



# NEW YORK ENERGY \$MART<sup>SM</sup> PROGRAM QUARTERLY EVALUATION AND STATUS REPORT

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QUARTERLY REPORT TO THE DEPARTMENT OF PUBLIC SERVICE  
QUARTER ENDING SEPTEMBER 30, 2003

**NYSERDA**



The logo for New York Energy Smart, featuring a yellow sunburst icon to the left of the text. The text "New York" is in a script font, "Energy Smart" is in a larger, bold script font, and "SM" is a small trademark symbol. Below this, "PUBLIC SERVICE COMMISSION" is written in a small, bold, sans-serif font, followed by a horizontal line and "NYSERDA" in a larger, bold, sans-serif font. At the bottom, "George E. Pataki, Governor" is written in a script font.

*New York*  
**Energy Smart**<sup>SM</sup>  
PUBLIC SERVICE COMMISSION — **NYSERDA**  
*George E. Pataki, Governor*

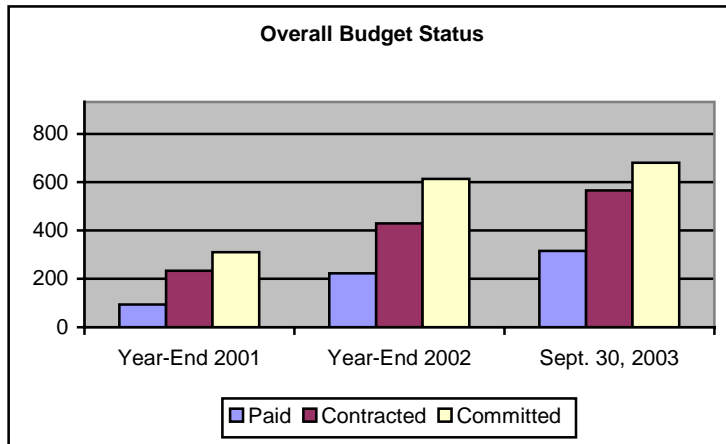
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This report updates the progress of the **New York Energy \$mart<sup>SM</sup>** Program through September 30, 2003. The following information is presented: (1) budget status, (2) summary of energy, economic, and environmental outcomes, (3) energy savings by program, (5) highlights of selected programs, and (4) a report on current evaluation activities.

## BUDGET STATUS

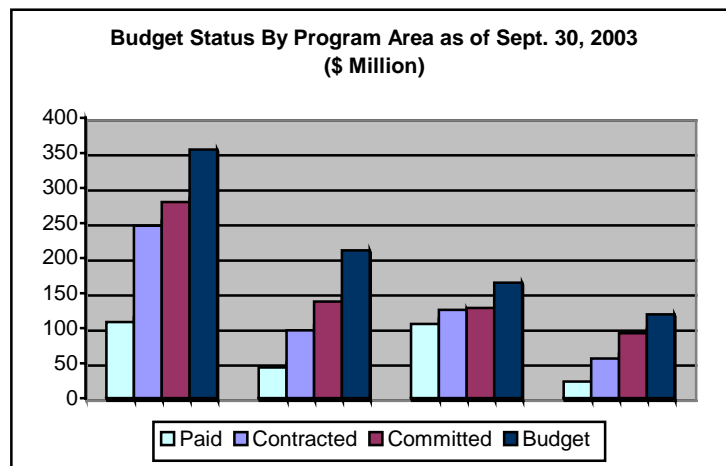
Figure 1



As of September 30, 2003, nearly \$680 million of the \$930.1 million 8-year budget, or 73%, has been committed.<sup>1</sup> Approximately \$566 million (61%) has been contracted and \$315 million (34%) has been paid out. Funds paid, contracted, and committed through 2001, 2002, and the third quarter of 2003 are shown in Figure 1.

The budget status for each major program area is shown in Figure 2. The Business/Institutional Program area has paid 38% of the committed funds, the R&D program area has paid 32% of committed funds, the residential program area has paid 82% of committed funds, and the Low-Income program area has paid 26% of committed funds. The higher percentage of paid funds for the residential program area reflects the faster turnaround time of projects in that area compared to projects in other program areas. Furthermore, the residential program supported mass media campaigns for which funds have been invoiced and paid.

Figure 2



<sup>1</sup> Committed funds are funds associated with signed and pending contracts.

## ENERGY, ECONOMIC AND ENVIRONMENTAL OUTCOMES SUMMARY

Table 1 shows a summary of the energy savings and economic and environmental outcomes from the **New York Energy \$mart<sup>SM</sup>** Program through 2001, 2002, and the third quarter of 2003. The last column shows the anticipated outcomes from funds that have been committed. As of September 30, 2003, annual electricity savings from installed measures are 980 GWh. The peak demand reduction<sup>2</sup> is 840 MW, with 340 MW resulting from permanent reductions available through energy efficiency improvements, and 500 MW available to be called upon when needed through load management programs.

**Table 1. Summary of Economic and Environmental Outcomes**

	<b>Through Year- End 2001</b> (From Installed Measures)	<b>Through Year- End 2002</b> (From Installed Measures)	<b>Through Sept. 30, 2003</b> (From Installed Measures)	<b>Anticipated From Funds Committed</b>
Electricity Savings From Energy Efficiency (Annual GWh)	400	690	980	2,000
Peak Demand Reduction (MW)	270	652	994	1,390
	96 MW Permanent Measures	218 MW Permanent Measures	316 MW Permanent Measures	650 MW Permanent Measures
	174 MW Curtailable Load	434 MW Curtailable Load	678 MW Curtailable Load	740 MW Curtailable Load
Annual Electricity Bill Savings (\$ Million)	\$46	\$80	\$110	\$245
Annual Natural Gas and Oil Bill Savings (\$ Million)	\$11	\$23	\$31	\$55
Renewable Energy Generation (Annual GWh)	28	103	103	980
Jobs Created or Retained per Year Due to Energy Bill Savings	1,800	3,200	4,500	9,600
NO <sub>x</sub> Emissions Reductions Associated with Energy Efficiency and Renewable Energy Production (Annual Tons)	77	790	1,000	2,700
SO <sub>2</sub> Emissions Reductions Associated with Energy Efficiency and Renewable Energy Production (Annual Tons)	155	1,270	1,600	4,800
CO <sub>2</sub> Emissions Reductions Associated with Energy Efficiency and Renewable Energy Production (Annual Tons)	56,000 (equivalent to removing 11,000 automobiles from New York roads)	640,000 (equivalent to removing 127,000 automobiles from New York roads)	820,000 (equivalent to removing 160,000 automobiles from New York roads)	2,140,000 (equivalent to removing 430,000 automobiles from New York roads)

<sup>2</sup> Peak demand represents demand during the on-peak period.

