

New York State Energy Research and Development Authority

New York's System Benefits Charge Programs Evaluation and Status Report

Quarterly Report to the Public Service Commission
Quarter Ending March 31, 2011

Final Report
May 2011

(Revised November 2011)

nyserda
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New Yorkers can count on NYSERDA for objective, reliable, energy-related solutions delivered by accessible, dedicated professionals.

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1 Introduction

1.1 Introduction

This report provides an update on the progress of the New York State Energy Research and Development Authority's (NYSERDA) System Benefits Charge (SBC) funded programs toward meeting their stated goals. It contains evaluation results on activities completed through the quarter ending March 31, 2011. The last full annual report on progress (through December 31, 2010) was issued in March 2011.¹

The 13-year **New York Energy Smart**SM Program, administered by NYSERDA, was initiated in 1998 by order of the New York State Public Service Commission² (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.

¹New York State Energy Research and Development Authority, *New York's System Benefits Charge Program Evaluation and Status Report, Final Report*, March 2011.

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

³The 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.

In its June 23, 2008 Order⁴, the Commission established the State's Energy Efficiency Portfolio Standard (EEPS) and approved a subset of "Fast Track" programs to commence immediately. The Order also directed NYSERDA to submit a supplemental revision to its SBC Operating Plan incorporating the Fast Track programs, including enhancements to the SBC Fast Track programs. The supplemental revision, approved by the Department of Public Service (DPS) on March 12, 2009, served as the vehicle to incorporate the Fast Track programs into NYSERDA's existing SBC Program portfolio.⁵

A series of other Commission Orders issued during the latter half of 2009 and early 2010 authorized NYSERDA to further expand and add to its programs. In addition to the electric SBC, the Commission commenced collection of a natural gas SBC in order to allow NYSERDA and other program administrators to broaden or begin offering services for gas efficiency measures. In total, the additional NYSERDA program approvals constitute \$447 million in funding through 2011 to support electric and natural gas programs. By the end of 2011, the SBC funds and interest earnings from the three **New York Energy SmartSM** Program rounds and the approved NYSERDA-administered EEPS programs will have provided more than \$2.3 billion to support a full range of programs to help the State meet its energy challenges.⁶

In September 2010, NYSERDA submitted a proposal to the PSC requesting approval for a continuation, with modifications, of the current **New York Energy SmartSM** Program and approval of a new program portfolio. In this proposal, NYSERDA requested a six-month extension of the **New York Energy SmartSM** Program to December 31, 2011 to coincide with the conclusion of the current EEPS Program. In addition, the proposal requested PSC approval to transfer eight **New York Energy SmartSM** resource acquisition programs into the EEPS portfolio

⁴Case 07-M-0548, Proceeding on Motion of the Commission Regarding an Energy Efficiency Portfolio Standard, *Order Establishing Energy Efficiency Portfolio Standard and Approving Programs*, issued and effective June 23, 2008.

⁵New York State Energy Research and Development Authority, *System Benefits Charge Supplemental Revision for New York Energy SmartSM Programs (2008-2011) As Amended August 22, 2008 and revised March 12, 2009*.

⁶In addition to NYSERDA's **New York Energy SmartSM** and EEPS programs, funded through the SBC, the PSC also provided funding for New York utilities to administer EEPS programs. Furthermore, the New York Power Authority (NYPA) and Long Island Power Authority (LIPA) each offer complementary public benefits programs of their own. The three authorities coordinate program design and delivery wherever practicable to maximize the use of public funds and to ensure a coordinated statewide effort to meet public policy goals. The results of the utility, NYPA, and LIPA programs are not included in this report.

at current funding levels given their similarity in implementation to existing EEPS programs.⁷ Lastly, the proposal introduced a new Technology and Market Development (T&MD) program portfolio that would include programs designed to support innovative technologies and services, such as clean energy technologies and services as well as codes and standards. The proposed funding level for the T&MD portfolio was \$82 million per year through December 31, 2016.

In its December 30, 2010 Order in response to this proposal, the PSC approved the six-month extension of the **New York Energy SmartSM** Program through December 31, 2011 and authorized the transfer of eight **New York Energy SmartSM** programs into the EEPS program portfolio pending approval of a revised SBC (**New York Energy SmartSM**) Operating Plan due in the first quarter of 2011. The revised Operating Plan submitted by NYSERDA included updates to program goals to reflect the six-month extension. NYSERDA also revised and resubmitted its EEPS Operating Plans to reflect the additional six months of funding for those programs. The revised SBC/**New York Energy SmartSM** and most of the revised EEPS operating plans were approved by DPS in April 2011, and the additional six month funding and goals will be reflected in next quarter's evaluation and status report. In addition, the PSC deferred its decision on the T&MD portfolio and ordered NYSERDA to submit a T&MD Operating Plan that will incorporate input from interested stakeholders through an intensive outreach process led by NYSERDA. NYSERDA will submit the T&MD Operating Plan on May 16, 2011.⁸

This document combines reporting requirements of the original **New York Energy SmartSM** programs with the additional reporting requirements for the approved EEPS programs. For purposes of this report, the "**New York Energy SmartSM** Program" refers to the original 13-year program and the "EEPS Program" refers to the recently approved EEPS Programs. The "SBC Program" refers to the portfolio of programs and includes both **New York Energy SmartSM** and EEPS funding sources. Thus, this evaluation report provides an update for the **New York Energy SmartSM** Program as well as the approved EEPS Programs.

⁷These programs included Residential Multifamily Building Performance; Low-Income Multifamily Building Performance; EmPower NY; Existing Facilities; New Construction, FlexTech, Single Family Home Performance and Low-Income Single Family Home Performance.

⁸NYSERDA requested and was granted a two week extension from the original deadline of May 1, 2011, as specified in the Commission's December 30, 2010 Order.

1.2 Organization of the Report

This report was prepared by NYSERDA staff with contributions from a team of independent third-party evaluation contractors. The evaluation 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 and Industrial Programs

Section 4 – Residential and Low-Income Programs

Section 5 – Research and Development Programs

Appendix A – Evaluation Adjustment Factors

Appendix B – Program Logic Models

Appendix C – Avoided Costs Used in Benefit/Cost Analysis

The more detailed quarterly narrative and numeric (*i.e.*, Scorecard) progress updates required by DPS in its June 29, 2009 *Energy Efficiency Program Information Reporting Manual* for the EEPS Programs have been filed with the Commission for Quarter 1 2011 under separate cover.

2

Portfolio-Level Reporting

The System Benefits Charge (SBC) portfolio includes numerous program initiatives that individually and collectively help the State progress toward achieving its energy policy goals. This section presents findings and results for the portfolio of System Benefits Charge programs. More specific findings and results from evaluations of individual programs are presented separately in Sections 3, 4 and 5.

Table 2-1 aligns current spending with energy savings to show progress toward goals at the portfolio level for the current program funding cycles. Overall, at the portfolio level, the programs are tracking well as percent of funds spent relates to percent of goals achieved through March 31, 2011. The remainder of Section 2 highlights budget and spending status, and program achievements, in more detail for both the **New York Energy SmartSM** and Energy Efficiency Portfolio Standard (EEPS) portions of NYSERDA's SBC portfolio.

Table 2-1. Summary of SBC Program Spending and Progress by Funding Source for Current Funding Periods through March 31, 2011

	Total Budget (\$ million) ¹	Total Funds Spent (\$ million) ¹	% of Budget Spent	Energy Savings Goal	Energy Savings Achieved	% of Goal Achieved
New York Energy SmartSM Program (July 1, 2006 – June 30, 2011)	\$1,184.7	\$771.6	65%	2,198.9 GWh ^{2,3}	1,812.5 GWh	82%
EEPS Electric Programs ⁴	\$309.5	\$71.9	23%	2,762.4 GWh ⁵	788.9 GWh	29%
EEPS Gas Programs ⁶	\$118.1	\$19.5	17%	4,015,132 MMBtu ⁷	1,053,416 MMBtu	26%

¹ Inclusive of Administration, Evaluation and other portfolio level costs.

² Certain **New York Energy SmartSM** programs also have demand reduction and fuel savings goals. Only the electric goals are shown in this table due to the broad contribution of programs toward those achievements. Individual program goals and progress for demand reduction and fuel savings are shown in Sections 3 and 4 of this report.

³ This overall goal for the **New York Energy SmartSM** Program is based on the sum of individual program goals specified in NYSERDA’s March 2008 and, where applicable, March 2009 operating plans. For some programs, the latest published goal values do not fully reflect adjustments that are necessary to align goals with cross-program funding reallocations approved by DPS since the operating plans were completed. These funding reallocation adjustments and any other necessary updates or corrections to the **New York Energy SmartSM** Program goals will be reflected in NYSERDA’s February 28, 2011 revised operating plan and, once approved by DPS, will be used in future evaluation reports as the benchmark for program performance.

⁴ Budget and spending in this row do not include General Awareness. Energy savings achieved include some ancillary electric benefits from natural gas funding. Ancillary savings amounts per program are shown in Sections 3 and 4 of this report, and in NYSERDA’s scorecard filing.

⁵ The EEPS Electric Programs goal includes goals for the following programs not yet reporting savings: Master Metered Multifamily, Geothermal, Benchmarking Pilot, and Agriculture Electric. NYSERDA filed several revised EEPS operating plans with the Commission on March 30, 2011 to incorporate an additional six months of funding approved by the Commission’s December 30, 2010 Order. Electricity savings goals increased with the additional funds. These new goal values will be reflected in next quarter’s report.

⁶ Budget and spending in this row do not include General Awareness. Energy savings achieved include some ancillary natural gas benefits from electric funding. Ancillary savings amounts per program are shown in Sections 3 and 4 of this report, and in NYSERDA’s scorecard filing.

⁷ The EEPS Gas Programs goal includes the MMBtu goal for the Agriculture Gas program, which is not yet reporting energy savings.

2.1 System Benefits Charge Budget and Spending Status

This section presents financial data for the SBC-funded Program. Table 2-2 provides summary level budget and spending data for both the **New York Energy SmartSM** and EEPS Programs. Sections 2.1.1 and 2.1.2 provide further breakout of budget and spending for each individual **New York Energy SmartSM** and EEPS-funded program, respectively.

Table 2-2. Summary of SBC Program Budget and Spending Status through March 31, 2011 (\$ million)

	Total Budget	Total Funds Spent	% of Budget Spent
New York Energy SmartSM Program (13-Year Budget)	\$1,889.9	\$1,476.8	78.1%
EEPS Programs (electric and natural gas)	\$447.1	\$95.7	21.4%
Total SBC Programs	\$2,337.0	\$1,572.5	67.3%

Totals may not sum exactly due to rounding.

Source: NYSERDA

2.1.1 New York Energy SmartSM Program Budget Spending Status

This financial overview of the **New York Energy SmartSM** Program presents budget and funding status from 1998 through March 31, 2011. The 13-year budget is approximately \$1.89 billion, of which \$1.68 billion is allocated to four major program areas – Commercial/Industrial (C/I), Residential, Low-Income, and Research and Development (R&D) – and a general awareness campaign. The budgets for these program areas are presented in Table 2-3 along with the costs for program administration, program evaluation, the Environment Disclosure Program¹, and the New York State Cost Recovery Fee².

Table 2-4 shows the financial status of **New York Energy SmartSM** through March 31, 2011. Spending relative to the 13-year budget is: Commercial/Industrial 74.0%; Residential 93.7%; Low-Income 84.5%; and R&D 63.3%.

Financial status of individual programs within Commercial/Industrial, Residential, Low-Income and R&D previously presented within this section of NYSERDA’s reports has been moved to Sections 3, 4, and 5, respectively, in this quarterly report. This change was made to allow the reader to view financial status information more closely with program progress information.

¹ This program provides electricity commodity suppliers with data for informing customers about the fuel mix and associated environmental impacts of their electricity sources.

² 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.

Taken together, the information presented in this Section, along with that found in Sections 3, 4, and 5, is the same as previous quarterly reports in terms of content.

Table 2-3. New York Energy SmartSM Program Budget as of March 31, 2011 (\$ million)

	Budget ¹			% of Program Area Budget	% of Total Budget
	SBC I & SBC II ²	SBC III ³	Total Budget		
Program Areas					
Commercial/Industrial	247.1	385.8	632.9	37.7%	33.5%
Residential	165.4	147.3	312.8	18.6%	16.6%
Low-Income	86.6	232.0	318.6	19.0%	16.9%
Research and Development	105.9	278.4	384.3	22.9%	20.3%
General Awareness ⁴ (Marketing)	15.9	15.2	31.0	1.8%	1.6%
Program Areas Total	\$620.9	\$1,058.7	\$1,679.6	100.0%	88.9%
Other Costs					
Program Administration	59.8	68.4	128.3	-	6.8%
Metrics and Evaluation	14.5	37.0	51.5	-	2.7%
Environmental Disclosure	0.8	1.1	1.9	-	0.1%
NYS Cost Recovery Fee ⁵	9.2	16.2	25.4	-	1.3%
DPS Evaluation Consultant	-	1.1	1.1	-	0.1%
Statewide Evaluation Protocol Development	-	2.1	2.1	-	0.1%
Other Costs Total	\$ 84.3	\$126.0	\$210.3	-	11.1%
Total New York Energy SmartSM	\$705.2	\$1,184.7	\$1,889.9	-	100.0%

¹ Reflects carryover in funds and reallocation as approved by the Public Service Commission (PSC) in 2007.

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.

⁵ 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.

Totals may not sum due to rounding.

Source: NYSERDA

Table 2-4. Financial Status of New York Energy SmartSM Program through March 31, 2011 (\$ million)

	Total 13-Year Budget ¹	Funds Spent			Encumbered Funds ⁴ % of Budget Encumbered	Committed Funds ⁵ % of Budget Committed
		SBC I & SBC II ^{1,2}	SBC III ³	Total Spent & % of Budget		
Program Areas						
Commercial/Industrial	632.9	247.1	221.3	468.4 74.0%	567.1 89.6%	594.5 93.9%
Residential ⁵	312.8	165.4	127.5	292.9 93.7%	302.3 96.7%	302.9 96.8%
Low-Income	318.6	86.6	182.6	269.2 84.5%	295.1 92.6%	296.0 92.9%
Research and Development	384.3	105.9	137.4	243.3 63.3%	323.8 84.3%	388.8 101.2%
General Awareness ⁶ (Marketing)	31.0	15.9	8.8	24.6 79.4%	31.0 100.0%	31.0 100.0%
Program Areas Total	\$1,679.6	\$620.9	\$677.5	\$1,298.4 77.3%	\$1,519.4 90.5%	\$1,613.2 96.0%
Other Costs						
Program Administration	128.3	59.8	64.5	124.4 96.6%	124.5 97.0%	124.5 97.0%
Metrics and Evaluation	51.5	14.5	13.1	27.6 53.7%	32.1 62.3%	34.0 66.1%
Environmental Disclosure	1.9	0.8	-0.8	<0.1 2.5%	<0.1 2.5%	<0.1 2.5%
NYS Cost Recovery Fee	25.4	9.2	16.1	25.3 99.5%	25.3 99.5%	25.3 99.5%
DPS Evaluation Consultant	1.1	-	0.7	0.7 64.6%	1.1 100.0%	1.1 100.0%
Statewide Evaluation Protocol Development	2.1	-	0.3	0.3 13.8%	0.5 23.1%	0.9 44.2%
Other Costs Total	\$210.3	\$84.3	\$94.0	\$178.3 84.8%	\$183.5 87.2%	\$185.9 88.4%
Total New York Energy SmartSM	\$1,889.9	\$705.2	\$771.6	\$1,476.8 78.1%	\$1,702.9 90.1%	\$1,799.1 95.2%

¹ Reflects carryover in funds and reallocation as approved by the PSC in 2007.

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 Encumbered funds associated with signed contracts and purchase orders.

⁵ Committed funds associated with encumbered funds and pending contracts.

⁶ General Awareness previously included in Residential Program Area.

Totals may not sum exactly due to rounding.

Source: NYSERDA

2.1.2 EEPS Program Budget Spending and Status

This section presents financial data for the EEPS Programs from their initiation through March 31, 2011. Budgets and spending for EEPS electric and natural gas programs are presented in aggregate in Table 2-5 by major program area, including Commercial/Industrial, Residential and Low-Income, Workforce Development, and General Awareness.

Financial status of individual programs within the Commercial/Industrial, Residential and Low-Income areas previously presented within this section of NYSERDA's reports has been moved to Sections 3 and 4, respectively, in this quarterly report. This change was made to allow the reader to view financial status information more closely with program progress information. All the disaggregated EEPS program level financial status information presented in previous quarterly reports can be found in this report. Spending for the current quarter is further disaggregated per the DPS EEPS reporting guidelines within NYSERDA's scorecard report, which is filed under separate cover for the first quarter of 2011.

Table 2-5. Financial Status of the EEPS Programs through March 31, 2011
(\$ million)

		Total Budget	Total Funds Spent	% of Budget Spent	Encumbered Funds % of Budget Encumbered	Committed Funds % of Budget Committed
Program¹						
Commercial/Industrial	Electric	207.4	31.3	15.1%	99.1 47.8%	131.5 63.4%
	Gas	24.2	1.9	7.8%	15.1 62.6%	16.0 66.1%
Residential	Electric	32.0	11.3	35.4%	13.1 41.1%	14.4 45.1%
	Gas	53.8	9.5	17.7%	13.9 25.8%	14.8 27.5%
Low-Income	Electric	27.2	13.5	49.8%	14.3 52.7%	15.3 56.2%
	Gas	26.0	4.5	17.5%	6.4 24.6%	8.9 34.5%
Workforce Development		5.8	0.4	7.4%	2.7 47.3%	3.7 63.6%
Subtotal		\$376.2	\$72.5	19.3%	\$164.6 43.8%	\$204.5 54.4%
General Awareness		18.1	4.3	23.5%	18.1 100.0%	35.3 194.9%
Program Total		\$394.4	\$76.7	19.5%	\$182.8 46.3%	\$240.0 60.8%
Other Costs						
Program Administration		31.3	15.6	49.8%	15.6 49.8%	15.6 49.8%
Metrics and Evaluation		21.4	3.4	15.7%	5.0 23.6%	7.3 34.1%
Other Costs Total		\$52.7	18.9	36.0%	20.6 39.1%	22.9 43.4%
Total EEPS Program		\$447.1	\$95.7	21.4%	\$203.4 45.5%	\$262.8 58.8%

¹Program budgets exclude administration and evaluation dollars. Administration and evaluation dollars are summed across programs and included in the Other Costs section of the table.

Totals may not sum exactly due to rounding.

Source: NYSERDA

2.2 Portfolio-Level Findings

This section discusses portfolio-level findings related to progress toward overarching public policy goals, energy savings achievements, and economic analyses including macroeconomic impacts, and overall cost-effectiveness. These findings were compiled based on the cumulative work of NYSERDA and its evaluation contractor teams over the past several years.

2.2.1 Energy, Demand and Fuel Savings Achieved

The energy, peak demand, and fuel savings from the SBC Program portfolio (including both the **New York Energy SmartSM** and the EEPS programs) from 1998 through March 2011 are presented in Table 2-6. The portfolio has achieved 4,929 GWh of cumulative annual electricity savings, and 5.95 million MMBtu of natural gas, fuel oil and other fuel savings. In addition, there are 108 GWh of electricity being generated through renewables. The SBC portfolio has reduced peak demand by 1,858 MW.

The reductions in energy use translate into:

- \$895 million in annual energy bill savings (electric, oil and natural gas) for program participants;
- 2,250 tons of annual nitrogen oxide (NO_x) emission reductions;
- 4,460 tons of annual sulfur dioxide (SO₂) emission reductions; and
- 2.3 million tons of annual carbon dioxide (CO₂) emission reductions, which are equivalent to removing 460,000 automobiles from New York's roadways.

Table 2-6. Cumulative SBC Benefits from Installed Measures through March 31, 2011

Benefits	Through Year-End 2007a	Through Year-End 2008	Through Year-End 2009	Through Year-End 2010	Through March 31, 2011
Electricity Savings from Energy Efficiency and On-Site Generation (Annual GWh)	3,070	3,220	3,820	4,584a	4,929a
Peak Demand Reduction ¹ (MW)	1,200	1,275	1,415	1,765a	1,858a
Permanent Measures (MW)	650	700b	824	1,035a	1,112a
Curtailable ²	550	575	590	729	746
Net Fuel Savings (Annual MMBtu)	4,460,000	5,400,000	4,600,000b	5,810,000a	5,954,000a
Annual Energy Bill Savings to Participating Customers (\$ Million)	\$570	\$590	\$680	\$804	\$895
Renewable Energy Generation (Annual GWh)	106	106	106	106	108
Net Additional Jobs ³	2,917	3,060	3,542	4,077	4,077
NO _x Emissions Reductions (Annual Tons) ⁴	2,570	2,800	3,030	2,130	2,250
SO ₂ Emissions Reductions (Annual Tons) ⁴	4,720	5,120	5,710	4,180	4,460
CO ₂ Emissions Reductions (Annual Tons) ⁴	2,000,000	2,200,000	2,300,000	2,220,000	2,348,000
Equivalent number of cars removed from NY roadways	400,000	435,000	464,000	445,000	460,000

a Savings for the **New York Energy \$martSM** Products Program are estimated based on market data, survey research, and deemed savings values. Savings for this program were last fully captured in 2006. An update, completed and applied in Quarter 1 2009, added electricity, demand, and fuel savings for 2007 appliances only. An update to this analysis is currently under review by NYSERDA and savings for 2008 and 2009 will be added in Q2 2011.

b Fuel savings decreased over year-end 2008 due to the installation of two large combined heat and power facilities through the FlexTech Program.

¹Does not include 11.7 MW of renewable energy generation capacity.

²Curtable MW has decreased due to a reassessment of the impact of the Enabling Technologies Program. MW enabled under the SBC2 program Enabling Technologies for Price Responsive Load was not required to persist beyond the period of the contract. As such, the MWs available have steadily declined since the program's close.

³Figures in this row represent the net additional jobs created through year-end 2010 for the **New York Energy \$martSM** Program only based on a methodology update in 2011. Results for the years previous to 2010 have been restated in this table (from those published in 2010 quarterly and annual reports) to be consistent with the updated methodology. Results of this analysis are found in Section 2.2.4.

⁴These emission reductions are associated with both electric and fossil fuel saving measures. Under a cap-and-trade system, the total number of emission allowances is determined by regulation. Regulated entities can purchase allowances and collectively emit up to the cap that is currently in place. Therefore, in the near term, electric efficiency projects may not decrease the overall amount of emissions going into the atmosphere. Nevertheless, electric efficiency projects will reduce end-users' responsibility or environmental footprint associated with emissions from electricity production. Beginning in Q1 2010, NYSERDA now estimates reductions in emissions of carbon dioxide (CO₂), nitrogen oxides (NO_x), and sulfur dioxide (SO₂) associated with electric efficiency projects based on average emission rates that include emissions associated with imports of electricity. In the past, NYSERDA has reported emissions reductions using marginal emission factors; this transition to average emission factors was performed to be consistent with a footprint reduction framework.

Figure 2-1 and Figure 2-2, respectively, show electricity and demand savings by utility service area for the **New York Energy SmartSM** programs. The National Grid (36%) and Con Edison (31%) service areas show the highest percentages of electricity savings. The same service areas, Con Edison (36%) and National Grid (35%), are also seeing the highest percentages of the overall demand reductions. Both of these figures are based on the cumulative annual savings achieved through March 31, 2011. For certain upstream market transformation and informational programs representing about 32% of the portfolio electricity savings and 15% of the demand reductions, savings were apportioned to utility areas based on incentive dollars.

Figure 2-3 and Figure 2-4, respectively, show electricity and demand savings by utility service area for the EEPS funded programs, through March 31, 2011. The Con Edison (46%) and National Grid (24%) service areas show the highest percentages of electricity savings. For overall demand reductions, the Con Edison (43%) and National Grid (25%) service areas also show the highest percentages.

