

NYSERDA New York State Energy Research and Development Authority

Corresp 05-M-0090

Exec

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March 2, 2006

Hon. Jaclyn A. Brilling
Secretary
New York State Public Service Commission
3 Empire State Plaza
Albany, New York 12223-1350

**Re: Resubmission of NYSERDA's 5 year Operating Plan on the SBC
Program 2006-2011, Pursuant to an Order Continuing the System
Benefits Charge (SBC) and the SBC-Funded Public Benefit Programs
Issued and Effective December 21, 2005, Case 05-M-0090- In the
Matter of the System Benefits Charge III.**

Dear Hon. Jaclyn A. Brilling:

Enclosed are an original and eight (8) copies of the New York State Energy Research and Development Authority's Amended five (5) year operating plan filed with the Public Service Commission on February 17, 2006.

Very truly yours,

Peter R. Smith
President

cc: Paul Powers
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SYSTEM BENEFITS CHARGE

**Proposed Plan for New York Energy SmartSM Programs
(2006-2011)**

As Amended

March 2, 2006

EXECUTIVE SUMMARY

This Operating Plan is being filed with the New York State Public Service Commission (the Commission) in compliance with its December 21, 2005 order (Order)¹ continuing the system benefits charge (SBC). The Order extends New York's SBC-funded public benefits program for five years, from July 1, 2006 to June 30, 2011, increases funding from approximately \$150 million to \$175 million annually, and retains the New York State Energy Research and Development Authority (NYSERDA) as the program administrator. The Order provides funding totaling approximately \$896 million for NYSERDA-administered programs for the five-year period.

The continuation and expansion of the SBC-funded public benefits program is designed to help maintain momentum for the State's efforts to develop competitive markets for energy efficiency, peak load, and outreach and education services, research and development (R&D), and low-income services, and to provide direct economic and environmental benefits to New Yorkers. The extended SBC-funded program will continue to address market barriers to the competitive provision of these services. In addition, the extended program will support resource acquisition through electricity peak demand initiatives and additional information and outreach efforts. The compliance filing describes the specific programs and actions that NYSERDA is planning for the next five years to extend the national award-winning **New York Energy SmartSM** program currently under way and develop new initiatives to improve the State's transmission and distribution infrastructure. NYSERDA will continue to use an open, transparent, stakeholder-based process in developing, operating, and evaluating its programs, as discussed in detail in Section 10:

The Commission recommended modest revisions to NYSERDA's public benefits program goals based on input from stakeholders. The revised goals are:

- **IMPROVE NEW YORK'S ENERGY SYSTEM RELIABILITY AND SECURITY** by increasing energy efficiency and reducing energy demand, supporting innovative transmission and distribution technologies that have broad application, and enabling fuel diversity, including renewable resources.
- **REDUCE THE ENERGY COST BURDEN ON NEW YORKERS** by offering energy users, particularly the State's lowest income households, services that moderate the effect of energy price increases and volatility and provide access to cost-effective energy efficiency options.
- **MITIGATE THE ENVIRONMENTAL AND HEALTH IMPACTS OF ENERGY USE** by increasing energy efficiency, encouraging the development of support services for renewable energy resources, and optimizing the energy performance of buildings and products.
- **CREATE ECONOMIC OPPORTUNITY AND PROMOTE ECONOMIC WELL BEING** by supporting emerging energy technologies, fostering competition, improving productivity, growing New York energy businesses, and helping to meet future energy needs through efficiency and innovation.

The SBC III goals will be accomplished through enhancements and modification primarily to existing programs, as suggested in the Order, and by continuing to deploy successful program strategies. NYSERDA is proposing areas of program improvement with specific recommendations on adjustments

¹ Case 05-M-0090, In the Matter of the System Benefits Charge III, *Order Continuing the System Benefits Charge (SBC) and the SBC-funded Public Benefit Programs*, issued and effective December 21, 2005 (Order).

in program design and delivery for accomplishing the SBC III goals. These adjustments include program consolidation and streamlining of programs and processes and an increased focus on the needs of customers rather than on specific technologies and practices. Fewer programs will be offered to the public and a single entry point for program participants will be developed where feasible. NYSERDA proposes collapsing its program offerings from more than 43 to 24.

Building on the progress and success of the **New York Energy SmartSM** program to date, NYSERDA will continue to provide a portfolio of 24 diverse programs that address the State's public policy goals.

- **ENERGY EFFICIENCY, PEAK LOAD, AND OUTREACH AND EDUCATION.** This program area will receive approximately \$427 million in funding through June 30, 2011. These programs are designed to reduce electricity peak demand, help develop a viable energy services industry in New York and support the transformation of markets to higher, sustainable levels of energy efficiency. Market transformation programs are designed to: increase sales of energy-efficient equipment and products; provide information to consumers to facilitate informed energy choices; and improve the efficiency of electricity use in ways that provide economic benefits to end-users.
- **RESEARCH AND DEVELOPMENT.** This program area will receive approximately \$182 million in funding through June 30, 2011. NYSERDA's R&D programs are designed to develop and facilitate deployment of state-of-the-art technologies for market-ready applications and to provide information on technology to end-users and environmental regulators for use in decision making. The programs focus on field testing and demonstrating new technologies, evaluating performance of technologies, disseminating information on their correct implementation, and developing strategies to promote widespread private sector involvement in energy and environmental R&D. A new transmission and distribution component will provide improvements to power quality, reliability and security and reduce the costs of energy and energy delivery.
- **LOW-INCOME.** This program area will receive approximately \$190 million through June 30, 2011, a 69% increase over the SBC II funding level. NYSERDA's low-income programs are designed to reduce the energy cost burden on low-income consumers by improving energy efficiency and providing energy management and aggregated energy procurement strategies that make energy more affordable for them. The programs will build on the existing infrastructure of other publicly sponsored programs by coordinating delivery of programs and services that reduce energy use and costs for low-income households in the State.

A summary of quantifiable benefits that are anticipated to be achieved by the **New York Energy SmartSM** portfolio of programs under the SBC III is presented below.

Estimated Five-Year Cumulative SBC III Program Benefits from Installed Measures by Program

Program	Electricity Savings (gWh)	Peak Demand Reduction (MW)	
		Total	Permanent & Curtailable Measures
ENERGY EFFICIENCY, PEAK LOAD, AND OUTREACH AND EDUCATION (COMMERCIAL AND INDUSTRIAL)			
Peak Load Management Program	107	300	Permanent: 240 Curtailable: 60
Enhanced Commercial and Industrial Performance Program	320	50	
New York Energy Smart SM Business Partners	80	16	
New York Energy Smart SM Focus	46	9	
High Performance New Buildings	210	24	
FlexTech Technical Assistance	400	80	
ENERGY EFFICIENCY, PEAK LOAD, AND OUTREACH AND EDUCATION (RESIDENTIAL)			
Single Family Home Performance (One-to-Four Family Homes) Program			
▪ Home Performance with ENERGY STAR®	15.8		
▪ New York ENERGY STAR® Labeled Homes	6.5		
Multifamily Buildings Program			
▪ Existing Buildings	47		
▪ New Construction	9		
Market Support Program	200		
RESEARCH AND DEVELOPMENT			
Distributed Energy Resources: Products and Demonstrations		100	Permanent: 100
Demand Response and Innovative Research		100	Curtailable: 100
SECTION 8: LOW-INCOME PROGRAMS			
EmPower New York SM	51.1		
Low-income Single Family Home Performance Program			
▪ New York ENERGY STAR® Labeled Homes	2.4		
▪ Home Performance with ENERGY STAR®	10.3		
Low-Income Multifamily Building Performance			
▪ Existing buildings	178.5		
▪ New buildings	15.0		

Estimated Cumulative SBC III Program Benefits from Installed Measures

Benefits at Full Implementation	By 2011
Electricity Savings from Energy Efficiency and On-Site Generation (Annual gWh)	1,600 – 1,900
Peak Demand Reduction (MW)	670 – 800
Permanent Measures (MW)	330 – 400
Curtable (MW)	340 – 400
Annual Energy Bill Savings (\$ Million)	\$208
Cumulative 5-year Bill Savings (\$ Million)	\$600
Net savings for gas and oil (Annual mmBtu)	8,500,000
Jobs Created and Retained	4,400
NO _x Emissions Reductions (Annual Tons)	1,300
SO ₂ Emissions Reductions (Annual Tons)	2,400
CO ₂ Emissions Reductions (Annual Tons)	1,080,000
Equivalent number of cars removed from New York roadways	200,000

NYSERDA's New York Energy SmartSM programs are constantly evolving to address changes in the marketplace, technology advances, consumer attitudes and acceptance, and policy drivers. NYSERDA will periodically assess program performance and solicit input from stakeholders and continually strive to design and deliver the most effective and cost-efficient programs. Consisting of stakeholders and interested parties, the SBC Advisory Group will retain its role as the independent SBC program evaluator. The progress towards public policy goals will be continually monitored and reported to New York State Department of Public Service (DPS) Staff to ensure the programs are being implemented as intended and that program objectives are being met.

