

4

Residential and Low-Income Programs

4.1 Overview of the Residential and Low-Income Programs

4.1.1 Residential Programs

The residential energy efficiency programs are designed to influence decisions regarding electricity use and to reduce households' energy bills. The programs also address petroleum and natural gas use when included as part of a comprehensive energy service package. Evaluations of the following residential programs are discussed in this section:

Single Family Home Performance Program. 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 Labeled Homes Initiative (NYESLH) for newly constructed homes. On the supply side, these initiatives support market development through recruitment, training and incentives for builders and contractors, in order to encourage them to offer energy efficient options. On the demand side, these initiatives market the benefits of energy efficiency to residential consumers in order to increase demand for efficient products and services. Both HPwES and NYESLH have low-income components providing additional incentives for low-income households.

Multifamily Building Performance Program. The Multifamily Building 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 (EMP) – 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. The Multifamily Building Performance Initiative also has a low-income component, providing technical and financial assistance to low-income building owners and their tenants to make energy efficiency improvements, thus reducing energy bills and providing increased health and safety benefits to building occupants.

Market Support Program. The New York Energy SmartSM Market 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 three major components to the Market Support Program: 1) the ENERGY STAR[®] Products Initiative, which seeks to increase the availability

and sales of residential ENERGY STAR appliances, lighting and home electronics products; 2) the Program Marketing Initiative, which provides marketing for the Single Family Home Performance Program, the Multifamily Building Performance Program, the summer and winter tips campaigns, and leveraged campaigns such as “Change a Light, Change the World” as well as marketing assistance to mid-stream partners; and 3) the GetEnergySmart.org website, which provides consumers with information about programs, names of contractors and retailers, and energy efficiency tips, provides potential program partners with participation information, and serves as a communication tool with current partners.

Communities and Education Program. 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 the **New York Energy Smart Communities (NYESC)**. 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. NYESC 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. NYESC also provides face-to-face education to the community on various energy topics and **New York Energy SmartSM** programs. Finally, NYESC has primary responsibility for recruiting mid-stream partners for **New York Energy SmartSM** residential programs.

4.1.2 Low-Income Programs

The low-income programs are designed to reduce the energy burden of low-income households by improving energy efficiency and providing energy management and aggregated energy procurement services. Evaluations of the following low-income programs are discussed in this section:

EmPower New YorkSM. The EmPower New YorkSM program provides energy efficiency services to utility customers earning less than 60% of the 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).

Buying Strategies and Energy Awareness Program. 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 to negotiate discounts on purchases of home heating oil by the Low-Income Home Energy Assistance Program, and also includes a preventive maintenance component for oil-fired heating systems; 2) the Targeted Marketing and Outreach Initiative, which seeks to increase participation in all NYSERDA, 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 Energy Smart Students (ESS) Initiative (described above).

4.2 Residential and Low-Income Evaluation Activities

The Residential and Low-Income program evaluation activities conducted in the past year are shown in Table 4-1. The table includes only new evaluation activities conducted in 2006. However, findings from earlier evaluations are also discussed in Section 4 to the extent that they contribute to the cumulative assessment of these programs.

Table 4-1. 2006 Residential and Low-Income Program Evaluation Activities

Program Name	Predecessor Program (if applicable)	Theory & Logic	Measurement and Verification (M&V)	Market Characterization, Assessment and Causality (MCAC)	Process Evaluation
Single Family Home Performance Program	Home Performance with ENERGY STAR ENERGY STAR Homes Program	Full	Database review	-	-
Multifamily Building Performance Program	Residential Comprehensive Energy Management (CEM) Program Residential Technical Assistance Program (ResTech) Assisted Multifamily Program (AMP)	Full	-	-	-
Market Support Program	Keep Cool, Stay Cool! ENERGY STAR Products and Marketing Program	-	-	-	-
Communities and Education Program	New York Energy SmartSM Communities Energy Smart Students Program	Full	-	-	-
EmPower New York		Full	Database review	-	Partial
Buying Strategies and Energy Awareness Program	Low-Income Buying Strategies Program Low Income Energy Program Awareness Low-Income Forum on Energy	-	-	-	-

4.3 Residential and Low-Income Evaluation Findings

Significant progress is being made as the Residential and Low-Income portfolio transitions to the new, streamlined set of programs. This section summarizes key evaluation findings from the latest set of

evaluation activities, and from the cumulative body of work conducted by NYSERDA and its evaluation contractors over the past several years.

4.3.1 Energy, Peak Demand and Fuel Savings

NYSERDA's M&V contractor assessed the energy and peak demand savings reported for its Residential and Low-Income 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 M&V contractor adjusted the savings reported by NYSERDA. In turn, the MCAC contractor further adjusted these figures to account for freeridership and spillover. Table 4-2 through Table 4-4 summarize the estimated electricity savings, peak demand reductions, and fuel savings for each Residential and Low-Income program. Savings for the low-income program elements are broken out in the footnotes to each table.

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

- Electricity savings were adjusted upward by 4%.
- Peak demand savings were adjusted upward by 4%.
- Other fuel savings were adjusted upward by 8%.

These adjustments include changes in program-reported savings due to database reviews and field work to measure and verify savings, as well as survey research and other activities to quantify freeridership, naturally occurring adoption, spillover and market effects.

Several near-term goals were set for the first year of the third **New York Energy SmartSM** Program funding cycle. These goals established levels to reach, by June 30, 2007, for energy and peak demand savings as well as several other key metrics of program success. Overall, in the first six months of the one-year measurement period, the Residential and Low-Income portfolio has achieved 15% of its goal for electricity savings, and 20% of its goal for fuel savings. There is no goal for peak demand reduction in this sector. Progress toward the one-year goal is shown for each applicable program in Table 4-2 and Table 4-4. A few key programs appear to be either progressing somewhat more slowly than planned or have not yet reported progress toward goals. Reasons for this slower progress are as follows:

- The Multifamily Building Performance Program for Existing Buildings has reached 16% of the electricity savings goal and 8% of the other fuel savings goal. This program is undergoing a significant change, combining the three former programs into one streamlined program offering. This emphasis on program development, coupled with a transition to a new implementation contractor, have slowed intake somewhat. However, staff reports that the program is still expected to reach its one-year goals within the next six months.
- The Multifamily Building Performance Program for New Buildings has not yet reported any electricity or other fuel savings. This is a completely new program launched in November 2006. Development of program rules and design has been the major emphasis in 2006, although the program did have approximately seven applications in the design phase by the end of December.
- The Market Support Program has not updated its electricity savings since December 31, 2005. Over the past several years, the savings for this market transformation program have typically been estimated by NYSERDA's Market Characterization, Assessment, and Causality (MCAC) evaluation

contractor team based on sales and shipment data, primary research such as consumer and retailer surveys, and other sources. The MCAC team is in the process of updating the savings for this program and progress will be presented in the first quarter of 2007. The program is expected to meet its one-year goal.

Table 4-2. Residential and Low-Income Program Electricity Savings through December 31, 2006 and Progress toward One-Year Goals

Program	Energy Savings (GWh)			
	Savings Achieved through		One-Year Goal through June 30, 2007	Progress Toward One-Year Goal (% achieved)
	June 30, 2006	Dec. 31, 2006		
Single Family Home Performance Program: Existing Homes ¹ (ConEdison)	13.5 (0.2)	14.6 (0.3)	5.3 (n/a)	20% (n/a)
Single Family Home Performance Program: New Homes (ConEdison)	7.3 (0.7)	9.3 (0.7)	1.8 (n/a)	108% (n/a)
Multifamily Building Performance Program: Existing Buildings ² (ConEdison)	31.0 (30.2)	38.2 (37.3)	45.1 (n/a)	16% (n/a)
Multifamily Building Performance Program: New Buildings (ConEdison)	0 (0)	0 (0)	4.8 (n/a)	0% (n/a)
Market Support Program (ConEdison)	303.8 (69.9)	303.8 (69.9)	30 (n/a)	0% (n/a)
EmPower New York (ConEdison)	23.2 (2.0)	27.9 (2.3)	10.2 (n/a)	46% (n/a)
ConEdison Residential & Low-Income Total	103.0	110.4	n/a	n/a
Statewide Residential & Low-Income Total	378.9	393.8	97.2	15%

¹ Savings for the low-income Assisted Home Performance Program are included in this row. They represent 5.5 GWh of these savings.

² Savings for the low-income Assisted Multifamily Program are included in this row. They represent 23.1 GWh of these savings.

Table 4-3. Residential and Low-Income Program Peak Demand Reductions through December 31, 2006

Program	Demand Reductions (MW)	
	Savings Achieved through	
	June 30, 2006	Dec. 31, 2006
Single Family Home Performance Program: Existing Homes ¹ (ConEdison)	2.0 (0.0)	2.2 (0.0)
Single Family Home Performance Program: New Homes (ConEdison)	0.9 (0.2)	1.1 (0.1)
Multifamily Building Performance Program: Existing Buildings ² (ConEdison)	3.9 (3.8)	5.0 (4.9)
Multifamily Building Performance Program: New Buildings (ConEdison)	n/a (n/a)	0 (0)
Market Support Program (ConEdison)	72.8 (16.7)	72.8 (16.7)
EmPower New York (ConEdison)	2.5 (0.0)	3.3 (0.0)
ConEdison Residential & Low-Income Total	20.8	21.9
Statewide Residential & Low-Income Total	82.2	84.4

Note: No goals were set for peak demand reduction.