Figure 2-1. New York Energy \$martSM Electricity Savings by Utility through March 31, 2011

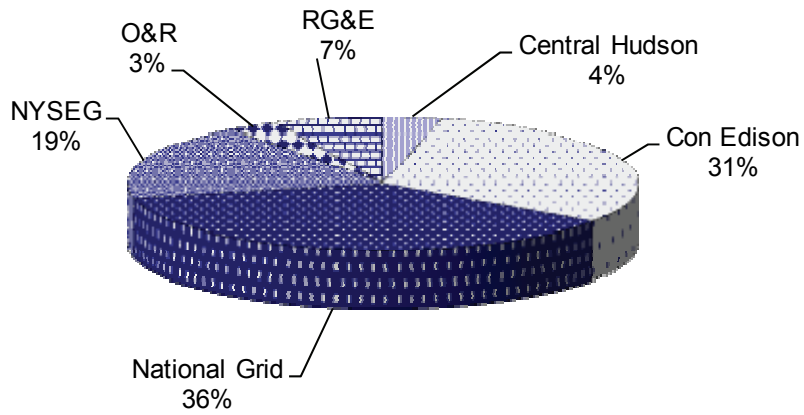


Figure 2-2. New York Energy \$martSM Demand Savings by Utility (includes callable MW) through March 31, 2011

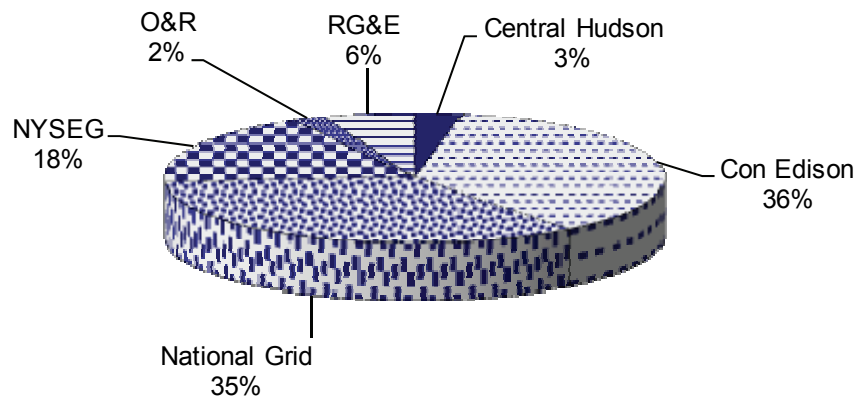


Figure 2-3. EEPS Electricity Savings by Utility through March 31, 2011

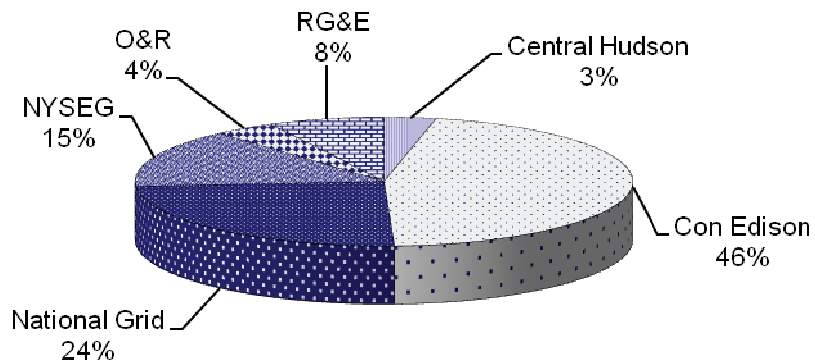


Figure 2-4. EEPS Demand Savings by Utility (includes callable MW) through March 31, 2011

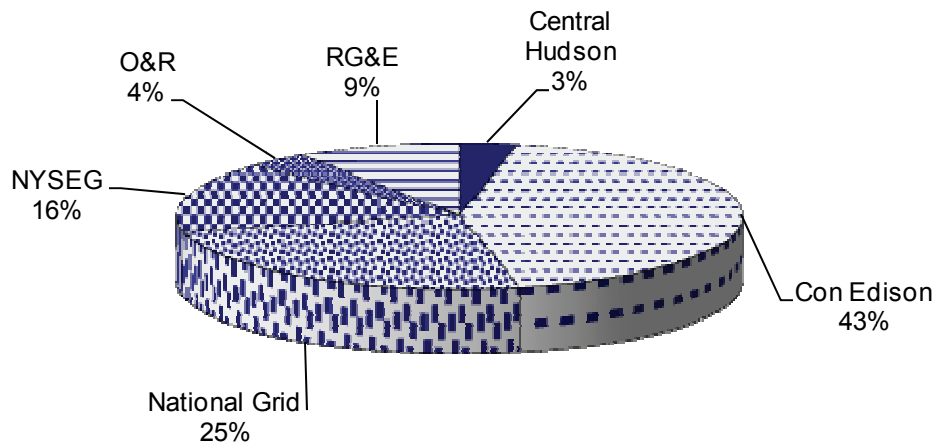


Table 2-7 shows the cumulative annual electricity savings, demand reductions, and other fuel savings from each SBC program, including the **New York Energy SmartSM** and EEPS programs. Entries for Renewable Energy represent clean generation rather than reductions in use.

Table 2-7. Adjusted Cumulative SBC Annual Savings by Program through March 31, 2011

Program	Adjusted Cumulative Annual Savings		
	GWh	MW	MMBtu
Existing Facilities: Permanent	1,561.3	459.5	-66,686a
Existing Facilities: Callable	N/A	509.0	N/A
New York Energy Smart SM Business Partners	121.6	31.8	N/A
New York Energy SmartSM Loan Fund and Financing	87.9	52.0	598,666
New Construction Program	431.8	105.2	254,652
Flex Tech Technical Assistance: Permanent	1,213.7	221.5	3,695,897
Flex Tech Technical Assistance: Curtailable	N/A	137.9	N/A
Industry and Process Efficiency	97.2	15.2	254,174
C/I Sector Overlap Removed	268.4	54.9	169,198
Subtotal Commercial/Industrial	3,245.1	1,477.2	4,567,507
Single Family Home Performance	65.3	20.9	2,227,490
Multifamily Building Performance	122.1	12.8	969,643
Market and Community Support Program	657.6	136.1	296,607
CFL Expansion	588.2	55.5	N/A
EmPower New York Program	62.9	9.4	191,302
Subtotal Residential and Low Income	1,496.2	234.6	3,685,041
DG-CHP Demonstration Program	534.1	96.3	-3,593,578b
Demand Response and Innovative Rate Research	N/A	99.0	N/A
Renewable Energy Production	107.9	11.7	N/A
Subtotal R&D	642.0	207.0	-3,593,578
Cross Sector Overlap Removed	345.9	48.9	-1,295,093
SBC Portfolio	5,037c	1,870c	5,954,062

N/A – not applicable, the energy source is not reduced for the particular program.

a Up to this point, EFP has not tracked ancillary fuel savings or use resulting from installation of electric saving measures. The negative fuel savings shown here represent additional fuel use due to the installation of on-site generation at a very small number of projects that were recently evaluation for impacts. In the future, EFP will begin tracking both fuel saving and use more consistently.

b 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.

c This sum includes 107.9 GWh and 11.7 MW of renewable energy production, whereas the portfolio-level electricity and demand savings from energy efficiency and on-site generation shown in Table 2-6 does not.

2.2.2 New York Energy \$martSM Progress Toward Goals

Overall, the New York Energy \$martSM programs are performing well toward their five-year goals³ 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:

- The C/I programs are showing good progress toward their individual electricity and demand savings goals. Progress on two major programs has exceeded expected levels and other programs are making good progress.
- Within the C/I program area, five 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 making good progress toward these non-energy goals, as well.
- The Residential and Low-Income programs are making good progress toward their individual electricity and fuel savings goals. Two programs have surpassed their electricity goals and others are making progress.
- Twenty-seven 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, having exceeded many of them at this time.
- 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 R&D programs are also tracking well toward these long-term non-energy goals.

2.2.3 New York Energy \$martSM Program Cost-Effectiveness

Introduction

This section presents the portfolio-level benefit/cost analysis of the New York Energy \$martSM Program,⁴ for achieved savings between July 1, 2006 and December 31, 2010.

³ Five-year goals were specified in the *System Benefits Charge Proposed Plan for New York Energy \$martSM 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. As noted earlier, these five-year goals were updated by NYSERDA due to the six-month program extension approved by DPS in Q1 2011. Future reports will be based on the new goals.

⁴ Program-level benefit/cost ratios are provided in the individual program sections.

As in previous years, various benefits were calculated:

- Resource benefits: defined as benefits associated with: (a) reduced electricity generation and capacity, (b) reduced use of fossil fuels, (c) avoided distribution costs, and (d) CO₂ reduction.⁵
- Non-Energy Impacts (NEI): measured as customers' perception of value associated with benefits such as lower maintenance costs, increased productivity, and health benefits.
- Price Suppression Effect: the increased disposable income and lowered production costs to residential and business customers that result from the slightly lower system-wide electricity prices caused by efficiency installations.
- Macroeconomic Impact: measured as the change in gross state product (GSP). This represents the net increase in employment income and profits that result from spending and energy savings associated with the Program.

Benefit/Cost Terms

This section provides definitions of benefit/cost terms and describes how certain concepts were applied to this year's analysis.

Avoided Electric Energy Costs. The New York Independent System Operator (NYISO) day-ahead (DA) clearing prices were weighted by load to estimate avoided energy costs. The forecast of energy prices was obtained from Department of Public Service (DPS) staff.⁶ The avoided energy costs used in the analysis are shown in Appendix C. Costs include reserve margin requirements. For cooling measures, avoided costs were increased by 20% to reflect higher energy prices during summer on-peak periods.

Avoided Electric Capacity Costs. Avoided capacity costs were based on clearing prices in the NYISO capacity auctions. The forecast of capacity prices was obtained from DPS Staff.⁷ The avoided capacity costs are also shown in Appendix C. Costs include reserve margin requirements.

⁵ The CO₂ benefit for electric savings was estimated to be \$15 per ton of CO₂ in 2008 dollars. Each MWh of energy efficiency was estimated to avoid 0.5 tons of CO₂ emissions.

⁶ Updated in December 2008.

⁷ Updated in December 2008.

Avoided Transmission & Distribution (T&D) Costs. The avoided cost estimates of primary lines and distribution substations, determined by DPS Staff, were applied at the rate of \$33.48 per kW-year upstate and \$100 per kW-year in New York City.⁸

Discount Rate. A real discount rate of 5.5% was applied to present value costs and savings.

Line Loss Factor. Line loss was estimated to be 7.2% of electricity generation. The line loss is represented in the avoided energy and capacity costs shown in Appendix C.

Macroeconomic Benefits. Macroeconomic benefits result primarily from lower energy bills and consumer spending of bill savings. The metric used to measure macroeconomic benefit was the change in gross state product (GSP). This metric consists of labor income (employee compensation and proprietor income), property income (interest, rental income, royalties, dividends, and profits), and indirect business taxes (primarily sales and excise taxes). The macroeconomic impact section of this report describes the methodology. For the benefit/cost analysis in this section, the portfolio impacts were adjusted to remove R&D program spending.

Natural Gas Forecast. The forecast of wholesale natural gas prices are shown in Appendix C.

Net Savings. All savings shown in this section have been previously evaluated and are net of freeridership and spillover.

New York Energy SmartSM Spending. Also referred to as NYSERDA spending, this includes incentives paid to customers, cost of implementation contractors, cost of information-only programs, and costs associated with general awareness, and NYSERDA administration and evaluation, and the NYS cost recovery fee. The spending in this section does not include Research & Development Program funding.

Non-Energy Impacts. Non-energy impacts include benefits such as comfort, safety, and productivity.

Program Administrator Cost (PAC) Test. This test divides the present value of the benefits by NYSERDA spending.

⁸ Updated in December 2008.

Total Resource Cost (TRC) Test. This test divides the present value of the benefits by both the NYSERDA spending and customer co-funding.

Results of the Benefit/Cost Analysis

The energy savings, measure costs, and customer co-funding for the portfolio analysis were derived from energy savings achieved between July 1, 2006 through year-end 2010 from the following eight programs:

1. Existing Facilities Program (C/I)
2. New Construction Program (C/I)
3. Flex Tech (C/I)
4. Home Performance (Market Rate and Low-Income)
5. New York ENERGY STAR[®] Homes (Market Rate and Low-Income)
6. Multifamily Performance Program (Market Rate and Low-Income)
7. Assisted Multifamily Performance Program (Low-Income)
8. EmPower (Low-Income)

These eight programs represent the bulk of energy efficiency spending. As shown in Table 2-8, the programs represent 89% of the energy efficiency spending in 2010. The remainder of the spending represents the spending for information-only programs. The three C/I programs represent 84% of C/I spending in 2010. The residential market rate spending represents 92% of the spending in that sector and the low-income spending represents 95% of the spending in that sector.

Table 2-8. Representativeness of Programs in the B/C Analysis

	2010 Energy Efficiency Program Spending	2010 Spending by Programs Included in B/C Analysis	% of Spending Represented by Programs in B/C Analysis
C/I Programs	\$49.8	\$41.7	84%
Residential Market-Rate Programs	\$15.6	\$14.3	92%
Low-Income	\$38.6	\$36.7	95%
Total	\$104.0	\$92.7	89%

The cumulative energy, capacity, and natural gas savings from the eight programs are shown in Table 2-9. The cumulative annual savings achieved are 1,757 GWh per year of electricity, 486

MW of on-peak capacity, 199 MW of curtailable load, 2,348 BBtus of natural gas, and 976 million gallons of water.

Table 2-9. Cumulative Savings from July 1, 2006 through Year-End 2010

	Cumulative Annual Electricity Savings (GWh/Year)	Capacity Savings from Energy Efficiency (MW-Year)	Capacity Savings from Curtailable Load (MW-Year)	Natural Gas (BBtu/Year)
C/I	1,433	466	199	167
Residential (Market Rate and Low-Income)	324	68	0	2,181
Total	1,757	534	199	2,348

The cumulative program spending between July 1, 2006 and December 31, 2010 is shown in Table 2-10 for the eight programs in the B/C analysis. The NYSERDA spending equaled \$586 million. Customer co-funding equaled \$1,328 million.

Table 2-10. Cumulative Spending from July 1, 2006 through Year-End 2010

	NYSERDA Spending (Constant Millions 2008\$)	Customer Co-Funding (Constant Millions 2008\$)	Ratio of Customer Spending to NYSERDA Spending
Commercial/Industrial Initiatives	\$245.9	\$861.6	3.5
Residential (Market Rate and Low-Income) Initiatives	\$340.1	\$421.3	1.2
Total	\$586.1	\$1,282.9	2.2

The present valued benefits are shown in Table 2-11. The resource benefits equal \$2.5 billion; non-energy impacts equal \$1.1 billion; price suppression effects equal \$169 million, and macroeconomic impacts equal \$2.2 billion.

Benefit/cost ratios are also shown in Table 2-11. The Program Administrator Cost test ratio is 4.3 with resource benefits; 6.2 when non-energy impacts are added, 6.5 when price suppression effects are added, and 10.3 when macroeconomic impacts are added. Similarly, the Total Resource Cost test ratio is 1.3 with resource benefits, 1.9 when non-energy impacts are added, 2.0 when price suppression effects are added, and 3.2 when macroeconomic impacts are added.

Table 2-11. Benefits Summary

Benefit Source	Present Value of Benefits (Constant Millions \$2008)	Cumulative Benefits (across benefit sources) (Constant Millions 2008\$)	Program Administrator Cost (PAC) Test	Total Resource Cost (TRC) Test
Resource Benefits	\$2,493	\$2,293	4.3	1.3
Non-Energy Impacts	\$1,130	\$3,623	6.2	1.9
Price Suppression Effects	\$169	\$3,792	6.5	2.0
Macroeconomic Impacts (GSP)	\$2,241	\$6,032	10.3	3.2

Shown in Table 2-12 is the summary of the cost per kWh analysis conducted for the portfolio and for the C/I and residential sectors. First-year costs were levelized over the lifetime of the energy savings using a discount rate of 5.5%. Also shown are the benefits levelized over the measure lifetime.

When only NYSERDA spending is included, the cost per lifetime kWh is 2.7 cents at the portfolio level. When customer co-funding costs are included, the cost per lifetime kWh is 8.7 cents. The portfolio electricity benefit is 12.5 cents per kWh. Similar costs and benefits per kWh are presented for the C/I and residential sectors.

Table 2-12. Levelized Benefits and Cost per KWh

	C/I Sector	Residential (Market Rate and Low Income) Sector	Portfolio
Electricity Benefits	12.9¢	11.7¢	12.5¢
NYSERDA and Customer Costs	7.3¢	12.6¢	8.7¢
NYSERDA Cost	1.6¢	5.6¢	2.7¢

Notes:

1. Levelized benefits per kWh is the present value of the electricity benefits converted to equal annual payments over the life of the measure divided by the annual kWh savings. Levelized costs per kWh is the first-year costs converted to equal annual payments divided by the annual kWh savings.
2. Benefits and costs were levelized using a discount rate of 5.5%. Higher the discount rate, higher the levelized cost.
3. Electricity benefits included avoided energy costs (63%), avoided capacity costs (19%), avoided distribution costs (12%), and environmental benefits valued at \$15 per ton of CO₂ (6%).
4. Costs represent expenditures associated with installations that occurred between July 1, 2006 through year-end 2010.
5. NYSERDA costs included all program costs, including information-only programs, as well as administration, evaluation, and NYS Cost Recovery fee.
6. Program and customer costs associated with non-electric savings, such as natural gas savings, were excluded. The proportion of costs attributed to electricity was estimated using the proportion of total benefits attributed to electricity.
7. Weighted average measure life was 15.3 years for the C/I sector; 11.8 years for the residential/low-income sector.

Summary

The portfolio level benefit cost ratio of 1.3 (using the lowest level of benefits) is slightly lower than that reported in 2010. The primary reason is the higher weighting of low-income program spending in the portfolio compared to last year. At the portfolio level, the benefit per kWh is 12.5 cents whereas NYSERDA spending represents 2.7 cents per kWh.

2.2.4 New York Energy \$martSM Program Macroeconomic Impact Analysis

This section discusses the macroeconomic impacts of the **New York Energy \$martSM** Program, as well as the cost effectiveness analysis of the deployment programs.

Macroeconomic Impact Analysis – 2010 Update

Expenditures made by NYSERDA and **New York Energy \$martSM** Program participants have substantial macroeconomic impacts that go beyond direct benefits to participants. Purchases of goods and services through the program set off a ripple effect of spending and re-spending that influences many sectors of the New York economy, and the level and distribution of employment and income in the State. Program participants also experience a stream of energy savings from installed efficiency measures that result in increased economic activity throughout New York. The stream of energy savings results in increased disposable income for residential customers and

lower production costs, and hence greater retained earnings, for commercial and industrial customers.

REMI Policy Insight™ ("REMI") Model

Starting in 2009, NYSERDA used the REMI Policy Insight™ ("REMI") model to evaluate the impacts of the **New York Energy SmartSM** Program.⁹ Regional Economic Models, Inc. (REMI) is one of the nation's leading providers of economic forecasting and policy analysis software.

The REMI Policy Insight model is used by multiple state governments, and numerous consulting firms, cities, and universities.

The REMI model is a structural economic forecasting and policy analysis model. It integrates input-output, computable general equilibrium, econometric and economic geography methodologies. The model is dynamic, with forecasts and simulations generated on an annual basis and behavioral responses to compensation, price, and other economic factors.

The model consists of thousands of simultaneous equations. The overall structure of the model can be summarized in five major blocks: (1) Output, (2) Labor and Capital Demand, (3) Population and Labor Supply, (4) Wages, Prices, and Costs, and (5) Market Shares.

Analysis Methodology: Brief Overview

This macroeconomic analysis identifies both the positive and negative economic effects to the New York economy due to the **New York Energy SmartSM** Program. All effects are modeled, and the final result shows the net impacts only.

Positive effects include:

- The increased demand for goods and services resulting from the spending of SBC monies in the New York economy;
- The increased demand for goods and services resulting from the spending of co-funding monies in the New York economy;

⁹ From 2005 through 2008, NYSERDA used the IMPLAN model and emulated the original 2004 analysis conducted by Neenan Associates, *Macroeconomic Impact Analysis of the New York Energy SmartSM Program: An analysis of short-term and longer-term impacts*, August 2004.

- The increased disposable income and lowered production costs to residential and business customers resulting from the stream of electricity, natural gas, and petroleum energy bill savings;
- The increased disposable income and lowered production costs to residential and business customers that result from the slightly lower system-wide electricity prices caused by efficiency installations; and
- The increased disposable income and lowered production cost to residential and business customers that result from utilities avoiding the need to spend on distribution system upgrades.

Negative effects include:

- The decreased disposable income and increased production costs for residents and business owners resulting from electric ratepayer funding of program spending;
- The co-funding cost to residential and business program participants resulting in reduced disposable income and an increased cost of production over the life of the installed efficiency measures; and
- The decreased revenues for companies in the energy industry related to the decreased demand for electricity, natural gas, and petroleum products.

The net macroeconomic impacts are expressed in terms of annual employment¹⁰, personal income¹¹, total industry output¹², and gross state product¹³. Note that the macroeconomic results reported in this section are limited to the impacts that are most directly associated with the Program expenditures and the annual energy savings due to those expenditures. The analysis does not capture the more indirect and long-term potential impacts that may result from more widespread market transformation (*i.e.*, permanent adoption of new energy efficiency measures as the status quo in the marketplace).

Results of Analysis

This analysis estimates historical and future impacts of program expenditures through 2010, rather than through the end of the Program. The Program is assumed to completely end after

¹⁰ Employment comprises estimates of the number of jobs, full-time plus part-time, by place of work. Employees, sole proprietors, and active partners are included, but unpaid family workers and volunteers are not included.

¹¹ Personal Income is the income that is received by all persons from all sources. It is calculated as the sum of wage and salary disbursements and related supplements, proprietors' income, rental income, personal dividend income, personal interest income, and personal current transfer receipts, less contributions for government social insurance.

¹² Total industry output is the value of total sales revenue, which includes both final and intermediate goods and services. It can be measured as the total value of purchases by intermediate and final consumers.

¹³ Gross state product includes the components of Labor Income (employee compensation and proprietor income) plus property income (interest, rental income, royalties, dividends, and profits) and indirect business taxes (primarily sales and excise taxes).

2010. This method provides a level of transparency to allow for the evaluation of impacts of Program efforts through 2010 only. This is also consistent with most other evaluation activities.

Results of the macroeconomic analysis, encompassing 12 years of program implementation (1999-2010) and 14 years following the assumed end of Program spending (2011 to 2024), indicate that the **New York Energy SmartSM** Program has provided and will continue to provide net macroeconomic benefits to New York in the form of increased employment, personal income, total output, and gross state product. Table 2-13 indicates that the **New York Energy SmartSM** Program has created 4,077 jobs through 2010 compared to the number of jobs that would have existed in the absence of the program. In addition, in 2010, the Program increased personal income by \$323 million, total output by \$604 million, and gross state product by \$390 million.

Table 2-13. Summary of Macroeconomic Impacts of the New York Energy SmartSM Program (Constant 2010\$)

Economic Variable	in 2010	through 2010	Total through 2024 (assumes program spending ends in 2010)
Net Additional Jobs	4,077	4,077	n/a
Net Additional Jobs Years	3,819	24,315	69,114
Personal Income	\$323 million	\$1.74 billion	\$6.14 billion
Gross State Product	\$390 million	\$2.13 billion	\$6.85 billion
Total Output	\$604 million	\$3.34 billion	\$10.80 billion

Employment Results

Results of the analysis indicate that the **New York Energy SmartSM** Program provides substantial net macroeconomic benefits to New York in the form of increased employment, both during program spending (1999-2010) and throughout the years examined following implementation (2011-2024), during which the energy consumers continue to experience energy bill savings associated with the previous installation of efficiency measures. As shown in Table 2-13, the **New York Energy SmartSM** Program is estimated to create approximately 4,077 jobs through 2010, compared to the estimated number of jobs that would have existed in the absence of the Program. Figure 2-5 shows estimated net additional jobs created by year, and also shows the contribution to the overall result of each modeled input variable. Due to its activities through 2010, the Program is estimated to create more than 69,114 net job years through 2024, which is the assumed end of life of all energy efficiency measures installed.

Figure 2-5. 2010 Update – Net Employment Impacts by Year

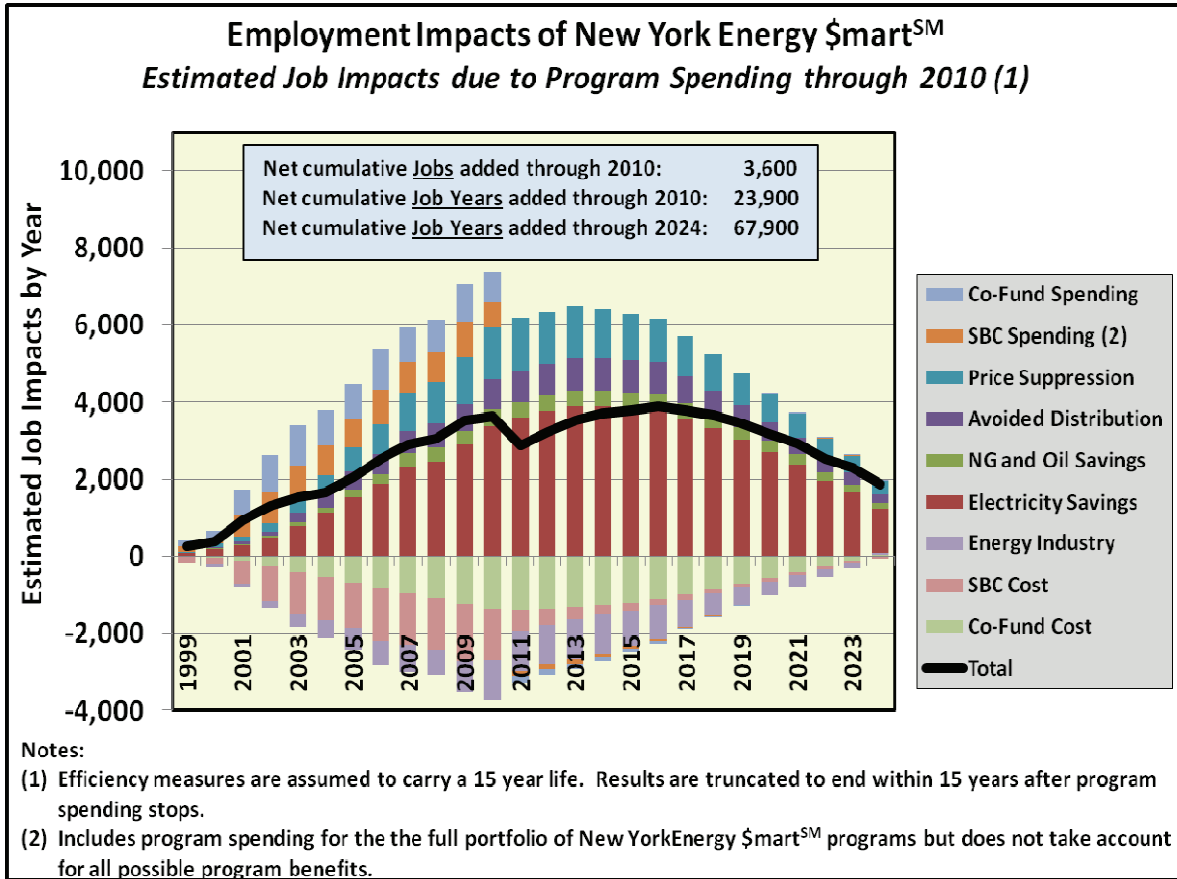


Table 2-14 shows the 2010 net job additions by occupation category. Job creation is scattered and widespread, although the largest job creation activity occurs in the "Retail Trade" category. A significant number of jobs are also created in the "Health Care and Social Assistance"; "Accommodation and Food Service"; and "Professional and Technical Services" categories.

