions. The Program is available to all commercial and industrial sectors. The Program strives to increase productivity and economic competitiveness by identifying and encouraging the implementation of cost-effective energy-efficiency measures. Studies also include operations management, energy procurement, and on-site Combined Heat and Power (CHP). Cost-shared assistance is provided for detailed studies from energy engineers and experts. Small customers are eligible for quick walk-through energy audits, with the cost share reimbursed upon implementation of recommendations. Participants may use NYSERDA-contracted or customer-selected consultants.

The thirteen-year program budget is \$66.5 million.

#### 3.10.2 Recent Program Accomplishments

Several near-term, annual goals have been set for the FlexTech Technical Assistance Program. These goals and progress for the first six months are shown in Table 3-27.

Table 3-27. FlexTech Program – Near-Term Goals and Achievements

Activity	Program Goals (July 1, 2006 through June 30, 2007)	Achieved July 1, 2006 through December 31, 2006
Customers receiving assistance (approved proposals)	540	220

#### Program Highlights

- An RFP was issued for supplemental FlexTech contractors in the Con Edison territory. Eleven new contractors were selected and awarded three year contracts. The new FlexTech contractors will provide additional coverage and market outreach to Con Edison customers.
- The Audit Program, which provides walk-though audits for smaller customers, was bid to select contractors for the next five years. The Audit Program is comprised of four geographical regions. The RFP adjusted the regions to provide increased coverage in Con Edison territory. A new contract was awarded for each region.
- CHP and Renewable Generation Technical Assistance Program were merged with the traditional energy efficiency Technical Assistance Program.
- An on-line application process was created for FlexTech and Audit programs.

#### 3.10.3 Long-Term Program Accomplishments

This section highlights key program outputs as identified through the program logic modeling work and associated market progress. All values reported are cumulative since program inception. Table 3-28 presents the key outputs for the FlexTech Technical Assistance Program through December 31, 2006. Table 3-29 presents a sample of key logic model-driven indicators of program success, especially those related to market progress, as tracked by the evaluation and program activities. Together, these tables indicate the most important ways that program progress is being measured, and report how those values are changing due to program activities.

Outputs	Value (Cumulative through December 2006)
Customers receiving assistance (approved proposals)	3,540
Number of studies completed	3,290
Total funds committed	\$27,400,000
Customer cofunding of studies	\$27,000,000
Participating allies (ESCOs and engineering firms)	280

 Table 3-28.
 FlexTech Program – Key Program Outputs

# Table 3-29. FlexTech Program – Key Market Indicators and Program Cumulative Progress

Торіс	Indicator	Value (2004, unless noted)		
Awareness and Knowledge	Customer familiarity with energy efficiency measures and equipment	90% of participating customers (n=67) and 68% of non-participants (n=120) said they were extremely or somewhat familiar		
	Change in customer familiarity with energy efficiency measures and equipment over time	54% of participating customers (n=67) and 22% of non-participants (n=120) said their familiarity had increased significantly over the past five years		
	Contractor familiarity with energy efficiency measures, equipment and services	77% of participating contractors $(n=40)$ and 11% of the non-participants $(n=55)$ said they were extremely familiar		
	Change in contractor familiarity with energy efficiency measures and equipment over time	48% of participating contractors $(n=40)$ and 21% of the non-participants $(n=53)$ said their familiarity had increased significantly over the past five years		
Availability of Services	Change in level of technical service provider (TSP) activity in New York over time	55% of participating contractors (n=38) and 43% of non-participating contractors (n=55) said TSP activity has increased over the past five years		
	Change in quality of TSP activity in New York over time	46% of participating contractors (n=40) said the quality of TSP activity has increased over the past five years		

Торіс	Indicator	Value (2004, unless noted)		
Change in Practices	Contractor promotion/marketing of energy efficiency measures, equipment and services	74% of participating contractors (n=38) are significantly or somewhat increasing their marketing of energy-efficient measures, compared to only 38% of non-participating contractors (n=50)		
	Difference in efficiency level of participating and non- participating projects	Participating contractors said that a typical TA project was 25% more energy efficient than a standard design, non-participating project (responses ranged from 1-50% more efficient, however)		
Participant Motivations and Decision- Making Criteria		66% of respondents sent the report to higher- level staff for a final decision regarding implementation, whereas 6% of the respondents were the ultimate decision makers (2006)		
	Criteria for deciding to undertake a project	90% of respondents indicated that payback was considered in the decision-making process and 71% of respondents indicated that the up- front cost relative to the available budget was considered. In addition, 58% of respondents characterized payback as a "make or break" criterion when deciding to undertake a project (2006)		

## 3.10.4 Program Impact Evaluation

This section presents cumulative annual energy savings for the program from inception through December 31, 2006.

#### **Gross Savings**

The objective of the M&V evaluation review is to verify the estimate of the program's cumulative savings. Based on Nexant's review, as of December 31, 2006, the program has resulted in the energy savings and demand reductions shown in Table 3-30. Note that the realization rate shown is applicable to the entire program period.

#### <u>Net Savings</u>

The final step to determining net energy savings is attribution analysis. Attribution analysis determines, through various methods, whether the gross savings estimate from the M&V activities should be adjusted downward or upward for freeridership or spillover. Adjustments for freeridership and spillover, and the ultimate program net-to-gross ratio and net savings are shown in Table 3-30.

	(Inrough December 2000)							
	Program- Reported Savings	Realization Rate	Adjusted Gross Savings	Freerider- ship	Spillover	Net-to- Gross Ratio <sup>1</sup>	Net Savings	
MWh/ year	611,962	1.0	611,962	25%	48%	1.14	697,637	
MW	114.0	1.0	114.0	25%	48%	1.14	130.0	
MW Enabled	9.0	1.0	9.0	25%	48%	1.14	10.2	
MMBtu	2,513,073	1.0	2,513,073	25%	48%	1.14	2,864,903	

#### Table 3-30. FlexTech Program Cumulative Annual Energy and Peak Demand Savings (through December 2006)

<sup>1</sup> 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).

#### Non-Energy Impacts

The MCAC team last evaluated NEIs for the Technical Assistance Program in 2004. The study found that customers valued NEIs at 37-55% of the value of the energy savings achieved in their new buildings.



## Commercial and Industrial Programs

High Performance New Buildings Program Logic Model