NYSERDA has established strong program management and financial tracking processes to monitor the allocation of the funds. NYSERDA has been audited three times in the last five years by the Office of the State Comptroller for various aspects of its financial and program administration. For example, the SBCII program was reviewed and audited by the Office of the State Comptroller and a draft audit report was issued on January 20, 2006 stating that: *"The Authority has established good controls to ensure that SBC funds are expended on authorized programs and used to achieve the goals set by the Commission."* [Emphasis supplied.]²

² New York State Office of the State Comptroller, *Administration of the System Benefits Charge*, 2005-S-16, January 20, 2006, page 2.

Additionally, the SBC program is subject to an annual, detailed and stand-alone independent audit by an independent public accounting firm selected by NYSERDA's Board. Since inception of the SBC, NYSERDA's financial statements have included an unqualified opinion from the independent auditors.

NYSERDA will continue to use an open, transparent, stakeholder-based process in developing, operating, and evaluating its programs. As a Public Authority of the State of New York, NYSERDA is subject to Public Officers Law §§84-90, "Freedom of Information and Public Officers Law" §§100-111, "Open Meetings Law." Its Members and employees are subject to §§ 73 and 74 of the Public Officers Law "Business or professional activities by state officers and employees and party officers" and "Code of ethics".

TABLE OF CONTENTS

SECTION 1: INTRODUCTION	1.1
1.1. Purpose of the Operating Plan	1.1
1.2. Background	1.1
SECTION 2: SBC EXPERIENCE AND OUTCOMES TO DATE.....	2.1
2.1. Comparison of SBC II and SBC III Funding	2.1
SECTION 3: GOALS AND STRATEGIES.....	3.1
3.1. Proposed Areas of Program Improvement	3.1
3.2. Program Strategies and Target Areas	3.2
3.3. Program Categories	3.3
3.4. Funding and Duration.....	3.4
3.5. New York Energy Smart SM Programs	3.4
SECTION 4: ENERGY EFFICIENCY, PEAK LOAD, AND OUTREACH AND EDUCATION (COMMERCIAL AND INDUSTRIAL).....	4.1
4.1. Peak Load Management Program	4.3
4.2. Enhanced Commercial and Industrial Performance Program	4.7
4.3. New York Energy Smart SM Business Partners	4.10
4.4. New York Energy Smart SM Loan Fund and Financing.....	4.14
4.5. New York Energy Smart SM Focus	4.16
4.6. High Performance New Buildings.....	4.19
4.7. FlexTech Technical Assistance	4.22
SECTION 5: ENERGY EFFICIENCY, PEAK LOAD, AND OUTREACH AND EDUCATION (RESIDENTIAL).....	5.1
5.1. Single Family Home Performance (One-to-Four Family Homes) Program	5.4
5.2. Multifamily Buildings Program	5.7
5.3. Market Support Program	5.10
5.4. Communities and Education Program.....	5.14
SECTION 6: ENERGY EFFICIENCY, PEAK LOAD, AND OUTREACH AND EDUCATION (GENERAL AWARENESS)	6.1
SECTION 7: RESEARCH AND DEVELOPMENT	7.1
7.1. Public Benefit Power Transmission and Distribution (T&D)	7.3
7.2. Clean Energy Infrastructure	7.5
7.3. Distributed Energy Resources: Products and Demonstrations	7.8
7.4. Demand Response and Innovative Research.....	7.13
7.5. Electric Transportation	7.15
7.6. Environmental Monitoring, Evaluation, and Protection.....	7.17
7.7. Industrial and Municipal Process Efficiency	7.19
7.8. Next Generation and Emerging Technologies	7.22
SECTION 8: LOW-INCOME PROGRAMS.....	8.1
8.1. EmPower New York SM	8.4
8.2. Low-income Single Family Home Performance Program	8.6
8.3. Low-Income Multifamily Building Performance.....	8.9

8.4.	Buying Strategies and Energy Awareness Program.....	8.12
SECTION 9: PROGRAM DELIVERY AND COLLABORATION.....		9.1
9.1.	Streamlined Program Offerings and Presentation to the Public	9.1
9.2.	Increased Coordination of Program Marketing.....	9.1
9.3.	Program Database and Application Consolidation.....	9.2
9.4.	Cross-Program Coordination.....	9.3
SECTION 10: ADMINISTRATION.....		10.1
10.1.	Guiding Principles.....	10.1
10.2.	Procurement Policies and Procedures	10.1
10.3.	Financial Tracking Systems	10.2
10.4.	Programmatic and Fiscal Management	10.3
10.5.	Process Streamlining	10.3
SECTION 11: EVALUATION AND REPORTING PLAN.....		11.1

APPENDIX

LIST OF TABLES

Table 2.1.	SBC III Funding.....	2.2
Table 3.1.	Linkages Among Policy Goals and Programs	3.5
Table 3.2.	SBC III Program Funding Summary	3.6
Table 4.1.	Peak Load Management Program Goals	4.5
Table 4.2.	Peak Load Management Program Budget	4.6
Table 4.3.	Enhanced Commercial and Industrial Performance Program Goals	4.9
Table 4.4.	Enhanced Commercial and Industrial Performance Program Budget	4.9
Table 4.5.	New York Energy \$mart SM Business Partners Goals	4.12
Table 4.6.	New York Energy \$mart SM Business Partners Budget	4.13
Table 4.7.	New York Energy \$mart SM Loan Fund and Financing Program Goals.....	4.15
Table 4.8.	New York Energy \$mart SM Loan Fund and Financing Program Budget	4.15
Table 4.9.	New York Energy \$mart SM Focus Program Goals	4.18
Table 4.10.	New York Energy \$mart SM Focus Program Budget	4.18
Table 4.11.	High Performance New Buildings Program Goals.....	4.20
Table 4.12.	High Performance New Buildings Program Budget.....	4.21
Table 4.13.	FlexTech Technical Assistance Program Goals	4.23
Table 4.14.	FlexTech Technical Assistance Program Budget	4.23
Table 5.1.	Single Family Home Performance Program Goals.....	5.6
Table 5.2.	Single Family Home Performance Program Budget	5.6
Table 5.3.	Multifamily Building Performance Program Goals.....	5.9
Table 5.4.	Multifamily Building Performance Program Budget	5.9
Table 5.5.	Market Support Program Goals	5.12
Table 5.6.	Market Support Program Budget.....	5.13
Table 5.7.	Communities and Education Program Goals.....	5.16
Table 5.8.	Communities and Education Program Budget.....	5.16
Table 6.1.	General Awareness and Education Program Budget.....	6.7

Table 7.1. Public Benefit Power Transmission and Distribution Research Program Goals	7.4
Table 7.2. Public Benefit Power Transmission and Distribution Research Program Budget	7.4
Table 7.3. Clean Energy Infrastructure Program Goals.....	7.7
Table 7.4. Clean Energy Infrastructure Program Budget	7.7
Table 7.5. Power Systems Product Development Goals.....	7.10
Table 7.6. DG-CHP Demonstration Program Goals.....	7.12
Table 7.7. Distributed Energy Resources: Products and Demonstrations Program Budget	7.12
Table 7.8. Demand Response and Innovative Rate Research Program Goals.....	7.14
Table 7.9. Demand Response and Innovative Rate Research Program Budget	7.14
Table 7.10. Electric Transportation Program Budget	7.16
Table 7.11. Environmental Monitoring, Evaluation, and Protection Program Goals.....	7.18
Table 7.12. Environmental Monitoring, Evaluation, and Protection Program Budget.....	7.18
Table 7.13. Industrial Process and Productivity Improvement Goals	7.20
Table 7.14. Municipal Water and Wastewater Efficiency Program Goals.....	7.21
Table 7.15. Industrial and Municipal Process Efficiency Program Budget.....	7.21
Table 7.16. Next Generation and Emerging Technologies Program Goals.....	7.23
Table 7.17. Next Generation and Emerging Technologies Program Budget	7.23
Table 8.1. EmPower New York SM Program Goals.....	8.5
Table 8.2. EmPower New York SM Program Budget.....	8.5
Table 8.3. Low-Income Single Family Home Performance Program Goals.....	8.8
Table 8.4. Low-Income Single Family Home Performance Program Budget.....	8.8
Table 8.5. Low-Income Multifamily Building Performance Program Goals.....	8.11
Table 8.6. Low-Income Multifamily Building Performance Program Budget.....	8.11
Table 8.7. Buying Strategies and Energy Awareness Program Goals.....	8.15
Table 8.8. Buying Strategies and Energy Awareness Program Budget.....	8.15
Table 11.1. Evaluation Budget.....	11.1
Table 11.2. Impact Assessment. Elements and Tasks	11.4
Table 11.3. Market Characterization and Assessment. Elements and Tasks.....	11.5
Table 11.4. Program and Evaluation Management. Elements and Tasks.....	11.5

LIST OF FIGURES

Figure 2.1. Comparison of SBC II and SBC III Program Funding by Categories	2.2
Figure 4.1. Energy Efficiency, Peak Load, and Outreach and Education (Commercial and Industrial Programs (Five-year budget in millions).....	4.2
Figure 5.1. Energy Efficiency, Peak Load, and Outreach and Education (Residential) Programs Funding (Five-year budget in millions).....	5.3
Figure 7.1. Research and Development Programs (Five-year budget in millions).....	7.2
Figure 8.1. Low-Income Programs (Five-year budget in millions).....	8.3
Figure 11.1. Evaluation Framework	11.3

SECTION 1: INTRODUCTION

1.1. Purpose of the Operating Plan

In its December 21, 2005 Order³ (Order) continuing the System Benefits Charge (SBC) program, the Public Service Commission (the Commission) required the New York State Energy Research and Development Authority (NYSERDA) to submit an Operating Plan consistent with the funding categories and guidance established by the Commission describing the individual programs to be funded during the five-year program cycle. This Operating Plan is intended to meet that requirement.