Table 2-14. 2010 Net Job Additions by Aggregated Sector

Sector	Jobs
Retail Trade	555
Health Care and Social Assistance	475
Accommodation and Food Service	438
Professional and Technical Services	405
State and Local Government	322
Other Services, except Public Administration	255
Construction	248
Real Estate and Rental and Leasing	241
Educational Services	189
Manufacturing	177
Administrative and Waste Services	176
Finance and Insurance	90
Arts, Entertainment, and Recreation	85
Wholesale Trade	71
Transportation and Warehousing	68
Information	57
Management of Companies and Enterprises	34
Forestry, Fishing, and Related Activity	1
Mining	-7
Utilities	-242
Total	3,638

Changes in Methodology from Last Year's Analysis

Two significant changes were made to the analysis methodology compared to last year's analysis. On a net basis, the changes resulted in lower overall positive macroeconomic impacts.

1. Based on an April 18, 2007 PSC Order on "Revenue Decoupling" (Case 03-E-0640), electric and natural gas utilities are required to incorporate a revenue decoupling mechanism (RDM) into their rate structures. RDM provides a mechanism for utilities to recover revenue losses due to the reduced sales associated with installation of energy efficiency measures. As of February 2011, almost all electric utilities had filed an RDM. To account for RDM, the analysis assumes that while program participants receive the full benefit of retail bill savings, revenue losses due to energy efficiency installations are charged across the entire customer base, including both participants and non-

- participants. The RDM results in lower overall positive macroeconomic benefits to the state.
2. The installation of efficiency measures benefit ratepayers by avoiding the need for utilities to invest in certain distribution system upgrades. This results in lower bills for all ratepayers, and leads to a modestly higher overall positive macroeconomic benefit to the state.

2.3 Workforce Development

In its June 2009 *Order Authorizing Workforce Development Initiatives*¹⁴, the Commission approved a Workforce Development (WFD) Program to be administered by NYSERDA. The goals of the program are to overcome the barriers to workforce training and to expand the existing energy efficiency training infrastructure across New York State. An additional goal is to increase employment opportunities in energy efficiency occupations in New York, especially among underserved populations. These program efforts will provide the present and future workforce with the technical skills necessary to serve the needs of the portfolio of programs funded through the EEPS. This training will primarily be delivered through a network of Training Partners chosen through a competitive solicitation and open enrollment solicitation.

PON 1816 for Workforce Development and Training Partnerships for Energy Efficiency was revised and rereleased in December 2010, streamlining the application process and incorporating an additional \$1.65 million from Green Jobs Green New York (GJGNY), primarily in support of Worker Readiness training. During the first quarter of 2011, the program received three partnership proposals from training organizations, primarily targeting the Worker Readiness training. These proposals are currently under review, bringing the number of proposals to 36 and exhausting funding for the Basic Skills and Technical Training area. To date, 60 proposals for individual certification and training reimbursement have also been awarded. In addition to these training areas, PON 1816 offered \$600,000 in funding to support construction of pressure/lab houses to expand field testing capabilities across the state. To date, \$2.7 million (82%) of the total PON 1816 budget has been requested and \$2.3 million (71%) has been approved.

¹⁴Case 07-M-0548 Proceeding on Motion of the Commission Regarding an Energy Efficiency Portfolio Standard, *Order Authorizing Workforce Development* initiatives, issued June 22, 2009.

Under PON 1817, Energy Efficiency Career Pathways Training and Technical Training¹⁵, NYSERDA has successfully executed an EEPS workforce contract with the International Brotherhood of Electrical Workers Union (IBEW), and four Career Pathways and four Technical Training contracts. NYSERDA continues to negotiate and execute the remaining EEPS contracts resulting from this PON, and a number of contractors are beginning work.

With the twenty-four training partners currently operating with approved contracts under PON 1816 and eight under PON 1817, the program is expected to expand its diversity of training offerings in the next quarter throughout the state. Although the number and locations of all upcoming training are still being finalized, NYSERDA expects to exceed the original estimate that the program will train 6200 participants. Expectations are that 8,813 participants will be trained through 529 training modules funded under PONs 1816 and 1817. In addition, the WFD program is expected to generate more partnerships with allied agencies, advocacy groups, and trade organizations to help further diversify training opportunities. Plans are underway to expand the training facilities to new locations, especially networks of community colleges.

¹⁵ This PON, released in May 2010 and closed in August 2010, solicited contractors to develop and deliver curriculum for the EEPS WFD and Green Jobs/Green NY (GJGNY) programs, particularly for the Career Pathways sub-population. The number reflects the EEPS funded programs only. Two contracts were developed under GJGNY funding.

3 Commercial/Industrial Programs

3.1 Commercial/Industrial (C/I) Evaluation Activities

During the first quarter of 2011, NYSERDA completed its annual cost effectiveness analyses on the **New York Energy SmartSM** programs, including Existing Facilities, Business Partners, New Construction and FlexTech programs. NYSERDA's Process Evaluation Team, Research Into Action, also completed the second of three waves of a study on the Industrial Process Efficiency (IPE) Program. Results from these completed activities are highlighted with this section.

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

- Market characterization and assessment evaluations on the Existing Facilities, Business Partners, FlexTech, and Industrial and Process Efficiency programs;
- Process evaluations on Business Partners, New Construction, Industry and Process Efficiency, and Workforce Development¹ programs; and
- Impact studies on Existing Facilities, FlexTech, Industry and Process Efficiency, New Construction, Energy Smart Focus (Benchmarking) and Business Partners (Lighting) programs, as well as a C/I Nonparticipant Spillover study.

3.2 Summary of Commercial/Industrial Program Budget and Spending Status

Table 3-1 presents detailed budget and funding information for the **New York Energy SmartSM** C/I programs. Table 3-2 presents the same information for EEPS programs.

¹This study is being jointly conducted as a process and market characterization/assessment effort.

Table 3-1. Commercial/Industrial Programs – New York Energy SmartSM Financial Status through March 31, 2011 (\$ million)

Program	Budget ¹			Funds Spent			Encumbered Funds ⁴ % of Budget Encumbered	Committed Funds ⁵ % of Budget Committed
	SBC I & SBC II ²	SBC III ³	Total Budget	SBC I & SBC II ²	SBC III ³	Total Funds Spent		
Existing Facilities ⁶	135.4	164.6	300.0	135.4	90.2	225.6 75.2%	272.9 91.0%	285.6 95.2%
New York Energy Smart SM Business Partners	21.1	22.8	43.9	21.1	13.9	35.0 79.8%	39.2 89.5%	39.8 90.7%
Loan Fund and Financing	12.3	31.3	43.7	12.3	26.0	38.4 87.9%	41.6 95.2%	42.7 97.9%
Energy Smart Focus	4.8	17.0	21.9	4.8	11.9	16.7 76.5%	18.7 85.6%	19.4 88.5%
New Construction Program	53.1	119.3	172.4	53.1	64.7	117.8 68.3%	155.3 90.1%	167.3 97.1%
FlexTech Technical Assistance	20.4	30.7	51.1	20.4	14.6	35.0 68.4%	39.4 77.1%	39.7 77.7%
Total Commercial & Industrial	\$247.1	\$385.8	\$632.9	\$247.1	\$221.3	\$468.4 74.0%	\$567.1 89.6%	\$594.5 93.9%

¹ Reflects carryover in funds and reallocation as approved by the PSC in 2007.

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 Encumbered funds associated with signed contracts and purchase orders.

⁵ Committed funds associated with encumbered funds and pending contracts.

⁶ Existing Facilities Program (EFP) was formed by merging the Peak Load Management and Enhanced Commercial/Industrial Performance (ECIPP) programs.

Totals may not sum exactly due to rounding.

Source: NYSERDA

Table 3-2. Financial Status of the EEPS Commercial/Industrial Programs through March 31, 2011 (\$ million)

		Total Budget	Total Funds Spent	% of Budget Spent	Encumbered Funds % of Budget Encumbered	Committed Funds % of Budget Committed
Program¹						
Existing Facilities	Electric	23.2	7.2	31.0%	16.3 70.2%	18.0 77.4%
	Gas	3.6	0.1	4.0%	1.7 47.6%	1.9 54.0%
Commercial New Construction Program	Electric	62.7	6.2	9.9%	19.0 30.3%	39.3 62.6%
	Gas	3.7	0.1	1.6%	0.4 9.8%	0.4 10.1%
FlexTech Expansion	Electric	14.9	4.0	27.2%	10.8 73.0%	11.6 77.8%
	Gas	1.6	0.2	13.7%	0.7 42.9%	0.8 52.1%
Industry and Process Efficiency	Electric	92.8	13.7	14.7%	51.9 55.9%	57.1 61.5%
	Gas	14.8	1.5	9.8%	12.3 82.8%	12.7 85.9%
Benchmarking		9.8	<0.1	0.2%	0.1 0.6%	4.5 46.5%
Agriculture	Electric	4.0	0.1	3.2%	0.9 23.6%	1.0 24.7%
	Gas	0.4	<0.1	3.2%	0.1 23.6%	0.1 24.7%
Total Commercial/Industrial		\$231.6	\$33.2	14.3%	\$114.2 49.3%	\$147.4 63.7%

¹Program budgets exclude administration and evaluation dollars.

Totals may not sum exactly due to rounding.

Source: NYSERDA

3.3 Summary of Commercial/Industrial Evaluation Results

3.3.1 Energy, Peak Demand, and Fuel Savings

Tables 3-3 through 3-8 summarize the estimated electricity savings, peak demand reduction, and other fuel savings for each of the C/I sector programs, both **New York Energy SmartSM** and EEPS. Note that individual program savings are not adjusted for program overlaps. To avoid double counting in the total sector-level savings estimates, the amount of overlap among the individual program savings estimates is subtracted at the bottom of the table.

Table 3-3 and Table 3-4 show progress for the **New York Energy SmartSM** and EEPS funded programs, respectively, toward their established goals for electricity savings.

Table 3-5 and Table 3-6 show progress for the **New York Energy SmartSM** and EEPS funded programs, respectively, toward attaining peak demand reductions, as well as percent of the **New York Energy SmartSM** demand reduction goals that have been achieved. Table 3-7 and Table 3-8 show fuel savings achieved by the **New York Energy SmartSM** and EEPS funded programs, respectively, including progress of EEPS-funded programs at achieving their ultimate natural gas targets. Five year fuel savings goals were not set for the **New York Energy SmartSM** programs. EEPS natural gas-funded programs have just begun reporting savings and future reports will continue to show progress toward the EEPS natural gas goals for these programs. Fuel savings reported for the **New York Energy SmartSM** programs include savings for fuels such as oil and natural gas whereas fuel savings reported for the EEPS-funded programs show MMBtu savings for natural gas only.

Table 3-3. New York Energy SmartSM C/I Program Cumulative Annual Electricity Savings through March 31, 2011 and Progress toward Goals

Program	Energy Savings (GWh)				
	Savings Achieved through			Goal (by June 30, 2011) ³	Progress Toward Goal (% achieved)
	June 30, 2006	March 31, 2011	July 1, 2006 through March 31, 2011		
Existing Facilities Program ¹	837.0a	1,508.7	671.7	576b	117%
Business Partners Program	54.1	121.6	67.4	97	70%
Loan Fund and Financing	49.6	87.9	38.2	N/A	N/A
Energy Smart Focus Program	N/A ⁴	N/A ⁴	N/A ⁴	53	0%
New Construction Program	188.1c	420.1	232.0	323d	72%
Flex Tech Technical Assistance	644.1	1,186.7d	542.6d	466e	117%
Overlap Removed²	126.7	268.4	141.7	N/A	N/A
Statewide C/I Total	1,646.3	3,056.6	1,410.2	1,515	93.1%

¹The original Peak Load Management Program, now a component of the Existing Facilities Program, had a goal of 55 GWh in Con Edison, and achieved 60% of the goal as of 4th quarter 2009 at which time it was absorbed into EFP. ECIPP did not have a goal for permanent reduction in Con Edison territory, thus combining the two programs' results in the five-year goal not being applicable.

²Overlap factors were updated in Q1 2008.

³Goals for the **New York Energy SmartSM** Program are specified in NYSEDA's March 2008 and, where applicable, March 2009 operating plans. For some programs, the latest published goal values do not fully reflect adjustments that are necessary to align goals with cross-program funding reallocations approved by DPS since the operating plans were completed. These funding reallocation adjustments and any other necessary updates or corrections to the **New York Energy SmartSM** Program goals will be reflected in NYSEDA's February 28, 2011 revised operating plan and, once approved by DPS, will be used in future evaluation reports as the benchmark for program performance.

⁴Energy Smart Focus is primarily a sector-based energy information and services program. Energy and demand savings that may be attributable to the Focus Program are currently tracked and reported under the other **New York Energy SmartSM** programs.

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 The goal of 576 GWh represents a "post program" goal and reflects expected achievements once all funds are expended.

c These savings were adjusted following an extensive clean-up of the program database, which resulted in a change to the program realization rate.

d The Flex Tech savings shown in the December 2010 annual report were overstated due to an error. The error has been corrected for this quarter.

e The **New York Energy SmartSM** goals for New Construction and Flex Tech were calculated by adding the net SBC3 achievements through Q3 2008 (published in NYSEDA's quarterly report for this time period) to the new SBC goal from NYSEDA's March 12, 2009 Operating Plan.

Totals may not sum exactly due to rounding.

Table 3-4. EEPS C/I Program Cumulative Annual Electricity Savings through March 31, 2011 and Progress toward Goals

Program	Energy Savings (GWh)		
	Savings Achieved through March 31, 2011a	Goal ¹	Progress Toward Goal (% achieved)
Existing Facilities Program: Electric Funding	52.5	146.3	36%
Existing Facilities Program: Ancillary Benefits from Gas Funding	0.1	N/A	N/A
New Construction Program: Electric Funding	11.7	278.9	4%
Flex Tech Technical Assistance: Electric Funding	27.1	267	10%
Industry and Process Efficiency: Electric Funding	97.2	840	12%
Statewide C/I Total	188.6	1,532.2	12%

a The EEPS programs shown in this table began reporting electricity savings in the following months: Existing Facilities in April 2010; New Construction Program in August 2009; Flex Tech in July 2010; and Industry and Process Efficiency in June 2009.

¹ The time frames for achieving savings goals vary by program. For the Existing Facilities Program, the savings goal is through December 31, 2014; for the New Construction Program and FlexTech Program, the savings goals are through December 31, 2015; for the Industry and Process Efficiency Program, the savings goal is through December 31, 2013.

Totals may not sum exactly due to rounding.

Table 3-5. New York Energy SmartSM C/I Program Cumulative Peak Demand Savings through March 31, 2011 and Progress toward Goals

Program	Peak Demand Savings (MW)				
	Savings Achieved through		July 1, 2006 through March 31, 2011	Goal ³	Progress Toward Five-Year Goal (% achieved)
	June 30, 2006 (Cumulative)	March 31, 2011 (Cumulative)			
Existing Facilities Program Permanent ¹	175.0a	447.0	272.0	146b	186%
Existing Facilities: Callable	421.1a	509.0	87.8	285	31%
Business Partners Program	11.8	31.8	20.0	19	105%
Loan Fund and Financing	14.3	52.0	37.7	N/A	N/A
Energy Smart Focus	N/A ⁴	N/A ⁴	N/A ⁴	10	0%
New Construction Program	41.0c	102.4	61.4	38	162%
Flex Tech TA	120.9	216.9d	96.0d	95	101%
Flex Tech TA: Callable	10.2	137.9d	127.8d	N/A	N/A
Overlap Removed²	24.5	54.9	30.4	N/A	N/A
Statewide C/I Total	769.9	1,442.1	672.3	593	113%

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

¹The original Peak Load Management Program, now a component of the Existing Facilities Program, had a goal of 45 MW of permanent reduction in Con Edison, and achieved 26% of the goal as of 4th quarter 2009 at which time it was absorbed into EFP. ECIPP did not have a goal for permanent reduction in Con Edison territory, thus combining the two programs' results in the five-year goal not being applicable.

²Overlap factors were updated in Q1 2008.

³Goals for the New York Energy SmartSM Program are specified in NYSEDA's March 2008 and, where applicable, March 2009 operating plans. For some programs, the latest published goal values do not fully reflect adjustments that are necessary to align goals with cross-program funding reallocations approved by DPS since the operating plans were completed. These funding reallocation adjustments and any other necessary updates or corrections to the New York Energy SmartSM Program goals will be reflected in NYSEDA's February 28, 2011 revised operating plan and, once approved by DPS, will be used in future evaluation reports as the benchmark for program performance.

⁴Energy Smart Focus is primarily a sector-based energy information and services program. Energy and demand savings that may be attributable to the Focus Program are currently tracked and reported under the other New York Energy SmartSM programs.

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 The goal of 146 MW represents a "post program" goal and reflects expected achievements once all funds are expended.

c These savings were adjusted following an extensive clean-up of the program database, which resulted in a change to the program realization rate.

d The Flex Tech savings shown in the December 2010 annual report were overstated due to an error. The error has been corrected for this quarter.

Totals may not sum exactly due to rounding.

Table 3-6. EEPS C/I Program Cumulative Peak Demand Savings through March 31, 2011

Program	Peak Demand Savings (MW)
	Savings Achieved through March 31, 2011
Existing Facilities Program	12.4
New Construction Program	2.8
Flex Tech TA	4.6
Industry and Process Efficiency	15.2
Statewide C/I Total	35.0

Note: There were no EEPS goals for peak demand savings.

Totals may not sum exactly due to rounding.

Table 3-7. New York Energy SmartSM C/I Program Cumulative Annual Fuel Savings through March 31, 2011a

Program	Fuel Savings (MMBtu)
	Savings Achieved through March 31, 2011
Existing Facilities Program	-72,578b
Loan Fund and Financing	598,666
New Construction Program	8,786
Flex Tech Technical Assistance ¹	3,383,958c
Overlap Removed	169,198
Statewide C/I Total	3,749,635

Note: There were no five-year New York Energy SmartSM goals for fuel savings.

¹The 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.

a New York Energy SmartSM MMBtu savings reported in this table include savings for fuels such as oil and natural gas.

b Up to this point, EFP has not tracked ancillary fuel savings or use resulting from installation of electric saving measures. The negative fuel savings shown here represent additional fuel use due to the installation of on-site generation at a very small number of projects that were recently evaluated for impacts. In the future, EFP will begin tracking both fuel saving and use more consistently.

c The Flex Tech savings shown in the December 2010 annual report were overstated due to an error. The error has been corrected for this quarter.

Totals may not sum exactly due to rounding.

Table 3-8. EEPS C/I Program Cumulative Annual Natural Gas Savings March 31, 2011 and Progress toward Goals¹

Program	Natural Gas Savings (MMBtu) ²		
	Savings Achieved through March 31, 2011a	Goal ³	Progress toward Goal (% Achieved)
Existing Facilities Program: Gas funding	5,614	155,927	3.6%
Existing Facilities Program: Ancillary benefits from electric funding	278	N/A	N/A
New Construction Program: Gas funding	0	285,743	0%
New Construction Program: Ancillary benefits from electric funding	245,866	N/A	N/A
Flex Tech Technical Assistance: Gas funding	1,292	381,963	0.3%
Flex Tech Technical Assistance: Ancillary benefits from electric funding	310,648	N/A	N/A
Industry and Process Efficiency: Gas funding	254,174	1,682,265	15.1%
Statewide C/I Total	817,872	2,505,898	33%

¹ The MMBtu savings for EEPS-funded programs presented consist of natural gas only, and these figures do not include savings for other fuels such as oil and propane.

² EEPS natural gas goals and impacts are typically tracked in therms and have been converted to MMBtu units in this report so total impacts can be summed with those from **New York Energy SmartSM** programs for NYSERDA's entire System Benefits Charge portfolio.

³ For the Existing Facilities Program, the savings goal is through December 31, 2013; for the New Construction and Flex Tech programs, savings goals are through December 31, 2015; for the Industrial and Process Efficiency Program, the savings goal is through December 31, 2013. EEPS gas goals and impacts were originally stated in therms and have been converted to MMBtu units so total impacts can be summed with those from **New York Energy SmartSM** programs.

a The EEPS programs shown in this table began reporting natural gas savings in the following months: Existing Facilities in October 2010; FlexTech in July 2010; and Industry and Process Efficiency in April 2010.

3.4 Existing Facilities Program

3.4.1 Program Description

The Existing Facilities Program (EFP) offers performance-based and pre-qualified incentives for a variety of energy projects to customers or ESCOs for electric efficiency, natural gas efficiency, demand response, and combined heat and power (CHP) projects. 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 in existing facilities for energy efficiency and non-building efficiency measures. Demand response incentives cover equipment and technical solutions that enable significant

demand reduction resources and require participation in New York Independent System Operator (NYISO) demand response programs.

3.4.1 Program Accomplishments

With EFP being the product of merging two programs, continued tracking of the original individual programs' goals is no longer possible.² Nevertheless, NYSERDA does track EFP outputs that somewhat parallel the former program goals. A count of EFP customer projects, and the leveraged funds for the entire program since 1999, is listed in Table 3-9.

Table 3-9. Existing Facilities Program – Program Outputs

Output	Value
Customer projects	9,509
Leveraged Funds (\$ million)	\$837 million

3.4.2 Follow-Up On Evaluation Recommendations

There are no recent Existing Facilities evaluation recommendations to report. Any new program evaluation recommendations will be included in future quarterly and annual reports, including information on their status and NYSERDA's response to the recommendation.

3.4.1 Cost-Effectiveness Analysis

The EFP benefit/cost analysis was updated in early 2011, using program savings and costs from July 1, 2006 through year-end 2010.

Table 3-10 shows the electricity and peak demand savings and average measure life used as inputs to the analysis. Table 3-11 shows program and participant costs, and Table 3-12 provides the present value of the benefits included in the analysis. The non-energy impacts were valued at 11% of retail energy cost savings based on a conjoint analysis survey conducted in 2007.

² Although the goals for PLMP (750 customers receiving assistance) and ECIPP (3,300-3,500 customer projects) are similar, they are not the same metric; consequently the goals cannot be merged. As for the ECIPP leveraged funds goal (\$400-\$450 million), the data merge does not permit continued tracking of this information.

As shown in Table 3-13, the Existing Facilities Program is performing well, with a Program Administrator Cost (PAC) Test ratio of 10.8 to 12.7 and a Total Resource Cost (TRC) Test ratio of 1.7 to 2.0. See Section 2.2.3 for definitions of benefit/cost terms and concepts.

Table 3-10. EFP Net Savings from July 1, 2006 through Year-End 2010

Program Component	Average Life of Electric/Natural Gas Savings (Years)	Net Cumulative Annual GWh/Year	Net Cumulative MW	Net Cumulative MMBtu Savings	% Downstate (Con Edison)
EFP	15 for electricity, 15 for natural gas, 6 for curtailable load	651	330 total. 240.5 from energy efficiency, 89.5 from curtailable load	-76,426	23% of energy efficiency, 40% of curtailable load

Table 3-11. EFP Participant and Program Cost from July 1, 2006 through Year-End 2010

Program Component	NYSERDA Spending (Constant Millions 2008\$)	Customer Co-Funding (Constant Millions 2008\$)
EFP	\$86.9	\$453.7

Table 3-12. EFP Present Value of Benefits (from savings installed between July 1, 2006 through Year-End 2010)

Program Component	Present Value of Avoided Energy, Capacity, Distribution, and CO ₂ Costs (Constant Millions 2008\$)	Present Value of Non-Energy Impacts (NEI) (Constant Millions 2008\$)	Total Benefits
EFP	\$933.9	\$169.1	\$1,103.0

a NEI impacts were valued at 11% of retail energy cost savings based on a conjoint analysis survey conducted in 2007.

Table 3-13. EFP Benefit/Cost Ratios

Program Administrator Cost (PAC) Test	Total Resource Cost (TRC) Test
10.8 to 12.7a	1.7 to 2.0a

a The lower number incorporates resource benefits only. The higher number incorporates both resource benefits and non-energy impact.

3.5 New York Energy SmartSM Business Partners

3.5.1 Program Description

The New York Energy SmartSM Business Partners Program is a consolidation of the Commercial Lighting Program (CLP), Premium Efficiency Motors (PEM) Program, the Commercial HVAC Program, and the Innovative Opportunities Program. This new program focuses on market development. New York Energy SmartSM 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 businesses in a highly competitive marketplace, while assuring appropriate quality control mechanisms. 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 drive greater activity in NYSERDA's customer-targeted programs.