¹ Savings for the low-income Assisted Home Performance Program are included in this row. They represent 0.8 MW of these savings.

² Savings for the low-income Assisted Multifamily Program are included in this row. They represent 1.8 MW of these savings.

Table 4-4. Residential and Low-Income Program Fuel Savings through December 31, 2006 and Progress toward One-Year Goals

Program	Fuel Savings (MMBtu)			
	Savings Achieved through		One-Year Goal through June 30, 2007	Progress Toward One-Year Goal (% achieved)
	June 30, 2006	Dec. 31, 2006		
Single Family Home Performance Program: Existing Homes ¹ (ConEdison)	523,821 (9,900)	642,458 (12,142)	239,800 (n/a)	49% (n/a)
Single Family Home Performance Program: New Homes (ConEdison)	508,247a (40,660)	586,858 (41,080)	103,700 (n/a)	76% (n/a)
Multifamily Building Performance Program: Existing Buildings ² (ConEdison)	43,932 (12,581)	140,541 (53,687)	1,202,900 (n/a)	8% (n/a)

Multifamily Building Performance Program: New Buildings (ConEdison)	n/a (n/a)	0 (0)	129,800 (n/a)	0% (n/a)
Market Support Program (ConEdison)	341,920 (58,126)	341,920 (58,126)	n/a	n/a
EmPower New York (ConEdison)	59,341 (0)	66,891 (0)	21,700 (n/a)	35% (n/a)
ConEdison Residential & Low-Income Total	121,267	165,036	n/a	n/a
Statewide Residential & Low-Income Total	1,477,261	1,778,688	1,697,900	18%

¹ Savings for the low-income Assisted Home Performance Program are included in this row. They represent 242,207 MMBtu of these savings.

² Savings for the low-income Assisted Multifamily Program are included in this row. They represent 140,541 MMBtu of these savings.

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

4.3.2 Summary of Other Key Program Impacts

Across the programs, 22 additional near-term goals were set for other key metrics besides energy savings, such as the number of customers receiving assistance, funds leveraged, allies participating, and outreach activities completed. Overall, the programs are making progress with respect to these other goals. Nine out of the 22 goals are approximately 50% or more achieved. In fact, three of the goals have already been reached or exceeded. The results of each program’s progress toward its stated goals are shown in table format in the subsequent sections.

Most of the new evaluation work on the Residential and Low-Income programs has consisted of updating and creating program logic models. Therefore, other key findings from secondary data and studies of participants, non-participants and other market actors shown below are largely repeated from previous major evaluation efforts:

- The ENERGY STAR label is the overarching symbol for NYSERDA’s Residential Programs. New Yorkers’ recognition of the ENERGY STAR label has increased steadily, from 34% in 1999 to 77% in 2005. The proportion of consumers in New York who show high understanding of the label has also increased from 35% in 1999 to 87% in 2005. In 2005, 63% of New York consumers saw television ads related to ENERGY STAR - evidence linking increased awareness and understanding directly to NYSERDA’s efforts.
- The percentage of ENERGY STAR-qualified models out of all models on display in partner stores increased from 14% in 1999 to 35% in 2005 for refrigerators, from 10% to 82% for dishwashers, from 16% to 39% for clothes washers, and from 26% to 61% for room air conditioners.
- NYSERDA’s program efforts from 1999 to 2005 have helped increase the market share of ENERGY STAR refrigerators among NYSERDA partners from 28% to 47%; from 48% to 76% for dishwashers; from 24% to 41% for clothes washers; and from 45% to 76% for room air conditioners. The proportion of new single-family homes sold that are ENERGY STAR-labeled has increased from 0.3% in 2001 to 11.1% in 2006. The proportion of the home improvement market installing efficiency measures through the HPwES Program has increased from 0.2%-0.3% in 2001 to 2.1%-3.3% in 2005.

- NYSERDA continues to be effective in recruiting partners in appropriate markets, and in providing them with tools—such as training and marketing—to help them persuade consumers to adopt more efficient products and behaviors. Association with NYSERDA’s programs and with energy efficiency has helped many of these partners differentiate their businesses from competitors.
- Nearly all parties involved in these programs, including builders, contractors and consumers, indicate a high degree of satisfaction with the programs. This year’s process evaluation surveys and interviews indicate that the results of the EmPower program pilot were largely positive for the six participants. The contractors are pleased with the increased speed with which they can complete jobs by avoiding the pre-approval process under the EmPower pilot program, and believe the measures selected for direct installation without pre-approval are the appropriate ones.
- An important evaluation finding for the Assisted Multifamily Program is that 6.1% of eligible units had efficiency measures installed through the program, and an additional 8.8% had participated in the audit offered by the program. This sums to almost 15% of the eligible population of the low-income multifamily market that had participated in some aspect of the program. This is as of the end of 2005.

4.3.3 Low-Income Customers Served

In total, more than 60,000 low-income customers have been served by the **New York Energy SmartSM** Program. Approximately one-half of the customers served are in the ConEdison utility area where the low-income population is concentrated in larger multi-family buildings. Table 4-5 shows the distribution of low-income customers served by program and utility service area.

Table 4-5. Number of Low-Income Customers Served by Program and Utility Area

Utility Service Area	Assisted Multifamily Program	EmPower	Weatherization Network Initiative	Assisted Home Performance	Direct Install	Total
Central Hudson Gas & Electric	712	128	120	27	766	1,753
ConEdison	3,630	203	1,785	27	24,933	30,578
National Grid	4,075	4,781	2,281	2,275	0	13,412
NYSEG	636	4,553	928	2,275	0	8,392
Orange & Rockland	0	1	72	27	561	661
Rochester Gas & Electric	4,563	185	507	561	0	5,816
Total	13,616	9,851	5,693	5,192	26,260	60,612

4.4 Single Family Home Performance Program

4.4.1 Program Description

The Single Family Home Performance Program addresses one- to four-unit homes through the New York ENERGY STAR[®] Labeled Homes Initiative (NYESLH) for newly constructed homes, and the Home Performance with ENERGY STAR Initiative for existing homes. Both of these efforts are market-based.

On the supply side, these initiatives use recruitment, training and incentives to encourage builders and contractors to offer energy efficient options. On the demand side, the initiatives market the benefits of energy efficiency to residential consumers to increase demand for products and services that make homes more efficient.

NYESLH provides technical assistance and financial incentives to one- to four-family home builders to encourage the adoption of energy-efficient design features and the selection and installation of more energy-efficient equipment in new construction and substantial renovation projects. Participating builders construct New York ENERGY STAR labeled homes that use approximately 30% less energy than homes built to the current energy code. In addition, the program is an enhanced version of the EPA's ENERGY STAR Labeled Homes Program, because in order to earn the New York ENERGY STAR home label, these homes must include a qualified ventilation system; electrical savings measures (either ENERGY STAR lighting or appliances) that produce annual electricity savings of 600 kWh, compared to standard efficiency measures; and have their performance verified by a certified Home Energy Rating System Rater (HERS) who acts as the independent third party, ensuring that these homes meet program performance criteria.

The Home Performance with ENERGY STAR (HPwES) Initiative is designed to enhance the current market capacity for delivering comprehensive energy efficiency services to existing one- to four-family residences. The program seeks to create a "one-stop shopping" experience for consumers looking to make energy efficiency improvements to their homes. This is accomplished by requiring the participating contractor who provides the comprehensive home assessment to have the capability to prepare a scope of work and install the energy efficiency measures. The program also fosters consumer protection by offering training, a robust quality assurance/quality control (QA/QC) process and a one-year warranty, and by requiring certification and accreditation for participating contractors.

Energy efficiency improvements covered by HPwES include building shell measures such as air sealing and insulation, electric measures like ENERGY STAR refrigerators, heating measures such as boilers and furnaces, cooling measures such as ENERGY STAR room or central air conditioners, and certain renewable energy technologies. Eligible homeowners can elect to receive financing from the **New York Energy SmartSM** Loan Fund or the New York ENERGY STAR financing option.

Integrated with these market-based efforts is the Low-Income Single Family Initiative, which includes the Assisted Home Performance with ENERGY STAR effort and the Assisted New York ENERGY STAR Labeled Homes effort. This initiative provides additional incentives for low-income households, in some cases up to 50% of the approved work scope. In addition, participants can use the New York Energy Smart Loan Fund to further offset costs. The "Assisted" components of the Single Family Performance Program are available to residents with up to 80% of the state's median incomes (as compared to the 60% of state median income criterion used for participation in the federally funded Weatherization Assistance Program). Logic models for ENERGY STAR Homes and Home Performance can be found at the end of Section 4.

The 13-year program budget is \$189.1 million. This budget includes \$81.5 million for the low-income program element.

4.4.2 Recent Program Accomplishments

Several near-term, annual goals have been set for the Single Family Home Performance Program. These goals and progress for the first six months are shown in Table 4-6.

Table 4-6. Single Family Home Performance Program – Near-Term Goals and Achievements

Activity	Program Goals (July 1, 2006 through June 30, 2007)	Achieved July 1, 2006 through December 31, 2006
New York ENERGY STAR Labeled Homes Initiative		
New ENERGY STAR Labeled Homes built	2,150	1,082
New low-income ENERGY STAR Labeled Homes built	800	1
Home Performance with ENERGY STAR Initiative		
Existing homes served (receiving treatment)	3,225	1,270
Existing low-income homes served (receiving treatment)	2,100	691

4.4.3 Long-Term Program Accomplishments

This section highlights key program outputs as identified through the logic model development work and related market progress. All values reported are cumulative since program inception. Table 4-7 presents the key outputs for Single Family Performance Buildings through December 31, 2006. Table 4-8 presents a sample of key logic model-driven indicators of program success, especially those related to market progress, as tracked by the evaluation and program activities. Together, these tables indicate the most important ways that program progress is being measured, and report how those values are changing due to program activities.