## ENERGY SAVINGS – SELECTED PROGRAMS

The energy benefits from programs that have quantified these savings are shown in Table 2 for measures installed through 2001, 2002, and the third quarter of 2003. The last column shows the savings anticipated from funds that have been committed.

**Table 2. Energy and Demand Reductions Summary**

	Installed Through Year-End 2001		Installed Through Year-End 2002		Installed Through Sept. 30, 2003		Anticipated from Funds Committed	
	GWh	MW	GWh	MW	GWh	MW	GWh	MW
<b>Business and Institutional Programs</b>								
C/I Performance Program	153.6	34.2	235.0	52.0	275.0	76.7	665.7	161
New Construction Program	3.2	1.2	41.9	4.8	75.8	7.7	306.0	47.7
Smart Equipment Choices	n/a	n/a	13.0	6.0	53.9	26.5	60.8	29.9
Peak Load Reduction (Permanent Measures)	14.7	6.1	47.8	19.9	55.5	23.1	126.3	52.5
Peak Load Reduction and Enabling Technology (Curtailed Load Enabled)	n/a	174.6	n/a	434.2	n/a	678.8	n/a	741.9
Premium Efficiency Motors	2.2	0.5	5.0	1.0	6.3	1.2	6.3	1.2
Small Commercial Lighting	0.2	<0.1	1.9	0.4	2.8	0.6	2.8	0.6
Commercial HVAC	0.0	0	0.3	<0.1	0.3	<0.1	0.3	<0.1
Loan Fund	7.2	2.0	8.9	1.5	14.4	2.5	16.0	2.6
Technical Assistance Program	112.8	30.0	225.6	60.0	327.1	87.0	581.2	154.6
<b>Residential Programs</b>								
ENERGY STAR® Products	62.7	11.1	83.7	14.4	83.7	14.4	83.7	14.4
ENERGY STAR® Bulk Purchase	1.2	0.3	12.6	4.6	28.6	6.2	28.6	6.2
Keep Cool	5.3	8.8	25.2	41.8	31.0	50.3	31.0	50.3
ENERGY STAR® Labeled Homes	0.1	<0.1	0.5	0.3	1.5	0.8	4.3	2.4
Home Performance with ENERGY STAR®	0.1	<0.1	0.7	0.1	1.8	0.5	6.2	1.0
Residential Comprehensive Energy Management	0.2	0.1	4.7	1.3	7.3	7.1	73.0	20.0
<b>R&amp;D Programs</b>								
Renewables Program	28.0	11.5*	103.0	41.8*	103.0	41.9*	980.0	360.0*
Combined Heat and Power Demonstrations	n/a	0.6	n/a	4.8	n/a	5.9	n/a	83.6

n/a: Not Applicable.

\* Nameplate capacity.

## SOLICITATIONS UPDATE

Table 3 provides information on Requests for Proposals (RFPs) and Program Opportunity Notices (PONs) that were released during the third quarter of 2003.

**Table 3. Solicitations Released in Third Quarter 2003**

Solicitation Number	Solicitation Name	Solicitation Release Date	Solicitation Closing Date
<b>Business and Institutional Program Area</b>			
PON 812	Smart Equipment Choices	8/11/03	12/31/03
RFP 773	Flex Tech Services	7/21/03	9/16/03
PON 809	Small Commercial Lighting Program Incentives	8/25/03	12/31/04
PON 815	New Construction Financial Incentives	8/18/03	5/31/2004 Or until funds are fully committed
RFP 794	Energy Efficiency Education Program	9/18/03	11/6/03
<b>Residential and Low-Income Program Areas</b>			
RFP 788	Financing Through Home Performance with ENERGY STAR®	8/4/03	8/26/03
<b>R&amp;D Program Area</b>			
PON 737	Renewable Energy Technology Options Program	8/1/03	9/25/03
PON 717	Market Development Support for Photovoltaic and Wind Systems	9/15/03	10/30/03
PON 796	Financial Assistance for Communities to Facilitate Wind Power Plant Projects	9/8/03	10/6/03
RFP 825	Study the Effects of Integrating Wind Power on Transmission System Planning, Reliability and Operations	9/18/03	9/29/03
PON 804	Enabling Technology for Price-Sensitive Load Management	9/15/03	11/19/03
PON 808	Advanced Sensors and Controls for Energy Management, Power Quality and System Reliability	9/8/03	11/5/03
<b>Communications</b>			
RFP 748	Public Awareness and Education	8/4/03	9/11/03
<b>Economic Development</b>			
RFP 821	Building Management Services-10 Hermes Road, Malta, NY	8/25/03	9/15/03

## PROGRAM HIGHLIGHTS – SELECTED PROGRAMS

### Peak Load Reduction Program and Enabling Technology for Price-Sensitive Load Management

#### **Peak Load Reduction Program**

Budget: \$39.4 million

Funds Committed: \$37.7 million

Funds Paid: \$17.4 million

#### **Enabling Technology for Price-Sensitive Load Management**

Budget: \$3.0 million

Funds Committed: \$2.7 million

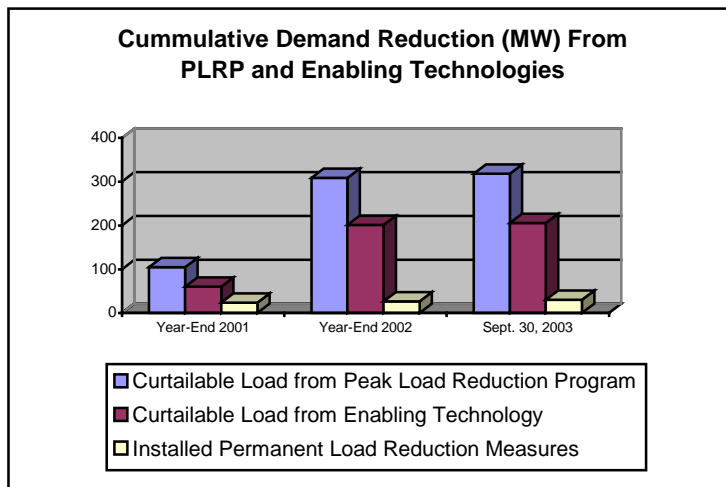
Funds Paid: \$1.5 million

Two types of measures are employed to target summer peak load reduction: 1) curtailable measures that allow customers to reduce peak demand as needed and 2) permanent measures that reduce peak demand through the installation of energy efficiency equipment. Permanent measures are expected to be in place and operational for at least five years. The Peak Load Reduction Program (PLRP) provides funding to users or service providers for curtailable load measures and for permanent measures. The Enabling Technology for Price-Sensitive Load Management Program provides funding to curtailment service providers (CSP) and load serving entities (LSE) to develop and

demonstrate load curtailment technologies. These two programs facilitate participation in the New York Independent System Operator (NYISO) demand response programs.