3.5.1 Program Accomplishments

Table 3-14 shows the Business Partners Program goal to sign up 1,800 partners between July 1, 2006 and June 30, 2011. Although more than 800 allies are currently participating in the commercial lighting program element, a total of 253 partners have signed up since July 1, 2006.

Table 3-14. New York Energy SmartSM Business Partners Program – Goals and Achievements

Activity	Program Goals (July 1, 2006 through June 30, 2011)	Achieved July 1, 2006 through March 31, 2011	% of Goal Achieved
Business Partners (signed up)	1,800	401	22%

3.5.2 Follow-Up on Evaluation Recommendations

There are currently no outstanding business Partners evaluation recommendations. Any new program evaluation recommendations will be included in future quarterly and annual reports.

3.6 New York Energy \$martSM Loan Fund and Financing Program

3.6.1 Program Description

The now closed New York Energy \$martSM Loan Fund and Financing Program expanded the availability of low-interest capital to help implement energy-efficiency projects and process improvements. Lenders enrolled in the program by signing participation agreements 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 included tools to allow lenders to calculate the cash flow advantages their customers would gain from making energy-efficiency improvements. The Green Jobs-Green New York Program now offered by NYSERDA will provide continued financing mechanisms for customers wishing to make energy related improvements to their buildings or facilities.

3.6.2 Program Accomplishments

Table 3-15 highlights the Loan Fund’s five-year goals and accomplishments as of March 31, 2011. The Program surpassed its goal to sign up 75 lenders and has also met its goal for the dollar value leveraged by closed loans in the commercial and industrial sector. Although the number of commercial/industrial loans was in line with expectations, projects were much larger than anticipated. The Loan Fund per-project cap remained unchanged, but the loan amounts were larger than projected.

Table 3-15. New York Energy \$martSM Loan Fund and Financing Program – Goals and Achievements

Activity	Program Goals (July 1, 2006 through June 30, 2011)	Achieved July 1, 2006 through March 31, 2011	% of Goal Achieved
Customers receiving assistance (closed commercial/industrial loans)	550	292	53%
Participating lenders (signed participation agreements)	75	151	>100%
Leveraged loan amount (for closed commercial/industrial loans)	\$60 million	\$106 million	>100%

3.7 Energy Smart Focus Program

3.7.1 Program Description

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 uses existing core **New York Energy SmartSM** 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, tools and resource training, partnerships with trade associations, and integration with regional and national efforts.

3.7.1 Program Accomplishments

Table 3-16 shows the Energy Smart Focus Program five-year goal for participants receiving assistance. The Program has achieved 26% of its goal. Nevertheless, only the Energy Smart Schools Program element existed prior to July 2006 and, thus, services to other sectors have taken time to fully ramp up. Also shown are the Focus Program sector partnerships that have been developed. Partnerships include outside organizations, associations, agencies, utility account executives, supply chain partners and others who have pledged to assist in the development, promotion, and execution of the Energy Smart Focus Program.

Table 3-16. New York Energy SmartSM Focus Program – Goals and Achievements

Activity	Program Goals (July 1, 2006 through June 30, 2011)	Achieved July 1, 2006 through March 31, 2011	% of Goal Achieved
Participants Receiving Assistance	24,000	5,360	26%
Focus Sector Partnerships ¹	N/A	1,150	N/A

¹This metric was not part of the original SBC3 Operating Plan goals.

Table 3-17 shows the number of new projects brought into other NYSERDA programs by the Focus Program during the first quarter of 2011 and cumulatively to date.

Table 3-17. Projects Brought into Other NYSERDA Programs¹

Focus Sector	Number of 1st Quarter Projects	Total Projects to Date (cumulative)
Colleges and Universities	13	90
Commercial Real Estate	10	189
Healthcare	35	102
Hospitality	13	183
Industrial	40	142
Institutions	66	143
Water and Wastewater	7	53
Total	184	902

¹Programs include Existing Facilities, FlexTech, and New Construction.

3.7.2 Sector Highlights

As a sector-based energy information and services program, metrics of success are difficult to quantify for the Focus Program. Still, achievements are presented within this section in the context of sector highlights. While not quantifiable, these activities and achievements are indicative of success in penetrating the market and influencing the energy efficiency of individual sectors.

Focus on Colleges and Universities (C&U)

The Focus on Colleges and Universities program has been expanding outreach efforts to identify energy efficiency projects. The following selected activities have been completed to date:

- Eighty-seven one-on-one campus meetings completed to date representing 63 separate institutions;
- Seven presentations were made to five C&U organizations and their members; and
- Interaction with other Focus efforts have included 12 meetings passed along to Focus on Data Centers and Focus on Hospitality.

Focus on Commercial Real Estate (CRE)

In the first quarter of 2011, the Focus CRE team concentrated on conducting outreach to both new and existing clients, supporting projects and program applications, and working with NYSERDA to improve upon the Focus CRE approach. These efforts resulted in a significant increase in owner, manager, and tenant interest in NYSERDA programs, which should drive program applications through the remainder of the contract period. The following are highlights of key activities performed to date:

- Focus CRE continues to provide account management services to serve the 28 participating portfolios. These portfolios contain 451 buildings and 259 million square feet. These clients include owners, managers, and major tenants that are involved in multiple projects with NYSERDA programs;
- During the first quarter of 2011, Focus CRE recruited five new major portfolio clients:
 - CB Richard Ellis (22 buildings and 54.9 million square feet)
 - Fisher Brothers (28 buildings and 8.0 million square feet)
 - Rudin Management (4 buildings and 4.8 million square feet)
 - RXR Realty (35 buildings and 7.9 million square feet)
 - Swig Equities (7 buildings and 3.0 million square feet)
- Focus CRE conducted 12 outreach meetings this quarter, with existing Focus CRE accounts and potential new clients;
- Presented at conferences and industry events, including the Building Operators and Managers Association (BOMA) Energy Action Day, the New York University Conference on Sustainable Real Estate, Baruch College event, Cities as Accelerators of Sustainable Development, the New York Academy of Science's Net Zero Energy Buildings event, and the American Institute of Architects (AIA) event on Local Law 84.

Focus on Healthcare

Luthin Associates has assisted in outreach and marketing activities with National Grid and NYSERDA in the Energy Efficiency for Health initiative. During the First Quarter of 2011, Luthin has supported both

NYSERDA and National Grid in the implementation and successful outreach of this initiative to New York hospital facilities. Activities to date include:

- Held a lighting seminar that was hosted by Memorial Sloan Kettering Cancer Center. The seminar was attended by 79 people, including 45 who represented healthcare facilities, *i.e.*, energy users. The feedback from the attendees was very positive. Of the 19 responders who commented on six different areas, 30% reported “Exceeds Expectations,” with the remainder believing the conference met their expectations. A second session is scheduled to be held in Syracuse in May.
- The Focus on Healthcare program (excluding National Grid applications within the *Energy Efficiency for Health* initiative) has contributed to NYSERDA program applications that are estimated to result in approximately 242 GWh and 39.5 MW of energy reductions.

Focus on Industrial and Process

The Focus on Industrial and Process Program was initiated in October 2009. The program focuses on outreach efforts to expand awareness of the benefits of energy efficiency and NYSERDA programs at manufacturing and data center sites. Activities and actions to date include:

- Employed various market research strategies to assist in identifying potential customers and technologies customers may implement that result in energy savings;
- Contacted technical vendors and trade organizations within various industries across the state regarding calls for papers and potential paper topics for NYSERDA;
- Researched upcoming industry-related conferences and/or trade shows for NYSERDA participation;
- Six new projects were brought into the Con Edison NYSERDA Data Center Efficiency Program for an estimated savings of 2.8 GWh;
- Finalized Compressed Air presentation and initiatives for the coming year;
- Presentations conducted at the Capital District Engineers Week for Compressed Air Energy Efficiency and Lining LEAN to Energy Efficiency;
- Maintained contact and follow-up with 17 industrial customers and 47 data center customers to ensure progression of active projects.

Focus on Institutions

In the first quarter of 2011, the Focus on K-12 Schools continued its outreach, training, and consultation to New York's K-12 public and private schools. Some of the most significant accomplishments during this quarter include a NY-CHPS Indoor Environmental Quality Study at the Ravena-Coeymans-Selkirk central school district (CSD), the approval of four ENERGY STAR Leader Award Applications from three school districts by the U.S. EPA, and the completion of one Strategic Weapons and Training (SWAT) visit to the Nightingale-Bamford (private) School in New York City. These SWAT visits include a senior engineer and at least one junior engineer to conduct a one-day site visit to visually review and inspect the facilities, of eligible K-12 Schools.

The Focus on K-12 Schools program continued to expand its benchmarking effort and added an additional 10 new schools from five new districts. Benchmarking effort during the first quarter have identified and assisted 10 districts submit applications for 29 school buildings to receive the ENERGY STAR® Label for Buildings (27 of which were approved by the end of the first quarter). The program helped the West Irondequoit CSD submit an ENERGY STAR Leader Award, and also traveled onsite to the Highland Falls-Fort Montgomery CSD in order to provide the EPA review team with complete data to approve the district's 10% Improvement Leader Award. This brings the totals to: 1,009 schools across 229 districts have benchmarked through the Focus Program; 155 school buildings have received a total of 274 building labels for their excellence in energy efficiency; and 14 districts have been awarded 28 ENERGY STAR leader awards.

Focus on Water and Wastewater

The Focus on Water and Wastewater program has been focusing on both utility staff and elected officials to expand awareness of the benefits of energy efficiency and NYSERDA programs at Water and Wastewater Treatment Plants. The following items represent a sampling of activities completed to date:

- Formulated partnerships with 27 members of the Infrastructure Alliance (including outside organizations, associations, agencies, etc.);
- Over 140 attendees trained at conferences;
- Over 155 Best Practices Handbooks distributed; and
- Seventy million gallons/day of wastewater design flow have serviced over 650,000 people under the outreach to large facilities.

3.8 New Construction Program

3.8.1 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-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 and Leadership in Energy and Environmental Design (LEED) and New York – Collaborative for High Performance Schools (NY-CHPS) certification projects. In early 2009, Energy Efficiency Portfolio Standard (EEPS) funds were added to expand NCP as one of NYSERDA’s Fast Track programs.

3.8.1 Program Accomplishments

The NCP continues to monitor three key non-energy metrics to assess their growth as a proxy for program expansion. Table 3-18 shows these metrics and their current status. Overall, these measures continue to show progress over time, corresponding with program growth.

Table 3-18. New Construction Program – Key Activities

Activity	Achieved July 1, 2006 through March 31, 2011
Customers receiving assistance (completed projects)	582
Construction market affected (square feet)	61,420,000
Participating Architecture and Engineering (A&E) firms (completed projects)	931

3.8.2 Follow-up on Evaluation Recommendations

Table 3-19 presents a summary of NCP recommendations resulting from the process evaluation completed in fall 2010. This table also provides the status of each recommendation (*i.e.*, if a recommendation already has been adopted, if it will be adopted in the future, or if it will not be adopted) as well as a response from program staff to each recommendation. Per DPS quarterly and annual

reporting guidelines, these program recommendations will be revisited with program staff and updated, as applicable, on a quarterly basis.

Table 3-19: New Construction Program Evaluation Recommendations and Status

Source of Recommendation (Contractor, Report Title, Date)	Recommendation	Status	Program Implementer Response to Recommendation and Adoption Decision Rationale
Research Into Action, New Construction Process Evaluation Report, November 2010	The NCP should focus on finding solutions in two problem areas – enrolling projects at the optimal time in the design phase and finding ways to ensure that scoping meetings, TA tasks, and Notices to Proceed run as efficiently as possible.	Plan to adopt	The new OPC marketing effort has significantly increased the number of leads and applications compared to the same period a year ago. NCP is in discussion with Contracts and Legal regarding the task work order and Notice to Proceed approval procedures to streamline the process. Scoping meetings are being tracked through the NCP Project calendar. Marketing presentations and lead generation are tracked monthly through the Buildings Portal website.
Research Into Action, New Construction, Process Evaluation Report, November 2010	In planning its steps to integrate new staff and contractors with the program, NCP needs to pay careful attention to establishing clear lines of review and authority, accountability, marketing skills, policy consistency, and placing a high priority on how to meet project schedules. New and old team members should all participate in training and other communications that emphasize consistent team approaches and skill-building.	Adopted	TA training is ongoing through webinars, and most recently focused on the new Total Resource Cost calculation templates. NCP administration has reinforced the Senior Project Managers as primary decision makers for NCP operational issues, simplifying the internal process. Work in other areas is as described in the previous update for this section.
Research Into Action, New Construction Process Evaluation Report, November 2010	There is a lack of clarity among staff regarding NCP goals, particularly between goals of market transformation and savings acquisition. NCP management should spend time discussing how to manage and clarify these goal areas, especially during a time when savings acquisition and serving smaller projects are key EEPS goals	Plan to adopt	The Total Resource Cost calculators have been integrated into the program energy analysis work. The NCP monthly savings graph shows a consistently increasing curve as compared to the gigawatt hour and therm program goals. NCP staff and consultants are routinely reminded that EEPS goals are primarily oriented toward savings acquisition. NCP is in initial discussions with DPS on how to pre-commit savings earlier in the process.

3.8.1 Cost-Effectiveness Analysis

The NCP benefit/cost analysis was updated in early 2011 using program savings and costs from July 1, 2006 through year-end 2010. Table 3-20 shows the electricity and demand savings and average measure

life used as inputs to the analysis. Table 3-21 shows program and participant costs, and Table 3-22 provides the present value of the benefits included in the analysis. Overall, as shown in Table 3-23, the NCP is performing well, with a Program Administrator Cost (PAC) Test ratio of 4.3 to 7.8 and a Total Resource Cost (TRC) Test ratio of 1.6 to 2.9. See Section 2.2.3 for definitions of benefit/cost terms and concepts.

Table 3-20. NCP Net Savings from July 1, 2006 through Year-End 2010

Program Component	Average Life of Electric/Natural Gas Savings (Years)	Net Cumulative Annual GWh/Year	Net Cumulative MW	% Downstate (Con Edison)
New Construction	17/20	211.8	56.9	28%

Table 3-21. NCP Participant and Program Costs from July 1, 2006 through Year-End 2010

Program Component	NYSERDA Spending (Constant Millions 2008\$)	Customer Co-Funding (Constant Millions 2008\$)
New Construction	\$67.8	\$113.7

Table 3-22. NCP Present Value of Benefits (from savings installed between July 1, 2006 through Year-End 2010)

Program Component	Present Value of Avoided Energy, Capacity, Distribution, and CO ₂ Costs (Constant Millions 2008\$)	Present Value of Non-Energy Impacts (NEI) (Constant Millions 2008\$)	Total Benefits
New Construction	\$292.5	\$237.1a	\$529.7

a NEIs are valued at 40% of the retail energy cost savings for NCP based on a direct query survey conducted in 2004.

Table 3-23. NCP Benefit/Cost Ratios

Program Administrator Cost (PAC) Test	Total Resource Cost (TRC) Test
4.3 to 7.8a	1.6 to 2.9a

a The lower number incorporates resource benefits only. The higher number incorporates both resource benefits and non-energy impacts.

3.9 FlexTech Technical Assistance Program

3.9.1 Program Description

The FlexTech Technical Assistance (TA) Program is a consolidation of services previously offered under the FlexTech, TA, and the Energy Audit Programs. The Program provides commercial and industrial

customers with objective and customized information to facilitate wiser energy efficiency, energy procurement, and financing decisions. 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. In early 2009, EEPS funds were added to expand Flex Tech as one of NYSERDA's Fast Track programs.

3.9.1 Program Accomplishments

FlexTech TA continues to monitor the number of customers receiving assistance to assess its progress. Table 3-24 shows this metric and its current status.

Table 3-24. FlexTech TA Program – Customers Receiving Assistance

Activity	Achieved July 1, 2006 through March 31, 2011
Customers receiving assistance (approved proposals)	3,658

3.9.2 Follow-up on Evaluation Recommendations

There are no recent FlexTech evaluation recommendations to report on. Any new program evaluation recommendations will be included in future quarterly and annual reports, including information on their status and NYSERDA's response to the recommendation.

3.9.1 Cost-Effectiveness Analysis

The FlexTech TA Program benefit/cost analysis was updated in early 2011 using program savings and costs from July 1, 2006 through year-end 2010. Table 3-25 shows the electricity and demand savings and average measure life used as inputs to the analysis. Table 3-26 shows program and participant costs, and Table 3-27 provides the present value of the benefits included in the analysis. Overall, as shown in Table 3-28, the Program is performing well, with a PAC Test ratio of 48.9 to 92.3 and a Total Resource Cost (TRC) Test ratio of 2.4 to 4.6. The high PAC ratios are due to the fact that the FlexTech program provides funding for feasibility studies only, not installation costs. See Section 2.2.3 for definitions of benefit/cost terms and concepts.

Table 3-25. FlexTech Net Savings from July 1, 2006 through Year-End 2010

Program Component	Average Life of Electric/Natural Gas Savings (Years)	Net Cumulative Annual GWh	Net Cumulative MW	Net Cumulative Annual Fuel Savings (MMBtu)	% Downstate (Con Edison)
FlexTech TA	15 for electricity, 20 for natural gas, 6 for curtailable load	569.7	207.8 total. 98.3 from energy efficiency, 109.5 from curtailable load	234,929	28% of energy efficiency, 60% of curtailable load

Table 3-26. FlexTech TA Participant and Program Costs from July 1, 2006 through Year-End 2010

Program Component	NYSERDA Spending (Constant Millions 2008\$)	Customer Co-Funding (Constant Millions 2008\$)
FlexTech TA	\$15.4	\$294.2

Table 3-27. FlexTech TA Present Value of Benefits (from savings installed between July 1, 2006 through Year-End 2010)

Program Component	Present Value of Avoided Energy, Capacity, Distribution, and CO ₂ Costs (Constant Millions 2008\$)	Present Value of Non-Energy Impacts (NEI) (Constant Millions 2008\$)	Total Benefits
FlexTech TA	\$753.2	\$669.2a	\$1,422.4

a NEIs are valued at 46% of the retail energy cost savings for FlexTech based on a direct query survey conducted in 2004.

Table 3-28. FlexTech TA Benefit/Cost Ratios

Program Administrator Cost (PAC) Test	Total Resource Cost (TRC) Test
48.9 to 92.3a	2.4 to 4.6a

a The lower number incorporates resource benefits only. The higher number incorporates both resource benefits and non-energy impacts.

3.10 Industrial and Process Efficiency

The Industrial and Process Efficiency (IPE) Program, which began in early 2009, is an EEPS-funded Fast Track program designed to increase industrial process efficiency activity. The program is implemented as an additional component to the EFP and provides performance-based incentives for cost-effective process improvements that reduce energy use per unit of production. This industrial and process efficiency component is the implementation path for process improvement projects developed through the FlexTech

TA Program, or brought to this program independently. Potential for process improvements will be predominantly in industrial facilities and data centers.

3.10.1 IPE Process Evaluation

This evaluation represented the second phase of a three-phase process evaluation of NYSERDA's IPE Program. The second-wave research included in-depth interviews with 11 NYSERDA program staff (all of whom also work on other programs and three of which currently spend only a small proportion of their time on IPE), six Technical Reviewers (consultants to NYSERDA), three Focus Contractors (consultants supporting program outreach to customers, service providers, and stakeholders), and three DOE-funded Contractors (consultants leveraging U.S. Department of Energy grant funding and existing relationships with industrial customers to support program outreach).

Conclusions and Recommendations

- 1. Conclusion:** Both Wave 1 and Wave 2 research revealed frequent project processing delays, which in some cases resulted in projects that interviewed IPE staff and contractors described as having languished for months, and in a few cases resulted in applicants terminating their projects. Project processing delays have the potential to damage the reputation of the IPE Program, thereby dissuading industrial customers from risking the upfront investment and effort necessary to participate in the program.

The processing delays appear to occur primarily at juncture points where responsibility for project review passes from one NYSERDA staff or contractor to another. Staff further attributed delays to the lack of a single database to track project information, redundant data entry across the databases, and sub-optimal IPE administrative staffing levels.

Recommendation: To expedite paperwork processing *in the near term*, NYSERDA should immediately seek to develop a system to monitor each project more closely, identify needed next steps by the appropriate party or parties, and flag delays. In addition, NYSERDA should pursue opportunities to switch from paper to electronic sign-offs, reduce the extent of redundant data entry across databases, and consider hiring additional administrative staff to assist with project processing.

In addition to these efforts, NYSERDA should pursue its plans to address project-processing delays more *comprehensively*, by developing a single database that would enable NYSERDA staff members to access relevant information for all NYSERDA programs.

- 2. Conclusion:** The key account management approach, when implemented as designed, appears to be an effective program outreach method. In contrast, key account management does not work well when IPE staff considers their role to be reactive, responding to issues as they arise. In some cases, staffs' "reactive" approach appears to be related to a lack of available time. Staff frequently reported that managing existing IPE responsibilities, as well as their program responsibilities associated with other NYSERDA programs, reduces the time available for staff to conduct outreach and interact with customers in support of project identification. Staff members' lack of time is exacerbated by

paperwork processing approaches and multiple databases, and may indicate sub-optimal staffing levels, especially administrative staffing levels.

Recommendation 1: Promote additional training and communication to staff on the key account management approach, emphasizing how to build relationships between NYSERDA and customers that become more sophisticated as trust is built, project savings are demonstrated, and awareness of efficiency opportunities increases. Discussions should review efforts – and their outcomes – to create interest in process projects among participant organizations with non-process projects.

Recommendation 2: NYSERDA should seek to improve paperwork-processing procedures and/or hire additional administrative staff in order to reduce IPE staffs' administrative burden, thereby increasing the amount of time available for staff to implement key account management as designed.

- Conclusion:** Targeting tier one (large kW) industrial firms appears to be an effective approach to securing large industrial IPE projects. In contrast, most IPE projects initiated by data centers have emerged from medium-sized data firms. Considering such factors as firms' hours of operation, capital plans, level of interest in energy efficiency and sustainability initiatives, and NAICS code classifications appears to provide enhanced methods to designate firms for prioritized outreach.

Recommendation: When targeting industrial firms, NYSERDA should continue to pursue tier one firms first. For data centers, NYSERDA should articulate and document its strategy for identifying facilities with the most potential and conducting research to identify program needs and barriers among those firms; it may decide that tier is not important for this sector. For both sectors, articulated strategies will support a subsequent assessment of strategy success and need for modification. When designating firms for prioritized outreach in either sector, NYSERDA should consider firms' hours of operation, capital plans, level of interest in energy efficiency and sustainability initiatives, square footage, and other relevant factors. Additionally, NYSERDA should augment lists that classify industrial customers using NAICS codes to include evidence of plant capacity constraints from the Survey of Plant Capacity Utilization. Firms classified under NAICS codes reporting high capacity utilization rates should be prioritized for targeted outreach concerning IPE process efficiency incentives.

- Conclusion:** Targeting good candidates is the second step in an outreach strategy, the first step of which is identifying the eligible population. NYSERDA lacks a comprehensive list of IPE-eligible industrial customers and must create such a list through market research. NYSERDA staff and its contractors are working to develop such a list.

Recommendation: NYSERDA might augment its current efforts by joining professional and trade associations serving industrial firms in addition to those its Focus Contractors access, and seeking information from professionals involved in job placement activities, such as at the BOCES, colleges and universities, and the state employment office.

- Conclusion:** During Wave 1 interviews, staff contacts predicted that the highest energy saving IPE projects would be process efficiency projects. In contrast, the process team's analysis of IPE projects in all stages (installed, encumbered, and not yet encumbered) and listing EEPS as the funding source in NYSERDA's Buildings Portal database as of October 19, 2010, showed that *non-process projects* were projected to deliver both most of the largest kWh-saving IPE projects and the majority of overall program kWh savings (76 %).

Recommendation 1: NYSERDA should continue to pursue process efficiency projects, but not at the expense of conducting program marketing toward enrollment of non-process projects. NYSERDA should continue to monitor the short- and long-term potential electricity savings gains of process versus non-process projects and structure IPE outreach strategies accordingly.

Recommendation 2: NYSERDA should continue to market NYSERDA incentives for non-process equipment upgrades to firms' facilities directors and executives. When working to secure process efficiency IPE projects, outreach staff should conduct targeted outreach to people in charge of production lines and revenue-generating projects, such as process engineers, as well as members of continuous improvement teams and those in division- and C-level positions who can weigh the costs and benefits of making energy efficiency improvements that impact production capability.

3.10.2 Follow-Up on Evaluation Recommendations

Since there are three phases in the IPE Process evaluation, and recommendations provided at the various phases are considered intermediate until the full evaluation is completed, a program staff response to the recommendations will be presented at the conclusion of all phases of this process evaluation.

3.11 FlexTech Benchmarking Pilot

The FlexTech Benchmarking Pilot provides benchmarking and onsite operational assessments. Selected FlexTech Consultants will benchmark participating facilities and develop site-specific reports recommending operational or system modifications that may result in energy savings. Commercial, industrial, and institutional facilities 50,000 square feet or greater are eligible. Multifamily facilities are also eligible.

3.12 Agriculture Energy Efficiency Program

The Agriculture Energy Efficiency Program (AEEP) provides comprehensive, flexible energy efficiency services to this underserved market segment. The program supports electric and natural gas efficiency improvements and was designed to be available to all farms and on-farm producers, including but not limited to: orchards, dairies, greenhouses, vegetables, vineyards, grain dryers, maple producers, and poultry/egg. Since 98% of New York State farms are located upstate, the majority of the activity is expected to occur in that region. The program was launched in January 2011 and closed on March 25, 2011 due to successful application response.