Table 4-7. Single Family Home Performance Program – Key Program Outputs

Outputs	Value (Cumulative through December 2006)
New York ENERGY STAR Labeled Homes Initiative	
Number of completed projects by type	8,568 projects completed including: <ul style="list-style-type: none"> ▪ 7,717 Single-family labeled homes ▪ 240 Assisted NYESLHs ▪ 444 Model homes ▪ 167 Display homes
Number of “active” participating builders (built at least one home)	297
Dollar value of incentives paid	\$11.45 million
Home Performance with ENERGY STAR Initiative	
Number of homes treated	13,804
Number of participating BPI-certified contractors and firms	449 BPI-certified technicians 127 Participating BPI-accredited firms
Dollar value of incentives paid	\$7.98 million in participating contractor incentives

Table 4-8. Single Family Home Performance Program – Key Market Indicators and Program Cumulative Progress

Topic	Indicator	Initial Value (2003, unless noted)	Most Recent (2005, unless noted)
New York ENERGY STAR Labeled Homes Initiative			
Awareness and Knowledge	Consumer awareness of the ENERGY STAR label for new homes	59% of participating home buyers (those who purchased a NYESLH) were aware of the ENERGY STAR label for homes 52% of non-participating home buyers are aware of the label	92% of participating home buyers were aware of the ENERGY STAR label for homes
	Builder familiarity with energy efficiency measures and equipment	82% of participating builders reported that their familiarity had increased significantly (29%) or somewhat (53%) as a result of the program (2004 IDC survey)	85% of the participating builders reported that their familiarity had increased significantly (31%) or somewhat (54%) in the last few years 65% of the non-participating builders reported increasing familiarity
	Availability of New York ENERGY STAR homes	73% of NYESLH purchasers in 2002-2003 reported that NYESLHs were very or somewhat available	72% of NYESLH purchasers in 2004-2005 reported that NYESLHs were very or somewhat available

Topic	Indicator	Initial Value (2003, unless noted)	Most Recent (2005, unless noted)
		Not Available	Builders reported that efficient lighting (93% of participating builders), water heaters (92%), central ACs (86%), and furnaces/boilers (83%) had all shown substantial increases in availability during the last few years
	Availability of HERS raters	Not Available	Fewer than half of the non-participating (36%) and participating (43%) builders stated that HERS raters were very or somewhat available
	Market penetration of New York ENERGY STAR Homes (including single and 2-4 family markets)	0.3% in 2001 3% in 2002 7.8% in 2003	11.1% in 2004 and 2006
Home Performance with ENERGY STAR Initiative			
Awareness and Knowledge	Homeowner familiarity with energy efficiency measures and equipment	Not Available	81% of the participating homeowners reported that their familiarity had increased either significantly or somewhat during the last few years More than half of these participants said "all" or "most" of the increase was due to their participation in the HPwES Program
	Contractor familiarity with energy efficiency measures and equipment	Not Available	89% of the contractors said their familiarity had increased significantly or somewhat during the last few years 87% said "all" or "most" of this increase was due to their participation in the HPwES Program
	Homeowner awareness of BPI	Not Available	38% of participants had heard of the BPI
Perceived Value	Homeowner views on the importance of BPI certification	Not Available	Among those who had heard of the BPI, 82% considered BPI certification very or somewhat important in their selection of a contractor
	Contractors viewing BPI as a selling point	Not Available	36% view BPI as a strong selling point and 30% see it as a moderate selling point
	Homeowner satisfaction with the HPwES program contractors	Not Available	75% of the participating homeowners were very or somewhat satisfied with their contractors

Topic	Indicator	Initial Value (2003, unless noted)	Most Recent (2005, unless noted)
Availability of Services	Contractor promotion of HPwES Program	Not Available	89% of the participating contractors indicated that they were very (53%) or somewhat (36%) actively promoting the HPwES Program
	Participating contractor views on availability of energy efficiency measures and equipment	58% reported that energy-efficient measures and equipment are very available	82% reported that energy-efficient measures and equipment are very available
	Penetration of the HPwES Program in the home remodeling market	0.2-0.3% in 2001 0.7-1.1% in 2002 1.7-2.7% in 2003	1.7-2.7% in 2004 2.1-3.3% in 2005

4.4.4 Program Impact Evaluation

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

Gross Savings

The objective of the Measurement and Verification (M&V) evaluation review is to verify the estimate of the program's cumulative savings. Based on Nexant's review, as of December 31, 2006, the program has resulted in the energy savings and demand reductions shown in Table 4-9. Note that the realization rate shown is applicable to the entire program period.

Net Savings

The final step in determining net energy savings is attribution analysis. Attribution analysis determines, through various methods, whether the gross savings estimate from the M&V activities should be adjusted downward or upward for freeridership or spillover. Adjustments for freeridership and spillover, and the ultimate program net-to-gross ratio and net savings are shown in Table 4-9.

Table 4-9. Single Family Home Performance Program Cumulative Annual Energy and Peak Demand Savings (Through December 2006)

	Program-Reported Savings	Realization Rate	Adjusted Gross Savings	Freeridership	Spillover	Net-to-Gross Ratio ¹	Net Savings
New York ENERGY STAR Labeled Homes Initiative							
MWh/year	7,835	1.01	7,914	28%	47.6%	1.17	9,259
MW On-Peak	0.8	1.11	0.9	28%	47.6%	1.17	1.1
MMBtu	501,588	1.0	501,588	28%	47.6%	1.17	586,858
Home Performance with ENERGY STAR							
MWh/year	12,909	1.01	13,031	26%	41%	1.12	14,595
MW On-Peak	1.9	1.07	2.0	26%	41%	1.12	2.2
MMBtu	573,623	1.0	573,623	26%	41%	1.12	642,458
Single Family Home Performance Program – Total							
MWh/year	20,737	N/A	20,945	N/A	N/A	N/A	23,854
MW On-Peak	2.7	N/A	2.9	N/A	N/A	N/A	3.3
MMBtu	1,075,211	N/A	1,075,211	N/A	N/A	N/A	1,229,316

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

Non-Energy Impacts

The MCAC team examined non-energy impacts (NEIs) for ENERGY STAR Labeled Homes in 2005, and NEIs for Home Performance were last studied in 2003. Results from the most recent evaluations are shown in Table 4-10.

Table 4-10. Single Family Home Performance NEI Results

Results from Direct Query Approach (year of study)	Percentage of Energy Savings
ENERGY STAR New Homes (2005)	51%
Home Performance with ENERGY STAR (2003)	50%

4.5 Multifamily Building Performance Program

4.5.1 Program Description

The Multifamily Building Performance Program has two tracks: one for new construction (and complete gut-rehabilitation projects) named the ENERGY STAR Multifamily Building Program (EMP); and one for existing buildings named the Multifamily Building Performance Initiative.

Before 2007, construction of new multifamily buildings was addressed through what was then the New Construction Program (now the High Performance New Buildings Program). Because multifamily buildings differ from non-residential buildings, and because market penetration for multifamily buildings was lower than for other building types, NYSERDA has now moved new multifamily building construction to the residential program portfolio. The EMP initiative provides technical assistance to mid-stream market participants, addressing 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. Training regarding the rationale for energy efficiency measures is also provided for engineers, architects, building owners, building maintenance staff, and tenants.

The Multifamily Building Performance Initiative, for existing buildings, focuses on enhancing the energy services infrastructure. This involves developing market-based business opportunities for building auditors, financial packagers, designers, architects, and construction inspectors. It consolidates several previous multifamily initiatives in order to provide “one-stop shopping” and allow multifamily building owners and developers to find appropriate NYSERDA services more easily. The previous initiatives now incorporated into the Multifamily Building Performance Initiative include the following:

- The Residential Technical Assistance (ResTech) Program, which improved the operation of multifamily housing by identifying and encouraging the implementation of cost-effective energy-efficiency measures that also enhance health, safety, and comfort. Activities supported included: feasibility studies, computer-assisted building modeling, energy-efficiency technical training, and commissioning.
- The Residential Comprehensive Energy Management (CEM) Program, which promoted the acquisition and installation of energy management and advanced metering systems. This program helped position residential customers to take advantage of retail competition, while enabling program implementers to access customers’ energy-use data.
- The **New York Energy SmartSM** Loan Fund (Loan Fund) program, which supported the implementation of energy efficiency measures within multifamily buildings. The multifamily component of the Loan Fund provided reduced-interest financing for energy-efficiency measures and related facility improvements. Lending institutions and borrowers in the commercial, industrial, institutional, municipal, multifamily, and residential markets (including building owners and tenants) were all targeted by the program. The Loan Fund provided interest reductions on loan amounts up to \$5 million for multifamily homes for up to five years.

Both initiatives in the Multifamily Building Performance Program have low-income components. The low-income component of EMP (for new buildings) provides financial assistance during the design and construction phase to help owners complete the construction process, provides training and education to building owners and managers, and monitors energy savings.

The low-income component of Multifamily Building Performance Initiative (for existing buildings) provides technical and financial assistance to building owners and tenants to make energy efficiency improvements, thus reducing energy bills and providing increased health and safety benefits to building occupants. The low-income component of the Multifamily Building Performance Initiative incorporates many of the features of a previous program, the Assisted Multifamily Program (AMP). The Multifamily Building Performance logic model can be found at the end of Section 4.