The cumulative amount of curtailable load that was enabled is shown in Figure 3 by program. Also shown is the peak demand reduction from installed permanent measures from the PLRP Program. In 2001, NYSERDA participants that were enrolled in the NYISO emergency demand reduction program (EDRP) reduced demand by an average of 102 MW per hour during emergency

Figure 3



events. In 2002, NYSERDA participants reduced demand by an average of 175 MW per hour, representing 67% of their pledged load.<sup>3</sup> In the same year, non-NYSERDA participants reduced on average 50% of their pledged load. Response performance during 2003 events is not yet available.

In program years 2002 and 2003, the PLRP solicitation was targeted to foster greater participation by businesses in the New York City metropolitan area. As a result, of the 3 MW of permanent measures installed statewide in 2003, 92% was installed in the Consolidated Edison service area, increasing from 63% in 2002. For curtailable measures, of the 240 MW enabled statewide in 2003, 50% was enabled in the Consolidated Edison service area in 2003 compared to 34% in 2001 and 48% in 2002. In 2002, stricter permitting requirements for emergency generators went into affect in New York City.

<sup>3</sup> Pledged load is the amount of load that customers register with the NYISO for emergency demand response. Response is voluntary and therefore, actual performance may be lower than pledged performance.

Nevertheless, curtailable load enabled in the Consolidated Edison service area increased from 57 MW installed in 2002 to 121 MW installed in 2003.

**New Construction Program**

Budget: \$79.4 million  
 Funds Committed: \$75.4 million  
 Funds Paid: \$19.2 million

The New Construction Program was established to encourage energy-efficient design and building practices among architects and engineers (A&Es), and to encourage them to inform building owners about the long-term benefits of building to higher energy efficiency standards.

Building owners or lease holders can apply for pre-qualified equipment, custom measure, or whole building design incentives. Design teams (A&E firms) may also be eligible for technical assistance from NYSERDA’s pre-selected providers. The technical assistance offered under the New Construction Program helps designers to perform building commissioning, and to evaluate energy efficiency and green buildings opportunities.

Effective September 2003, the program’s incentive structure was changed from being incremental-cost-based to performance-based to be more consistent with other NYSERDA incentive programs. Each project’s incentive offer is now determined based on the expected annual kWh and KW savings. Incentives will offset a maximum of 60% of the incremental cost of energy efficiency measures. This represents a scaling back of incentives.

**Figure 4**

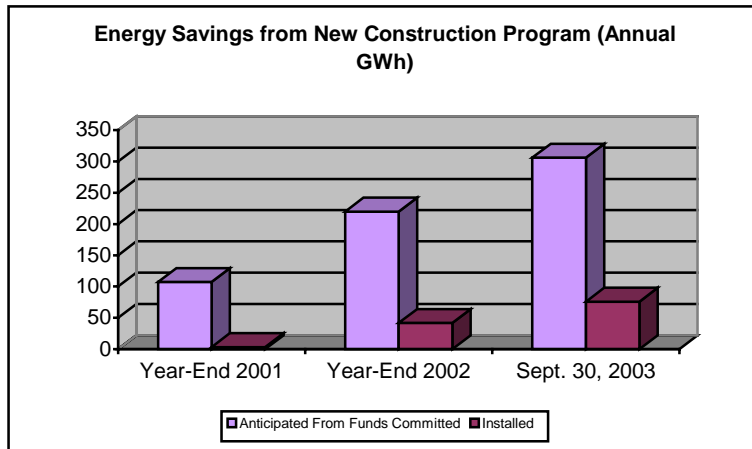


Figure 4 shows annual electricity savings anticipated from funds committed and from completed buildings. Table 4 highlights some key progress metrics for the New Construction Program

Several in-depth evaluation activities are in progress for the New Construction Program. Field work for the measurement and verification (M&V) of energy savings on completed buildings is underway. In addition, market characterization, assessment, and causality (MCAC)

evaluation efforts are well underway. Recently, databases were purchased from F.W. Dodge that will have five years historical and five years forecast data on the State's building stock, new construction, additions, and alterations for approximately 20 different building types. The MCAC work will include analysis of the F.W. Dodge data, surveys of participating and non-participating building owners, and surveys of participating and non-participating market actors such as A&E firms. Results of the M&V and MCAC evaluation activities will be included in upcoming reports.

**Table 4. New Construction Program Summary**

	Through Year-End 2001	Through Year-End 2002	Through Sept 30, 2003
Number of active applications	605	865	974
Number of custom and whole-building projects receiving design assistance	231	363	425
Total square footage impacted (anticipated from committed funds)	57.2 million	86.8 million	96.8 million
Number of projects with contracted funding	252	413	559

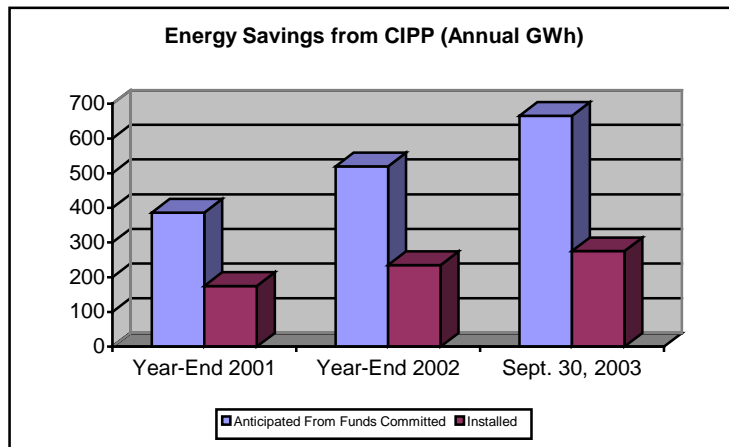
**C/I Performance Program**

Budget: \$126.6 million  
 Funds Committed: \$106.6 million  
 Funds Paid: \$52.8 million

The goals of the Commercial/Industrial Performance Program are to promote energy efficiency and demand reduction through capital improvements and to support the development and expansion of the energy service company (ESCO) industry. CIPP offers incentives to

ESCOs based on verified energy savings. A contract is executed between NYSERDA and the ESCO which enters into a separate contract, either performance-based or fee-for-service, with the customer. Funding is available on a first-come, first-served basis. Incentives paid to the ESCOs are based on energy savings measured and verified for one full year after a project's installation.