4 Residential and Low-Income Programs

4.1 Residential and Low-Income Evaluation Activities

During the first quarter of 2011, NYSERDA completed its annual benefit-cost analysis for the **New York Energy SmartSM** Home Performance, ENERGY STAR[®] Homes, Multifamily Performance, EmPower and Market Support programs.

Evaluation studies and activities expected to be completed in the coming quarters are:

- Impact evaluations for the CFL Expansion (multistate modeling), Home Performance, ENERGY STAR Homes, Multifamily and EmPower programs
- Market characterization and assessment and process evaluation of the Market and Community Support and CFL Expansion (Random Digit Dial study) programs
- Market characterization and assessment and process evaluation of the Workforce Development Program
- Program Theory and Logic model for the Multifamily Performance Program Electric Reduction Master-Metered Buildings Program

NYSERDA expects to include these evaluation results in future evaluation and status reports for evaluation projects currently underway.

4.2 Summary of Residential Program Budget and Spending Status

Table 4-1 presents detailed budget and funding information for the **New York Energy SmartSM** Residential and Low-Income programs. Table 4-2 shows the same information for EEPS Residential and Low-Income programs.

Table 4-1. Residential & Low-Income Programs - New York Energy SmartSM Financial Status through March 31, 2011 (\$ million)

Program	Budget ¹			Funds Spent			Encumbered Funds ⁴ % of Budget Encumbered	Committed Funds ⁵ % of Budget Committed
	SBC I & SBC II ²	SBC III ³	Total Budget	SBC I & SBC II ²	SBC III ³	Total Funds Spent		
Residential Programs								
Single Family Home Performance	47.4	60.1	107.5	47.4	54.6	102.0 94.9%	103.0 95.8%	103.0 95.8%
Multifamily Building Performance	18.3	26.1	44.5	18.3	23.7	42.0 94.5%	43.9 98.7%	44.0 98.9%
Market and Community Support Residential	96.5	52.3	148.9	96.5	41.4	138.0 92.7%	143.6 96.5%	144.0 96.8%
Communities and Education	3.2	8.8	11.9	3.2	7.8	11.0 91.7%	11.8 99.2%	11.8 99.2%
Subtotal Residential	\$165.4	\$147.3	\$312.8	\$165.4	\$127.5	\$292.9 93.7%	\$302.3 96.7%	\$302.9 96.8%
Low-Income Programs								
Single Family Home Performance	22.3	53.5	75.8	22.3	38.5	60.8 80.2%	63.4 83.6%	62.4 83.6%
Multifamily Building Performance	45.4	114.6	160.0	45.4	89.3	134.7 84.2%	155.1 97.3%	155.7 97.3%
EmPower New York	14.3	51.9	66.2	14.3	46.6	60.9 91.9%	61.5 92.9%	61.7 93.2%
Buying Strategies & Energy Awareness	4.7	11.9	16.6	4.7	8.1	12.8 77.3%	15.2 91.7%	15.2 92.1%
Subtotal Low-Income	\$86.6	\$232.0	\$318.6	\$86.6	\$182.6	\$269.2 84.5%	\$295.1 92.6%	\$296.0 96.0%
TOTAL Residential and Low-Income	\$252.0	\$379.3	\$631.3	\$252.0	\$310.1	\$562.1 89.0%	\$597.5 94.6%	\$598.9 94.9%

¹ Reflects carryover in funds and reallocation as approved by the PSC in 2007.

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 Encumbered funds associated with signed contracts and purchase orders.

⁵ Committed funds associated with encumbered funds and pending contracts.

Totals may not sum exactly due to rounding.

Source: NYSEERDA

Table 4-2. Financial Status of the EEPS Residential and Low-Income Programs through March 31, 2011 (\$ million)

	Total Budget	Total Funds Spent	% of Budget Spent	Encumbered Funds % of Budget Encumbered	Committed Funds % of Budget Committed
Residential Programs					
CFL Expansion	17.2	10.3	59.9%	11.5 66.7%	11.7 67.9%
Home Performance with ENERGY STAR	21.7	5.2	23.8%	7.1 32.7%	7.1 32.7%
New York ENERGY STAR Homes	16.0	3.2	19.8%	5.0 31.3%	5.0 31.3%
MPP Market Rate	Electric	1.1	10.2%	0.6 55.1%	0.9 78.5%
	Gas	16.0	7.2%	1.8 11.0%	2.6 16.5%
Geothermal	2.0	0.2	11.4%	0.3 13.3%	0.3 16.0%
Electric Reduction in Master Metered Buildings	11.6	0.7	5.8%	0.8 6.7%	1.5 13.1%
Subtotal Residential	\$85.7	\$20.8	24.3%	\$27.0 31.5%	\$29.2 34.0%
Low-Income Programs					
Assisted Home Performance with ENERGY STAR	6.4	2.7	42.8%	3.3 51.3%	3.3 51.3%
EmPower	Electric	23.6	55.7%	13.7 57.9%	14.0 59.3%
	Gas	8.6	11.0%	1.3 15.0%	1.5 17.2%
MPP Low Income	Electric	3.6	11.4%	0.7 18.2%	1.3 36.4%
	Gas	11.0	8.0%	1.8 16.6%	4.2 38.1%
Subtotal Low-Income	\$53.1	\$18.1	34.0%	\$20.7 38.9%	\$24.2 45.6%
Total Residential and Low-Income	\$138.9	\$38.9	28.0%	\$47.7 34.4%	\$53.4 38.5%

¹Program budgets exclude administration and evaluation dollars.
Totals may not sum exactly due to rounding.
Source: NYSERDA

4.3 Residential and Low-Income Evaluation Findings

Significant progress is being made by the Residential and Low-Income portfolio. 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.

4.3.1 Energy, Peak Demand and Fuel Savings

Tables 4-3 through 4-8 summarize the estimated electricity savings, peak demand reductions, and fuel savings for each of the Residential and Low-Income programs, both **New York Energy SmartSM** and EEPS. Savings for the Low-Income program elements are broken out in the footnotes to each table.

Table 4-3 and Table 4-4 show progress for the **New York Energy SmartSM** and EEPS-funded programs, respectively, toward their established goals for electricity savings. Overall, two out of six **New York Energy SmartSM** Residential and Low-Income programs (New York ENERGY STAR Homes and EmPower) have met or exceeded their five-year **New York Energy SmartSM** electricity goal. EEPS electric-funded programs are also making good progress overall toward their goals.

Table 4-5 and Table 4-6 show progress for the **New York Energy SmartSM** and EEPS funded programs, respectively, toward attaining peak demand reductions. Peak demand savings goals were not set for the **New York Energy SmartSM** nor EEPS electric-funded programs.

Table 4-7 and Table 4-8 show progress for the **New York Energy SmartSM** and EEPS-funded programs, respectively, toward their established goals for fuel savings. The **New York Energy SmartSM** programs are making progress toward their expected fuel savings. EEPS natural gas-funded programs have just begun reporting savings, and future reports will continue to show progress toward the EEPS natural gas goals for these programs. Fuel savings reported for the **New York Energy SmartSM** programs include savings for fuels such as oil, propane and natural gas whereas fuel savings reported for the natural gas EEPS-funded programs show MMBtu savings for natural gas only.

Table 4-3. New York Energy SmartSM Residential and Low-Income Program Cumulative Annual Electricity Savings through March 31, 2011 and Progress toward Goals

Program	Energy Savings (GWh)				
	Savings Achieved through		July 1, 2006 through March 31, 2011	Five-Year Goal through June 30, 2011a	Progress Toward Goal (% achieved)
	June 30, 2006	March 31, 2011			
Single Family Home Performance Program: Existing Homes ¹	13.5	27.7	14.2	27.4	52%
Single Family Home Performance Program: New Homes	7.3	37.6	30.3	18.7	162%
Multifamily Performance Program: Existing Buildings ²	29.8	118.6	88.8	361.3	25%
Multifamily Performance Program: New Buildings	0	1.6	1.6	24	7%
Market and Community Support Program ³	539.1b	657.6	118.6	220	54%
EmPower New York ⁴	20.1	52.6	32.5	32.4	100%
Statewide Residential & Low-Income Total	609.8	895.8	286.1	683.8	42%

a Goals for the **New York Energy SmartSM** Program are specified in NYSERDA's March 2008 and, where applicable, March 2009 operating plans. For some programs, the latest published goal values do not fully reflect adjustments that are necessary to align goals with cross-program funding reallocations approved by DPS since the operating plans were completed. These funding reallocation adjustments and any other necessary updates or corrections to the **New York Energy SmartSM** Program goals will be reflected in NYSERDA's February 28, 2011 revised operating plan and, once approved by DPS, will be used in future evaluation reports as the benchmark for program performance.

b This baseline savings figure does not match the 2nd quarter 2006 published value. The impacts for the **New York Energy SmartSM** Products component of this program are derived annually from market data, and the 2nd quarter savings value was estimated retrospectively to provide a more accurate baseline for measuring progress.

¹Savings for the low-income Assisted Home Performance Program (13.2 GWh) are included in this row.

²Savings for the low-income Assisted Multifamily Program (55.6 GWh) are included in this row, the remainder are savings from the closed Residential Comprehensive Energy and Direct Install programs and the new Multifamily Performance Program.

³Savings for the **New York Energy SmartSM** Products Program are estimated based on market data, survey research, and deemed savings values. Savings for this program were last fully captured in 2006. An update, completed and applied in Quarter 1 2009, added electricity, demand, and fuel savings for 2007 appliances only. An update to include 2008 and 2009 savings is near complete and will be incorporated in Q2 2011.

⁴The **New York Energy SmartSM** goals for EmPower were revised per NYSERDA's Supplemental Revision to the SBC Operating Plan – August 31, 2010.

N/A – Not Applicable

Totals may not sum exactly due to rounding.

Table 4-4. EEPS Residential and Low-Income Program Cumulative Annual Electricity Savings through March 31, 2011 and Progress toward Goals

Program	Energy Savings (GWh)		
	Savings Achieved through March 31, 2011a	Goal ¹	Progress Toward Goal (% achieved)
Multifamily Performance Program: Market Rate			
Electric Funding	0.3	7.8	3%
Ancillary benefits from Gas funding	<0.1	N/A	N//A
Multifamily Performance Program: Low-Income			
Electric Funding	0.7	16.1	4%
Ancillary benefits from Gas funding	0.9	N/A	N/A
CFL Expansion Program ²	588.2	1,083	54%
EmPower New York	10.3	29.4	35%
Statewide Residential & Low-Income Total	600.4	1,136.7	53%

a The EEPS programs shown in this table began reporting electricity savings in the following months: Multifamily Performance Program in September 2010; Low Income Multifamily Performance Program in May 2010; CFL Expansion in July 2009; and EmPower in June 2009.

¹The time frames for achieving savings goals vary by program. For the EmPower Program, the savings goal is through December 31, 2011; for the Multifamily Performance Program and the CFL Expansion Program, the savings goals are through December 31, 2012.

²Savings for the CFL Expansion Program incorporate a 1.6 net-to-gross ratio based on a baseline evaluation study. As NYSERDA's current CFL Expansion Program evaluation is completed in the coming months, this net-to-gross estimate will be updated.

N/A – Not Applicable

Totals may not sum exactly due to rounding.

Table 4-5. New York Energy SmartSM Residential and Low-Income Program Cumulative Peak Demand Reductions through March 31, 2011

Program	Demand Savings (MW)	
	Savings Achieved through	
	June 30, 2006	March 31, 2011
Single Family Home Performance Program: Existing Homes ¹	2.0	4.1
Single Family Home Performance Program: New Homes	0.9	16.8
Multifamily Performance Program: Existing Buildings ²	3.9	12.1
Multifamily Performance Program: New Buildings	0.0	0.6
Market and Community Support Program	104.3	136.1a
EmPower New York	2.5	8.4
Statewide Residential & Low-Income Total	113.7	178.0

Note: No peak demand savings goals were set for residential and low-income **New York Energy SmartSM** programs.

a Savings for the **New York Energy SmartSM** Products Program are estimated based on market data, survey research, and deemed savings values. Savings for this program were last fully captured in 2006. An update, completed and applied in Quarter 1 2009, added electricity, demand, and fuel savings for 2007 appliances only.

¹Includes 1.3 MW from the low-income Assisted Home Performance Program.

²Savings for the low-income Assisted Multifamily Program are included in this row. They represent 6.6 MW of these savings.

N/A – Not Applicable

Totals may not sum exactly due to rounding.

Table 4-6. EEPS Residential and Low-Income Program Cumulative Peak Demand Reductions through March 31, 2011

Program	Demand Savings (MW)
	Savings Achieved through March 31, 2011
Multifamily Performance Program: Market Rate	
Electric funding	0.04
Ancillary benefits from Gas funding	0.01
Multifamily Performance Program: Low-Income	
Electric funding	0.07
Ancillary benefits from Gas funding	0.01
CFL Expansion (EEPS) ¹	55.5
EmPower New York	1.1
Statewide Residential & Low-Income Total	56.6

Note: No peak demand savings goals were set for residential and low-income EEPS programs.

¹ Savings for the CFL Expansion Program incorporate a 1.6 net-to-gross ratio based on a baseline evaluation study. As NYSERDA's current CFL Expansion Program evaluation is completed in the coming months, this net-to-gross estimate will be updated.

N/A – Not Applicable

Totals may not sum exactly due to rounding.

Table 4-7. New York Energy SmartSM Residential and Low-Income Program Cumulative Annual Fuel Savings through March 31, 2011 and Progress toward Goals¹

Program	Fuel Savings (MMBtu)				
	Savings Achieved through		July 1, 2006 through March 31, 2011	Five-Year Goal through June 30, 2011a	Progress Toward Five-Year Goal (% achieved)
	June 30, 2006	March 31, 2011			
Single Family Home Performance Program: Existing Homes ²	454,958b	1,160,437	705,479	1,199,000	59%
Single Family Home Performance Program: New Home	376,103c	861,548	485,445	518,500	94%
Multifamily Performance Program: Existing Buildings ³	43,932	922,703	878,771	6,014,500	15%
Multifamily Performance Program: New Buildings	0.0	21,733	21,733	649,000	3%
Market and Community Support Program ⁴	241,998	296,607d	54,609	N/A	N/A
EmPower New York ⁵	38,151	186,469	148,318	200,401	74%
Statewide Residential & Low-Income Total	1,155,142	3,449,496	2,294,355	8,581,401	27%

¹ New York Energy SmartSM MMBtu savings reported in this table include savings for fuels such as oil, propane and natural gas.

² Energy savings for the low-income Assisted Home Performance Program are included in this row. They represent 516,122 MMBtu of these savings.

³ Energy savings for the low-income Assisted Multifamily Program are included in this row. They represent 378,781 MMBtu of these savings.

⁴The value shown for savings through June 30, 2006 does not match earlier published values, as an error in the tracking spreadsheet was found and repaired.

⁵The MMBtu savings for EmPower is reduced compared to past quarters, as savings had included some non-SBC sources, which are removed in this quarter. This change also impacted the savings through June 30, 2006, so the value shown here will not match earlier published values.

a Goals for the New York Energy SmartSM Program are specified in NYSERDA's March 2008 and, where applicable, March 2009 operating plans. For some programs, the latest published goal values do not fully reflect adjustments that are necessary to align goals with cross-program funding reallocations approved by DPS since the operating plans were completed. These funding reallocation adjustments and any other necessary updates or corrections to the New York Energy SmartSM Program goals will be reflected in NYSERDA's February 28, 2011 revised operating plan and, once approved by DPS, will be used in future evaluation reports as the benchmark for program performance.

b 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.

c 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.

d Savings for the New York Energy SmartSM Products Program are estimated based on market data, survey research, and deemed savings values. Savings for this program were last fully captured in 2006. An update, completed and applied in Quarter 1 2009, added electricity, demand, and fuel savings for 2007 appliances only. An update to include 2008 and 2009 savings is near complete and will be incorporated in Q2 2011.

N/A – Not Applicable

Table 4-8. EEPS Residential and Low-Income Program Cumulative Annual Fuel Savings through March 31, 2011 and Progress toward Goals¹

Program	Fuel Savings (MMBtu)		
	Savings Achieved through March 31, 2011a	Goal ²	Progress Toward Goal (% achieved)
Single Family Home Performance Program: Existing Homes	69,293	401,815	17%
Single Family Assisted Home Performance Program: Existing Homes	30,085	46,450	65%
Single Family Home Performance Program: New Homes	106,127	428,767	25%
Multifamily Performance Program: Market Rate			
Gas funding	18,525	377,285	5%
Ancillary effects from Electric funding	-391	N/A	N/A
Multifamily Performance Program: Low-Income			
Gas funding	8,068	164,893	5%
Ancillary effects from Electric funding	-995	N/A	N/A
EmPower New York			
Gas funding	6,467	84,584	8%
Ancillary effects from Electric funding	-1,634	N/A	N/A
Statewide Residential & Low-Income Total	235,544	1,503,794	16%

¹ The MMBtu savings for EEPS-funded programs presented consist of natural gas only, and these figures do not include savings for other fuels such as oil and propane.

² The time frames for achieving savings goals vary by program. For the Single Family Home Performance Program and the EmPower Program, the savings goals are through December 31, 2011; for the Multifamily Performance Program, the savings goals are through December 31, 2012.

a The EEPS programs shown in this table began reporting natural gas savings in the following months: Single Family Home Performance Existing and New Homes in May 2010; Multifamily Performance Program in September 2010; Low Income Multifamily Performance Program in May 2010; and EmPower in April 2010.

N/A – Not Applicable

4.3.2 Summary of Other Key Program Impacts and Results

Across the programs, 28 additional five-year 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. Overall, the programs are making progress with respect to these other goals. The majority of the goals have already been surpassed (*e.g.*, the number of new independent retailers signed up, ENERGY STAR market share increases, number of market rate households served through Home Performance with ENERGY STAR or have reached expected levels at this point in the program (*e.g.*, number of market rate New York ENERGY STAR Homes built, number of teachers trained, number of

recruiting seminars held statewide). Still, progress on some goals is less than expected (*e.g.*, number of low-income households served through Home Performance with ENERGY STAR, number of existing market rate multifamily units receiving energy efficiency services) at this point. The results of each program's progress toward its stated goals are shown in table format in the subsequent sections.

4.4 Home Performance Program

4.4.1 Program Description

This program, which addresses one- to four-unit homes, includes the Home Performance with ENERGY STAR Initiative (HPwES) for existing homes, and the New York ENERGY STAR Homes Initiative (NYESH) for newly constructed homes. On the supply side, these initiatives support market development through recruitment, training and incentives for contractors and builders, in order to encourage them to offer energy-efficient options. On the demand side, these initiatives market the benefits of energy efficiency, in addition to health and safety, to residential consumers and reduce the barriers of participation to increase demand for efficient products and services. Both HPwES and NYESH have low-income components providing additional incentives for households earning between 60 and 80 percent of New York State or area median income.

4.4.1 Program Accomplishments

Table 4-9 shows the **New York Energy SmartSM** Program's five-year goals and performance since July 1, 2006. The program is making good or excellent progress on most goals, but is falling somewhat behind expectations in terms of goals specific to the low-income segment.

Table 4-9. New York Energy \$martSM Home Performance Program – Goals and Achievements

Activity	Program Goals (July 1, 2006 through June 30, 2011)	Achieved July 1, 2006 through March 31, 2010	% of Goal Achieved
New York ENERGY STAR Homes Initiative			
New ENERGY STAR Homes built (market rate only)	11,184	9,998a	89%
New low-income ENERGY STAR Homes built	4,075	390	9%
Home Performance with ENERGY STAR Initiative			
Existing homes served (receiving treatment) (market rate only)	16,582	18,668	>100%
Existing low-income homes served (receiving treatment)	10,851	6,839	63%

a During the first quarter there was a reclassification of projects from Market Rate to Assisted resulting in a reduction in achievements for the market rate program..

4.4.2 Follow-Up on Evaluation Recommendations

Home Performance with ENERGY STAR

Table 4-10 presents a summary of Home Performance with ENERGY STAR recommendations resulting from program evaluations. This table also provides the status of each recommendation (*i.e.*, if a recommendation already has been adopted, if it will be adopted in the future, or if it will not be adopted) as well as a response from program staff to each recommendation. Per DPS quarterly and annual reporting guidelines, these program recommendations will be revisited with program staff and updated, as applicable, on a quarterly basis.

Table 4-10. Home Performance with ENERGY STAR Evaluation Recommendations and Status

Source of Recommendation (Contractor, Report Title, Date)	Recommendation	Status (Adopted, Plan to Adopt, or Not Adopting)	Program Implementer Response to Recommendation and Adoption Decision Rationale
Nexant, HPwES M&V, June 2007	The program database should maintain the utility account information for all homes in the program. Information for both electric and fossil fuel accounts are unique identifiers for a home. Additionally, for multi-family units, all utility account information should be included so that homes with multiple meters can be easily identified.	Plan to Adopt	Staff acknowledges the need for meter information on the multifamily side and is looking into implementing this recommendation. Note the volume of 2-4 family homes in Home Performance is minimal.
Summit Blue Consulting, HPwES MCA, February 2009	Consider development of targeted marketing materials for former and nonparticipating contractors focused on the value of BPI accreditation. It is interesting to note that 33% of former and nonparticipating contractors responded that BPI is not a selling point (suggesting a potential target market for increased outreach and BPI benefits education).	Adopted	In coordination with NYSERDA's residential marketing and the Home Performance with ENERGY STAR Program, staff has incorporated the development of targeted marketing materials for nonparticipating contractors
Summit Blue Consulting, HPwES MCA, February 2009	Consider promoting more opportunities for specialty contractor training and networking. Although supply of skilled contractors currently appears to be meeting demand, responses from contractors interviewed suggest a need for increased outreach, recruitment and training of specialty contractors, and reinforces the need for more networking within and across participating and nonparticipating contractor groups.	Adopted	In coordination with NYSERDA's residential marketing, the Workforce Development Program, and the Home Performance with ENERGY STAR Program, staff has incorporated the promotion of contractor training and outreach.
Summit Blue Consulting, HPwES MCA, February 2009	Recognize that homeowners are installing energy efficiency measures outside of the program. Reasons for homeowners' measure installation actions taken outside of the program were not directly assessed within this study, but could provide valuable	Plan to Adopt	NYSERDA will attempt to investigate this issue in future program evaluations.

Source of Recommendation (Contractor, Report Title, Date)	Recommendation	Status (Adopted, Plan to Adopt, or Not Adopting)	Program Implementer Response to Recommendation and Adoption Decision Rationale
	insights for future program design and effectiveness improvement purposes. As part of such additional assessment, how these installation actions may have varied if the customer had not received a CHA would also be important to capture.		
Summit Blue Consulting, HPwES MCA, February 2009	Consider development of targeted marketing materials for homeowners focused on various elements of “being green”. Additional information from homeowners could be helpful in developing targeted marketing materials including: if they perceive the HPwES Program as being a “green” program, and what specific components within the program they consider “green”.	Adopted	Recent information pieces and Programs have been aimed at educating customers, and include the Green Jobs Green NY initiative the Green Residential Building Program and the Greenest New Yorker Contest. Information on green technologies has also been added to the consumer website: www.getenergysmart.org

New York ENERGY STAR Homes

Table 4-11 presents a summary of Home Performance with ENERGY STAR recommendations resulting from program evaluations. This table also provides the status of each recommendation (*i.e.*, if a recommendation already has been adopted, if it will be adopted in the future, or if it will not be adopted) as well as a response from program staff to each recommendation. Per DPS quarterly and annual reporting guidelines, these program recommendations will be revisited with program staff and updated, as applicable, on a quarterly basis.

Table 4-11. New York ENERGY STAR Homes Evaluation Recommendations and Status

Source of Recommendation (Contractor, Report Title, Date)	Recommendation	Status (Adopted, Plan to Adopt, or Not Adopting)	Program Implementer Response to Recommendation and Adoption Decision Rationale
Nexant, NYESH M&V, June 2007	Data from REM/Rate files should be included in CSG's database for all homes, including detailed equipment and appliance information and square footage of each home. CSG indicated that this recommendation will be incorporated into a future version of the program database. In addition, NYSERDA should periodically conduct quality control checks to verify that the information in the database is correct.	Plan to Adopt	NYESH Program staff have been assessing ways to facilitate the export of data from the REM/Rate software in a meaningful way into the implementation database. Some success has been made in the LIPA ENERGY STAR Homes Program to accomplish this, and NYSERDA staff has been using its experience to accomplish the task.

4.4.1 Cost-Effectiveness Analysis

The Single Family Home Performance Program benefit/cost analysis was updated in early 2011 using program savings and costs from July 1, 2006 through year-end 2010 for both New Homes and Existing Homes. Table 4-12 shows the resource savings and average measure life used as inputs to the analysis. Table 4-13 shows program and participant costs, and Table 4-14 provides the present value of the benefits included in the analysis. As shown in Table 4-15, for New Homes, the Program Administrator Cost (PAC) Test ratio is 4.9 to 7.8 and the Total Resource Cost (TRC) Test ratio is 1.3 to 2.2. For Existing Homes, the PAC ratio is 1.1 to 1.8 and the TRC ratio is 0.6 to 1.0. This year's benefit/cost analysis of Existing Homes used deemed incremental savings and deemed costs for appliances and equipment-based measures. Also, the energy savings per home in the Market-Rate component was found to be much lower than those in the Assisted component. This difference is believed to be a result of the program requirement that Assisted projects meet a minimum Savings to Investment Ratio (SIR) of 1.1, while Market-Rate projects have not been required to meet the SIR standard. As of April 2011, the Market-Rate projects will also have a minimum SIR requirement of 1.0.