The thirteen-year program budget is \$189 million. The majority of the budget (\$151.2 million) is allocated to the low-income program elements.

4.5.2 Recent Program Accomplishments

Several near-term, annual goals have been set for the Multifamily Building Performance Program. These goals and progress for the first six months are shown in Table 4-11.

Table 4-11. Multifamily Building Performance Program – Near-Term Goals and Achievements

Activity	Program Goals (July 1, 2006 through June 30, 2007)	Achieved July 1, 2006 through December 31, 2006
Number of existing multifamily units receiving energy efficiency services (completed projects)	7,800	6,803
Number of new multifamily units receiving energy efficiency services	1500	0
Tenant energy savings per unit per year	\$250	\$214

4.5.3 Long-Term Program Accomplishments

This section highlights key program outputs as identified through the logic model development work and associated market progress. All values reported are cumulative since program inception. Program highlights include the following:

- Since its inception, there have been 79 existing multifamily properties comprising 13,616 individual units that have received efficiency services.

Table 4-12 presents a sample of key logic model-driven indicators of program success, especially those related to market progress, as tracked by the evaluation and program activities

Table 4-12. Multifamily Building Performance Program – Key Market Indicators and Program Cumulative Progress

Topic	Indicator	Initial Value (2004, unless noted)
Awareness and Knowledge	Building owner/manager familiarity with advanced metering	61% of participants (n=36) are somewhat or extremely familiar compared to only 30% of non-participants (n=18)
	Change in building owner/manager familiarity with advanced metering over time	65% of participants (n=36) reported that familiarity has increased somewhat or significantly in the past two years compared to approximately 20% of non-participants
	Promotion of advanced meters	91% of metering providers said promotion of advanced metering services has increased significantly or somewhat (n=15)
Market barriers	Change in market barriers to advanced metering (according to contractors, consultants, manufacturers, and participating building owners/managers)	Decreasing barriers: Lack of experience, high cost of meters, uncertainty about savings, uncertainty about performance, availability of meters Increasing or unchanged barriers: Tenant resistance, regulatory barriers, real time pricing availability

Topic	Indicator	Initial Value (2004, unless noted)
Satisfaction	Building owner/manager satisfaction with advanced meters	88% are extremely or somewhat satisfied with program-installed meters (n=15)
Demand, Market Share/Sales, and Market Penetration	Demand for advanced meters	67% of metering providers indicated that demand for advanced metering services has increased somewhat to significantly over the past two years (n=16) 91% of metering providers believe demand will continue to increase somewhat or significantly over the next two years (n=16)
	Percentage of eligible low-income units participating (projects with installed measures, installation underway, and audits complete)	14.8% (2005 results) 6.1% had audits and installed measures (2005 results) 8.8% had an audit only (2005 results)

4.5.4 Program Impact Evaluation

The objective of the Measurement and Verification (M&V) evaluation review is to verify the estimate of the program’s cumulative savings. Based on Nexant's review, as of December 31, 2006, the program has resulted in the energy savings and demand reductions shown in Table 4-13. Note that the realization rate shown is applicable to the entire program period.

Net Savings

The final step in determining net energy savings is attribution analysis. Attribution analysis determines, through various methods, whether the gross savings estimate from the M&V activities should be adjusted downward or upward for freeridership or spillover. Adjustments for freeridership and spillover, and the ultimate program net-to-gross ratio and net savings are shown in Table 4-13.

Table 4-13. Multifamily Building Performance Program Cumulative Annual Energy and Peak Demand Savings (Through December 2006)

	Program-Reported Savings	Realization Rate	Adjusted Gross Savings	Free-ridership	Spillover	Net-to-Gross Ratio ¹	Net Savings
Assisted Multifamily Program (AMP)							
MWh/year	28,362	0.97	27,511	27%	15%	0.84	23,109
MW On-Peak	1.7	1.26	2.1	27%	15%	0.84	1.8
MMBtu	167,303	1.0	167,303	27%	15%	0.84	140,541
Comprehensive Energy Management (CEM) Program							
MWh/year	3,192	0.97	3,096	2%	18%	1.16	3,592
MW On-Peak	0.8	1.77	1.4	2%	18%	1.16	1.6
Low Income Direct Installation							
MWh/year	11,494	1.0	11,494	0%	0%	1.0	11,494
MW On-Peak	1.6	1.0	1.6	0%	0%	1.0	1.6
Multifamily Building Performance Program – Total							
MWh/year	43,048	N/A	42,101	N/A	N/A	N/A	38,209
MW On-Peak	4.1	N/A	5.1	N/A	N/A	N/A	5.0
MMBtu	167,303	N/A	167,303	N/A	N/A	N/A	140,541

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

Non-Energy Impacts

The MCAC team has examined non-energy impacts for both elements of the combined Multifamily Building Performance Program. The Assisted Multifamily Program was studied in 2003, while the Comprehensive Energy Management Program was the focus of an evaluation in 2004. Results are shown in Table 4-14.

Table 4-14. Multifamily Building Performance NEI Results

Results from Direct Query Approach (year of study)	Percentage of Energy Savings
Assisted Multifamily Program (2003)	54%
Comprehensive Energy Management Program (2004)	22-55%

4.6 Market Support Program

4.6.1 Program Description

The **New York Energy SmartSM** Market Support Program provides support services to the building performance and low-income programs by increasing the availability of energy-efficient products, and by providing residential program outreach and marketing services to recruit midstream participants and build consumer demand. The three initiatives involved in this program are the ENERGY STAR Products Initiative, the Program Marketing Initiative, and the GetEnergySmart.org website.

The ENERGY STAR Products Initiative, established in 1999, seeks to increase sales of residential ENERGY STAR appliances, lighting and home electronics products. This initiative works on both the supply and demand sides of the market. Its goals are: 1) to increase the supply of products through partnerships with retailers, manufacturers and distributors, and 2) to create demand for ENERGY STAR products through consumer awareness and understanding of the ENERGY STAR label.

The Program Marketing initiative provides marketing assistance to mid-stream partners, develops and distributes brochures and advertising aimed at consumers, and places advertising. This initiative also performs market research and leverages regional and national initiatives that meet program needs. Program Marketing provides support for the following **New York Energy SmartSM** residential efforts: Single Family Home Performance Program, Multifamily Building Performance Program, summer and winter energy-saving tips campaigns, and leveraged campaigns such as the “Change a Light, Change the World” campaign.

The GetEnergySmart.org website was initially developed to provide consumers with an on-line tool to assess the energy efficiency of their homes, as well as to provide recommendations on how to improve this efficiency. As the website evolved, it also came to provide consumers with program and partner information and energy efficiency tips, and to provide potential program partners with participation information. On-line marketing campaigns and e-mail newsletters were increasingly used to bring consumers to the website. The website has become an essential communication, marketing and education tool for residential programs.

The thirteen-year program budget is \$144.2 million.

4.6.2 Recent Program Accomplishments

Several near-term, annual goals have been set for the Market Support Program. These goals and progress for the first six months are shown in Table 4-15.

Table 4-15. Market Support Program – Near-Term Goals and Achievements

Activity	Program Goals (July 1, 2006 through June 30, 2007)	Achieved July 1, 2006 through December 31, 2006
New manufacturing partners signed up	4	40
New retail partners (independent) signed up	20	10
New retail partners (big box, mass merchandisers) signed up	1+	1
ENERGY STAR market share increase on targeted products (on average, across products)	5%	3%
Annual energy savings	30 GWh	Not available

Additional program highlights include:

- Acting on a recommendation of the Process Evaluation and MCAC team, the Program increased its recruiting efforts for lighting partners in additional distribution channels. For example, Wegman’s Food Markets Inc. became a partner in December 2006, bringing 51 stores into the Program in an area spanning from Buffalo to Binghamton.
- The continued collaboration with the New York State Department of Environmental Conservation on CFL mercury disposal has produced an educational brochure on proper disposal methods for CFLs. Planning for a public training is underway for spring of 2007.
- The Program launched the HVAC Supplier pilot initiative in December 2006 targeting HVAC suppliers who stock ENERGY STAR HVAC equipment. The initiative will be closely tied to the Home Performance with ENERGY STAR Program to ensure that proper installation techniques are being used by partners.

4.6.3 Long-Term Program Accomplishments

This section highlights key program outputs as identified through the logic model development work and associated market progress. Table 4-16 presents the key outputs for the Market Support Program through December 31, 2006. Table 4-17 presents a sample of key logic model-driven indicators of program success, especially those related to market progress, as tracked by the evaluation and program activities. Together, these tables indicate the most important ways that program progress is being measured, and report how those values are changing due to program activities.