The Operating Plan sets forth the goals and strategies of the SBC program, describes the individual programs that will be implemented to achieve the goals, and summarizes how NYSERDA will administer, evaluate, and report on the program, identifies the funding the programs will receive, and discusses program delivery and collaboration activities.

1.2. Background

New York State's SBC program was initiated in 1998 for a three-year period by the Commission with the goals of providing programs to encourage energy efficiency and a cleaner environment and reducing the financial burden of energy costs on low-income New Yorkers.⁴ In Opinion No. 96-12,⁵ the Commission called for the establishment of the SBC to fund public policy initiatives that were not expected to be adequately addressed by New York's competitive electricity markets. A specific concern was the future of energy efficiency and research programs that were formerly administered by New York's electric utilities. In Opinion No. 98-3,⁶ the Commission provided additional direction on the use of SBC funding and named NYSERDA as statewide third-party administrator, subject to DPS Staff oversight. The Opinion established an initial SBC term of three years through June 30, 2001 and called for the establishment of an independent program evaluator — the Independent System Benefits Charge Advisory Group (Advisory Group) — to evaluate the programs and to report its findings.

On September 29, 2000, DPS Staff issued a report outlining its vision for the future of the SBC program (*i.e.*, SBC II) and circulated it for public comment. After reviewing DPS Staff's report and the public comments, the Commission, on January 26, 2001, issued an order extending the SBC program for an additional five years through June 30, 2006.⁷ In the SBC extension order, the

³ Case 05-M-0900, *In the Matter of the System Benefits Charge III, Order Continuing the System Benefits Charge (SBC) and the SBC-funded Public Benefit Programs*, issued and effective December 21, 2005 (SBC III Order).

⁴ The New York State Department of Public Service website — <http://www.dps.state.ny.us> — contains complete historical data on the system benefits charge program including all staff reports and critical New York Public Service Commission orders.

⁵ Case 94-E-0952, *et al.*, *In the Matter of Competitive Opportunities Regarding Electric Service*, Opinion 96-12, issued May 20, 1996.

⁶ Case 94-E-0952, *et al.*, *In the Matter of Competitive Opportunities Regarding Electric Service*, Opinion 98-3, issued January 30, 1998.

⁷ Case 94-E-0952, *et al.*, *In the Matter of Competitive Opportunities Regarding Electric Service, Order Continuing and Expanding the System Benefits Charge for Public Benefit Programs*, issued January 26, 2001.

Commission increased the SBC program's annual funding level from approximately \$78.1 million to \$150 million.

The current SBC funding authorization ends on June 30, 2006. In anticipation of that milestone, the Commission, on January 28, 2005, issued a public notice seeking feedback regarding the future of the SBC program. More than 160 responses were received. The majority of the comments expressed an overall favorable view of the SBC program and recommended its continuation.

On April 1, 2005, as part of the SBC proceeding, the Commission issued a public Notice Seeking Additional Comments on a State budget amendment that would require State budget appropriations for the SBC program. Forty-five responses were received. Respondents consistently expressed concern that the proposed need for budget appropriations would have a negative effect on delivery of services through the SBC program, and expressed nearly unanimous support for NYSERDA's successful role as statewide administrator of the program.

On August 30, 2005, after reviewing the comments and examining the performance of SBC programs, DPS Staff submitted its proposal⁸ for extension of the SBC with interested parties to comment by October 17, 2005. Approximately 140 comments were received.

On December 21, 2005, the Commission issued the SBC III Order continuing the SBC program through June 30, 2011 and increasing the funding level to \$175 million per year. The Order provided a thorough review of the comments from stakeholders and presented recommendations for continuing and modifying the existing program to more effectively serve the interests of the State. Among the requirements for Staff approval was preparation of NYSERDA's five-year Operating Plan for SBC III.

⁸ Case 94-E-0952, *et al.*, In the Matter of Competitive Opportunities Regarding Electric Service, *Staff Proposal for the Extension of the System Benefits Charge (SBC) and the SBC-Funded Public Benefits Program*, August 30 005.

SECTION 2: SBC EXPERIENCE AND OUTCOMES TO DATE

New York's System Benefits Charge (SBC) was established in May 1996 by the New York State Public Service Commission (the Commission) to support continued investment in programs to encourage energy efficiency, promote a cleaner environment, and reduce the financial burden of energy costs on low-income customers. The SBC program preserves the public benefits of programs previously provided by regulated utilities, but does so on a comprehensive statewide basis in a manner that maximizes efficiencies of scale and coordination, and allows for streamlined implementation of changes in program emphasis to match shifts in societal needs.

The New York Energy SmartSM program is helping to reduce the energy cost burden on residents and businesses, and on the State's low-income households in particular. By providing financial support and market development services, New York has become home to a growing energy services industry. The State is nationally and internationally recognized as a leader in energy efficiency, demand management, renewable energy development, environmental protection, and energy policy. New York is a leader in installing clean and efficient combined heat and power, reciprocating engines, fuel cells, and turbines in all sectors, and these efforts include using waste fuels such as biogas.

The programs discussed in the Operating Plan continue to build on the successes of existing programs; some programs are combined while others are eliminated to better serve customers. Administratively, the Operating Plan proposes operational efficiencies that will ensure that NYSEDA remains administratively efficient, such as changing the manner in which schools throughout New York are served by programs, and strengthens the involvement of interested stakeholders and professional evaluators in advising program staff on maximizing organizational effectiveness.

As of September 30, 2005, nearly \$899 million (93%) of the \$961 million eight-year budget has been committed. Approximately \$813 million (84%) of the total budget has been contracted, and \$596 million (62%) of the total budget has been spent. Annual electricity savings from installed measures were approximately 1,700 gWh. Peak demand reduction from installed measures totaled approximately 1,000 MW, with 377 MW counted as permanent reductions available through energy efficiency improvements and renewable and on-site generation, and 623 MW available to be called upon when needed through load management programs.

Energy bill savings benefiting New Yorkers from electricity, natural gas, and oil are estimated to be \$230 million per year. These savings occur every year that the measures are in place. Approximately 4,450 jobs were created through September 30, 2005 as a result of the program.

2.1. Comparison of SBC II and SBC III Funding

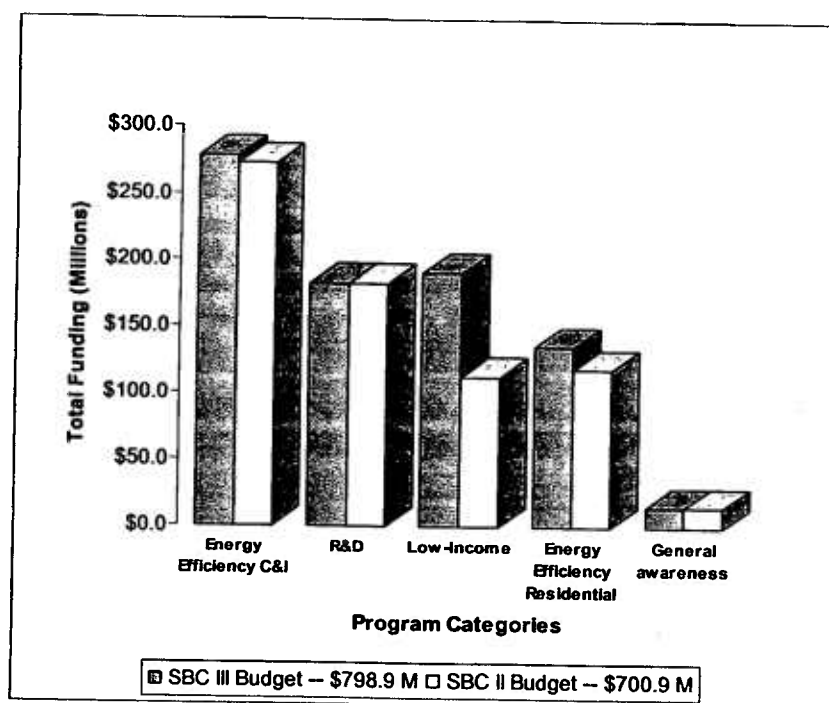
Appendix C of the Order outlines the funding from 2006 through-2011 for the four major categories — Energy Efficiency, Peak Load, and Outreach and Education; Research and Development; and Low Income — plus Administration, Evaluation, and Fees. Table 2.1 shows the five-year funding levels for SBC III programs, excluding Administration, Evaluation, and Fees:

Table 2.1. SBC III Funding

Energy Efficiency, Peak Load, and Outreach and Education	\$426,733,562
Research and Development	\$182,000,000
Low Income	\$190,170,000
Programs Total	\$798,903,562

Figure 2.1 compares the SBC II and SBC III funding levels for the major program categories, excluding Administration, Evaluation, and Fees. The Energy Efficiency, Peak Load, and Outreach and Education budgets have been broken down into commercial and institutional, residential, and general awareness components of \$276,733,562, \$135,000,000, and \$15,000,000, respectively. The comparison of funding levels by categories highlights the increase in funding being provided for Low Income programs under SBC III.