Table 4-12. Single Family Home Performance Net Savings from July 1, 2006 through Year-End 2010

Program Component	Average Life of Electric/Natural Gas Savings (Years)	Net Cumulative Annual GWh/Year	Net Cumulative MW	Net Cumulative Annual Fuel Savings (MMBtu)	Water Savings (Million Gallons/Year)	% Downstate (Con Edison)
New Homes	11/21	28.3	14.9	468,811	-	4%
Existing Homes	15/20	9.3	2.9	493,557	2.8	4%

Note: Existing Homes savings were derived using deemed incremental savings for all measures except for insulation and air sealing.

Table 4-13. Single Family Home Performance Program and Participant Costs from July 1, 2006 through Year-End 2010

Program Component	NYSERDA Spending (Constant Millions 2008\$)	Customer Co-Funding (Constant Millions 2008\$)
New Homes	\$20.3	\$53.6
Existing Homes	\$74.1	\$59.8

Table 4-14. Single Family Home Performance Present Value of Benefits (from savings installed between July 1, 2006 through Year-End 2010)

Program Component	Present Value of Avoided Energy, Capacity, Distribution, and CO ₂ Costs (Constant Millions 2008\$)	Present Value of Non-Energy Impacts (NEI) (Constant Millions 2008\$)	Total Benefits
New Homes	\$99.0	\$59.5a	\$158.5
Existing Homes	\$81.7	\$52.1b	\$133.8

a NEIs are valued at 50% of the retail energy cost savings for Existing Homes, based on a survey that was done in 2004.

b NEIs are valued at 51% of the retail energy cost savings for New Homes, based on a survey that was done in 2006.

Table 4-15. Single Family Home Performance Benefit/Cost Ratios (from savings installed between July 1, 2006 through Year-End 2010)

	Program Administrator Cost (PAC) Test	Total Resource Cost (TRC) Test
New Homes	4.9 to 7.8a	1.3 to 2.2a
Existing Homes	1.1 to 1.8a	0.6 to 1.0a

a The lower number includes resource benefits only. The higher number incorporates both resource and non-energy impacts.

4.5 Multifamily Performance Program

4.5.1 Program Description

The Multifamily Performance Program provides a single point of entry for multifamily building owners and developers interested in improving the energy efficiency of new and existing buildings. The ENERGY STAR Multifamily Building Initiative – the track for new buildings (and complete gut-rehabilitation projects) – concentrates on providing technical assistance to mid-stream market participants and incorporates renewable technologies, advanced metering technologies, real-time pricing strategies, and combined heat and power systems, especially for electrically-heated buildings with base domestic hot water loads. The Multifamily Building Performance Initiative – the track for existing buildings – develops market-based business opportunities for building auditors, financial packagers, designers, architects, and construction inspectors in order to enhance the energy services infrastructure. Both the new construction and existing buildings tracks provide incentives to the building owner and include a low-income component, providing increased incentives. The program results in reduced energy bills and health and safety benefits for occupants.

4.5.1 Program Accomplishments

As shown in Table 4-16, several long-term non-energy goals have been set for the **New York Energy SmartSM** Multifamily Performance Program. Achievements include ongoing activities completed during this time period for the Assisted Multifamily Program (AMP). Progress has been slow due to time initially devoted to program design, as well as lengthy timelines for individual projects.

Table 4-16. New York Energy \$martSM Multifamily Performance Program – Goals and Achievements

Activity	Program Goals (July 1, 2006 through June 30, 2011)	Achieved July 1, 2006 through March 31, 2011	% of Goal Achieved
Number of existing market rate multifamily units receiving energy efficiency services (completed projects)	53,900	10,171	19%
Number of new market-rate multifamily units receiving energy efficiency services (completed projects)	7,500	1,258	17%
Tenant energy savings per year – existing and new market rate (at \$250/unit)	\$15,350,000	\$2,857,250	19%
Number of existing low-income multifamily units receiving energy efficiency services (completed projects)	246,000	61,944	25%
Number of new low-income multifamily units receiving energy efficiency services (completed projects)	12,700	4,333	34%
Low-income tenant energy savings per year – existing and new (at \$195/unit)	\$50,446,500	\$12,924,015	26%

4.5.1 Cost-Effectiveness Analysis

The benefit/cost analyses of the Assisted Multifamily Program element and the new Multifamily Performance Program were conducted in early 2011 using program savings and costs through year-end 2010. Benefit/cost analysis was not conducted on CEM and Direct Installation initiatives because these two programs are closed. Table 4-17 shows the electricity, demand and other fuel savings and average measure life used as inputs to the analysis. Table 4-18 shows program and participant costs, and Table 4-19 provides the present value of the benefits included in the analysis. Table 4-20 shows the Program Administrator Cost (PAC) Test ratio and the Total Resource Cost (TRC) Test. For the Assisted Multifamily Program, the PAC test ratio ranged from 2.3 to 5.1 and the TRC test ratio ranged from 0.8 to 1.6. These ratios were similar to those for the Multifamily Performance Program. See Section 2.2.3 for definitions of benefit/cost terms and concepts.

Table 4-17. Multifamily Building Programs Net Savings through Year-End 2010

Program Component	Average Life of Electric/Natural Gas Savings (Years)	Net Cumulative Annual GWh/Year	Net Cumulative MW	Net Cumulative Annual Fuel Savings (MMBtu)	% Downstate (Con Edison)
Assisted Multifamily Program	16/20	55.6a	6.6a	378,781a	55%
Multifamily Performance Program	16/20	40.7	3.7	532,585	85%

a Savings from program inception

Table 4-18. Multifamily Building Programs Participant and Program through Year-End 2010

Program Component	NYSERDA Spending (Constant Millions 2008\$)	Customer Co-Funding (Constant Millions 2008\$)
Assisted Multifamily Program	\$55.0a	\$112.5
Multifamily Performance Program	\$71.0	\$114.6

a Spending from program inception

Table 4-19. Multifamily Building Programs Present Value of Benefits (from savings installed through Year-End 2010)

Program Component	Present Value of Avoided Energy, Capacity, Distribution, and CO ₂ Costs (Constant Millions 2008\$)	Present Value of Non-Energy Impacts (NEI) (Constant Millions 2008\$)	Total Benefits
Assisted Multifamily Program	\$127.3	\$151.7a	\$279.0
Multifamily Performance Program	\$140.4	\$162.6a	\$302.9

a NEIs are valued at 54% of the retail energy cost savings based on a direct query survey conducted in 2004.

Table 4-20. Multifamily Building Programs Benefit/Cost Ratios

	Program Administrator Cost (PAC) Test	Total Resource Cost (TRC) Test
Assisted Multifamily Program	2.3 to 5.1a	0.8 to 1.7a
Multifamily Performance Program	2.0 to 4.3a	0.8 to 1.6a

a The lower number incorporates resource benefits only. The higher number incorporates both resource benefits and non-energy impacts.

4.6 Market and Community Support Program

4.6.1 Program Description

The Market and Community Support Program provides support services to the building performance and low-income programs by increasing the availability of energy-efficient products and by increasing consumer demand. There are two major components to the Market and Community Support Program: 1) the **New York Energy SmartSM** Products Initiative, which seeks to increase the availability and sales of residential energy-efficient appliances, lighting and home electronics products; and 2) Residential Program Marketing Support, which, in partnership with NYSERDA’s Marketing and Economic Development Group, implements marketing initiatives for all the residential programs, as well as workforce development and training, Energy Smart Students, marketing campaigns in coordination with DPS campaigns, and mid-stream partners.

4.6.1 Program Accomplishments

Table 4-21 shows the Program’s five-year goals and performance since July 1, 2006. The program has made excellent progress, exceeding all four of its goals.

Table 4-21. New York Energy SmartSM Market and Community Support Program – Goals and Achievements

Activity	Program Goals (July 1, 2006 through June 30, 2011)	Achieved July 1, 2006 through March 31, 2011	% of Goal Achieved
New manufacturing partners signed up	20	54	>100%
New retail partners (independent) signed up	100	273	>100%
New retail partners (big box, mass merchandisers) signed up	6	24	>100%
ENERGY STAR market share increase on targeted products (on average, across products)	25%	44%	>100%

4.6.1 Cost-Effectiveness Analysis

The benefit/cost analysis of the **New York Energy SmartSM** Products and Marketing Program element was updated in early 2011 using program savings and costs from July 1, 2006 through year-end 2009. Savings through year-end 2010 were not available at the time this report was finalized. Shown in Table 4-22 are the resource savings and average measure life used as inputs to the analysis. Table 4-23 shows

program and participant costs and Table 4-24 provides the present value of the benefits. The Products Program is performing well, with a Program Administrator Cost (PAC) Test ratio of 8.1 to 13.5 a Total Resource Cost (TRC) Test ratio of 1.6 to 2.6. See Section 2.2.3 for definitions of benefit/cost terms and concepts.

Table 4-22. New York Energy \$martSM Products and Marketing Participant Program Net Savings from July 1, 2006 through Year-End 2009¹

Program Component	Average Life of Electric/Natural Gas Savings (Years)	Net Cumulative Annual GWh/Year	Net Cumulative MW	Net Cumulative Annual Fuels Savings (MMBtu)	% Down-state (Con Edison)
Products	9/11	158.7	34.0	160,051	53%

Table 4-23. New York Energy \$martSM Products and Marketing Participant and Program Costs from July 1, 2006 through Year-End 2009

Program Component	NYSERDA Spending (Constant Millions 2008\$)	Customer Co-Funding (Constant Millions 2008\$)
Products	\$19.2	\$81.0

Note: Program Administrator Cost does not include marketing costs that apply to several programs in the Residential area. This program does not provide customer incentives.

Table 4-24. New York Energy \$martSM Products and Marketing Program Present Value of Benefits (from savings installed between July 1, 2006 through Year-End 2009)

Program Component	Present Value of Avoided Energy, Capacity, Distribution, and CO ₂ Costs (Constant Millions 2008\$)	Present Value of Non-Energy Impacts (NEI) (Constant Millions 2008\$)	Total Benefits
Products	\$155.3	\$103.8a	\$259.0

Note: This program does not provide customer incentives. Approximately \$44.9 million in water savings were subtracted from the cost of the measures.

Table 4-25. New York Energy SmartSM Products and Marketing Benefit/Cost Ratios (from savings installed between July 1, 2006 through Year-End 2009)

Program Administrator Cost (PAC) Test	Total Resource Cost (TRC) Test
8.1 to 13.5a, b	1.6 to 2.6a

a The low number incorporates resource benefits only. The high number incorporates both resource benefits and non-energy impacts.

b The high PAC test results are due to the fact that the program generally does not provide incentives for the purchase or installation of appliances or lighting measures.

4.7 CFL Expansion Program

The CFL Expansion Program is an Energy Efficiency Portfolio Standard (EEPS)-funded program designed to increase the sales of CFLs in New York State. The program, a component of the Market and Community Support Program, is designed to increase marketing and cooperative advertising promotions with retail stores and lighting manufacturers; continue to increase the network of retail partners and manufacturers; increase consumer accessibility to a wider variety of CFLs by providing incentives to retailers to increase the number of CFLs sold and increase permanent shelf space for these products; increase in-store promotions and point-of-purchase information to educate consumers; increase participation in the CFL Collection Center Program; and promote the manufacture, sale, and usage of high power factor CFLs.

4.7.1 Follow-Up on Evaluation Recommendations

In April 2010, Research Into Action completed a process evaluation on the CFL Expansion Program. All of the recommendations from that study have been addressed by NYSERDA in its prior reporting. The full study can be found on NYSERDA's website at the following link:

http://www.nyserderda.org/Energy_Information/ContractorReports/Research%20Into%20Action/2010/nyserderda_cfl_process_report_final.pdf

4.8 Communities and Education Program

4.8.1 Program Description

The Communities and Education Program offers market infrastructure development for both short-term program support and long-term market development for residential energy efficiency, with the aim of helping to develop an energy-conscious society. The two major components are the Energy Smart

Students (ESS) Initiative and **New York Energy Smart** Communities (NYE\$C). ESS provides energy efficiency curricula for teachers of students in grades K-12. ESS is part of NYSERDA’s effort to offer comprehensive services to K-12 schools, including educational curriculum support, facilities improvements, and transportation efficiency improvements. ESS offers teacher workshops to introduce hands-on, project-based lessons aligned with the New York State teaching standards. NYE\$C facilitates bringing organizations and agencies together to develop and support local projects that serve as demonstrations of energy efficiency and renewable technologies, and show how these projects create economic, social, and environmental benefits. NYE\$C also provides face-to-face education to the community on various energy topics and **New York Energy Smart**SM programs. Finally, NYE\$C has primary responsibility for recruiting mid-stream partners for **New York Energy Smart**SM residential programs.

4.8.1 Program Accomplishments

As shown in Table 4-26, seven long-term non-energy goals have been set for the Communities and Education Program. As of March 31, 2011, the Program has exceeded all its goals.

Table 4-26. New York Energy SmartSM Communities and Education Program – Goals and Achievements

Activity	Program Goals (July 1, 2006 through June 30, 2011)	Achieved July 1, 2006 through March 31, 2011	% of Goal Achieved
Teachers trained	5,000	7,594	>100%
Total students reached	150,000	933,404	>100%
Portion of total estimated to be low-income students	100,000	373,362	>100%
Community events held statewide	1,000	2,086	>100%
Recruiting seminars held statewide	500	648	>100%
Home performance contractors, technicians, builders and raters recruited for the Home Performance Program ¹	800	1,528	>100%
Building analysts, designers, energy consultants, equipment installers, etc. recruited for Multifamily Building Performance Program ¹	100	470	>100%

¹ Refers to number of individuals attending recruiting seminars or meetings

4.9 EmPower New YorkSM

4.9.1 Program Description

The EmPower New YorkSM program provides energy efficiency services to utility customers earning at or below 60% of the New York State median income and households enrolled in utility low-income payment assistance programs, targeting both owners and tenants of one- to four-family homes and multifamily buildings with fewer than 100 units. The program coordinates with the delivery of federal weatherization services through New York State Division of Housing and Community Renewal (DHCR). In early 2009, as a result of the Commission’s EEPS proceeding, NYSERDA expanded the EmPower Program to provide more widespread energy efficiency services to low-income customers.

4.9.1 Program Accomplishments

The EmPower Program continues to monitor a key non-energy metric to assess its growth as a proxy for program expansion. Table 4-27 shows these metrics and progress over time.

Table 4-27. EmPower New YorkSM Program – Goals and Achievements

Activity	Time Frame for Goal	Goal	Achieved through March 31, 2011a	% of Goal Achieved
Households served (New York Energy Smart SM)	July 1, 2006 - June 30, 2011	34,111	32,311	95%
Households served (EEPS electric)	April 1, 2009 – December 31, 2011	22,782	11,803	52%
Households served (EEPS natural gas)	April 1, 2010 – December 31, 2011	2,115	211	10%

a Rows are not additive because households could be served by more than one funding source.

4.9.2 Follow-up on Evaluation Recommendations

Table 4-28 presents a summary of EmPower recommendations resulting from program evaluations. This table also provides the status of each recommendation (*i.e.*, if a recommendation has already been adopted, if it will be adopted in the future, or if it will not be adopted) as well as a response from program staff to each recommendation. The most current recommendations come from a recently completed process evaluation report issued in August 2010. Per DPS quarterly and annual reporting guidelines,

these program recommendations will be revisited with program staff and updated, as applicable, on a quarterly basis.

Table 4-28. EmPower Evaluation Recommendations and Status

Source of Recommendation (Contractor, Report Title, Date)	Recommendation	Status	Program Implementer Response to Recommendation and Adoption Decision Rationale
Nexant, EmPower M&V, April 2007	Devise a methodology to automate the electronic transfer of results from the EmPower New York SM Calculator to the EmPower New York SM database.	Plan to Adopt	Staff are currently reviewing the EmPCalc tool, the current version of the NY State Technical Manual, and the Quick Audit Tool recently developed for the Home Performance Program. Changes related to this recommendation are on hold pending outcome of this review and completion of current program evaluations.
Nexant, EmPower M&V, April 2007	Devise a methodology to incorporate the AHAM baseline energy usage data, adjusted for degradation for refrigerators and freezers in to the EmPower New York SM Calculator to avoid the manual data entry errors while transferring results from REFRIGERATION [®] software to the EmPower New York SM Calculator.	Plan to Adopt	As of March 31, 2011, these revisions are on hold pending the process described for the above recommendation.

4.9.1 Cost-Effectiveness Analysis

The EmPower Program benefit/cost analysis was updated in early 2011 using program savings and costs from July 1, 2006 through year-end 2009. Table 4-29 shows the electricity, demand, and other fuel savings and average measure life used as inputs to the analysis.

Table 4-29. EmPower Net Savings from July 1, 2006 through Year-End 2010

Program Component	Average Life of Electric/Natural Gas Savings (Years)	Net Cumulative Annual GWh/Year	Net Cumulative MW	Net Cumulative Annual Fuel Savings (MMBtu)	% Down-state (Con Edison)
EmPower	13/19	31.6	5.8	146,743	10%

Table 4-30 shows program and participant costs, and Table 4-31 provides the present value of the benefits included in the analysis. Overall, as shown in Table 4-32, the Program is performing well, with a Program Administrator Cost (PAC) Test ratio of 1.0. The Total Resource Cost (TRC) Test ratio is also 1.0 because this program serves low-income customers and covers the full measure cost. The PAC and TRC ratios are the same for the same reason. See Section 2.2.3 for definitions of benefit/cost terms and concepts.

Table 4-30. EmPower Participant and Program Costs from July 1, 2006 through Year-End 2010

Program Component	NYSERDA Spending (Constant Millions 2008\$)	Customer Co-Funding (Constant Millions 2008\$)
EmPower	\$52.3	\$0.0

Table 4-31. EmPower Present Value of Benefits (from savings installed between July 1, 2006 through Year-End 2010)

Program Component	Present Value of Avoided Energy, Capacity, Distribution, and CO ₂ Costs (Constant Millions 2008\$)	Present Value of Non-Energy Impacts (NEI) (Constant Millions 2008\$)	Total Benefits
EmPower	\$51.1	Not evaluated	\$51.1

Table 4-32. EmPower Benefit/Cost Ratios (from savings installed between July 1, 2006 through Year-End 2010)

Program Administrator Cost (PAC) Test	Total Resource Cost (TRC) Test
1.0	1.0

4.10 Buying Strategies and Energy Awareness Program

4.10.1 Program Description

The Buying Strategies and Energy Awareness Program consists of four initiatives: 1) the Buying Strategies Initiative, which assists the Office of Temporary and Disability Assistance (OTDA) to negotiate discounts on purchases of home heating oil by the Low-Income Home Energy Assistance

Program (HEAP), and also includes a preventive maintenance component for oil-fired heating systems;¹ 2) the Targeted Marketing and Outreach Initiative, which seeks to increase participation in all NYSERDA, New York State, federal, utility, and community-based low-income energy efficiency and energy assistance programs, by targeting hard-to-reach (HTR) customers such as the elderly, the low-income population, and the non-English speaking population; 3) Low-Income Forum on Energy (LIFE), which provides a forum – large statewide conferences, smaller regional meetings, and steering committee meetings – where energy industry professionals, policy makers, agencies serving the low-income population, and energy program implementers can discuss energy issues relevant to the low-income sector; and 4) contributions of funding to the ESS Initiative (described above).

4.10.1 Program Accomplishments

Table 4-33 shows the Program’s five-year goals and performance. The program is showing excellent performance, having already exceeded all of its four goals.

Table 4-33. New York Energy \$martSM Buying Strategies and Energy Awareness Program – Goals and Achievements¹

Activity	Program Goals (July 1, 2006 through June 30, 2011)	Achieved July 1, 2006 through March 31, 2010	% of Goal Achieved
Funds leveraged through Buying Strategies initiative	\$20 million	\$22.5-24 million	>100%
Additional low-income individuals reached via newsletters, weekly newspapers, etc. (readership)	5 million	15.2 million	>100%
Additional low-income individuals reached via seminars and workshops (attendees)	15,000	251,087	>100%
Additional contractors and other partners recruited in low-income districts	50	3,104	>100%

¹ The first row shows Buying Strategies as financed by SBC funds through July 1, 2010. The remaining rows show the continuing progress of the remaining program elements as they continue under SBC funding

¹ Administration and funding of the Buying Strategies Program was transitioned to the OTDA on July 1, 2010. All SBC funds represented in the table below were spent on the program prior to that date.

5

Research and Development Programs

5.1 Overview of the Research and Development Programs

New York Energy SmartSM Research and Development (R&D) activities target the following areas: (1) transmission and distribution, (2) clean energy infrastructure, (3) power systems, (4) combined heat and power, (5) demand response, (6) electric transportation, (7) environmental monitoring, (8) industrial process, (9) water and wastewater, and (10) emerging technologies. Projects funded by the programs generally fall under one of four project types: demonstrations, business development, product development, and information dissemination/research study. These types are defined as follows:

- **Demonstrations:** Demonstration of a new product in its intended environment. The goal is to increase sales/usage of that particular product in the market. Results are used for product commercialization or to generate objective performance information for policy makers or end-users. This category includes demonstrations of on-site power generation.
- **Business Development:** Business development involves evaluating a business and then helping them realize full potential using such tools as marketing, information management and customer service. Activities include but are not limited to: assessment of market opportunities; intelligence gathering on customers and competitors; and advising on, drafting and enforcing sales policies and processes.
- **Product Development:** The process of bringing new products or services to the market or the improvement of existing products. This category ranges from proof of concept, product design, to detailed engineering.
- **Information Dissemination/Research Study:** A paper study or outreach activity, including environmental research studies, feasibility studies to examine technical gaps, feasibility studies to example installation of equipment at a specific site, a market potential studies for a specific technology, or activities to disseminate information.

5.2 R&D Program Evaluation Activities

The **New York Energy SmartSM** R&D program evaluation consists of an integrated, multi-faceted approach to assess the processes used by NYSERDA to conduct the work, determine the impacts of the product development and demonstration projects, conduct macro-level impact analyses of the projects on the New York State economy, and design and construct a database for collecting and storing project-by-project data and information necessary for further conduct of the impact and process evaluations.

Evaluation activities underway for the R&D programs include:

- R&D Program Metrics Database (Phase 2), including work to populate the database
- AWS Truewind product Development Case Study
- Process and market characterization/assessment for the DG/CHP Demonstration Program

The case study results are expected to be featured in NYSERDA's second quarter report. The process and market characterization/assessment study of DG/CHP is just commencing and results will be reported out when they become available.

5.3 Summary of R&D Program Budget and Spending Status

Table 5-1 presents detailed budget and funding information for the Research, Development, and Demonstration (RD&D or R&D) programs.

Table 5-1. Research & Development Programs – New York Energy \$martSM Financial Status through March 31, 2011 (\$ million)

Program	Budget ¹			Funds Spent			Encumbered Funds ⁴ % of Budget Encumbered	Committed Funds ⁵ % of Budget Committed
	SBC I & SBC II ²	SBC III ³	Total Budget	SBC I & SBC II ²	SBC III ³	Total Funds Spent % Funds Spent		
Public Benefit Power Transmission and Distribution Research	0.0	13.0	13.0	0.0	4.1	4.1 31.3%	9.1 70.2%	15.5 119.1%
End Use Renewable Energy Market ⁶	19.0	25.0	44.0	19.0	23.4	42.4 96.5%	44.0 100.0%	44.0 100.0%
Clean Energy Infrastructure	0.0	49.0	49.0	0.0	18.0	18.0 36.5%	39.8 80.6%	46.7 94.5%
Distributed Energy Resources: Products and Demonstrations ⁷	34.0	115.3	149.2	34.0	47.4	81.4 54.5%	116.7 78.2%	153.1 102.6%
Demand Response and Innovative Rate Research	0.0	6.0	6.0	0.0	0.3	0.3 5.0%	0.7 12.7%	6.2 103.2%
Electric Transportation	0.0	5.0	5.0	0.0	2.2	2.2 43.2%	3.7 74.0%	5.5 109.5%
Environmental, Monitoring, Evaluation, and Protection	17.7	23.8	41.5	17.7	14.4	32.1 77.3%	37.8 90.9%	40.4 97.2%
Industrial and Municipal Process Efficiency ⁸	0.0	13.0	13.0	0.0	8.1	8.1 62.1%	10.5 80.8%	13.8 106.2%
Next Generation and Emerging Technologies	18.3	24.5	42.7	18.3	16.7	35.0 81.8%	41.0 96.0%	43.2 101.2%
Wholesale Renewable Energy Market	16.5	3.6	20.1	16.5	2.9	19.4 96.4%	20.1 100.0%	20.1 100.0%
Other ⁹	0.4	-	0.4	0.4	<0.1	0.4 100.2%	0.4 100.5%	0.4 100.5%

Program	Budget ¹			Funds Spent			Encumbered Funds ⁴ % of Budget Encumbered	Committed Funds ⁵ % of Budget Committed
	SBC I & SBC II ²	SBC III ³	Total Budget	SBC I & SBC II ²	SBC III ³	Total Funds Spent % Funds Spent		
TOTAL Research & Development	\$105.9	\$278.4	\$384.3	\$105.9	\$137.4	\$243.3 63.3%	\$323.8 84.3%	\$388.8 101.2%

¹ Reflects carryover in funds and reallocation as approved by the PSC in 2007.

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 Encumbered funds associated with signed contracts and purchase orders.

⁵ Committed funds associated with encumbered funds and pending contracts.