Table 4-16. Market Support Program – Key Program Outputs

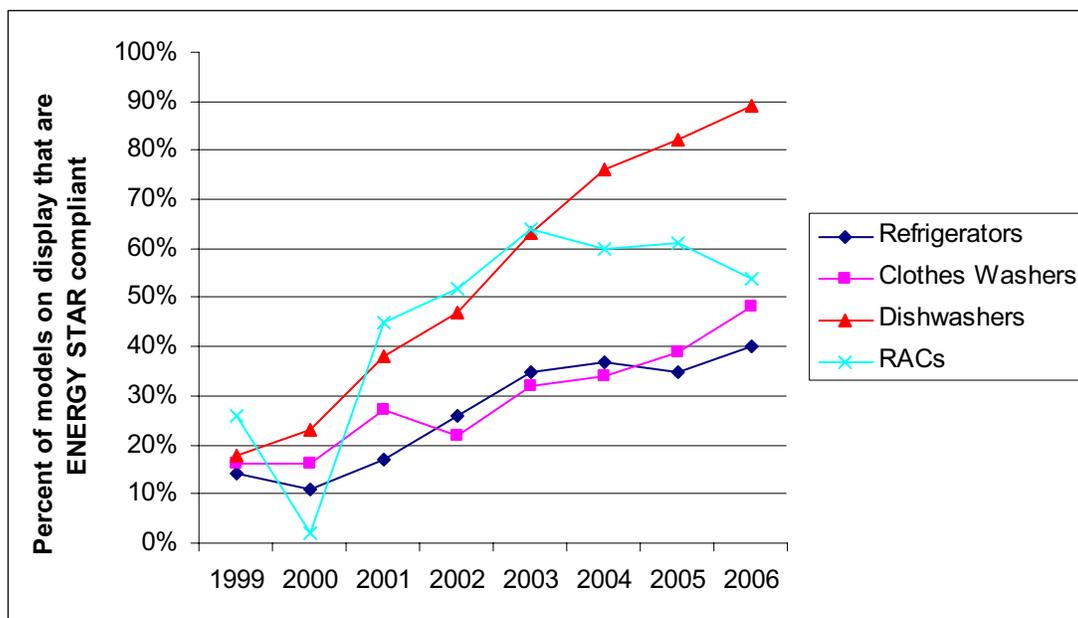
Outputs	Value (Cumulative through December 2006)
Number of retailer participants	373 (store fronts)
Number of manufacturer partners	22
Dollars spent on cooperative advertising	\$14.5 million

Table 4-17. Market Support Program – Key Market Indicators and Program Cumulative Progress

Topic	Indicator	Initial Value (2003, unless noted)	Most Recent
Energy Savings	Cumulative Net MWh, MW and MMBtu savings		<u>2005 Data</u> 303,839 MWh, 71.7 MW and 341,920 MMBtu
Awareness and Knowledge		<u>1999 Data</u> 34% (aided awareness from NYSERDA mail survey)	<u>2005 Data</u> 77% (unaided awareness from NYSERDA telephone survey)
	Consumer understanding of the ENERGY STAR label	<u>1999 Data</u> 35% <u>2003 Data</u> 47%	<u>2005 Data</u> 87%
Product Availability	Percent of models on <u>display</u> at partner retailers that are ENERGY STAR qualified See Figure 4-1 for interim data points on appliances.	<u>1999 Data</u> Refrigerators – 14% Clothes Washers – 16% Dishwashers – 18% RACs – 26% CFL Bulbs ¹ – 16% All Fixtures – 0-4%	<u>2006 Data</u> Refrigerators – 40% Clothes Washers – 48% Dishwashers – 89% RACs – 54% CFL Bulbs ¹ – 24% All Fixtures – 0-33%
	Percent of models on <u>display</u> at non-partner retailers that are ENERGY STAR compliant	Not available	<u>2006 Data</u> CFL Bulbs ¹ – 14% CFL Fixtures – 5-39%
Market Share & Sales	ENERGY STAR refrigerator market share	<u>2001 Data</u> 28% NY Partners 16% National Partners in NY ²	<u>2005 Data</u> 47% NY Partners 52% National Partners in NY ²
	ENERGY STAR dishwasher market share	<u>2001 Data</u> 48% NY Partners 15% National Partners in NY ²	<u>2005 Data</u> 76% NY Partners 90% National Partners in NY ²
	ENERGY STAR clothes washer market share	<u>2001 Data</u> 24% NY Partners 12% National Partners in NY ²	<u>2005 Data</u> 41% NY Partners 34% National Partners in NY ²
		<u>2001 Data</u> 45% NY Partners 21% National Partners in NY ²	<u>2005 Data</u> 76% NY Partners 50% National Partners in NY ²
Incremental Cost	Simple average incremental cost of ENERGY STAR products (% more than non-ENERGY STAR)	<u>2004 Data</u> Refrigerators – \$465 (62%) Clothes Washers – \$410 (89%) Dishwashers – \$174 (47%) RACs – \$44 (18%)	<u>2005 Data</u> Refrigerators – \$413 (44%) Clothes Washers – \$471 (106%) Dishwashers – \$159 (37%) RACs – \$37 (15%)

¹ Compared to all competing bulbs.² Participating National EPA ENERGY STAR Partner Sales Data, Collected by D&R International.

Figure 4-1. Percent of Appliance Models on Display at Partner Stores that are ENERGY STAR Compliant



Note that the percentage of ENERGY STAR-labeled RACs on display declined in 2000, as shown in Figure 4-1, due to a change in Federal minimum efficiency standards. While this percentage increased after that time, it has been declining since 2003 due to the conclusion of the Keep Cool RAC Bounty Program. Although display of ENERGY STAR RACs has declined, market share of ENERGY STAR RACs remains high among New York retailers (at 76%) relative to other appliances.

4.6.4 Program Impact Evaluation

Gross Savings

The objective of the Measurement and Verification (M&V) evaluation review is to verify the estimate of the program’s cumulative savings. Based on Nexant's review, as of December 31, 2006, the program has resulted in the energy savings and demand reductions shown in Table 4-18. Note that the realization rate shown is applicable to the entire program period.

Net Savings

The final step in determining net energy savings is attribution analysis. Attribution analysis determines, through various methods, whether the gross savings estimate from the M&V activities should be adjusted downward or upward for freeridership or spillover. Adjustments for freeridership and spillover, and the ultimate program net-to-gross ratio and net savings are shown in Table 4-18.

Table 4-18. Market Support Program Cumulative Annual Energy and Peak Demand Savings (Through December 2006 unless noted)

	Program-Reported Savings	Realization Rate	Adjusted Gross Savings	Free-ridership	Spillover	Net-to-Gross Ratio ¹	Net Savings
ENERGY STAR Products and Marketing (2005)²							
MWh/year	n/a	n/a	n/a	n/a	n/a	n/a	238,828
MW On-Peak	n/a	n/a	n/a	n/a	n/a	n/a	54.0
MMBtu	n/a	n/a	n/a	n/a	n/a	n/a	325,628
Keep Cool							
MWh/year	29,460	1.0	29,460	18%	15%	0.94	27,781
MW On-Peak	13.6	1.0	13.6	18%	15%	0.94	12.8
Bulk Purchase							
MWh/year	19,451	2.03	39,397	10%	5%	0.95	37,230
MW On-Peak	3.9	1.62	6.4	10%	5%	0.95	6.0
MMBtu	24,307	0.71	17,240	10%	5%	0.95	16,292
Market Support Program – Total							
MWh/year	n/a	n/a	n/a	n/a	n/a	n/a	303,839
MW On-Peak	n/a	n/a	n/a	n/a	n/a	n/a	72.8
MMBtu	n/a	n/a	n/a	n/a	n/a	n/a	341,920

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

² Savings for ENERGY STAR products and marketing are through year-end 2005. Year-end 2006 savings are currently being estimated by the MCAC evaluation team and will be presented in the first quarter 2007 report.

Non-Energy Impacts

The MCAC team has examined non-energy impacts for CFLs and clothes washers. Results from the most recent direct query analysis on both of these measures are shown in Table 4-19.

Table 4-19. Market Support Program NEI Results

Results from Direct Query Approach (year of study)	Percentage of Energy Savings
Clothes Washers (2004)	27%
CFLs (2005)	60%

4.7 Communities and Education Program

4.7.1 Program Description

The Communities and Education Program provides face-to-face contact with New York residents on energy efficiency topics and NYSERDA programs through schools, local seminars and workshops, and events. The ultimate goal of the program is to help develop an energy-conscious society in New York with the desire and capability to create more efficient and sustainable communities. More immediate goals of the program include: 1) educating teachers, students, homeowners, renters, representatives of

community-based organizations, and community leaders on various energy topics, including energy efficiency and the relationship between energy, sustainability, and economic development in their communities; and 2) making them aware of **New York Energy SmartSM** programs that can be combined with local, State, and federal resources to reduce energy consumption in their communities. The two initiatives making up this program are Energy Smart Students (ESS) and **New York Energy SmartSM** Communities (NYE\$C).

Beginning in 2004, ESS introduced energy and energy efficiency curricula to New York's K-12 teachers and students. ESS offers hands-on, project-based lessons which are aligned with the New York State Learning Standards for math, technology, language arts, science, and social studies. ESS has also introduced building sciences to vocational schools, laying the groundwork for the growth of the building performance specialists industry. EES offers one-day workshops for classroom teachers and other educators on energy literacy, science of energy, energy efficiency at home and at school, and more specialized topics, such as bio-diesel and hydrogen. Teachers attending the workshops are provided with a curriculum for grade levels K-12. The curriculum offers teachers the ability to select modules of varying lengths based on the needs of the students. ESS also sponsors an annual Energy Educator Conference to provide more intensive training to teachers willing to commit to assisting ESS with the training of other teachers. ESS offers teachers mini-grants to fund innovative energy projects in the classroom and community. The program also produces *Energy Smarts*, a bi-monthly newsletter devoted to energy education. In addition, the program participates in statewide teacher conferences and organizations, including the NYS Technology Educators Association and the Science Teachers Association of New York State.