Figure 2.1. Comparison of SBC II and SBC III Program Funding by Categories



SECTION 3: GOALS AND STRATEGIES

In the Order, the Commission adopted revisions to NYSERDA's public benefits program goals based on input from stakeholders. The revised goals are presented below:

- Improve New York's energy system reliability and security by reducing energy demand and increasing energy efficiency, supporting innovative transmission and distribution technologies that have broad application, and enabling fuel diversity, including renewable resources.
- Reduce the energy cost burden of New Yorkers by offering energy users, particularly the State's lowest income households, services that moderate the effect of energy price increases and volatility and provide access to cost-effective energy efficiency options.
- Mitigate the environmental and health impacts of energy use by increasing energy efficiency, encouraging the development of support services for renewable energy resources, and optimizing the energy performance of buildings and products.
- Create economic opportunity and promote economic wellbeing by supporting emerging energy technologies, fostering competition, improving productivity, growing New York energy businesses, and helping to meet future energy needs through efficiency and innovation.

The SBC III goals will be accomplished through development of new programs and modification of existing ones as suggested in the Order and by continuing to deploy successful strategies crafted during the previous two system benefits charge funding cycles. No major changes to the New York Energy SmartSM programs, funded by the SBC are envisioned.

3.1. Proposed Areas of Program Improvement

The Order includes general indications and specific recommendations for accomplishing the SBC III goals. In general, the Commission adopted DPS Staff's recommendations for further consolidation and streamlining of programs and processes, with programs focusing on the needs of customers rather than on specific technologies and practices. In accordance with these suggestions, fewer and less complicated programs will be offered to the public, and a single entry point for program participants will be developed. Detailed information about specific programs and program areas will comprise the substance of this Plan.

Attention to the following areas of improvement will result in more accessible and effective programs.

- Streamlined and consolidated programs
- Less complicated, standardized processes for customers to participate in program
- Web-based application processes
- Coordinated marketing of programs using a corporate marketing strategy
- Consolidated outreach activities and materials
- Simplified contracting and customer application processes
- Staff training to enable staff to understand and support consolidated programs and multiple sectors and markets.

3.2. Program Strategies and Target Areas

To accomplish the SBC III goals, NYSERDA will implement successful strategies employed throughout the previous rounds of the system benefits charge program, as well as new strategies that address current market conditions and public policy initiatives. NYSERDA will provide timely, effective delivery of the **New York Energy SmartSM** programs, and use DPS Staff feedback, peer evaluations, and stakeholder input to identify where improvements are needed. The SBC Advisory Group will continue in its critical program review and evaluation function. The NYSERDA Management Team will use critical review and evaluation processes to identify issues, challenges, and opportunities associated with delivery and administration of the **New York Energy SmartSM** Program. In addition, NYSERDA periodically examines other public benefit programs and participates in regional and national organizations which generate innovative ideas that can be productively implemented in New York. Facilitating the delivery of energy efficiency services to all sectors is the bedrock upon which providing public benefits is built.

The following strategies and target areas provide the framework to achieve the goals of the SBC program. Most of the strategies relate to multiple SBC goals. The programs described later in this Operating Plan embody the methods by which these strategies will be addressed.

- **ENERGY-EFFICIENT PRODUCTS AND SERVICES.** Permanent changes in the markets for energy-efficient products and renewable energy products and services will be created by promoting replacement of inefficient appliances and household products with ENERGY STAR® products; strengthening energy codes and appliance standards; partnering with businesses that specify, distribute, and sell energy-efficient products and services; and establishing training, certification, and accreditation programs for contractors, builders, and other midstream market participants.
- **DEMAND RESPONSE AND PEAK LOAD REDUCTION.** Opportunities will be created for customers to participate in economic demand response and retail pricing programs to meet energy system reliability requirements and to reduce the energy burden on New Yorkers.
- **GREEN BUILDINGS AND THE WHOLE-BUILDING APPROACH.** The energy and environmental performance of existing and new buildings will be improved by incorporating green design practices and energy-efficient and alternative energy technologies and operations.
- **DISTRIBUTED ENERGY AND STORAGE TECHNOLOGIES.** The use of distributed energy systems and storage technologies will be expanded to meet critical energy needs and increase the overall reliability, security, and efficiency of the electric system.
- **LOW-INCOME.** Energy efficiency will be incorporated into assisted housing organization practices and financing incentives and delivery of energy efficiency improvements will be provided to more low-income households.
- **INFORMED ENERGY CHOICES.** Consumer awareness of the benefits of energy efficiency and alternative energy options will be increased, and energy costs will be reduced by providing information on energy supply and demand management options,

energy procurement and services choices, ways to shift the use of energy through behavioral changes, and how to access educational resources.

- **ENVIRONMENTAL IMPACTS.** The understanding and awareness of the environmental impacts of energy choices and emerging energy options will be enhanced by providing a scientific and technical foundation to public policy makers to help them formulate effective, equitable, energy-related environmental policies.
- **INDUSTRIAL AND MUNICIPAL PROCESS EFFICIENCY.** Revitalization of the State's industries and municipal infrastructure will be promoted through investments in energy-efficient processes and technologies.
- **EMERGING ENERGY TECHNOLOGIES.** Research, manufacturing, and supply capabilities will be developed for new, energy-efficient, and renewable energy products which have the potential for significant energy, economic, and environmental benefits.
- **TRANSMISSION, DISTRIBUTION, AND CUSTOMER-SITED POWER TECHNOLOGIES.** Public-benefit research and development funds will be invested in electric transmission, distribution, and customer-sited electric power technologies that promise to improve reliability and power quality.
- **RENEWABLE RESOURCES.** Renewable energy resources will be developed by demonstrating advanced renewable technologies; assessing and mitigating the effects of renewable generation on electric system operations; and expanding green-power markets.

3.3. Program Categories

The above goals and strategies will be accomplished through implementation of programs within three categories set forth in Appendix C of the Order: (1) Energy Efficiency, Peak Load, and Outreach and Education; (2) Research and Development; and (3) Low Income. The Energy Efficiency, Peak Load, and Outreach and Education category will be subdivided into programs targeting commercial and industrial customers, residential customers, and for general awareness efforts directed at all sectors of the State's economy.

The Operating Plan includes twenty-four (24) programs that will be implemented under these three categories. As noted above, development of this portfolio of programs is built, in large part, upon the successes of the SBC II programs. The **New York Energy SmartSM** programs are constantly evolving to address changes in the marketplace, technology advances, consumer attitudes and acceptance of the importance of energy-related issues, changes in equipment prices, and policy drivers. To continually strive to design and deliver the most effective programs, NYSERDA periodically assesses program performance and has conducted an individual review of each of the programs in SBC II compared with those proposed in the Plan for SBC III. A comparison of SBC II and SBC III programs is included as an Appendix to the Operating Plan.

In addition to assessing program performance in-house and with the assistance of contractors, NYSERDA solicits input from stakeholders. In an SBC Advisory Group meeting on

February 2, 2006, NYSERDA, DPS Staff, and Advisory Group members discussed the allocation of funding and the key features of the 24 programs outlined in the Operating Plan. Open public meetings of this type are important for gaining feedback with respect to the stakeholders' understanding and acceptance of programs, to gauge customer attitudes, and to brainstorm on possible program enhancements. Another example is a Technical Review Group meeting held on January 17, 2006 that brought together lighting experts, installers, designers, distributors, consultants, manufacturers, and representatives of consumer groups. This meeting and other meetings with key stakeholders are used to improve strategies for developing and deploying technologies among research, development, demonstration, and deployment activities. Additional meetings with key stakeholders, including local government officials and consulting engineers, were held in January 2006.

The programs described in the Operating Plan are designed to meet one or more of the public benefit program goals delineated in the SBC III Order. Table 3.1 illustrates the relationship between NYSERDA's proposed programs and the four goals. In many cases, the programs have been specifically designed to address multiple goals.

3.4. Funding and Duration

The Order continues the SBC-funded public-benefit programs at an annual funding level of \$175 million, for a five-year period, to end on June 30, 2011. A total of approximately \$896 million, including anticipated annual interest earnings of \$6 million, are allocated among major program categories and for costs associated with administration and evaluation of the programs. Approximately \$9 million in additional funds have been retained by certain utilities for utility-run programs. NYSERDA proposes that funds it will administer be allocated as illustrated in Table 3.2.

3.5. New York Energy SmartSM Programs

The following sections of the SBC III Operating Plan cover the specific programs that will be implemented under the Energy Efficiency, Peak Load, and Outreach and Education (Sections 4, 5, and 6), Research and Development (Section 7), and Low-Income (Section 8) categories. Information on the background and achievements of existing and maturing programs and discussions of new initiatives present supporting justifications for developing and deploying each program. Descriptions highlighting how each program is intended to evolve under SBC III and discussions of each program's major focus are included. Transition strategies, including possible exit strategies, are addressed along with descriptions of activities that will maintain market penetration and avoid and minimize "snap-back"⁹

Each program discussion concludes with a discussion of program goals and objectives, including important quantifiable metrics, for use in periodically tracking the program's progress. The goals and objectives will receive special attention by the SBC Advisory Group and the independent evaluation contractors and will help NYSERDA and DPS Staff track progress and recommend appropriate times for implementing transitional and exit strategies.