**Figure 5**



savings from installed measures is 275 GWh annually and the peak demand reduction is approximately 70 MW. Recent modifications to the program are:

- Lighting incentives were reduced from 10.5¢ to 6¢ per kWh; incentives for motors and variable-speed drives were reduced from 12.8 ¢ to 10¢ per kWh;
- The incentive cap for ESCOs was reduced from \$4 million to \$2 million; and
- M&V for lighting was changed to the calculated savings approach.

**Table 5. CIPP Summary**

	Through Year-End 2001	Through Year-End 2002	Through Sept 30, 2003
Number of applications approved	270	500	600
Number of participating ESCO's	69	103	115
Number of participating facilities	265	400	1,022
Total value of project investments	\$230	\$320	\$412

**Technical Assistance Program**

Budget: \$33.0 million  
 Funds Committed: \$25.7 million  
 Funds Paid: \$10.5 million

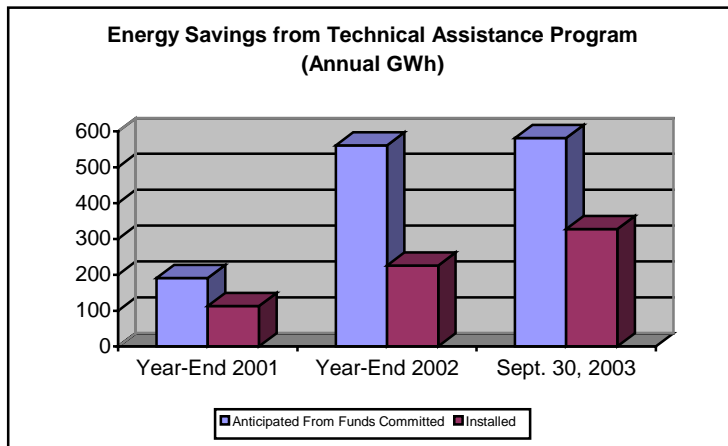
The Technical Assistance Program provides funding for detailed energy studies and for walkthroughs. The technical consultant can be selected by the customer or the customer can choose a technical

consultant from NYSERDA's list of pre-selected service providers.

Smaller customers (facilities with less than \$100,000 in annual electricity bills) participate through a single firm that conducts less-costly walk-through audits. Starting in May 2002, a separate solicitation was issued to fund feasibility studies of combined heat and power (CHP) and renewable energy generation projects.

Cumulative energy savings are shown in Figure 6. Additional program outcomes are presented in Table 6.

**Figure 6**



**Table 6. Technical Assistance Programs Summary**

	Through Year-End 2001	Through Year-End 2002	Through Sept 30, 2003
Number of applications	1,600	2,200	2,700
Number of participating service providers	160	210	230
Number of projects	1,200	1,900	2,100

**ENERGY STAR® Products and ENERGY STAR® Bulk Purchase**

Budget: \$26.6 million  
 Funds Committed: \$25.8 million\*  
 Funds Paid: \$17.2 million\*  
 \* Excludes media campaign costs.

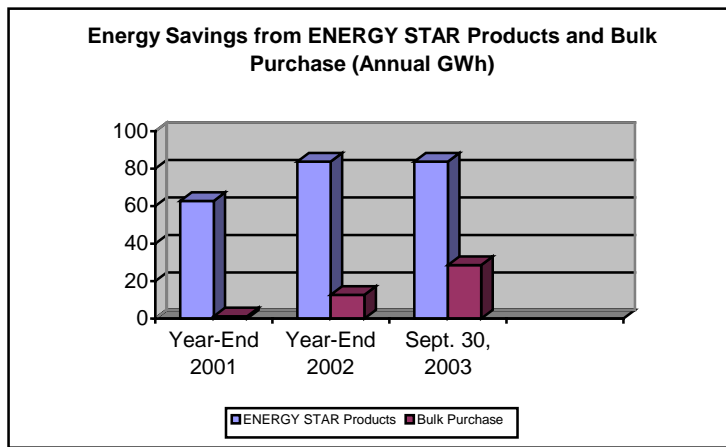
The goal of the ENERGY STAR® Products Program is to increase availability and sales of ENERGY STAR® products. The program

emphasizes partnerships with manufacturers, distributors, wholesalers, and retailers.

Availability, market share, and retail display areas for ENERGY STAR® home electronics products are continuing to increase despite the removal of cooperative advertising incentives and in-store point-of-purchase material. As a result, the 2003 data tracking of ENERGY STAR® home electronics products was discontinued. In 2003, the following ENERGY STAR® products were added to the program: freezers, dehumidifiers, and ceiling fans. A plan for adding HVAC systems is currently being developed.

The ENERGY STAR® Bulk Purchase program provides energy assessments for multifamily buildings and makes recommendations for the installation of ENERGY STAR® measures. The program also provides educational materials and training on the benefits of ENERGY STAR® products, as well as

Figure 7



information on financing options. The program's name is being changed to **New York Energy \$mart<sup>SM</sup>** Purchasing Initiative and will expand to provide vendor referrals to bulk purchasers of ENERGY STAR® products.

Cumulative energy savings from the two programs are shown in Figure 7. The ENERGY STAR® Appliances and Lighting Consumer Mail survey, previously conducted by the program implementation contractor, was used, in part, to estimate the savings

associated with ENERGY STAR® purchases. An updated consumer survey is planned for late 2003. Additional program outcomes are shown in Table 7.

Table 7. Program Summary ENERGY STAR® Products and Bulk Purchase

	Through Year-End 2001	Through Year-End 2002	Through Sept 30, 2003
<b>ENERGY STAR® Products</b>			
Participating Retailer Shops	756	509	562
Participating Manufacturers	14	9	19
<b>ENERGY STAR® Bulk Purchase</b>			
Number of Buildings Enrolled in Program	2,894	9,510	9,820
Number of Buildings Receiving Assessments	89	103	107

Note: The number of participating retail shops dropped from 756 partners in 2001 to 509 partners in 2002 due to the concerted effort by the program to focus on the quality of retailers instead of the quantity of retailers.