NYE\$C was developed as a partnership with the U.S. Department of Energy's Rebuild America Program. This initiative educates consumers and community leaders on the benefits of energy efficiency and renewable resources, and their ability to impact their own energy costs, using the community infrastructure to increase message reach and impact. NYE\$C also provides ready access to **New York Energy SmartSM** programs by referring building owners and managers to appropriate program entry points. The initiative includes nine partnerships throughout New York State: Western New York, Finger Lakes Region, Central New York, Southern Tier, North Country, Capital Region, Mid-Hudson, and two partnerships in New York City. Throughout the year, the partnerships sponsor seminars and workshops, meet with community leaders, and staff the NYSERDA booth at local events, for the following purposes: to educate the public on saving energy at home and in the workplace; to provide public forums for the discussion of energy issues important to their community; and to work with planners in their communities to ensure that energy is addressed in local ordinances and growth plans. In addition, NYE\$C has primary responsibility for recruiting builders, contractors, retailers, realtors, code officials, architects, engineers and others into the residential programs as mid-stream partners, thus eliminating the need for multiple program implementation contractors to recruit partners within the same regions, and reducing confusion and redundancy in the marketplace.

The thirteen-year program budget is \$12.6 million.

4.7.2 Recent Program Accomplishments

Several near-term, annual goals have been set for the Communities and Education Program. These goals and progress for the first six months are shown in Table 4-20. Slow progress on the goal for recruiting seminars is due to transitioning this role from prior implementation contractors to the Energy Smart Communities coordinators.

Table 4-20. Communities and Education Program – Near-Term Goals and Achievements

Activity	Program Goals (July 1, 2006 through June 30, 2007)	Achieved July 1, 2006 through December 31, 2006
Teachers trained	1,000	308
Students reached	30,000	14,569
Community events held statewide	200	73
Recruiting seminars held statewide	100	0
Home performance contractors, technicians, builders and raters recruited for the Single Family Home Performance Program	160	36
Building analysts, designers, energy consultants, equipment installers, etc. recruited for Multifamily Building Performance Program	20	Not available

4.7.3 Long-Term Program Accomplishments

This section highlights key program outputs as identified through the logic model development work and associated market progress. All values reported are cumulative since program inception. Program highlights include the following:

- Since its inception, there have been 1,701 teachers trained on teaching about energy issues at 76 workshops. All 76 workshops received free use of space and promotional assistance from the host organization. In addition, 18 workshops received funding from utility and government.
- An estimated 180,000 students have been reached.
- 42 students participated in ten completed Energy Education Grants with a total of 2,800 students impacted and an estimate of 41,000 parents and community members reached.
- More than 800 meeting and outreach sessions have been held, attracting more than 97,000 attendees.

Table 4-21 presents the key logic model-driven outputs for the Communities and Education Program through December 31, 2006.

Table 4-21. Communities and Education Program – Key Program Outputs

Outputs	Value (Cumulative through December 2006)
Energy Smart Students Initiative	
Number of teacher conferences attended to promote ESS	25
Number of energy curricula offered	4 core workshops and 4 specialty workshops
Number of workshops	76
Number of teachers (including administrators) trained on energy education topics	1,701
Number of student-centered events attended	13
Number of energy education projects awarded through mini grants)	40

4.8 EmPower New YorkSM

4.8.1 Program Description

The EmPower New YorkSM Program is part of NYSERDA’s portfolio of **New York Energy SmartSM** programs that serve low-income households in the state. Customers of SBC-participating utilities with incomes below 60% of state median income and households enrolled in utility low-income payment assistance programs are eligible for services. Both property owners and tenants may be served, and the program targets 1-to-4 family homes and multifamily buildings with fewer than 100 units. Priority is given to:

- Households participating in utility low-income programs
- Seniors referred by Offices for the Aging due to financial hardship
- Eligible households receiving services that are coordinated or co-funded by the Weatherization Assistance Program (WAP, run by the New York Division of Housing and Community Renewal, and funded by the U.S. Department of Energy), so as to create comprehensive work scopes that include appropriate electric reduction measures
- Eligible households in buildings not eligible for services through WAP
- Smaller buildings eligible for the Multifamily Building Performance Program that NYSERDA determines are better served through EmPower New YorkSM

EmPower New YorkSM prioritizes cost-effective electric efficiency measures, particularly lighting and refrigerator replacements. Home performance services, such as insulation, heating system repair and replacement, and air-sealing, are provided in situations where they offer the best means of improving energy affordability. Health and safety measures, such as carbon monoxide (CO) detectors and

emergency repairs, are also implemented as the need arises. Whenever possible, services are coordinated and cost-shared with WAP.

All customers that are referred to the program receive a package of information with educational materials, three CFL light bulbs, a water temperature thermometer, and a nightlight. These households are called “partial participants.” Households expected to benefit from more comprehensive treatments receive energy audits and in-home energy education, and additional electric reduction measures (e.g., CFLs and ENERGY STAR-compliant refrigerators) or home performance measures as appropriate. These households are “full participants.” There is no cost to the customer for these services and equipment. In rental situations, measures that directly benefit the eligible tenant may be installed without a landlord contribution. Additional measures generally require a 25% landlord contribution. The program also provides free workshops on energy use and financial management offered to the general public by the Cornell Cooperative Extension. Program audit and installation services are provided through a network of weatherization agencies and private energy services contractors, all of whom are accredited by the Building Performance Institute (BPI).

Effective July 2006, the Weatherization Network Initiative was merged with EmPower New York. The Weatherization Network Initiative was launched in 2003 to deliver electric reduction measures through the statewide network of weatherization agencies in coordination with the Weatherization Assistance Program. A total of 5,693 households received services through the Weatherization Network Initiative. The total cost was \$7.8 million with an average cost of \$670 and average annual savings of \$174 per household. As services are tailored to the needs of the household, actual costs and savings can vary from the average by an order of magnitude or more. EmPower expanded the involvement of these weatherization agencies while adding private contractors to ensure cost-effective and timely services.

The combined SBC budget through June 2011 is \$58.3 million. In addition, the program has leveraged non-SBC funds totaling \$6,250,000 to install efficiency measures for an additional 4,489 households. Table 4-22 displays details of the budget and goals of the non-SBC funding sources.

Table 4-22. Non-SBC Funds Leveraged

Source	Budget	Unit Goal	Expended	Completions
Indian Point 2 Joint Proposal	\$2,400,000	2,200	\$1,915,367	1,939
Western New York Environmental Projects	\$895,000	1,000	\$169,663	280
National Grid Low Income Gas Customer Efficiency Program	\$2,500,000	1,075	\$1,995,769	959
AES Environmental Mitigation Project	\$455,000	255	0	0
Total	\$6,250,000.00	4,530	\$4,080,799.00	3,178

4.8.2 Recent Program Accomplishments

One near-term, annual goal has been set for the EmPower New YorkSM Program. This goal and progress for the first six months are shown in Table 4-23.

Table 4-23. EmPower New YorkSM Program – Near-Term Goals and Achievements

Activity	Program Goals (July 1, 2006 through June 30, 2007)	Achieved July 1, 2006 through December 31, 2006
Households served (completed)	6,300	3,289

4.8.3 Long-Term Program Accomplishments

This section highlights key program outputs as identified through the logic model development work and associated market progress. All values reported are cumulative since program inception. Program highlights include the following:

- The EmPower New YorkSM Program including the Weatherization Network Initiative (non-SBC funding) has served 15,544 low-income households in New York.
- The energy cost for the average low-income household served by the program has been reduced by \$226 per year at a cost of \$1005.

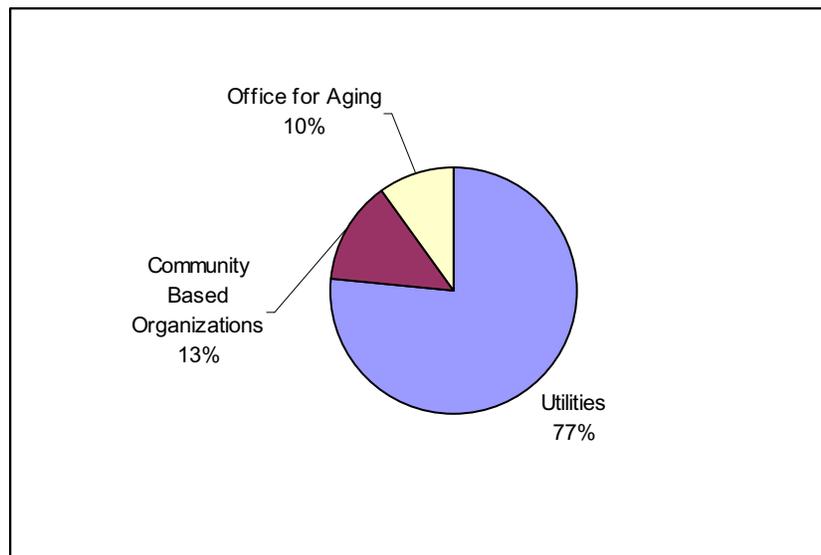
Table 4-24 presents a sample of key logic model-driven indicators of program success, especially those related to market progress, as tracked by the evaluation and program activities.