⁹ In this context, snapback is defined as the tendency over time of consumers who have embraced energy efficiency measures to fail to use the equipment properly or to fail to maintain appropriate behaviors.

Table 3.1. Linkages Among Policy Goals and Programs

PROGRAMS	GOALS			
	Improve New York's Energy System Reliability and Security	Reduce the Energy Cost Burden on New Yorkers	Mitigate the Environmental and Health Impacts of Energy Use	Create Economic Opportunity and Promote Economic Well-Being
Key: XX Primary contribution to goal X Secondary contribution to goal.				
Energy Efficiency, Peak Load, and Outreach and Education (Commercial and Industrial)				
Peak Load Management Program	XX	X		X
Enhanced Commercial and Industrial Performance Program	X	XX		X
New York Energy Smart SM Business Partners	X	X	X	XX
Loan Fund and Financing	X	XX	X	X
Energy Smart Focus	X	X	X	X
High Performance New Buildings	X	X	XX	
FlexTech Technical Assistance	X	XX	X	XX
Energy Efficiency, Peak Load, and Outreach and Education (Residential)				
Single Family Home Performance	X	XX	X	XX
Multifamily Building Performance	X	XX	X	XX
Market Support	X	XX	X	X
Communities and Education	X	X	X	XX
Energy Efficiency, Peak Load, and Outreach and Education (General Awareness)				
General Awareness Campaign		XX		X
Research and Development				
Public Benefit Power Transmission and Distribution	XX			
Clean Energy Infrastructure	X		XX	X
Distributed Energy Resources: Products and Demonstrations	XX	X		X
Demand Response and Innovative Research	XX	X		
Electric Transportation	X	XX		X
Environmental Monitoring, Evaluation, and Protection			XX	
Industrial and Municipal Process Efficiency		XX	X	X
Next Generation and Emerging Technologies	X	X	X	XX
Low-income				
EmPower New York	X	XX	XX	
Single Family Home Performance	X	XX	XX	
Multifamily Building Performance	X	XX	XX	X
Buying Strategies and Energy Awareness	X	XX	X	X

Table 3.2. SBC III Program Funding Summary

<u>Program</u>	<u>7/1/2006 - 12/31/2006</u>	<u>2007</u>	<u>2008</u>	<u>2009</u>	<u>2010</u>	<u>1/1/2011- 6/30/2011</u>	<u>SBC III Funding</u>
<u>Peak Load, Energy Efficiency, and Outreach and Education</u>							
<u>Energy Efficiency (C&I):</u>							
Peak Load Management	4,000,000	8,000,000	8,000,000	8,000,000	8,000,000	4,000,000	40,000,000
Enhanced Commercial and Industrial Performance	8,770,671	17,855,749	18,078,402	20,291,980	20,698,508	10,438,252	96,133,562
New York Energy Smart Business Partners	1,875,000	3,750,000	3,750,000	3,750,000	3,750,000	1,875,000	18,750,000
Loan Fund and Financing	1,050,000	2,100,000	2,100,000	2,100,000	2,100,000	1,050,000	10,500,000
Energy Smart Focus	1,185,000	2,370,000	2,370,000	2,370,000	2,370,000	1,185,000	11,850,000
High Performance New Buildings	7,000,000	14,000,000	14,000,000	14,000,000	14,000,000	7,000,000	70,000,000
Flex Tech Technical Assistance	2,950,000	5,900,000	5,900,000	5,900,000	5,900,000	2,950,000	29,500,000
Subtotal - Energy Efficiency (C&I):	26,830,671	53,975,749	54,198,402	56,411,980	56,818,508	28,498,252	276,733,562
<u>Energy Efficiency (Residential):</u>							
Single Family Home Performance	5,825,000	11,650,000	11,650,000	11,650,000	11,650,000	5,825,000	58,250,000
Multifamily Building Performance	2,000,000	4,000,000	4,000,000	4,000,000	4,000,000	2,000,000	20,000,000
Market Support	4,900,000	9,800,000	9,800,000	9,800,000	9,800,000	4,900,000	49,000,000
Communities and Education	775,000	1,550,000	1,550,000	1,550,000	1,550,000	775,000	7,750,000
Subtotal - Energy Efficiency (Residential):	13,500,000	27,000,000	27,000,000	27,000,000	27,000,000	13,500,000	135,000,000
General Awareness	1,500,000	3,000,000	3,000,000	3,000,000	3,000,000	1,500,000	15,000,000
Total Peak Load, Energy Efficiency, and Outreach and Education	41,830,671	83,975,749	84,198,402	86,411,980	86,818,508	43,498,252	426,733,562
<u>R&D</u>							
Public Benefit Power Transmission and Distribution	1,000,000	2,000,000	2,000,000	2,000,000	2,000,000	1,000,000	10,000,000
Clean Energy Infrastructure	3,375,000	6,750,000	6,750,000	6,750,000	6,750,000	3,375,000	33,750,000
Distributed Energy Resources: Products and Demonstrations	7,250,000	14,500,000	14,500,000	14,500,000	14,500,000	7,250,000	72,500,000
Demand Response and Innovative Rate Research	1,000,000	2,000,000	2,000,000	2,000,000	2,000,000	1,000,000	10,000,000
Electric Transportation	500,000	1,000,000	1,000,000	1,000,000	1,000,000	500,000	5,000,000
Environmental Monitoring, Evaluation Industrial and Municipal Process Efficiency	1,750,000	3,500,000	3,500,000	3,500,000	3,500,000	1,750,000	17,500,000
Next Generation and Emerging Technologies	1,500,000	3,000,000	3,000,000	3,000,000	3,000,000	1,500,000	15,000,000
Total R&D	18,200,000	36,400,000	36,400,000	36,400,000	36,400,000	18,200,000	182,000,000
<u>Low Income</u>							
EmPower New York SM	4,950,000	9,900,000	9,900,000	9,900,000	9,900,000	4,950,000	49,500,000
Single Family Home Performance	5,400,000	10,800,000	10,800,000	10,800,000	10,800,000	5,400,000	54,000,000
Multifamily Building Performance	7,500,000	15,000,000	15,000,000	15,000,000	15,000,000	7,500,000	75,000,000
Buying Strategies and Energy Awareness	1,086,000	2,352,000	2,352,000	2,352,000	2,352,000	1,176,000	11,670,000
Total Low Income	18,936,000	38,052,000	38,052,000	38,052,000	38,052,000	19,026,000	190,170,000
Total Programs	78,966,671	158,427,749	158,650,402	160,863,980	161,270,508	80,724,252	798,903,562
Evaluation	1,778,185	3,561,261	3,561,044	3,604,392	3,609,553	1,804,742	17,919,177
Administration	6,223,649	12,464,413	12,463,654	12,615,373	12,633,436	6,316,599	62,717,124
NYS Fees	1,940,762	3,609,614	3,377,099	3,135,865	2,964,161	1,391,529	16,419,030
TOTAL	88,909,267	178,063,037	178,052,199	180,219,610	180,477,658	90,237,122	895,958,893

SECTION 4: ENERGY EFFICIENCY, PEAK LOAD, AND OUTREACH AND EDUCATION (COMMERCIAL AND INDUSTRIAL)

New York's business and institutional sectors account for nearly 50% of the State's primary energy use and have a significant impact on the State's economy, environment, and demand for electricity. NYSEDA's programs target business and institutional sectors, new and existing schools, hospitals, office buildings, government buildings, commercial establishments, not-for-profit facilities, and industrial plants. The Energy Efficiency, Peak Load, and Outreach and Education (Commercial and Industrial) programs will promote competitive markets for energy efficiency services, engender widespread adoption of high-efficiency technologies, and result in increasing customer participation in peak demand response initiatives. These accomplishments flow from deployment of a range of appropriately designed and targeted intervention strategies.

Resource Acquisition Strategies. A number of proposed SBC III programs have been specifically designed for electric resource acquisition. Implementation of efficient electric lighting, chillers, and controls has significant electric kWh and peak kW demand impacts in the business and institutional sectors. Deployment programs offering technical assistance and financial incentives will continue to be part of the portfolio of SBC III programs. NYSEDA will also be helping energy services companies (ESCOs) and curtailment services providers to incorporate real-time pricing opportunities into their business models. To help improve the reliability of the State's electric system, the SBC III programs will include aggressive electric-system and peak-load reduction initiatives. These initiatives reduce the risk of energy supply disruptions and price volatility by implementing long-term energy efficiency improvements that have impact during system peaks and by improving the load management capabilities of commercial and industrial facilities.

Market Transformation Strategies. Market intervention and transformation strategies for business and institutional customers are designed to induce lasting structural and behavioral changes in the marketplace that will result in increasing adoption of energy-efficient technologies and practices, such as advanced building system controls, geothermal systems, and process efficiency enhancements. Long-lasting, sustainable changes are achieved by reducing barriers to adoption of energy efficiency measures to the point where public-funded interventions are no longer appropriate. Lost opportunities for incorporating energy-efficient equipment and systems in new construction and major building renovations will be reduced, and market barriers hindering investment by customers in energy-efficient products and services will be removed. Market transformation initiatives, including financial incentives for increasingly efficient products, will increase the availability, promotion, retail stocking practices, and sales of energy-efficient products and services in end-use markets and sectors by changing the behavior of upstream market participants, including retailers, dealers, vendors, distributors, contractors, installers, trade associations, and manufacturers.