## **ENERGY STAR® Small Homes Program**

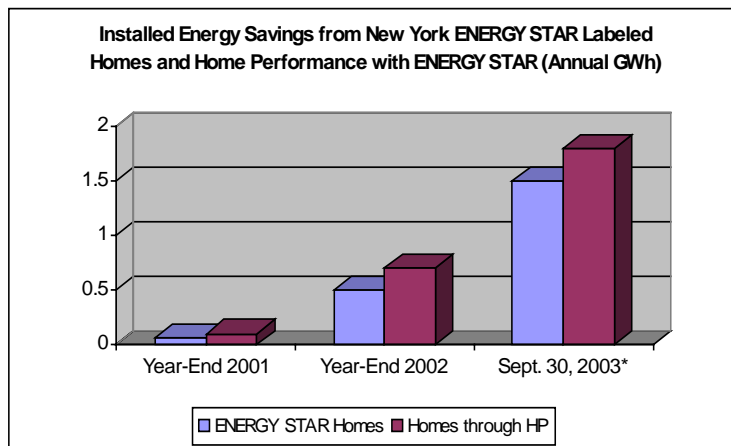
Budget: \$28.2 million  
 Funds Committed: \$17.6 million  
 Funds Paid: \$14.5 million

The Home Performance with ENERGY STAR® Program is designed to enhance the current capacity for delivering energy efficiency services to existing one- to four-family residences. The program protects consumers by offering training and requiring certification

and accreditation for participating contractors. Every homeowner that participates in the program must first receive a comprehensive energy audit. The cost of the audit is charged to the homeowner and is later deducted from the cost of implementing the recommended measures. Low-interest rate financing is also offered.

The New York State ENERGY STAR® Labeled Homes Program encourages the adoption of energy-efficient home design and installation of energy-efficient equipment in new construction and substantial

**Figure 8**



renovation projects. The program supports technical assistance and financial incentives to one- to four-family home builders and Home Energy Rating System (HERS) raters. Cumulative installed energy savings for the two programs are shown in Figure 8 and additional program outcomes are shown in Table 8. For both the Home Performance with ENERGY STAR® Program and the New York ENERGY STAR® Labeled Homes Program, a formal quality assurance/quality control (QA/QC) procedure was instituted in 2003 to

ensure that all work is completed to expected program standards.

**Table 8. ENERGY STAR® Labeled Homes and Home Performance with ENERGY STAR® Summary**

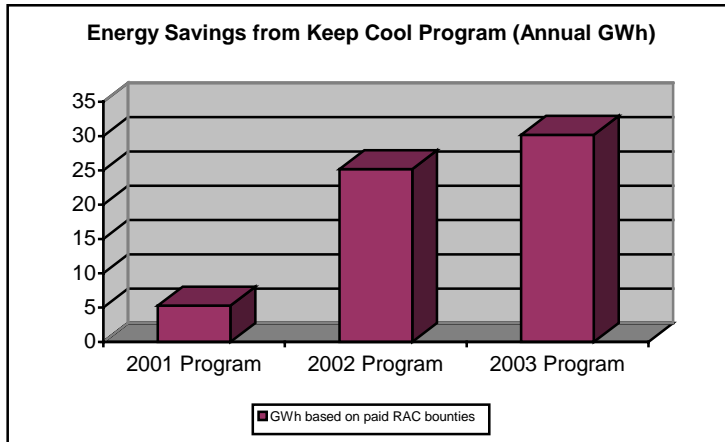
	Through Year-End 2001	Through Year-End 2002	Through Sept 30, 2003
<b>ENERGY STAR® Homes</b>			
Number of new homes completed	58	622	1,824
Number of homes with PV systems installed	n/a	2	4
<b>Home Performance with ENERGY STAR®</b>			
Number of homes assessed	550	2,000	6,226

## Keep Cool

Budget: \$34.7 million  
 Funds Committed: \$25.3 million\*  
 Funds Paid: \$23.7 million\*  
 \* Does not include recycling costs.

The Keep Cool Program is designed to reduce peak electric demand by encouraging the replacement of old, inefficient, working air conditioners with new ENERGY STAR®-qualifying room air conditioners (RACs). In addition to window air

Figure 9



conditioners, the program supports through-the-wall (TTW) room air conditioners with an energy efficiency rating (EER) of 9.0 or higher.<sup>4</sup> Customers must surrender their old unit in order to receive a bounty payment for the new energy efficient unit. The program also targets energy use behavior, residential appliance purchasing decisions, and increased availability of ENERGY STAR® products. In 2003, the Keep Cool Program provided incentives to consumers who purchased ENERGY STAR®

clothes washers.

Through partnerships with the Long Island Power Authority (LIPA) and the New York Power Authority (NYPA), the Keep Cool Program is marketed statewide. Cumulative energy savings from the Keep Cool program is shown in Figure 9. Additional program outcomes are shown in Table 9.

Table 9. Keep Cool Program Summary\*

	Through Year-End 2001**	Through Year-End 2002	Through Sept. 30, 2003
Number of Room Air Conditioners Turned In	27,192	131,777	161,217
Number of Bounties Paid	24,784	117,220	140,556
Peak Demand Reduction (based on number of bounties paid and estimates of spillover***)	8.8 MW	41.8 MW	50.1 MW

\* Summary reflects Keep Cool activity in the New York Energy Smart<sup>SM</sup> Program territory only.

\*\* Includes results from Summer 2000 pilot.

\*\*\*Spillover is an estimate of the energy impact that occurs from the sale and installation of ENERGY STAR® room air conditioners, resulting from the Keep Cool Campaign, that are in addition to air conditioners sold through the bounty initiative. The energy impact of spillover sales is a preliminary estimate that is being assessed by NYSERDA and its specialty evaluation contractors.

<sup>4</sup> ENERGY STAR® standards for TTW units have not yet been defined; NYSERDA established a minimum EER rating of 9.0 for TTW units.

For the 2003 program, the consumer air conditioner bounty was reduced from \$75 to \$35 to reflect the decreased price premium between an ENERGY STAR® RAC and a non-ENERGY STAR® unit. In addition, the program start was moved to April 1 (from May 1) and the end date was moved to July 31 (from September 20) in order to achieve replacements of old units earlier in the summer. The marketing strategy also changed, with efforts focusing on behavioral change and responsible energy use rather than the RAC bounty, which had been the focus in the past.

**Assisted Multifamily Buildings Program (AMP)**

Budget: <u>\$72.2 million</u> Funds Committed: <u>\$71.1 million</u> Funds Paid: <u>\$7.6 million</u>
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As of September 30, 2003, work has been completed on 22 assisted multifamily buildings properties, representing 1,583 tenant units. Table 10 presents a breakdown of the AMP projects completed, and those approved for assistance.