⁶ Over committed amounts will be reclassified to the approved Renewable Portfolio Standard (RPS) Customer Sited Tier budget.

⁷ This includes the DG/CHP Demonstration Program and Power Systems Product Development.

⁸ This includes the Industrial Process and Product Innovation Program and Municipal Water and Wastewater Program.

⁹ Other: Projects transferred from the Empire State Electric Energy Research Corp. (ESEERCO) Program closed.

Totals may not sum due to rounding.

Source: NYSERDA

5.4 Program Results Summary

Significant progress is being made by the R&D portfolio. 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.

5.4.1 Energy, Peak Demand and Fuel Savings and Clean Generation

Through NYSERDA's Impact Evaluation activities, independent third-party contractor teams assessed the energy and peak demand savings and clean generation reported for the DG-CHP Demonstration, Clean Energy Infrastructure, and Demand Response and Innovative Rate Research 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. Based on this review, the contractors adjusted the savings reported by NYSERDA. In turn, the contractors further adjusted these figures, based on primary research, to account for freeridership and spillover. Table 5-2 summarizes the estimated net electricity savings and clean generation for each of the two applicable R&D programs. Table 5-3 summarizes peak demand reductions. Table 5-4 shows natural gas impacts for the R&D programs.

Table 5-2. New York Energy \$martSM R&D Program Electricity Savings and Clean Generation through March 31, 2011

Program	Energy Savings (GWh)	
	Savings Achieved through	
	June 30, 2006	March 31, 2011
DG-CHP Demonstration Program ¹	82.7	534.1a
Renewable Energy Production	103.8	107.9
Statewide R&D Total	186.5	642.0

¹ Savings shown in this row are inclusive of overlap with the FlexTech Technical Assistance Program. This cross-sector overlap is subtracted out of the portfolio level results presented in Section 2 of this report.

a The decrease in DG-CHP cumulative energy and on-peak reduction numbers, relative to the last report, is due to adjustments made on one large project.

Table 5-3. New York Energy \$martSM R&D Program Cumulative Peak Demand Savings through March 31, 2011

Program	Demand Savings (MW) ¹	
	Savings Achieved through	
	June 30, 2006	March 31, 2011
DG-CHP Demonstration Program ²	18.1	96.3a
Demand Response and Innovative Rate Research	137.2	99.0
Renewable Energy Production	8.1	11.7
Statewide R&D Total	163.4	207.0

¹MWs 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.

²Savings shown in this row are inclusive of overlap with the FlexTech Technical Assistance Program. This cross-sector overlap is subtracted out of the portfolio level results presented in Section 2 of this report.

a The decrease in DG-CHP cumulative energy and on-peak reduction numbers, relative to the last report, is due to adjustments made on one large project.

Table 5-4. New York Energy \$martSM R&D Program Natural Gas Impacts through March 31, 2011

Program	Fuel Savings (MMBtu)	
	Savings Achieved through	
	June 30, 2006	March 31, 2011
DG-CHP Demonstration Program ¹	-571,310	-3,593,578
Statewide R&D Total	-571,310	-3,593,578

¹ This table shows the negative natural gas impacts from DG-CHP demonstration projects due to an increase in on-site gas use resulting from project operations. Although other R&D programs result in positive natural gas impacts, these impacts are not verified and therefore are not reported here. 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 wastewater 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. Impacts shown in this row are inclusive of overlap with the FlexTech Technical Assistance Program. This cross-sector overlap is removed from the portfolio level results presented in Section 2 of this report.

5.4.2 Follow up on R&D Program Portfolio Level Evaluation Recommendations

Table 5-5 presents a summary of R&D Program recommendations resulting from program evaluations. This table also provides the status of each recommendation (*i.e.*, if a recommendation has already been adopted, if it will be adopted in the future, or if it will not be adopted) as well as a response from program staff to each recommendation. These recommendations come from a recently completed process evaluation on R&D Program funding opportunities issued in August 2010. The full report is available on NYSERDA's website at http://www.nyserdera.org/Energy_Information/ContractorReports/nyserdera_rd_process_report.pdf and is summarized in the Q3 2010 report. Per DPS quarterly and annual reporting guidelines, these program recommendations will be revisited with program staff and updated, as applicable, on a quarterly basis. Recommendations that have already been addressed and discussed in prior reports are not included here.

Table 5-5. R&D Program Portfolio Level Evaluation Recommendations and Status

Source of Recommendation (Contractor, Report Title, Date)	Recommendation	Status	Program Implementer Response to Recommendation and Adoption Decision Rationale
RIA, Research and Development Program Funding Opportunities, Process Evaluation, August 2010	Continue to explore ways to make requirements clear and easy to follow; <i>e.g.</i> , conduct research on what of the commercialization requirements need clarification.	Plan to Adopt	R&D program staff intends to implement this recommendation.
	Consider waiving or lowering cost-share requirements for not-for-profits.	Plan to Adopt	R&D program staff intends to implement this recommendation.
	Continue to allow direct contact with program staff members but encourage proposers to attend public information sessions, teleconferences, and webinars.	Plan to Adopt	R&D program staff intends to implement this recommendation.
	Annually review procedures for requesting and scheduling debriefings and for communicating those procedures to proposers, and subsequently review those procedures with all R&D staff to ensure that the procedures are understood and followed.	Plan to Adopt	R&D program staff intends to implement this recommendation.
	Carry out the ORDB update as planned, and as possible incorporate features and conventions to ensure consistent data entry and include fields to record technical and non-technical contacts, entity type, and type of interest in funding opportunities and to mark records that should be excluded from surveys. Revise existing records to comply with convention.	Plan to Adopt	R&D program staff intends to implement this recommendation.
	Develop ways to update existing records after adding new fields, such as by sending email requests or allowing individuals to update their database records on line.	Plan to Adopt	R&D program staff intends to implement this recommendation.
	Generate an individualized email to each recipient of a broadcast email announcement.	Plan to Adopt	R&D program staff intends to implement this recommendation.

5.4.3 Summary of Other Key Results

Across the New York Energy SmartSM R&D programs, five-year goals, encompassing the period July 1, 2006 to June 30, 2011, were established in the SBC III Operating Plan.¹ Overall, the programs are also

¹ System Benefits Charge Proposed Plan for New York Energy Smart Programs (2006-2011), As amended, March 2, 2006.

performing well with respect to these goals. Results of each program's progress toward its goals are shown in table format in the subsequent sections.

An overview of progress is presented below and is related to each programs' five-year goals in the following sections:

- Under the Public Benefit Power Transmission and Distribution Research Program, 35 projects have been selected to pursue development of advanced technologies that will improve the efficiency and delivery of power for electric customers across the State. The Program has succeeded in collaborating with major stakeholders. The program has funded projects in several of the utility companies, is working with the NYISO's newly formed R&D group to prioritize critical technology needs, and is partnering with the U.S. Department of Energy (DOE) on smart grid projects and technology evaluation.
- The Clean Energy Infrastructure Program has helped develop four accredited training institutions, offered 27 training workshops, supported 136 companies in their efforts to expand renewable business networks, and helped nine manufacturing companies expand their operations.
- The Power Systems Program has funded 71 projects, launched nine new products and completed nine field demonstrations.
- The DG-CHP Demonstration Program has funded 54 projects representing 68 MW of anticipated installed capacity.
- Demand Response and Innovative Rate Research Program has enlisted the participation of 5,330 apartments for time-sensitive electric rate pilot programs.
- The Electric Transportation Program has issued 11 solicitations and selected 32 projects for funding.
- The Environmental Monitoring, Evaluation, and Protection Program has issued 10 solicitations, resulting in 58 contracts and \$12 million in co-funding. Twenty-seven research reports, five summary communications, and 91 journal articles have been published.
- The IPPI Program has issued six solicitations resulting in 59 projects.
- The Municipal Water and Wastewater Efficiency Program has selected six projects for funding. The program goal of providing information to 1,000 individuals serving the municipal wastewater and water treatment sectors was achieved in 2008.
- Under the Next Generation and Emerging Technologies Program, 26 advanced building projects, 11 daylighting design assistance, two solar thermal projects, and 30 emerging technologies projects have commenced.

5.5 Public Benefit Power Transmission and Distribution Research

5.5.1 Program Description

The Public Benefit Power Transmission and Distribution Research Program supports transmission and distribution (T&D) research that has broad statewide benefits. Projects provide improvements in energy efficiency, power reliability, quality and security, and reduce the cost of energy and energy delivery. NYSERDA is coordinating with all key stakeholders including the New York State Independent System Operator (NYISO), the New York State Department of Public Service (DPS) and the electric utilities to implement a comprehensive R&D strategy to optimize performance of the electric power delivery system.

5.5.2 Progress Toward Goals

The program was initiated in 2007. Two long-term goals have been set for the Public Benefit Power Transmission and Distribution Program. These goals and progress are described in Table 5-6. Three solicitations have been released, with the following stated objectives:

1. Demonstrate and develop technologies that improve the performance of the electric power delivery system in New York
2. Develop strategies that support sustainable investment, equitable and efficient electric energy markets, and continued improvement of the electric power delivery system in New York

The number of approved and contracted projects is shown in Table 5-7.

Table 5-6. 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 March 30, 2011
Issue annual solicitations	Twelve or more projects resulting in progress toward program objectives	Three solicitations were completed (total of five rounds), resulting in 35 projects. The American Recovery & Reinvestment Act (ARRA) of 2009 provided a unique opportunity to leverage funding. Three (3) additional projects used ARRA funding for a variety of research activities. All projects are in various stages of development.
Technology transfer	Undertake knowledge transfer activities aimed at utilities	Knowledge transfer activities have begun as projects near completion. Results from one of the projects were shared with the NYS Smart Grid Consortium and will be presented at the 2010 CIGRE conference (International Council on Large Electric Systems).

Table 5-7. Status of Public Benefit Power T&D Research Program Projects by Solicitation

	Number of SBC-funded Projects Approved	Number of Signed Active Contracts	Number of Unsigned Contracts	Number of Withdrawn or Terminated Contracts	Number of Completed Projects
Projects	32	22	9	1a	8

a Renegotiating contract.

During the fourth quarter of 2010, Round One of PON 1913 “Smart Grid Program” received 17 proposals, requesting total funding of approximately \$14.5 million. Seven projects with funding of \$4.7 million were approved.

5.6 Clean Energy Infrastructure

5.6.1 Program Description

The previous End-Use Renewables Program (EUR) provided the foundation for the creation of the Clean Energy Infrastructure Program. Clean Energy Infrastructure efforts will be closely integrated with other SBC-funded efforts, such as Power Systems Program, to develop and commercialize clean energy technologies. The ultimate goal of these programs is to reach the point at which the value of the technology is worth the investment required by the consumer, and the market infrastructure is in a position to deliver and support the technology over the long term. This program is complementing efforts under the Renewable Portfolio Standard (RPS) by supporting training, education and market development for RPS-eligible technologies such as photovoltaics. The Clean Energy Infrastructure funds may also be used to reduce the installation and operating cost of systems not eligible for RPS funding.

5.6.2 Progress Toward Goals

The Clean Energy Technology Manufacturing and Business Development programs increased the number of companies developing and manufacturing clean energy technologies to nine. Business development support services serving the clean energy businesses in New York, increased from 22 in 2008 to 136. This includes the entrepreneurs in residence program (funded under PON 995) and the clean tech executives (funded under PON 1216).

In the Education, Consumer Awareness, and Market Development programs, there are currently 40 training partners around the state, including the four training institutions with accreditation: Bronx Community College for PV, Hudson Valley Community College for PV, SUNY Delhi for PV, and SUNY Farmingdale for PV.

As of this period, a total of 269 PV installers are eligible to participate in NYSERDA's PV incentive program, including 45 individuals NABCEP certified, 198 eligible, and 72 with provisional status.

Several non-energy goals have been set for the Clean Energy Infrastructure Program. These five-year goals, as well as cumulative performance through March 2011 are shown in Table 5-8. The Program is performing well with respect to its goals.

Table 5-8. Clean Energy Infrastructure Program Goals achieved from July 1, 2006 through March 31, 2011

Activity	Program Goals (July 1, 2006 through June 30, 2011)		Achieved July 1, 2006 through March 30, 2011	% 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	4	>100%
New certification exams	5		3	60%
Training workshops	25		27a	>100%
Renewable Resource Applications				
Stakeholder workshops	7	Addressing knowledge and technical barriers currently impeding installation and operation of wholesale and end-use clean energy technologies	13	>100%
Competitive research solicitations	5		14	>100%
Clean Energy Technology Manufacturing and Business Development				
Companies expanding renewable business networks and receiving business development support	25	Increase the number of companies developing and manufacturing clean energy technologies, and serving the clean energy businesses in New York	136	>100%
Companies expanding manufacturing	10		9	80%

a This program goal does not include the many clean energy renewable and efficiency training workshops throughout the state held by NYSERDA's training partners.

5.7 Power Systems

5.7.1 Program Description

The goal of this program is to work with New York technology companies to develop distributed generation and storage products, and to expand the number of marketable competitive products that reduce peak load, improve power quality, and provide improved cost-effective environmental performance. The Power Systems Program supports New York businesses in all aspects of product development necessary to create and commercialize power generating products that are clean, efficient, reliable, and cost effective, as well as other products that reduce peak demand or improve end user power quality. Additionally, the program focuses on New York specific issues such as economic development and job creation in New York State; targets technologies and opportunities that are not being addressed by the market; addresses regulatory barriers to the adoption of superior new technologies; and, emphasizes the development of economically-competitive options for end users.

5.7.1 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 5-9. The program is performing well with respect to its goals.

Table 5-9. Power Systems Product Development Program Goals achieved from July 1, 2006 through March 31, 2011

Activity	Program Goals (July 1, 2006 through June 30, 2011)	Achieved July 1, 2006 through March 30, 2011	% of Goal Achieved
Number of contracts signed between July 1, 2006 through June 30, 2011	75	71	95%
New products launched between July 1, 2006 through June 30, 2011a	5	11	100%
Sales revenue from new products launched between July 1, 2006 through June 30, 2011a	\$50 million	TBD	TBD
Number of completed field demonstrations between July 1, 2006 through September 30, 2010a	15	9	60%
Number of technology assessment studies funded between July 1, 2006 through September 30, 2010	20	7	35%

a Includes results from projects funded prior to July 1, 2006.

5.8 DG-CHP Demonstration

5.8.1 Program Description

The DG-CHP Demonstration Program supports the growth of combined heat and power and other distributed generation applications in New York. The program provides funding for single and multi-site demonstrations, and seeks to improve awareness among end-users and project developers of DG-CHP. The program also seeks to address DG-related issues such as DG permitting; Standard Interconnection Requirements (SIR); utility standby service; tariffs; technology risk; renewable fuel options such as anaerobic digesters and landfill gas; and the impact of fluctuating prices of natural gas. The program uses financial incentives to encourage customer-sited DG using commercially available DG technologies such as reciprocating engines, steam turbines, gas turbines and microturbines. The program is coordinated

with similar offerings from RPS Customer-Sited Tier and other System Benefits Charge programs such as the Multifamily Performance and the Existing Facilities Programs.

The 13-year program budget, which includes Power Systems, is \$149.2 million.

5.8.2 Progress Toward Goals

Two important non-energy goals have been set for the DG-CHP Program. These five-year goals and progress are shown in Table 5-10. The program is making good progress toward achieving its long-term goals.

Table 5-10. DG-CHP Demonstration Program Near-Term Goals

Activity	Program Goals (July 1, 2006 through June 30, 2011)	Achieved July 1, 2006 through March 30, 2011	% 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.	Six solicitations, since 2006, have resulted in 54 active projects, representing 68 MW with 9 MW on Consolidated Edison service area.	108% (Number of projects funded) 68% (MW goal) 18% (downstate MW goal)
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.	Currently, site-specific performance data is posted on http://chp.nyserda.org for 44 projects. A U.S. Environmental Protection Agency (EPA) CHP Partnership meeting was held in October 2009 and NYSERDA sponsored a CHP Roundtable. A CHP Programs Brochure has been developed and is distributed at appropriate conferences.	N/A

This past quarter, NYSERDA awarded nineteen demonstration projects from PON 1931, two projects became operational, and one was terminated. Also, NYSERDA received the 2010 American Council for an Energy-Efficient Economy Top State-Led Energy Efficiency Program Award for the CHP Demonstration Program.

5.9 Demand Response and Innovative Rate Research (DR and IRR)

5.9.1 Program Description

This program addresses technology and market barriers that hinder retail customers from being active participants in a smart grid by: 1) participating in energy markets as demand response resources (*i.e.*, load curtailment, demand response generation, etc.), 2) managing and responding to market-based electric rates, and 3) having access to real-time, direct and in-home feedback on energy consumption. Novel load control technologies and techniques can enable more retail electric loads to participate as demand response resources and also respond to dynamic rates. Load controls often yield substantial energy efficiency and can be self-financed from the market-based DR revenues and cost avoidance. The new In-Home Energy Feedback research seeks to quantify the effects of providing NYS households with direct real-time feedback on their electrical consumption and cost, as may be accomplished with smart metering.

5.9.1 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 5-11. Shown in Table 5-12 is the solicitation activity for the program. There are four signed contracts and four pending contracts associated with the program.

Table 5-11. Demand Response and Innovative Rate Research Program – Goals and Achievements

Goal	Program Goals (July 1, 2006 through June 30, 2011)	Achieved (July 1, 2006 through March 31, 2011)	% of Goal Achieved
Increase small customer participation in wholesale and local demand response programs	100 MW	1 MW	1%
Increase the number of multifamily apartment units participating in real-time and other time-sensitive electric rate pilots	3,000 apartment units	5,330 units participating in the demonstration	>100%

Table 5-12. Demand Response and Innovative Rate Research Program Project Status

	Number of SBC-funded Projects Approved	Number of Signed Active Contracts	Number of Unsigned Contracts	Number of Withdrawn or Terminated Contracts	Number of Completed Projects
PON 1151 “Innovations in Demand Response, Load Management and Dynamic Rates”					
Rounds 1 to 3	9	4	4	1	0

5.10 Electric Transportation

5.10.1 Program Description

This program supports emerging technologies from inception through field testing and pre-commercial deployment. The benefits of the electric transportation program will include peak load reduction in the New York City load pocket and permanent energy use reductions. These reductions will further result in cost savings for the subway and commuter rail systems and reduced transmission congestion in the region. Additionally, many projects are expected to lower transportation costs and emissions from petroleum-fueled vehicles.

5.10.2 Progress Toward Goals

The ultimate goals of the Electric Transportation Program are to:

- improve the energy efficiency of the New York’s current electrically powered commuter rail and subway system in the New York City load pocket, and
- reduce costs of power transmission by allowing unused off-peak capacity to generate revenue and reduce transportation petroleum use, greenhouse gases, and air emissions.

As shown in Table 5-13, five metrics are being monitored for the Electric Transportation Program.

Table 5-13. Electric Transportation Program Goals achieved from July 1, 2006 through March 31, 2011

Activity	Achievements from July 1, 2006 through March 31, 2011
Solicitations released	11
Proposals reviewed	71
Projects funded	32 awarded, 31 contracted
Funding for contracted projects	\$4.34 million ¹
Customer co-funding of contracted projects	\$11.5 million

¹Lower compared to last quarter due to disencumbered project.

5.11 Environmental Monitoring, Evaluation, and Protection (EMEP) Program

5.11.1 Program Description

This program commenced in the late 1990s as an effort to increase understanding of the environmental impacts of electricity production. EMEP initiatives are building on past efforts and evolving to support policy-relevant research in five primary areas: ecosystem response to sulfur, mercury, and nitrogen deposition; health- and energy-related research on air quality, particulate matter (PM), ozone, and co-pollutants; climate change; environmental impacts of alternative energy; and crosscutting environmental science and technology projects. The Program is guided by a steering committee comprised of major stakeholder groups. In addition, a separate science advisory committee continues to provide technical review. The Program has maintained a robust science and policy communication component to deliver

program findings to policy-makers, scientists, and the public. The EMEP closely collaborates with regional and national entities to leverage funds for pertinent research projects.

5.11.2 Progress Towards Goals

Table 5-14 shows the EMEP Program accomplishments toward its five-year goals.

Table 5-14. Environmental Monitoring, Evaluation, and Protection Program Goals achieved from July 1, 2006 through March 31, 2011

Activity	Program Goals (July 1, 2006 through June 30, 2011)	Achieved July 1, 2006 through March 31, 2011	% of Goal Achieved
Develop detailed multi-year EMEP research plan with input from policymakers, scientists, and stakeholders	Complete EMEP research plan and update research plan as needed to ensure relevancy	EMEP's research plan, developed with assistance from the New York Academy of Sciences, was released in September 2007. The Alternative Energy section was updated in 2008 with impacts of wind power development on wildlife in the State.	N/A
Develop, contract, and manage research projects aimed at priority energy-related environmental research areas	<ul style="list-style-type: none"> ▪ Issue six to 10 solicitations ▪ Contract 40 projects ▪ Leverage \$20 million into New York, help build a knowledge-based research infrastructure in New York 	Ten solicitations have been issued. Fifty-eight projects have been contracted, leveraging more than \$11.87 million in outside co-funding.	100% of solicitation goal >100% of projects goal 59% of leveraged funds goal
Sponsor workshops, conferences, and seminars	Five to 10	EMEP has co-sponsored or hosted: 5 workshops 2 seminars 9 conferences 1 collaborative meeting	>100%
Provide web-based EMEP data and information	200,000 total customer visits, inquiries, and downloads to the EMEP website	EMEP websites had 170,000 hits during this period, totalling 327,000 hits and more than 63,000 downloads since inception.	>100%
Publish NYSERDA research reports	40	Twenty-seven research reports and five summaries were published, including one on RGGI emission allowance auction.	68%
Publish peer-reviewed journal articles	100	Articles published include: 41 on Air Quality/Health Effects, 43 on Ecosystems, two on Climate Change, and five crosscutting research articles.	91%
Provide briefings to decision makers	15	25 briefings were held with various regulators, policymakers, and other decision-makers relevant to EMEP research.	>100%

5.11.3 Follow-Up on Evaluation Recommendations

The process evaluation completed by Research into Action in 2010 focused on the information transfer component of NYSERDA's EMEP, which has been part of the **New York Energy SmartSM** Program since 1999.² The process evaluation specifically sought to understand how EMEP information products are perceived and how they are used by several key contact populations. As part of this effort, the research team also sought to identify areas where EMEP could improve the access, usability, and/or relevance of the information products that flow from the program-sponsored research. The process evaluation report is now posted on NYSERDA's website.

Based on the report's findings and conclusions, the process evaluation made the following recommendations, which are presented in Table 5-15.

² Research Into Action, Process Evaluation: Environmental Monitoring, Evaluation and Protection Program, June 2010.

Table 5-15. EMEP Evaluation Recommendations and Status

Source of Recommendation (Contractor, Report Title, Date)	Recommendations	Status	Program Implementer Response to Recommendation and Adoption Decision Rationale
<p>RIA, Process Evaluation of EMEP, June, 2010</p>	<p>Program staff members should focus on networking as an outreach activity and encourage others involved in the program to provide information about the program directly to their peers. EMEP staff members could facilitate this by making sure that these key program contacts know what the program has available and how to direct people to find it.</p> <p>The final reports are important products and serve multiple purposes. Continue to require that EMEP researchers submit a final report that is appropriate for the project, the scope of which will vary on a case by case basis.</p> <p>Opportunities exist to clarify and streamline the review process of final reports. Consider strategies for simplifying the review process associated with finalizing reports when indicated by project characteristics. Material that has already been prepared for and published in a peer-reviewed journal or reports that are adding to information in previous reports could benefit from a more streamlined review process. Multi-disciplinary projects or those presenting entirely new information may require more substantive review.</p> <p>Regardless of the level of technical review or the number of reviewers, project managers should continue to be alert for opportunities to collect and summarize comments; to minimize the number of document revisions; and ensure that each successive review is providing marginal improvement sufficient to justify the time required of the researcher and NYSERDA staff.</p> <p>Researchers do not differentiate between invoicing reports and progress reports. Define the purpose of quarterly reports and what NYSERDA expects these reports to contain and consider ways to facilitate the quarterly reporting process for researchers, recognizing that they may not be accustomed to tracking budgets and research progress in this way.</p> <p>Consider milestone reports and payments rather than quarterly reports if appropriate, given the anticipated workflow associated with individual research projects.</p> <p>Advisory group members have differing views of their role and responsibilities. Consider a facilitated meeting with advisors to create a statement of focus or mission and otherwise clarify their role and what the program expects of them.</p> <p>Clarify for advisors NYSERDA's expectations for dissemination of results, document review tasks, and promotion of EMEP efforts.</p> <p>There are opportunities to improve constituent tracking. Improvements in constituent tracking would be valuable</p>	<p>Under Review</p>	<p>These recommendations have been presented to the EMEP Program. Advisory Group and staff have received feedback from them. EMEP staff are in the process of reviewing proposals for an Outreach Contractor who will likely help begin implementing some of the recommendations.</p>

Source of Recommendation (Contractor, Report Title, Date)	Recommendations	Status	Program Implementer Response to Recommendation and Adoption Decision Rationale
	for implementing improvements to EMEP’s overall outreach strategy. Program staff members should ensure that a comprehensive constituent tracking system to support the program’s outreach effort is part of the current marketing database development process.		