Support Strategies. Technical assistance services are a first stop for many commercial and industrial customers who use the information they receive from qualified energy professionals to make decisions on how to proceed with energy projects. Technical studies, energy audits, and other information resources provide these customers with an analysis of energy opportunities

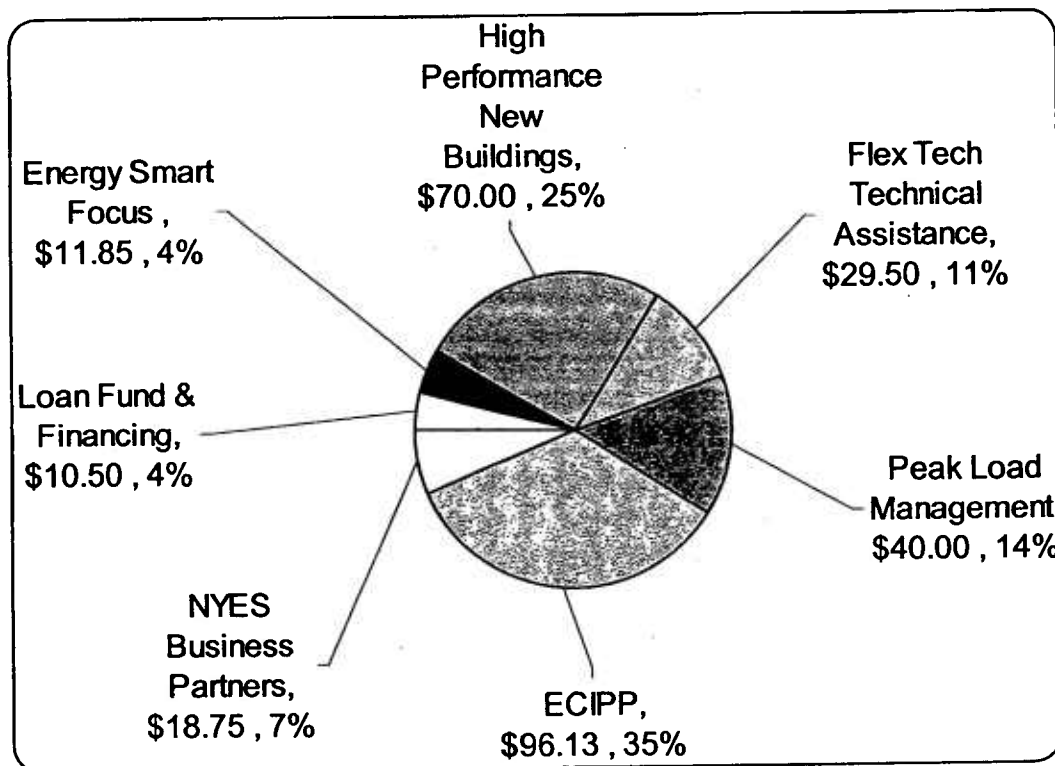
which they use to either participate in NYSERDA's resource acquisition programs or to implement energy projects on their own. Providing access to low-interest financing for energy projects allows many customers to participate in NYSERDA's programs by lowering the cost of up-front capital.

Under SBC III, commercial and industrial program activities will be further integrated and the portfolio will evolve over time to align with various market segments where practical. By 2007, a sector-based structure is expected to become the platform for marketing, customer interface, and program delivery. This approach will provide a single point of contact for customers, by sector, and will include customized materials and messages. Various resources, including the NYSERDA website, will guide customers to the technical and financial resources they need to achieve their energy efficiency and demand reduction goals.

As with previous SBC energy efficiency programs, NYSERDA will continue working closely with other states and organizations on multi-state, regional, and national efforts that use common intervention strategies to increase the impact on markets of selected energy-efficient technologies. NYSERDA will join with appropriate, promising efforts to efficiently and effectively leverage SBC III resources.

Figure 4.1 shows funding allocations for NYSERDA's commercial and industrial programs for SBC III.

Figure 4.1. Energy Efficiency, Peak Load, and Outreach and Education (Commercial and Industrial Programs (Five-year budget in millions))



4.1. Peak Load Management Program

Background and Achievements. The Peak Load Reduction Program (PLRP) under SBC II enabled commercial, industrial, and institutional customers to reduce peak demand. Over the past five years, the PLRP provided incentives that enabled significant demand reduction (MW) resources to participate in demand response events called by the New York Independent System Operator (NYISO). The incentives were provided for permanent demand reductions that were coincident with system peaks. PLRP program incentives encouraged customers to participate in the emerging business sector that provides competitive demand response services in the marketplace. The program also provided support to customers who benefited from alternative electricity commodity rates. Program activities have focused on the Consolidated Edison Company of New York, Inc. (Con Edison) service territory because the tightening electric supply to electric demand balance has provided businesses with economic opportunities. As of December 2005, the PLRP enabled 512 MW of Statewide demand reduction.

Program Description. In SBC III, the PLRP will be renamed the Peak Load Management Program (PLMP) to reflect the program's increasing focus on enhanced building automation and dynamic retail pricing strategies. Dynamic pricing refers to an assortment of retail electricity pricing strategies in which customers' actual costs to purchase electricity are based on constantly changing market conditions. The main goal of this program will continue to be improving New York's energy system reliability and security by reducing energy demand. While the program will continue to offer load management incentives Statewide, marketing emphasis will be placed in areas with a demonstrated need, such as areas where electrical demand is growing and where local power needs are nearing capacity. NYISO's *Power Trends 2005*¹⁰ and *Comprehensive Reliability Planning Process*¹¹ reports provide direction for program efforts and design in specific locations in New York State.

The PLMP will encourage additional strategies for demand management such as advising large customers about ways to purchase electricity using dynamic retail rates. In SBC III, customers will receive instruction on making economic load management and commodity purchasing decisions. Customers will choose to curtail load when the electricity prices rise, bid a portion of their flexible load into the wholesale electricity system, and forego use of some or all of their electric load. The PLMP will continue to provide assistance to commercial, industrial, and institutional customers and to mission critical facilities such as data centers, communications facilities, government installations, and academic research facilities that are interested in participating in reliability and economically based programs.

The PLMP will continue as a standard offer program on a first-come, first-served basis. Long-term relationships with competitively selected contractors can build a robust marketplace of aggressive contractors who can provide expanded demand management services to commercial and industrial customers. In this way, much of the responsibility for marketing will be shifted from NYSEDA staff to the contractors and curtailment services providers. To optimize program

¹⁰ New York Independent System Operator, *Power Trends 2005*, April 2005.

¹¹ New York Independent System Operator, *Comprehensive Reliability Planning Process (CRPP): Reliability Needs Assessment*, December 21, 2005.

delivery to program participants by contractors, curtailment service providers, and consultants, NYSERDA will explore and test various program delivery methods for this program.

In future, the PLMP will focus on supporting customers in making decisions about voluntarily dispatching their load curtailment assets on an economic basis (curtailing loads for the purpose of the customer saving costs or obtaining revenue by bidding load into the wholesale market) in addition to reliability driven events. The PLMP will support participants use of dynamic pricing through assistance in understanding and managing their load profiles. As restructuring moves forward, commercial and institutional facilities may be forced to move away from fixed-price rate tariffs, increasing their financial exposure to variations in electricity supply and demand. Load management, combined with hedging strategies will become critical in lowering a customer's risk in the marketplace.

The PLMP will provide a deployment program offering financial incentives to allow participation in dynamic pricing and commodity purchasing and help manage financial risk. Other information will be developed, such as model documents, to assist with commodity purchase and economic demand response. NYSERDA will support strategic planning and technical assistance to evaluate the potential of dynamic retail pricing, developing dynamic retail pricing strategies and bidding strategies, advanced metering and monitoring support, measuring and monitoring of load profiles, automated technologies to manage load profiles, and developing hedging strategies to reduce risk and uncertainty.

The program will continue offering assistance to Con Edison's customers wishing to remain on steam air conditioning systems or for customers considering a switch to steam air conditioning from electric chilling equipment. NYSERDA will investigate providing support and assistance for short-notice demand response opportunities developed for the wholesale electric marketplace. Short notice demand response will require sophisticated technology solutions, including direct load control technologies such as wireless communications and web-based controls. Advanced demand control technologies evolving from the research and development program area will be assessed for possible deployment.

Urban heat island mitigation techniques, including cool, reflective roofs, light-colored street surfaces, and targeted energy efficiency measures, will be assessed for effectiveness in reducing system peak, and implementation strategies will be supported to continue this effort where warranted. Current cutting edge work is being implemented on a pilot basis. As more detail on current program results become available, future program offerings in urban heat island mitigation will be considered.

Working with the NYISO, DPS Staff, load serving entities (LSEs), and other market players, NYSERDA will help develop educational materials for customers who are interested in participating in dynamic pricing strategies. The goal is to encourage demand for and acceptance of this type of tariff rate. In order for market players to fully benefit from dynamic retail pricing programs, NYSERDA will develop a consistent source of information about market prices, trends, and market volatility. NYSERDA will also participate in developing tools needed to access market prices and building-load data.