Table 4-24. EmPower New YorkSM Program – Key Market Indicators and Program Cumulative Progress (SBC-funded only)

Topic	Indicator	Most Recent (2006, unless noted)
Recruitment of Low-Income Households	Number of WAP agency referrals to program	7,313 See Figure 4-2 for more information on the source of referrals.
	Number of participants selected for comprehensive audit, education, electric reduction, and Home Performance services	18,365
	Number and types of community-based organizations working with program	34 Offices for the Aging, 8 Local Department of Social Services, 6 Housing Agencies, and 18 other Community Based Organizations
	Number of WAP agencies working with program	60
	Number of utilities working with program	6
	Number of energy services contractors working with program	75

Topic	Indicator	Most Recent (2006, unless noted)
Low-income Households and Buildings Served	Number of audits completed	16,096
	Participants receiving print and in-home education	23,336
	Participants attending energy and financial management workshops	8,030 attendees in 841 workshops
	Number of low-income buildings with energy efficient equipment installed	15,544

Figure 4-2. Referrals to EmPower by Source



4.8.4 Program Impact Evaluation

This section presents cumulative annual energy savings for the program from inception through December 31, 2006. Savings for the EmPower Program are shown in Table 4-25. M&V and attribution analysis have not been conducted on this program. Therefore, no adjustments have been made to the program reported savings.

Table 4-25. EmPower New YorkSM Program Cumulative Annual Energy and Peak Demand Savings (Through December 2006)

	Program-Reported Savings	Realization Rate	Adjusted Gross Savings	Net-to-Gross Ratio	Net Savings
MWh/year	27,933	Not Evaluated	27,933	Not Evaluated	27,933
MW On-Peak	3.3	Not Evaluated	3.3	Not Evaluated	3.3
MMBtu	66,891	Not Evaluated	66,891	Not Evaluated	66,891

4.8.5 Program Recommendations and Process Evaluation

The process evaluation team, Research Into Action, conducted a short-term analysis of NYSERDA’s EmPower New YorkSM program, with a specific focus on a pilot involving six participating contractors in 2006. The results presented below are based upon program data and interviews with NYSERDA staff, program implementation management and staff from Honeywell, and interviews with representatives from six contractors who deliver services to households under the EmPower New YorkSM program.

The pilot was conducted in mid-2006 to waive the pre-approval process for selected commonly installed measures under the EmPower New YorkSM program. The purpose of the pilot was to speed up the job completion process by eliminating the pre-approval step.¹ Six contractors who expressed interest in the program change participated in the pilot and were interviewed as to their experiences; an analysis of pilot contractor activity level statistics compared to those of non-pilot contractors was also conducted.

Results of the pilot were largely positive for the six participants. They reported shorter turnaround times for jobs, due to elimination of the pre-approval step, and a strong level of support for the streamlined process. Their reports are substantiated by the data reviewed: pilot contractors completed jobs faster than non-pilot contractors. Results of the pilot were mixed from the perspective of the implementation contractor.² Most agencies and jobs complied with the pilot requirements; however, a few projects in the pilot did not follow procedures and this led to disputes regarding payments.

As the program continues using this approach, program staff should continue to monitor the program and note whether there are any increases in administrative costs to check work scopes after the fact or if there is an increase in disputed jobs. Staff are addressing these issues in a statewide expansion plan and planning for ways to extend the privilege selectively such that a process for ensuring compliance is established.

Based on the experiences of those involved in the pilot, there are pros and cons to the pilot approach, resulting in a mixed set of experiences. The agencies that participated reported that the approach worked better for them however, it is also clear that it took a while for some to learn the new system and one or more of the contractors did not read the guidelines carefully. The recommendations that follow are

¹ In the pre-approval step, the program implementation contractor would approve the project work scope. NYSERDA program staff felt that responsibility for work scope approval more appropriately rested with participating contractors, instead of the implementation contractor. This change also enhances the professionalism of the participating contractors who also take on responsibility for completing the energy analysis that drives measure selection using various audit software.

² The implementation contractor notes that its perspective has changed based on the refinements to direct installation approach and feels satisfied that this approach will be successful.

suggested by this evaluation as the Direct Installation process is expanded statewide. Program staff note that these recommendations are currently being instituted.³

Recommendations

1. NYSERDA should expand the program gradually to enable more contractors and agencies to become familiar with the new guidelines under the direct install approach. This expansion should include offering the direct installation approach to contractors with experience in the program who have demonstrated high quality work and knowledge of the program rules and high quality work.
2. NYSERDA should offer the direct installation approach to contractors with experience in the program who have demonstrated high quality work and knowledge of the program rules and high quality of work.
3. NYSERDA must continue to work with the implementation contractor to evolve clear guidelines for Direct Installation.
4. The implementation contractor must ensure that guidelines are clearly communicated to the contractor.
5. The implementation contractor must be clear and direct in implementing such guidelines. Over time, this clarity of procedure will reduce post-invoice conflicts.
6. Contractors must take responsibility for becoming familiar with and following the guidelines that are provided.

4.9 Buying Strategies and Energy Awareness Program

4.9.1 Program Description

The Buying Strategies and Energy Awareness Program is part of NYSERDA's portfolio of **New York Energy SmartSM** programs serving low-income households in the state. The Buying Strategies and Energy Awareness Programs consist of four initiatives:

- **Buying Strategies** – This initiative works with the Office of Temporary and Disability Assistance (OTDA) to secure discounts on purchases of home heating oil for customers of the federally funded Low Income Home Energy Assistance Program (LIHEAP) customers.⁴ The initial Buying Strategies pilot program was launched in 2003 and tested a variety of strategies for securing reduced prices for home heating oil. Using “margin over rack” and “discount off retail” buying strategies, the program has increased the buying power of LIHEAP funds for heating oil by 7 to 13 percent, saving about \$50 per year per household. Based on the successes of the earlier pilot efforts, the Office of Temporary and Disability Assistance committed to a three-year phased implementation of the

³ Program staff noted that NYSERDA is committed to offering training to its contractors in the use of TREAT, the software used by Home Performance with ENERGY STAR. Enhancing the skills and knowledge of its contractors is an important reflection of NYSERDA's commitment to a market transformation approach.

⁴ Customers whom have an annual income of 60 percent or less than the State Median Income.

program. During the 2005-2006 heating season, the Buying Strategies program included 20 counties, and 200 oil vendors participated in the program. The program expanded its offerings to 39 counties during the 2006-2007 heating season (with a total of 317 participating oil vendors) and plans to reach all 62 counties in New York for the 2007-2008 heating season.

The Buying Strategies initiative includes a preventive maintenance component for oil-fired heating systems. Under LIHEAP, recipients are offered heating repair and replacement assistance for inoperable furnaces, but they are not offered preventive maintenance services. The Buying Strategies maintenance component addresses this gap by providing maintenance services, resulting in increased efficiencies for operating heating systems and reduced health risks and safety problems due to malfunctioning systems. The “Clean & Tune” service is currently available to LIHEAP customers of participating oil vendors as an incentive to offer the discount on oil purchases.

The newest component of the Buying Strategies initiative will provide technical assistance to OTDA and local Departments of Social Services in the delivery of the Heating Equipment Repair and Replacement component of New York’s enhanced version of LIHEAP. At the close of December 2006, negotiations were underway with a contractor selected through RFP 1005 to provide quality assurance for the New York-specific HEAP Heating Equipment Repair and Replacement component. Subject to agreement by OTDA, the quality assurance services will begin with a several month-long pilot in up to seven counties. A plan for expansion of services statewide will then be developed with OTDA based on the lessons learned in the pilot.

- **Targeted Marketing and Outreach** – This initiative works to increase participation in all NYSEERDA-, State-, Federal-, utility- and community-based low-income energy efficiency and energy assistance programs. The initiative targets hard-to-reach (HTR) customers such as the elderly, the low-income population, and the non-English speaking population, delivering messages specifically tailored for these groups to make sure they can make informed choices about their options for reducing energy costs. The initiative supplements existing marketing activities and distributes information through events, seminars and meetings sponsored by community-based organizations (CBOs). It also places print advertisements and articles in publications and newspapers that are specifically designed to reach low-income and other HTR populations, as well as radio advertising.
- **Low-Income Forum on Energy (LIFE)** – LIFE provides a forum where energy industry professionals, policy makers, low-income serving agencies, and energy program implementers can discuss issues relevant to the low-income sector. LIFE conducts large statewide conferences, smaller regional meetings and steering committee meetings to share information about emerging issues and best practices.
- **Energy Smart Students** – The Buying Strategies and Energy Awareness Program contributes funding to the Energy Smart Students (ESS) Program, which is described in Section 4.8 above.

The program budget is \$17.7 million.

4.9.2 Recent Program Accomplishments

Several near-term, annual goals have been set for the Buying Strategies and Energy Awareness Program. These goals and progress for the first six months are shown in Table 4-26.

Table 4-26. Buying Strategies and Energy Awareness Program – Near-Term Goals and Achievements

Activity	Program Goals (July 1, 2006 through June 30, 2007)	Achieved July 1, 2006 through December 31, 2006
Funds leveraged through Buying Strategies initiative	\$4 million	Not available
Additional low-income individuals reached via newsletters, weekly newspapers, etc. (readership)	1,000,000	240,000
Additional low-income individuals reached via seminars and workshops (attendees)	3,000	7,625
Additional contractors and other partners recruited in low-income districts	10	6
Additional students reached in schools serving low-income populations (number of individuals given educational materials)	20,000	9,137

4.9.3 Long-Term Program Accomplishments

This section highlights key program outputs as identified through the logic model development work and associated market progress. All values reported are cumulative since program inception. Program highlights include the following:

- Forty-four companies have signed Participation Agreements to participate in the Clean and Tune service under Buying Strategies.
- The price savings per gallon of fuel delivered through the Buying Strategies Initiative averaged \$0.13, assuming an average LIHEAP grant of \$400, the average out-of-pocket savings per LIHEAP client for the heating season is about \$44.
- An estimated 9,137 low-income students will benefit from improved energy education as a result of workshops held by the Energy Smart Students program in the past six months.