**Table 10. Assisted Multifamily Program Implementation Summary**

	Through Year-End 2001	Through Year-End 2002	Through Sept 30, 2003
<b>Completed Projects</b>			
Number of Participating Building Owners (Low-Income Properties)	n/a	8	22
Number of Low-Income Households Assisted	n/a	579	1,583
<b>Approved Projects</b>			
Number of Participating Building Owners (Low-Income Properties)	n/a	71	109
Number of Low-Income Households Assisted	n/a	32,034	49,531

n/a: Not applicable.

These properties received NYSERDA incentives of \$265,300 for energy efficiency improvements. In addition, these properties received \$2.6 million of benefits from the weatherization assistance program (WAP), building owner contribution, and other grant-assistance funding for building improvements. The annual electricity savings from the approved projects is estimated to be 995 MWh. These savings equate to 629 kWh per unit and 45,227 kWh per property. Average cost of the energy efficiency improvements per unit is estimated to be \$1,835. Annual savings per unit are estimated to range between \$70 and \$94 depending upon utility service area (assuming residential rate of \$0.11 per kWh to \$0.15 per kWh).

There are 109 properties, representing more than 49,500 tenant units, that have been approved for Assisted Multifamily Buildings Program (AMP) implementation incentives. Energy audits for these properties have identified annual savings of more than 80,000 MWh annually, 180,000 million Btu of natural gas annually, and 191,000 million Btu of heating oil annually. These savings are shown in by measure in Table 11.

**Table 11. Electricity Savings By Measure for Multifamily Buildings Program Projects Approved as of September 30, 2003**

Energy Efficiency Measure	Annual Electricity Savings (MWh)	Annual Natural Gas Savings (million Btu)	Annual Heating Oil Savings (million Btu)
Envelop/Shell	600	60,900	29,400
Lighting	45,400	0	0
Appliances	4,900	300	43,900
Heating Systems	14,800	50,500	7,000
Cooling Systems	100	0	500
Motors	7,600	0	71,000
Submetering	2,400	0	0
Hot Water	0	47,000	49,700
Other	4,700	20,000	0
<b>Total</b>	<b>80,500</b>	<b>180,000</b>	<b>191,300</b>

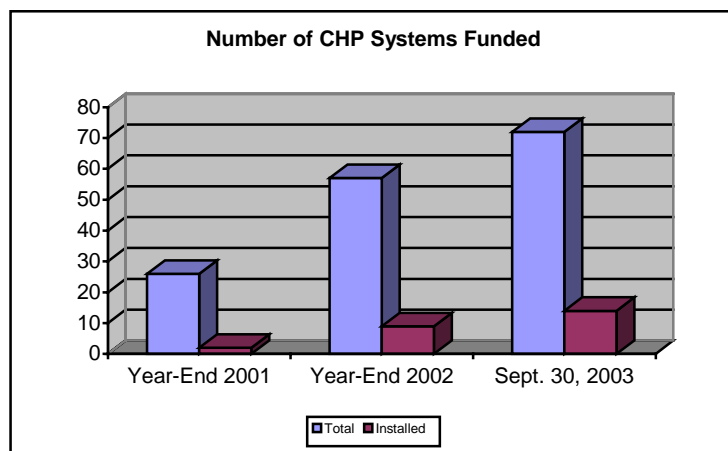
Totals may not match due to rounding.

**Distributed Generation-Combined Heat and Power (DG-CHP) Program**

Budget: \$67.1 million  
 Funds Committed: \$45.7 million  
 Funds Paid: \$13.1 million

The goal of the DG-CHP program is to contribute to the growth of DG and CHP in New York by providing funding for product development, feasibility studies, and demonstrations of small-scale distributed generation. The program was initiated in March 2001. Figure 10

**Figure 10**



presents the number of CHP systems that have been approved for funding and the number of systems that have been installed. The systems represent a broad mix of technologies, including fuel cells, and fuel sources, including biomass. The systems are generally designed to operate continuously, including during periods of system peak demand, *i.e.*, the systems are base loaded. The number of projects and associated peak demand reduction for approved and installed projects are presented in Table 12. The total anticipated peak demand reduction

from funds committed is approximately 83.6 MW. Approximately half of the anticipated peak demand reduction will occur in the downstate area. The portfolio of projects includes a 15.5 MW system planned for New York University in Manhattan and a 15.5 MW biomass project planned for W.J. Cowee Inc. in Rensselaer County. The average system size for all projects is 1 MW.

**Table 12. Number of CHP Demonstration Projects and Associated Peak Demand Reduction**

	Through Year-End 2001	Through Year-End 2002	Through Sept. 30, 2003
Number of Approved Systems	26 (26.2 MW)	57 (56.3 MW)	73 (83.6 MW)
Number of Installed Systems	2 (0.6 MW)	9 (4.8 MW)	14 (5.9 MW)

One of NYSERDA's evaluation contractors is conducting a process evaluation of the DG-CHP projects. The contractor is currently interviewing project staff, end-use customers, and technical consultants. Results will be available in February 2004.

### **Renewable Energy**

Budget: <u>\$79.9 million</u> Funds Committed: <u>\$45.7 million</u> Funds Paid: <u>\$13.1 million</u>
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Renewable energy is supported through a number of initiatives that are categorized as either end-use market or wholesale market activities. The following are objectives of the end-use market initiatives:

- Develop and disseminate information on renewable energy technologies.
- Inspect photovoltaic (PV) and wind systems to ensure installation quality.
- Build a network of qualified energy practitioners by helping schools develop accredited training programs.
- Support the development of businesses that serve the end-use market.
- Incorporate installation of PV systems on schools with curriculum development, teacher training, and community-based education to increase awareness of renewable energy.
- Fund installation of residential, commercial, and institutional PV systems and support the development of innovative PV materials for building construction.

The objectives of the wholesale market initiatives are:

- Support power marketers in their sales of green energy.
- Support construction of wind power plants.
- Investigate the development of a system to trade renewable energy credits.

A summary of selected program outcomes is shown in Table 13. Additional progress information is listed below:

PON 716. This open application program provides funding to PV and wind equipment installers on a per KW basis. Since its inception, 69 systems have been approved for funding.

Green Marketing Program. The goal of the program is to support 275 MW of new wind capacity by 2006. Currently, 2,800 Niagara Mohawk and 2,200 NYSEG customers have enrolled in the program. A full report on the program's progress will be available at the end of 2003.

Small Wind. Four of the five 10-KW systems that were approved for funding have been installed. Data collections activities will provide information on consistency between actual power output and manufacturers' claims.

Solar Schools. Four of the approved 50 2-KW systems have been installed, but are not yet interconnected. Seven systems are expected to be installed by the end of the year. Curriculum development is in progress. Seven out of 45 renewable energy curriculum lessons have been completed. These lessons are available for viewing at <http://www.nyserda.org/schools/index.html>.