The PLMP will intensify existing demand response programs while providing customer support for future dynamic pricing of electricity and assistance with commodity procurement. Metering

technologies, from regulatory and implementation perspectives, will require significant support, as will customer education and outreach. Other initial efforts in this direction will require implementation assistance for new technologies, technical assistance, and development of tools and strategies for customers to respond to dynamic pricing. Approximately 50% of program MW impacts are expected to occur in Con Edison's service territory.

Transition Strategies. Market adjustments from demand response based on reliability issues to demand response based on economic imperatives will require a multi-year effort. The PLRP has been a reliability-based demand reduction program that encourages participation in the NYISO's voluntary programs, such as the Emergency Demand Response Program. Over the past couple of years, the PLRP began emphasizing a more sophisticated strategy with increasing participation in the Installed Capacity/Special Case Resources Program (ICAP/SCR) at the NYISO. The NYISO's programs are reliability-driven programs that allow customers and grid operators to adjust electricity use during periods of scarcity and when system reliability is threatened. In 2007, the PLMP is expected to evolve new, economics-driven, increasingly sophisticated strategies to control building loads. The new strategies will emphasize market-based pricing programs that directly expose customers to electricity prices and enable them to respond for economic reasons. The PLMP will continue to transition to the newer strategies to reflect market adjustments based on market assessment activities and program evaluation activities conducted by the evaluation contractors.

The provision of web-enabled advanced metering equipment from the Institutional Energy Performance Contracting Assistance Program (IEPCAP) will be consolidated into the PLMP.

Program Goals.

Table 4.1. Peak Load Management Program Goals

Activity	Year One Goal	Five-Year Goal
Customers receiving assistance	145	750
Demand reductions (MW)		
▪ Callable		
▫ Con Edison*	28	125
▫ Upstate	25	115
	53	240
▪ Permanent		
▫ Con Edison	8	45
▫ Upstate	5	15
	13	60
Energy Savings (Permanent Reductions) (gWh)		
▪ Con Edison	9	55
▪ Upstate	10	52
	19	107

* Con Edison includes New York City, Westchester County, and the Orange and Rockland service territory.

Budget.

Table 4.2. Peak Load Management Program Budget

Program	Average Annual Budget	Five -Year Budget
Peak Load Management Program	\$8,000,000	\$40,000,000

4.2. Enhanced Commercial and Industrial Performance Program

Background and Achievements. The Enhanced Commercial and Industrial Performance Program (ECIPP) consolidates successful features of the Commercial and Industrial Performance Program (CIPP) and Smart Equipment Choices (SEC). CIPP currently provides incentives to energy services companies (ESCOs) and other contractors to promote energy efficiency-related capital improvement projects. NYSERDA provides financial incentives based on performance and verified by ESCOs using approved measurement and verification techniques. The program targets commercial and industrial businesses, not-for-profit and private institutions, public and private schools, colleges and universities, healthcare facilities, and State and local governments. The objective of the program has been to help build a robust ESCO and energy efficiency services industry in New York.

The Smart Equipment Choices (SEC) program provides financial incentive awards to defray part of the incremental capital cost of purchasing and installing energy-efficient equipment. The goal of the program is to produce permanent improvement in standard equipment specifications and drive cost-effective demand reduction by encouraging the purchase and installation of energy-efficient equipment, particularly for small renovation and equipment-replacement projects.

Both programs achieved success in New York. For the CIPP, as of December 31, 2005, the program resulted in an estimated cumulative program savings of 917 gWh and 197 MW. Of the 1,098 applications submitted by 180 ESCOs, contractors, and energy service providers, 712 projects have been installed. Overall ESCO activity in New York has increased during the past eight years with nearly half the participating and nonparticipating contractor respondents reporting higher ESCO activity and improved quality of work.

For the SEC, as of December 31, 2005, the program achieved net savings of 91gWh and 21 MW of demand savings. Of the 3,200 applications received from commercial and industrial end use customers, 2,560 (80%) have been installed. Recent evaluation studies found that nearly 50% of participants reported a significant increase in familiarity with energy-efficient products.

Program Description. ECIPP will serve commercial and industrial customers, providing information and incentives to improve existing building loads, non-building loads, and process equipment. The benefits of this program include reduced operating costs to the customer and a cleaner, healthier environment for all New York State residents. By using a performance-based contracting mechanism, NYSERDA is ensured of developing projects in which each building's energy performance is optimized.

Building on the successful Commercial and Industrial Performance and Smart Equipment Choices programs, ECIPP simplifies customer access to the program by having a single entry point. Consolidation of these two programs will provide the marketplace with a simpler, streamlined process. Streamlining ECIPP begins the process of consolidating all energy efficiency programs for existing commercial and industrial buildings into one program. The program will offer tiered incentives for capital improvements. NYSERDA will offer larger incentives for complex projects that ensure savings and have approved measurement and verification plans.

In SBC III, ECIPP adds a custom project incentive path that will address industrial process opportunities, system approaches, and unique applications. The performance-based incentive

structure used in CIPP will be improved by increasing incentives to better support permanent peak-demand-reduction measures. To help reduce the growing downstate electric load, ECIPP will increase activities in New York City. Allowing customers, ESCOs, and contractors multiple incentive strategies to support their energy projects will enable the New York ESCO market to continue to grow. Also, ESCOs will be encouraged to expand their services while delivering long-term energy savings and permanent demand reductions. Customers will have the option of either using ESCOs or applying directly for incentives from NYSERDA.

With a single entry point, NYSERDA can strengthen links to other **New York Energy SmartSM** efforts, such as Technical Assistance, Commissioning, Loan Fund and Financing, and Energy Smart Business Partners. ECIPP staff will investigate how to integrate the following into program offerings: certified energy management; building operator certification and training; ongoing maintenance practices and retro-commissioning; ENERGY STAR® Building tools and rating systems; and the U.S. Green Building Council's LEED™ ratings for existing buildings. A structured approach to the existing buildings market will enable NYSERDA to provide customers with sustainable performance improvement strategies.

The program will offer assistance to Con Edison's customers wishing to remain on steam air-conditioning systems and to customers considering a switch to steam air conditioning from electric chilling equipment. The program will investigate the possibility of offering customers an avenue to install cost-effective energy efficiency measures in their businesses where the costs of the measures would be recouped through a payment stream from the local utility made possible through the introduction of new, innovative tariff charges.

Transition Strategies. The ECIPP will support energy projects undertaken directly by the program's customers and by contractors of the energy services industry for customers. The program will consolidate the application process of CIPP and SEC into one streamlined approach and will improve marketing and education services. As energy services industry participants and customers become accustomed to this change, other program consolidations will occur.

Transition strategies may include reducing or eliminating incentives for technologies that have obtained broad market acceptance, as determined by market assessments and technology surveys conducted by the evaluation consultants. For this program, market acceptance is defined as a technology that is sufficiently mature that its performance level could be proposed for adoption in revised building energy codes and standards. The program will seek to integrate benchmarking strategies with post-implementation measurement and verification activities to improve the program's benefit-cost ratio and to signal appropriate reductions in incentives.

Program Goals. The annual budget level will result in 120 million kWh and 26 MW in energy and demand savings. These funding levels include minimal marketing, web-site enhancements, and tiered incentives based on historical application rates for CIPP and Smart Equipment Choices.

Table 4.3. Enhanced Commercial and Industrial Performance Program Goals

Activity	Year One Goal	Five-Year Goal
Leveraged Funds (\$ million)	\$80	\$400 – 450
Customer projects	680	3,300 – 3,500
Demand Reductions (MW)	12	50
Energy Savings (gWh)	24	320

Budget.

Table 4.4. Enhanced Commercial and Industrial Performance Program Budget

Program	Average Annual Budget	Five-Year Budget
Enhanced Commercial and Industrial Performance Program	\$19,500,000	\$97,500,000

4.3. New York Energy SmartSM Business Partners

Background and Achievements. NYSERDA has worked with more than 1,000 building contractors, product distributors, equipment vendors, designers, energy service providers, and energy companies, to increase the availability, promotion, and sale of energy-efficient products and services for the commercial sector. Multiple strategies were employed to influence market dynamics towards efficiency. Market transformation efforts such as the small commercial lighting, motors, and commercial heating, ventilating, and air conditioning (HVAC) programs all built strong networks with these businesses, who have become allies in the delivery of efficiency and demand reduction services. The programs provided technical training, tools, sales strategies, and targeted incentives to encourage sales and project implementation. Results to date include an increase in the market share of National Electrical Manufacturers Association (NEMA) Premium motor sales in New York from a baseline of 9% to roughly 22%. More than 2,400 individuals received training on effective, energy-efficient lighting, and the program achieved a 79% spillover influence. For the combined HVAC programs, 69% of the participants surveyed indicated that the program training and support influenced the number of projects or products they sold; 44% indicated that the training had changed their business practices. A network of firms was trained and qualified to provide building performance and retro-commissioning services for complex systems. Their joint efforts attracted major stakeholders in New York City, representing over 10.5 million square feet of commercial space.