5.12 Industrial Process & Product Innovation Program

5.12.1 Program Description

The Industrial Process & Product Innovation (IPPI) Program³ supports feasibility studies and technology demonstrations and commercialization that (1) improve energy productivity and competitiveness of New York manufacturers (minimize cost per unit of output), (2) encourage capital investment and employment growth in New York facilities, (3) introduce New York-manufactured goods into new markets, and (4) encourage adoption of process changes that minimize waste. Cost-shared demonstration projects reduce risk and encourage manufacturers to adopt innovative and underused product and process alternatives. IPPI addresses product development as well as industrial process improvements. Occasionally, in addition to the general-industry IPPI solicitation, the program also offers a sector-specific solicitation such as PON 1236, “Energy Productivity in Innovative Local Food Production Systems”.

5.12.2 Progress Toward Goals

Table 5-16 shows long-term goals and progress for the 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.

³ This program was formerly known as the Industrial Research, Development and Demonstration Program.

Table 5-16. Industrial Process & Product Innovation Program – SBC III Goals and Achievements

Activity	Program Goals (July 1, 2006 through June 30, 2011)	Achieved from July 1, 2006 through March 31, 2011	% of Goal Achieved
Issue annual solicitations	Fund 30 to 40 cost-shared projects	Total of 59 projects approved for funding	>100%
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. Publish final reports as projects are completed.	Final reports: 8 Training sessions: 3 Conferences papers/presentations: 8 Site tours: 2 Open House: 1 Trade Journal articles: 2 Press release: 1 Excellence award: 1	N/A
Program metrics	Projects supported during the SBC III period are expected to result in cumulative annual energy savings of \$5 million, and project-related sales of \$10 million.	Sixteen projects completed: - Actual Energy savings: \$1.6 Million - Actual Non-energy savings: \$0.3 Million - Actual Project-related sales: \$3 Million - Potential energy savings: \$1.0 Million - Potential project-related sales: \$2.5 Million	Actual: Energy: 24% Sales: 30%

As shown in Table 5-17, 59 projects (from various NYSERDA solicitations) have been approved for funding. At this time, there are 29 signed contracts that are active and 17 projects have been completed.

Table 5-17. Status of IPPI Projects

	Number of SBC- funded Projects Approved	Number of Signed Active Contracts	Number of Unsigned Contracts	Number of Terminated Contracts	Number of Completed Projects
All Solicitations	59	29	0	13	17

This past quarter, the IPPI Program completed two projects. PON 2250: Innovation in the Manufacturing of Clean Energy Technologies was announced on March 9th with two due dates (May 26, 2011 and September 15, 2011).

5.13 Municipal Water and Wastewater Efficiency

5.13.1 Program Description

The Municipal Water and Wastewater Efficiency Program supports the development and demonstration of new technologies for the water/wastewater treatment sector. Studies and technology transfer activities, designed to accelerate the adoption of energy efficiency technologies, are also supported. In New York, the water/wastewater treatment sector uses 2.5 to 3 billion kWh annually. On average, treatment of water and wastewater represents 35% of a municipality's energy budget.

This R&D program is closely coordinated with programs offered through NYSERDA's Energy Efficiency Services Group. The FlexTech Program (formerly known as the Technical Assistance Program) has served the municipal water/wastewater sector since 1997 and has provided funding for 92 site-specific feasibility analyses to date. Also, equipment incentives are available through NYSERDA's Existing Facilities Program. In addition, technology transfer and outreach, through the **Energy SmartSM** Focus Program, will continue to play a key role in encouraging the adoption of innovative and energy-efficient technologies and practices.

5.13.1 Recent Program Accomplishments

Several five-year goals have been set for the Municipal Water and Wastewater Efficiency Program. Since July 1, 2006, the Program has been making good progress toward all of its long-term goals as are shown in Table 5-18.

Table 5-18. Municipal Water and Wastewater Efficiency Program SBC III Goals and Achievements

Activity	Program Goals (July 1, 2006 through March 31, 2011)	Achievements from July 1, 2006 through March 31, 2011	% of Goal Achieved
Issue annual solicitation	Select and fund 25 or more projects. Provide assistance to a minimum of 25 municipal wastewater and water treatment facilities.	Six projects, affecting six facilities, have been funded.	24%
Technology transfer	Provide critical information to 1,000 individuals serving the municipal wastewater and water treatment sector in New York on ways to optimize energy use at municipal wastewater and water treatment facilities.	<ul style="list-style-type: none"> - 21 presentation with over 1300 participants - two webcasts with over 100 participants - one management training with 70 participants - one web-based report on submetering of wastewater plants - one publication - six conferences dedicated to wastewater - one meeting with policy makers <p><u>On-going:</u> The Energy Smart Focus program is providing customized services to support energy efficiency in the sector, offering outreach materials and training to individuals associated with the sector statewide.</p>	100%
Energy and cost savings		On average, these projects take five to seven years from conception to implementation.	

Note: The above goals are based on the original budget of \$5 million, not the current budget of \$3 million.

PON 2202 was issued in February 2011 with \$1.6 million. The PON specifically targeted the development or demonstration of innovative technologies associated with anaerobic wastewater treatment, energy-efficient nutrient removal from wastewater, and harnessing electric power from water and wastewater treatment systems.

5.14 Next Generation and Emerging Technologies

5.14.1 Program Description

This program emphasizes discrete and integrated end-use technologies for buildings, daylighting applications, solar thermal applications, and emerging technologies for industry and buildings not covered elsewhere in NYSERDA's **New York Energy SmartSM** portfolio of programs. The bulk of funds for this program is being administered through narrowly defined competitive solicitations focusing on advanced

building demonstrations, discrete building technologies, solar thermal applications, daylighting applications, and emerging technologies. The program emphasis is on funding developers of energy-efficient technologies that would be commercially available to end users. Demonstration solicitations are open to all end-use customers, particularly those with high electric loads.

5.14.2 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 5-19. Overall, the Program is making good progress toward achieving its long-term goals.

Table 5-19. Next Generation and Emerging Technologies Program – Goals and Achievements

Activity	Program Goals (July 1, 2006 through June 30, 2011)	Achievements (July 1, 2006 through March 31, 2011)	% of Goal Achieved
Advanced Building Program	Two solicitations Two or more demonstration test beds	Seven solicitations completed. The advanced building solicitations have explored building systems such as whole-house ventilation, compression-less air conditioning, window improvements, and micro-CHP. Under PON 1096, Demonstration of High Performance Residential Homes, four teams were formed to design, build, and demonstrate high-performance residential homes to illustrate the importance of tight building envelopes and improved construction practices.	>100% of solicitations goal >100% of demo test beds goal
Daylighting Applications	50-100 design assistance projects Five daylighting implementations in buildings	Nineteen clients have received daylighting design assistance services. One daylighting implementation project is underway.	19-38 % of the design assistance goal 20% of the daylighting goal
Solar Thermal Applications	Two solicitations Five demonstrations	One solicitation (PON 1085) completed. Five out of six installations are complete from two demonstration projects.	50% of the solicitations goal >40% of the goal for demonstration projects

Activity	Program Goals (July 1, 2006 through June 30, 2011)	Achievements (July 1, 2006 through March 31, 2011)	% of Goal Achieved
Emerging Technologies	Five solicitations 25 product development projects	Five solicitations have been completed to date. Solicitations have funded a wide variety of product development and demonstrations of end-use technologies including thermo-photovoltaic applications, micro-CHP, solid copper rotor electric motors, high-efficiency billboard displays, and solar thermal air conditioning. Thirteen product development projects are underway.	>100% of the solicitations goal 52% of the projects goal

Shown in Table 5-20, by activity area, is the contract status of approved projects.

Table 5-20. Status of Next Gen Projects by Solicitation

	Number of Signed Active Contracts	Number of Unsigned Contracts	Number of Completed Projects
Advanced Building Program	17	0	9
Daylighting Applications	11	0	0
Solar Thermal Applications	2	0	0
Emerging Technologies	24	6	5
Total	54	6	14

During this past quarter, PON 1772: Next Generation Emerging Technologies for End-Use Efficiency has six contracts currently in contract negotiation and one signed contract. Round three of PON 1772 received 44 proposals, requesting total funding of \$27 million.

In addition, below is a list of accomplishments associated with advanced buildings:

- High Performance Design Challenge has produced 23 completed homes. One of them was first house in New York to be a Certified Passive House. Whereas an average house has 3.5 air changes per hour (ACH), the passive house had .15 ACH. Incremental cost per square foot was captured on all 23 homes. One project used the Neopor graphite material (first use of product in the country) to enhance an existing molded expanded polystyrene (EPS) insulation, yielding an ACH of .92. Several of the homes from the challenge have been featured in articles and news releases.

- The Geothermal Desiccant Cooling system was developed in partnership with Syracuse Center of Excellence, resulting in the formation of a new company.
- An intelligent window coating has been developed and final trials are being conducted.
- A trial application of an internal duct lining coating was conducted. Product licensing is underway.
- The Deep Energy Retrofit Pilot project produced four completed retrofit single-family homes in the Mohawk Valley area. Homes featured exterior rigid insulation, streamlined mechanical systems and whole house ventilation. Air leakage was reduced by 75% and fuel consumption was reduced by 55% to 65%. A Deep Energy Retrofit training module was developed from this pilot project. The training course has attained BPI accreditation and has been delivered in two locations, Schroon Lake and Canton, NY, with 40 and 25 attendees, respectively. More training sessions are anticipated.

Appendix A: Evaluation Adjustment Factors

This appendix was created in lieu of tables previously presented in Sections 3, 4, and 5 of each quarterly report showing the adjustments applied to each program's reported savings for measurement and verification (M&V) and attribution (net-to-gross) evaluation assessments. Only the final net program savings, with all adjustments applied, are presented within the main body of this quarterly report, but these adjustment factors are provided so the reader can understand the extent to which M&V realization rates and the attribution work on freeridership and spillover affect the overall program achievements.

Table A-1. Commercial/Industrial Program Evaluation Adjustment Factors

Program	Savings Metric	Realization Rate	Freeridership	Spillover	Net-to-Gross Ratio
Existing Facilities (New York Energy Smart SM)	MWh	N/A ¹	N/A ¹	N/A ¹	N/A ¹
	MW	N/A ¹	N/A ¹	N/A ¹	N/A ¹
	Curtable MW	N/A ¹	N/A ¹	N/A ¹	N/A ¹
	MMBtu	N/A ¹	N/A ¹	N/A ¹	N/A ¹
Existing Facilities (EEPS electric and natural gas)	MWh	1.0	N/A	N/A	0.90a
	MW	1.0	N/A	N/A	0.90a
	MMBtu	1.0	N/A	N/A	0.90a
Business Partners: Small Commercial Lighting	MWh	0.94	39%	79%	1.10b
	MW	1.0	39%	79%	1.10b
Business Partners: Premium Efficiency Motors	MWh	1.0	67%	168%	0.88
	MW	1.0	67%	113%	0.70
Business Partners: Commercial HVAC	MWh	N/A	N/A	N/A	N/A
	MW	N/A	N/A	N/A	N/A
Business Partners: Hospitality Lighting	MWh	Not Evaluated	Not Evaluated	Not Evaluated	Not Evaluated
	MW	Not Evaluated	Not Evaluated	Not Evaluated	Not Evaluated

Program	Savings Metric	Realization Rate	Freeridership	Spillover	Net-to-Gross Ratio
Loan Fund	MWh	0.81c	27%	20%	0.93
	MW	1.73c	27%	20%	0.93
	MMBtu	1.59	27%	20%	0.93
New Construction (New York Energy Smart SM)	MWh	1.03d	39%	89%	1.22d
	MW	0.97d	39%	89%	1.22d
	MMBtu	1.0d	39%	89%	1.22d
New Construction (EEPS electrical and natural gas)	MWh	1.03	39%	89%	1.22
	MW	0.97	39%	89%	1.22
	MMBtu	1.0	N/A	N/A	0.9a
Flex Tech (New York Energy Smart SM)	MWh	1.0d	25%	48%	1.14d
	MW	1.0d	25%	48%	1.14d
	Curtable MW	1.0d	25%	48%	1.14d
	MMBtu	1.0	25%	48%	1.14
Flex Tech (EEPS electric and natural gas)	MWh	1.0	N/A	N/A	1.14
	MW	1.0	N/A	N/A	1.14
	MMBtu	1.0	N/A	N/A	0.9a
Industry and Process Efficiency (EEPS)	MWh	1.0	N/A	N/A	0.9a
	MW	1.0	N/A	N/A	0.9a
	MMBtu	1.0	N/A	N/A	0.9a

¹ Realization rates and Net-to-Gross ratios are applied to the several individual predecessor components of this program and savings are reported at an aggregate level.

a DPS directed NTG ratio of 0.9 until evaluation of program is done.

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

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

d Adjustment factors shown here do not include separate adjustments made to a subset of large energy saving projects that were separately evaluated.

Table A-2. Residential and Low-Income Program Evaluation Adjustment Factors

Program	Savings Metric	Realization Rate	Freeridership	Spillover	Net-to-Gross Ratio
New York ENERGY STAR Homes (New York Energy Smart SM)	MWh	1.10	28%	48%	1.17
	MW	2.32	28%	48%	1.17
	MMBtu	0.74	28%	48%	1.17
Home Performance with ENERGY STAR (New York Energy Smart SM)	MWh	1.00	26%	41%	1.12
	MW	1.04	26%	41%	1.12
	MMBtu	0.86	26%	41%	1.12
New York ENERGY STAR Homes (EEPS natural gas)	MMBtu	1.0	N/A	N/A	0.9a
Home Performance with ENERGY STAR (EEPS natural gas)	MMBtu	1.0	N/A	N/A	0.9a
Assisted Multifamily	MWh	0.97	27%	15%	0.84
	MW	1.26	27%	15%	0.84
	MMBtu	1.0	27%	15%	0.84
Comprehensive Energy Management	MWh	0.57	2%	18%	1.16
	MW	0.82	2%	18%	1.16
Low Income Direct Installation	MWh	1.0	N/A	N/A	0.9a
	MW	1.0	N/A	N/A	0.9a
Multifamily Performance Program (New York Energy Smart SM)	MWh	1.0	N/A	N/A	0.9a
	MW	1.0	N/A	N/A	0.9a
	MMBtu	1.0	N/A	N/A	0.9a
Market Rate Multifamily Performance (EEPS electric and natural gas)	MWh	1.0	N/A	N/A	0.9a
	MW	1.0	N/A	N/A	0.9a
	MMBtu	1.0	N/A	N/A	0.9a
Low Income Multifamily Performance (EEPS electric and natural gas)	MWh	1.0	N/A	N/A	0.9a
	MW	1.0	N/A	N/A	0.9a
	MMBtu	1.0	N/A	N/A	0.9a

Program	Savings Metric	Realization Rate	Freeridership	Spillover	Net-to-Gross Ratio
New York Energy Smart SM Products and Marketing	MWh	N/A	N/A	N/A	N/A
	MW	N/A	N/A	N/A	N/A
	MMBtu	N/A	N/A	N/A	N/A
Keep Cool	MWh	1.0	18%	15%	0.94
	MW	1.0	18%	15%	0.94
Bulk Purchase	MWh	2.03	10%	5%	0.95
	MW	1.62	10%	5%	0.95
	MMBtu	0.71	10%	5%	0.95
CFL Expansion (EEPS electric)	MWh	Not Evaluated	N/A	N/A	1.6 b, c
	MW	Not Evaluated	N/A	N/A	1.6 b, c
Empower (New York Energy Smart)	MWh	N/A ²	N/A	N/A	Not Evaluated
	MW	1.0	N/A	N/A	Not Evaluated
	MMBtu	1.0	N/A	N/A	Not Evaluated
Empower (EEPS electric and natural gas)	MWh	0.81e	N/A	N/A	1.0e
	MW	1.0	N/A	N/A	1.0e
	MMBtu	1.0	N/A	N/A	0.9a

a DPS directed NTG ratio of 0.9 until evaluation of program is done.

b NTG estimation is based on sales from service territories compared with sales from one or more non-program comparison areas, sometimes selected to be demographically similar to the program area. The NTG equals the CFL sales in the program area minus CFL sales in the comparison area all divided by program-supported sales in the program area.

c The NTG estimate for the CFL Expansion Program is based on baseline conditions. As NYSERDA's current CFL Expansion Program evaluation is completed, this net-to-gross estimate will decrease.

d **New York Energy SmartSM** EmPower impacts include EmPower New York and Weatherization Network Initiative (WNI) programs, which have different realization rates for MWh/year. The EmPower realization rate is shown here. The WNI realization is a 1.0.

e The last EmPower impact evaluation conducted for the **New York Energy SmartSM** program resulted in a 0.81 realization rate. Net-to-gross was not evaluated. Thus, the total adjustment being applied to EEPS reported savings, based on prior evaluation results, is currently a 0.81. An updated impact evaluation will be completed for the EmPower program in 2011, which is expected to result in new adjustment factors.

Table A-3. Research & Development Program Evaluation Adjustment Factors

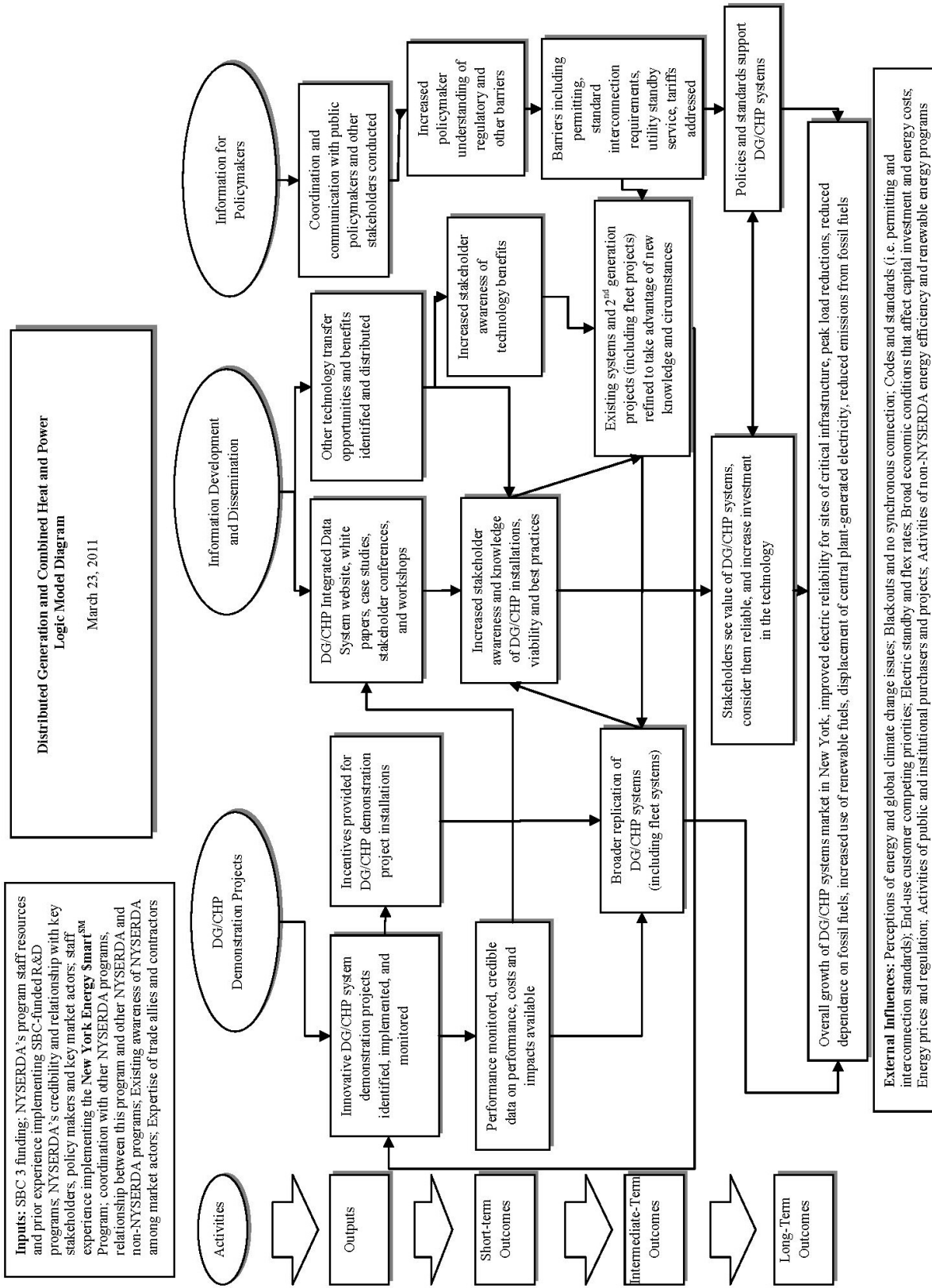
Program	Savings Metric	Realization Rate	Freeridership	Spillover	Net-to-Gross Ratio
End Use Renewables	MWh	1.04	N/A	N/A	1.0
	MW	0.85	N/A	N/A	1.0
Wholesale Renewables	MWh	1.0	N/A	N/A	1.0
	MW	1.0	N/A	N/A	1.0
DG-CHP	MWh	0.9a	N/A	N/A	1.07a
	MW	0.98a	N/A	N/A	1.07a
	MMBtu	0.89a	N/A	N/A	1.07a
Demand Response and Innovative Rate Research	MW	0.50	N/A	N/A	0.95

a Adjustment factors shown here do not include separate adjustments made to a subset of large energy saving projects that were separately evaluated.

Appendix B: Logic Models

The following page contains a program theory and logic model diagram completed during the first quarter of 2011 for NYSERDA's Distributed Generation-Combined Heat and Power Program. The full program theory and logic model report will be available on NYSERDA's website.

Appendix B: Logic Models



Appendix C: Avoided Costs Used in Benefit/Cost Analysis

Table C-1. Avoided Electric Energy Cost Forecast: \$/kWh With Line Losses (2008\$)

Year	Downstate	Upstate
2006	0.08738	0.07153
2007	0.08738	0.07153
2008	0.08738	0.07153
2009	0.08960	0.07459
2010	0.08786	0.07314
2011	0.08624	0.07178
2012	0.08465	0.07045
2013	0.08434	0.07020
2014	0.08402	0.06995
2015	0.08371	0.06970
2016	0.08391	0.06987
2017	0.08412	0.07004
2018	0.08433	0.07021
2019	0.08453	0.07038
2020	0.08474	0.07056
2021	0.08495	0.07073
2022	0.08516	0.07090
2023	0.08537	0.07108
2024	0.08558	0.07125

Source: New York State Public Service Commission Order Approving “Fast Track” Utility-Administered Electric Energy Efficiency Programs with Modification, Issued January 16, 2009. The values in the Order were adjusted to reflect line losses estimated at 7.2% of generation.

Table C-2. Avoided Electric Capacity Cost Forecast: \$/kW Reserve Margins, Line Losses, and Avoided Distribution (2008\$)

Year	Downstate	Upstate
2006	167.236	69.627
2007	167.236	69.627
2008	167.236	69.627
2009	167.575	77.726
2010	237.306	85.399
2011	236.789	92.532
2012	236.228	99.235
2013	242.543	105.550
2014	238.190	111.487
2015	229.914	117.069
2016	239.537	122.328
2017	254.397	127.263
2018	255.550	131.907
2019	256.584	136.272
2020	257.522	140.366
2021	258.362	144.213

Source: New York State Public Service Commission Order Approving “Fast Track” Utility-Administered Electric Energy Efficiency Programs with Modification, Issued January 16, 2009. The values in the Order were adjusted to include avoided distribution costs of \$100 per kW downstate and \$33.28 per kW upstate and to reflect line losses estimated at 7.2% of generation.

Table C-3. Avoided Winter Natural Gas Cost Forecast: \$/MMBtu (2008\$)

Year	Downstate	Upstate
2006	15.80	12.40
2007	15.80	12.40
2008	15.80	12.40
2009	13.87	10.47
2010	13.64	10.24
2011	13.41	10.01
2012	13.19	9.79
2013	13.19	9.79
2014	13.19	9.79
2015	13.19	9.79
2016	13.27	9.87
2017	13.34	9.94
2018	13.42	10.02

Source: New York State Public Service Commission Order Approving “Fast Track” Utility-Administered Gas Energy Efficiency Programs with Modification, Issued April 7, 2009.

Table C-4. Avoided Year-Round Natural Gas Cost Forecast: \$/MMBtu (2008\$)

Year	Downstate	Upstate
2006	14.09	11.53
2007	14.09	11.53
2008	14.09	11.53
2009	12.24	9.67
2010	12.01	9.45
2011	11.79	9.23
2012	11.58	9.02
2013	11.58	9.02
2014	11.58	9.02
2015	11.58	9.02
2016	11.66	9.09
2017	11.73	9.17
2018	11.80	9.24

Source: New York State Public Service Commission Order Approving “Fast Track” Utility-Administered Gas Energy Efficiency Programs with Modification, Issued April 7, 2009. The year-round cost was derived by weighting summer prices (for seven months) and winter prices (for five months).

Table C-5. Marginal Retail Price of Electricity and Natural Gas¹

Retail Price of Electricity	
Downstate: Commercial/Industrial	\$0.238
Upstate: Commercial/Industrial	\$0.135
Downstate: Residential	\$0.231
Upstate: Residential	\$0.127
Retail Price of Natural Gas	
Commercial/Industrial	\$11.58
Residential	\$15.49

¹ Electricity prices reflect average prices excluding fixed costs.

Source: NYSDERDA.

Note: The split between commercial and industrial sectors was assumed to be 64% and 36%, respectively.

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State of New York
Andrew M. Cuomo, Governor

New York's System Benefits Charge Programs Evaluation and Status Report

Quarterly Report to the Public Service Commission
Quarter Ending March 31, 2011

New York State Energy Research and Development Authority
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