Table 4-27 presents the key outputs for the Buying Strategies and Energy Awareness Program through December 31, 2006. Table 4-28 presents a sample of key logic model-driven indicators of program success, especially those related to market progress, as tracked by the evaluation and program activities. Together, these tables indicate the most important ways that program progress is being measured, and report how those values are changing due to program activities.

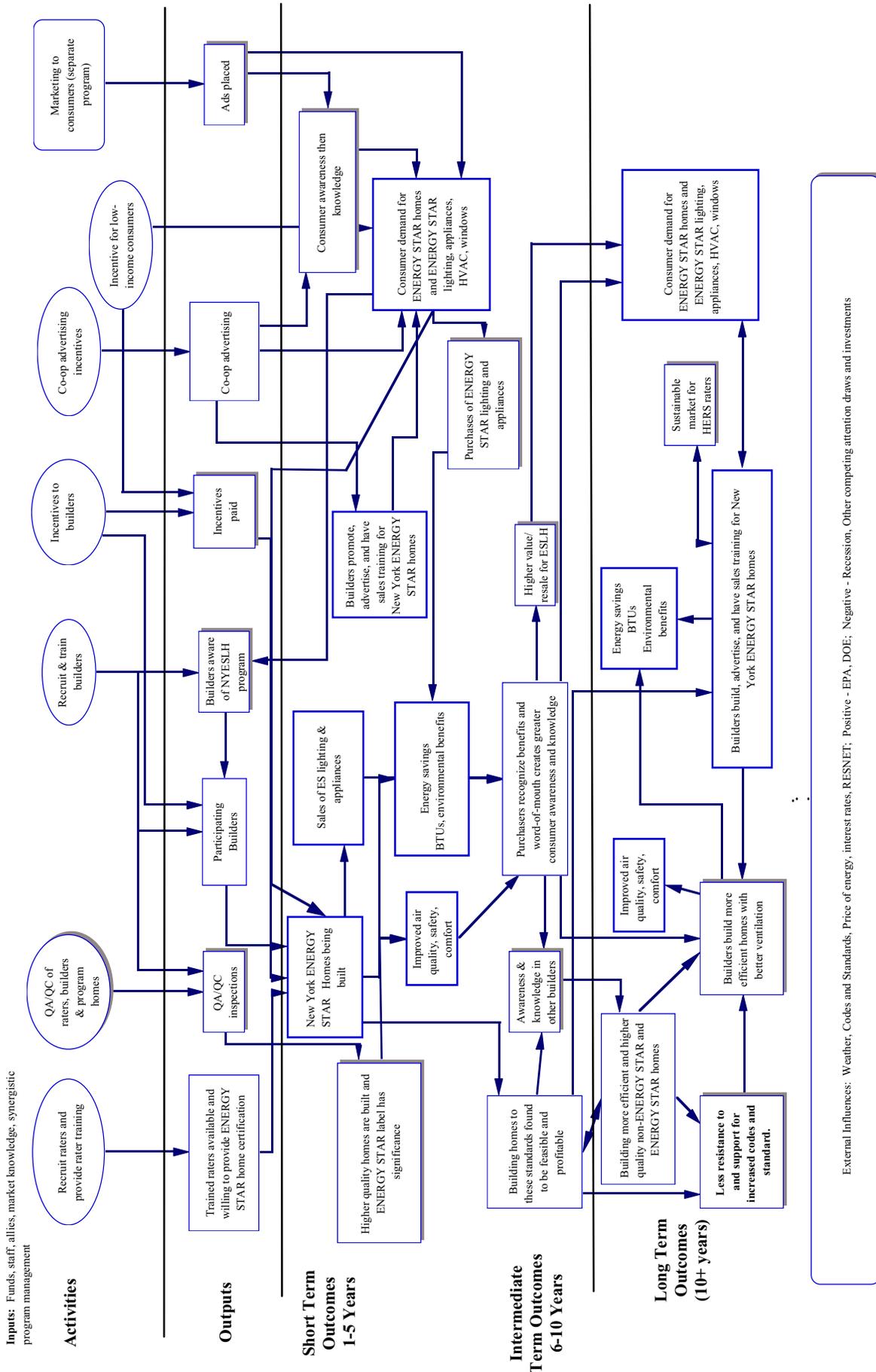
Table 4-27. Buying Strategies and Energy Awareness Program – Key Program Outputs

Outputs	Value (Cumulative through December 2006)
Buying Strategies	
Total number of participating oil vendors	317
Number of clean and tune contractors enrolled	44
Number of clean and tune services	496
Number of oil buying educational material distributed (includes materials sent out by OTDA and NYSERDA)	50,000
Low-Income Forum on Energy (LIFE)	
Numbers of LIFE Steering Committee members	24 member organizations
Number of LIFE meetings and conferences held	28 regional meetings, 5 statewide conferences
Number of attendees at LIFE meetings and conferences	1,117

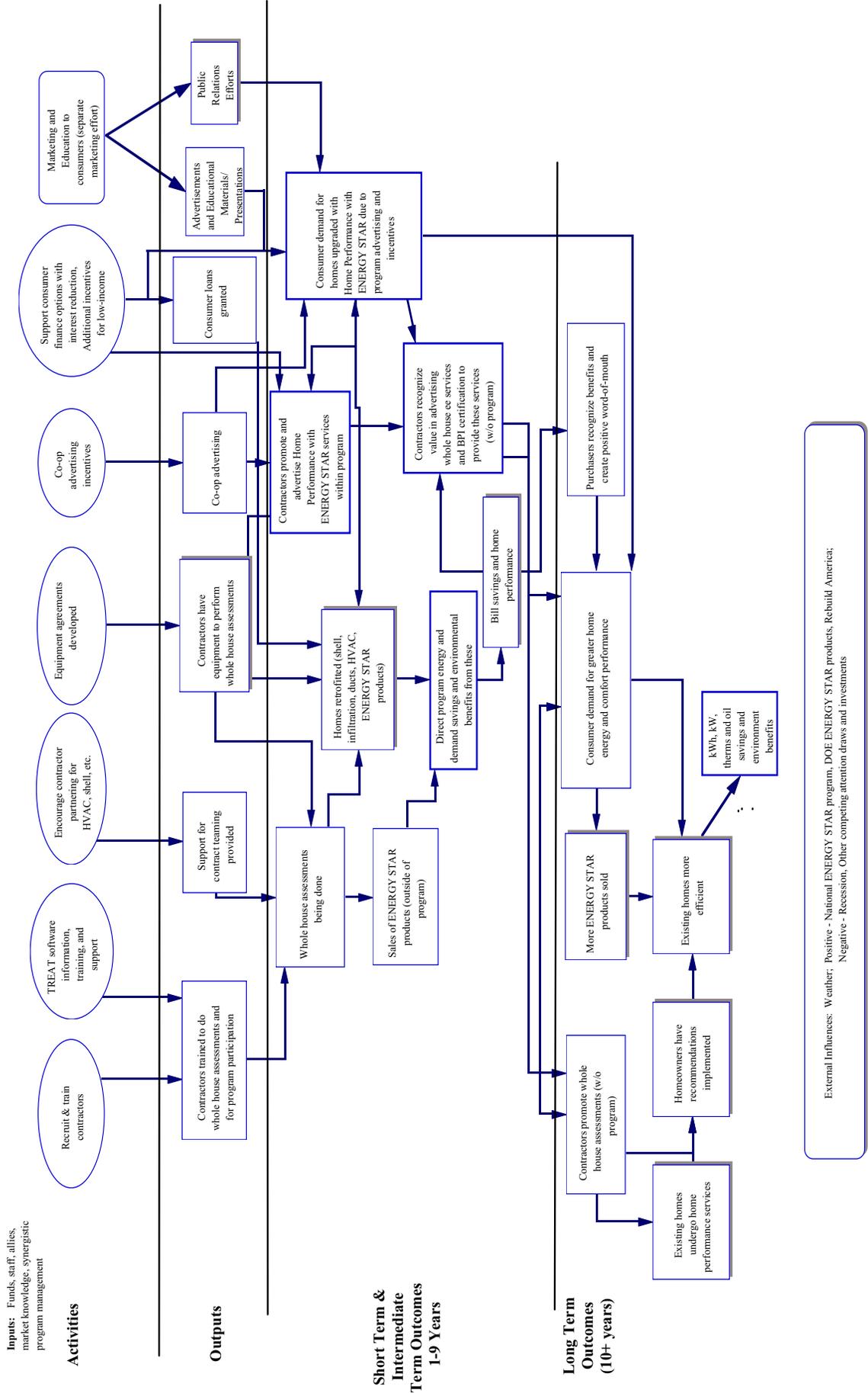
Table 4-28. Buying Strategies and Energy Awareness Program – Key Market Indicators and Program Cumulative Progress

Topic	Indicator	Initial Value (2003, unless noted)	Most Recent (2006, unless noted)
Buying Strategies			
Availability of services	Number of Clean and Tune services provided	0	496
	Number of DSS agencies working with HEAP/Oil Buying	5	39
	Number of oil dealers participating	0	317
	Number of participating heating equipment service providers by type	0	44

Home Performance with ENERGY STAR Program Logic Model



ENERGY STAR Homes Program Logic Model



Multifamily Building Performance Logic Model

Inputs: Funds, staff, allies, awareness and credibility of NYSERDA, trade ally and contractor knowledge, market knowledge