**Table 13. Summary of Renewable Energy Program Outcomes**

	Through Year-End 2001	Through Year-End 2002	Through Sept 30, 2003
<b>Wind Power</b>			
Installed Wind Capacity (Note: Anticipated installed capacity from committed funds is 358 MW)	11.5 MW	41.5 MW	41.5 MW
Green Power Sales Supported	0	13 MW	Report will be available in Dec. 2003.
<b>PV for residential homes</b>			
Installed Capacity from Former Residential PV program	48 KW (30 systems)	95 KW (60 systems)	No change. Program closed out.
Installed Capacity from PON 716	n/a	n/a	40 KW (13 systems) Total for pending and installed is 264 KW (61 systems).
<b>PV for Commercial and Institutional facilities</b>			
Installed Capacity From PON 716	n/a	n/a	39 kW (3 systems) Total for pending and installed is 79 MW (8 systems).
Installed Capacity from PV on Buildings, Peak Load Reduction Program, and New Construction Program	163 KW (3 systems)	220 KW (6 systems)	220 kW (6 systems)

n/a: Not Applicable.

## **SPECIAL REPORT**

### **Evaluation Contractor Activities**

The **New York Energy \$mart<sup>SM</sup>** Program evaluation effort is focused on four critical specialty areas, each contributing to the assessment of progress toward the PSC's public policy goals established for the Program. Four contractors were hired for the specialty evaluation areas, along with a general evaluation contractor assisting NYSERDA with evaluation planning, coordination, oversight, and management.

The four **New York Energy \$mart<sup>SM</sup>** Program goals established by the PSC are:

- Improve system-wide reliability and peak reduction through end user efficiency actions.
- Improve energy efficiency and access to energy options for under-served customers.
- Reduce environmental impacts of energy production and use.
- Facilitate competition to benefit end-users.

To accomplish these goals, evaluation priorities include:

- Providing a credible evaluation of the **New York Energy \$mart<sup>SM</sup>** Program, including all of the existing individual programs as well as the complete portfolio of program offerings.
- Providing timely information to the SBC Advisory Group, PSC, and NYSERDA managers on the: (1) efficiency and effectiveness of program administration and implementation, (2) market transformation progress toward moving markets to improved energy efficiency, and (3) progress toward the PSC's broad policy goals including energy efficiency, resource acquisition, energy savings, and economic and environmental benefits.

The evaluation assistance areas are identified as:

- General Evaluation Assistance
- Program Analysis
- Process Evaluation
- Market Characterization, Assessment, and Causality
- Measurement and Verification
- Macroeconomic Impact of the **New York Energy \$mart<sup>SM</sup>** Program

The organizational structure for managing the various activities is shown in Figure 11.

General Evaluation Assistance. NYSERDA serves as evaluation coordinator for overseeing and conducting the evaluation as per its memorandum of understanding with the PSC. NYSERDA is responsible for reporting evaluation status and findings to the SBC Advisory Group, and serves as on-site advisors to NYSERDA's program managers and implementation contractors on evaluation-related issues.

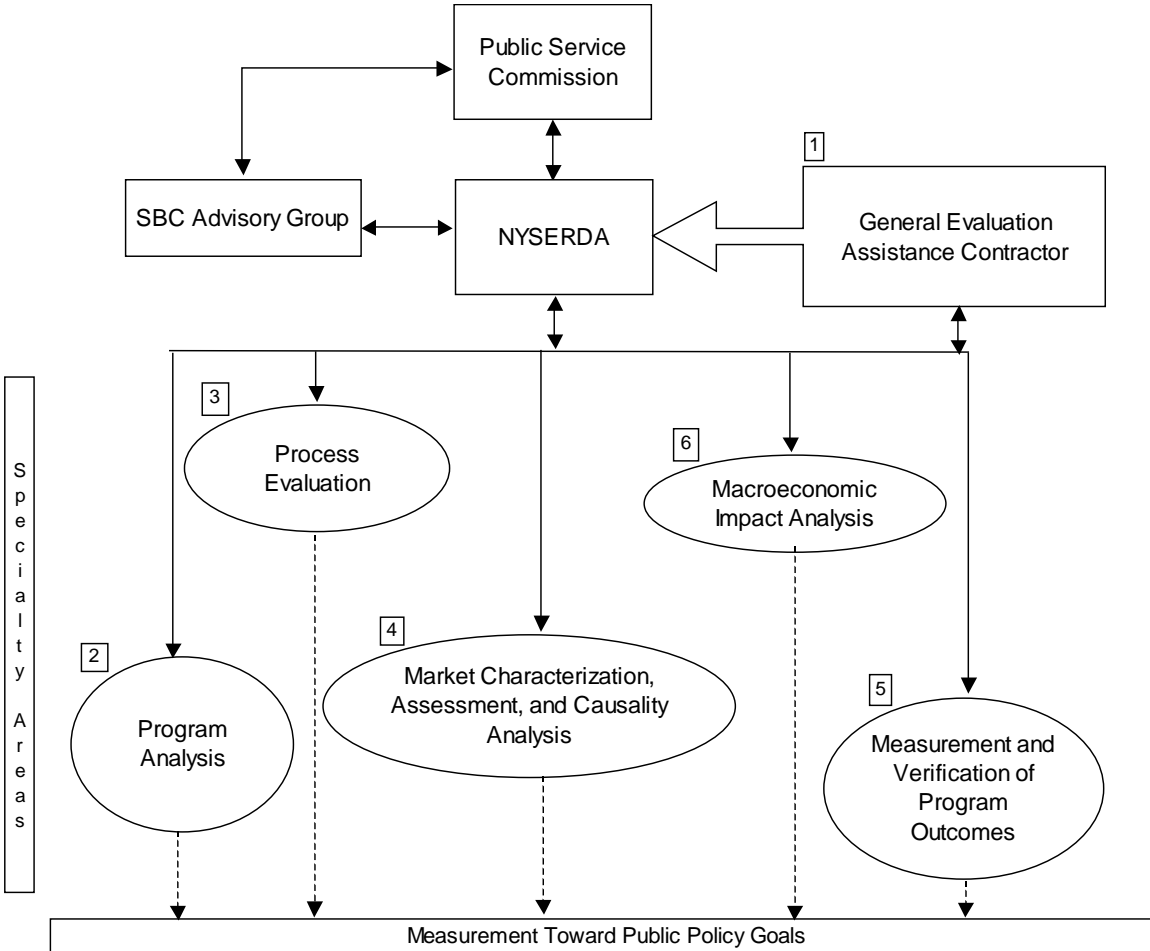
Oak Ridge National Laboratory (ORNL) and Hecshong Mahone Group (HMG) are the current evaluation assistance contractors, advising and working closely with NYSERDA as an extension of staff.

NYSERDA's contract with ORNL continues through September 2004, and its contract with HMG extends through February 2005 (with the option to renew through February 2007) December 2002.

ORNL has been tasked with preparing case studies of six **New York Energy \$mart<sup>SM</sup>** programs and completing an evaluation of synergies among selected programs (lighting, photovoltaics, and peak load reduction) that will be featured in the next Program Evaluation and Status Report (May 2004). The framework for evaluating synergies among programs was described in the previous Program Evaluation and Status Report (May 2003). HMG performs activities in the following areas: (1) assistance with implementing an evaluation plan that encompasses different types of programs, including market transformation, energy efficiency services, low-income, peak load reduction, renewable energy

development, new product development and demonstration, and environmental protection; (2) assisting in developing and preparing evaluation reports; (3) integrating evaluation findings of specialty contractors;

Figure 11



(4) conducting a gap analysis of **New York Energy \$mart<sup>SM</sup>** programs to determine where opportunities exist for achieving greater program benefits; and (5) conducting a benefit/cost analysis of individual **New York Energy \$mart<sup>SM</sup>** programs and the entire portfolio of programs. HMG has developed a web-based electronic bulletin board for exchange of information among contractors and NYISERDA staff.

**Program Analysis.** Program analysis includes both program theory and logic assessment. The design of energy efficiency and load management, low-income, and research and development public benefits programs is based on specific assumptions about how energy efficiency markets operate and the barriers and market actors that occupy and influence them. Programs are designed according to a logic that establishes the path each of the programs will take from inception to creating market effects, and to achieving public policy goals and objectives. Program theories will be reviewed and logic models will be created for each of the **New York Energy \$mart<sup>SM</sup>** programs where they do not already exist. Existing

logic models will be reviewed, and if necessary, updated. GDS Associates, Inc. (GDS) is the current program analysis contractor. GDS has prepared summaries of all **New York Energy \$mart<sup>SM</sup>** programs, and initial program logics and logic models for the New Construction, Keep Cool, Low Income Assisted Multi-Family, ENERGY STAR<sup>®</sup> Products, ENERGY STAR<sup>®</sup> Marketing, Wholesale Renewables, and End-Use Renewables Market Development programs.

Process Evaluation. Process evaluation includes audience research, assessment of internal processes, and assessment of program delivery and implementation. The process evaluation work will take a backwards look at programs and summarize the results of program efforts, as well as a look at programs while in progress, seeking to provide feedback on their processes and opportunities for their improvement. The focus of the activities will be on: specific program implementation, delivery, administrative, and audience response issues that are of concern in the current and most recent past years of program implementation; why the program is delivering or failing to meet its objectives; and, what are the underlying sources of program success and opportunity. Research Into Action (RIA) is the current process evaluation contractor. Ongoing work includes contract cycle time tracking (the amount of time it takes for a contract to move through the various stages of NYSERDA's contracting process) and interviews/surveys of Low Income program staff, contractors, participants, and non-participants.

Market Characterization, Assessment, and Causality Analysis. Market characterization provides a comprehensive understanding of the state of a market, and a starting-point baseline as well as information to develop a dynamic baseline so that periodic updates can be performed to re-calibrate baseline or progress calculations. Market assessment tracks changes in markets with a specific focus on market indicators that might be impacted by program offerings; as such, market assessment can be used to track program progress. Causality (and attribution) analysis focuses on identifying the impacts of the program interventions beyond what would have happened without the program. Often termed "net impacts", this information is useful in making program decisions such as future resource investment, incentives, and exit strategy. Summit Blue Consulting is currently the MCAC contractor. The ultimate objective of the MCAC work is to develop credible, defensible measurements of the impacts attributable to the **New York Energy \$mart<sup>SM</sup>** Program, above and beyond what would have happened without NYSERDA's interventions in the energy markets. The MCAC team has conducted interviews with several energy-efficiency organizations across the country to benchmark best practices, discuss lessons learned, and explore possible data leveraging opportunities. Specific research plans (including identification of key market indicators, barriers, testable hypotheses, market actors to target for surveys, and survey and sampling methods) are being developed and refined at this time. Major survey efforts will be fielded within the next two months for the residential sector, commercial new construction, and renewable energy.

Measurement and Verification. Measurement and verification (M&V) activities are designed to verify and quantify estimates for the gross savings impacts that result from the **New York Energy \$mart<sup>SM</sup>** Program. Gross savings are changes in energy and demand requirements that occur for Program participants; they do not account for secondary effects that occur outside of the Program (*e.g.*, free riders, spillover). The M&V contractor (currently Nexant, Inc.) will verify, or possibly recommend modifications to, the annual energy and demand savings reported by NYSERDA. The savings data are necessary for judging the effectiveness and efficiency of the portfolio of **New York Energy \$mart<sup>SM</sup>**

programs in achieving their individual goals and the PSC's public policy goals. NYSERDA program implementation staff will use the M&V data to adjust program design and deployment strategies, validate their existing savings methodologies, and set incentives. Nexant has completed file reviews for the Peak Load Reduction, Commercial/Industrial Performance, and Technical Assistance programs. Field work for these programs will begin in early November.

Macroeconomic Impacts of the New York Energy \$mart<sup>SM</sup> Program. This study will provide an independent estimate of the macroeconomic impacts in New York resulting from the **New York Energy \$mart<sup>SM</sup>** programs. Estimates will include both short-term and longer-term impacts on statewide macroeconomic indicators such as employment, imports and exports, energy prices, and Gross State Product. The results of this research are essential for providing information that is necessary to complete a comprehensive economic evaluation of the programs, including comparing to impacts likely to result from alternative expenditures of System Benefits Charge (SBC) funds directly by ratepayers. Tasks to be completed by the selected contractor will include (1) identifying **New York Energy \$mart<sup>SM</sup>** program data that are available or can be made available for modeling input, (2) developing and carrying out a comprehensive input data collection plan, (3) developing and carrying out a macro-economic modeling plan, using appropriate models and data bases, and (4) preparing a detailed report on the results of the analysis. The study will include analysis of the complete portfolio of **New York Energy \$mart<sup>SM</sup>** programs, including program and project-specific energy savings, expenditures for specific energy efficiency and renewable resource technologies, short-term direct labor to implement and maintain technologies, impact of reduced revenue to energy providers, and the opportunity cost of **New York Energy \$mart<sup>SM</sup>** program.