Program Description. Building on the success of these earlier programs, NYSERDA will launch the New York Energy SmartSM Business Partners program with a suite of new, expanded strategies. The program will create a common partnership platform and a brand identity to support participating businesses that deliver energy-efficient products and services. The brand identity is intended to convey a theme — that mid-market businesses are vital to the growth of the energy efficiency industry and are critical allies in efforts to transform markets. NYSERDA will enroll Business Partners who agree to strengthen the availability, delivery, and demand for targeted products and services. NYSERDA proposes to focus on highly efficient technologies and newly available and underused technologies and services, particularly those which promise significant reductions in energy use and costs. NYSERDA will offer Business Partners a number of strategies to help them differentiate their businesses in a highly competitive marketplace, while ensuring that appropriate quality control mechanisms are in place. The strategies are likely to include special training, tools, guidelines, recognition, field support and performance incentives, and will be based on the needs of the marketplace. NYSERDA anticipates using competitively selected experts to help deliver these services. Business Partners will agree to work with NYSERDA to market New York Energy SmartSM Programs, incorporate targeted energy-efficient equipment and services into their business models and their projects, and communicate results. Each program component will include an end-user marketing campaign to increase awareness and drive customers to the participating Energy Smart Business Partners.

One component will build on pilot efforts in the HVAC market. This component will further develop a qualified service delivery network to promote more efficient performance of energy systems within existing commercial buildings. These services will include benchmarking energy use, system testing and low-cost tune-ups, advanced diagnostics, enhanced operations and

maintenance activities, and full retro-commissioning of more complex systems. This effort will serve as a pathway for introduction of new technologies and tools for continuous commissioning and persistence of savings such as integrated controls on AC units, automated continuous commissioning tools, and other diagnostic and control technologies. These services will dovetail with the FlexTech Technical Assistance program and the end-user incentive programs to provide seamless offerings to customers. Activities will be coordinated with the ENERGY STAR® energy performance rating system, and will highlight those Business Partners and customers who commit to superior energy management.

The lighting component will expand the current network of over 680 lighting practitioners to include technical assistance providers, energy service companies and others who influence the design and installation of lighting in larger commercial spaces. As participating Business Partners, these lighting specialists will promote the elements of effective, energy-efficient lighting which match the proper selection of lighting technologies with proper system design and layout. Eligible projects must be at least ten percent more efficient on a watts-per-square-foot basis, than the New York State Energy Code requires. New design guidelines and tools will be developed based on anticipated changes to the Energy Code, and efforts will be coordinated to a greater degree with delivery of services through the High Performance New Buildings program. The program will provide field support, advanced training, limited incentives, and technical resources for its Business Partners. Building from market research on stocking practices of high efficiency lighting products, the program will develop new delivery mechanisms to move technology and encourage lighting manufacturers to produce and stock new technology items. Efforts to increase market push and availability of products will dovetail with ECIPP end-user incentive programs and will be coordinated with regional and national efforts.

Technologies such as light-emitting-diode-powered (LED) traffic signals, efficient commercial refrigeration equipment, ENERGY STAR® transformers, and computer power management have increased penetration in the commercial sector based in part on NYSERDA support of innovative market solutions. Going forward, new projects will be pursued that identify cutting-edge technologies, products, and services, and establish the methods that Business Partners can undertake to create new markets. Technological trends such as digitized office products, wireless technologies, smart sensors and controls, and high efficiency materials and products will create new market opportunities. Services, such as motor management, will be explored as viable business strategies for promoting under-used technologies, such as NEMA Premium™ motors and variable frequency drives. Efforts will focus on providing a deployment pathway for products developed through the Research and Development programs, and will complement efforts of the regional and national market transformation groups and customers who are fostering new innovations.

NYSERDA will expand its efforts to help develop the market and infrastructure in New York to support widespread adoption of energy-efficient technologies such as geothermal heat pump systems, sometimes referred to as geexchange systems. More than 220 engineers and architects have participated in technical workshops and installation incentives have been provided for geexchange projects at 87 customer sites. The SBC III focus will encompass a more comprehensive strategy that will include customer outreach, design seminars, installer training

workshops, cost-shared technical assistance, and financial incentives for end-use customers and installers of geexchange systems.

Transition Strategies. As the marketplace embraces technologies and services, NYSERDA has adapted its strategies to retain market share and encourage adoption of newer, cost-effective opportunities. The new strategies have often entailed reducing and eliminating financial incentives and shifting from offering financial incentives to information based programs. Developing partnerships with manufacturers, distributors, retailers, trade associations, and other organizations involved in supplying equipment and services to the commercial marketplace is critical and will enable NYSERDA to continue supporting only the most highly efficient equipment and practices. NYSERDA will work with the evaluation contractors on program transition strategies and discontinue supporting equipment with high market penetration levels when a competitive market infrastructure is in place and when the cost premium for the energy-efficient equipment has disappeared.

Through partnerships, NYSERDA is uniquely positioned to work collaboratively with midstream and upstream market allies to bring the most efficient equipment into the market by developing new specifications and deploying new equipment to customers through NYSERDA programs. NYSERDA will continue working with its Business Partners to show them the value of providing efficient equipment and services so they are committed to stocking, promoting, and installing efficient equipment for the long term. NYSERDA will also encourage voluntary commitments to reduce energy consumption in buildings and help garner customer recognition for building performance improvements. Through U.S. EPA's new ENERGY STAR® Challenge — *Build a Better World 10% at a Time* — NYSERDA will assist customers with making low- and no-cost improvements to their facilities, using money saved from initial energy efficiency improvements to make additional capital improvements. Other transitional strategies will include highlighting successes through effective communications, training, and continued support for improvements to building codes and standards.

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

Table 4.5. New York Energy SmartSM Business Partners Goals

Activity	Year One Goal	Five-Year Goal
Business Partners	300	1,500
Demand reductions (MW)	2.5	16
Energy Savings (gWh)	10	80

Budget.

Table 4.6. New York Energy SmartSM Business Partners Budget

Program	Average Annual Budget	Five-Year Budget
New York Energy Smart SM Business Partners	\$3,750,000	\$18,750,000

4.4. New York Energy SmartSM Loan Fund and Financing

Background and Achievements. NYSERDA has worked with over 70 lenders and leasing companies across the State to increase the availability of low-interest capital for energy-efficient equipment and process improvements through the **New York Energy SmartSM Loan Fund** program. Over the past five years, NYSERDA's subsidy payments of roughly \$7 million have leveraged over \$56 million in low-interest loans for energy-efficient improvements in the commercial sectors. Over 285 commercial customers have participated in the program, resulting in gross energy and demand savings of 33.5 gWh and 6.2 MW. Lenders have received training on eligible energy-efficient technologies and are encouraged to consider the cash flow impacts of installing these products when considering a customer's credit rating. Additionally through the State EnVest program, a non-SBC funded program, NYSERDA has worked with State agencies to help them select energy services companies to provide energy performance contracts and obtain lease financing. The \$62 million in program financing has leveraged approximately \$8.8 million in annual energy cost savings for state facilities. The initial financing projects for State buildings were successful and hold promise for possibly expanding to the non-profit institutional and municipal sectors.

Program Description. Financing under this program expands the availability of low-interest capital to help implement energy efficiency projects and process improvements. Lenders enroll in the program by signing participation agreements by which they agree to reduce the interest rates on energy-related loans in exchange for a lump sum subsidy paid by NYSERDA. Interest rate reductions will range from 4% in most of the State to 6.5% in parts of New York City's Liberty Zones to help stimulate economic development. NYSERDA may change the interest rate reductions depending on prevailing lending rates. Pre-qualified measures eligible for reduced interest rate financing will include chillers, geothermal systems, ground source heat pumps, lighting, ENERGY STAR® products, motors, and non-electric measures such as furnaces and boilers. Process improvements and other custom measures are also eligible. The Loan Fund has been viewed as an implementation tool for many types of projects by allowing reduced interest rate financing for cutting edge technologies and for promoting green building measures in new construction. These types of activities will continue to be promoted.

New avenues for financing projects will be explored including non-traditional lenders, pension funds and investment trusts. These areas will be examined to address two separate needs — to make energy project financing more available to sectors such as governmental and municipal, schools and healthcare and to address lender concerns over the ability to sell **New York Energy SmartSM** loans on the secondary market. Through a secondary market, lenders would be able to sell the loans to investors and thereby improve their liquidity, enabling them to offer more energy loans. Efforts will also be made to offer reduced interest rate financing to public and municipal facilities.

NYSERDA's ongoing training of lenders will be expanded to include tools to allow lenders to calculate the cash flow advantages their customers will gain from making energy efficiency improvements. NYSERDA will work with ENERGY STAR® to develop new or modify existing ENERGY STAR® information tools to meet this goal. NYSERDA will work with various sector associations to market the Loan Fund to customers in industry, healthcare, and hospitality. While

the Loan Fund has met the needs of customers who do not avail themselves of other NYSERDA programs, it will continue to be available to customers participating in other NYSERDA programs. While the current budget reflects activity in the business and institutional sectors, the Loan Fund will continue to coordinate its activities with the residential group. See also Section 5.2.

Transition Strategies. As the market embraces technologies and services targeted by other NYSERDA programs, the Loan Fund will adapt to encourage the purchase and financing of newer, cost-effective technologies, such as advanced HVAC equipment, light emitting diodes (LEDs), and solid state cooling. NYSERDA's ongoing training of the financial sector will enable lenders to better recognize the cash flow advantages for customers who make energy efficiency improvements. NYSERDA will encourage lenders to provide better lending rates for these projects thereby differentiating their lending practices within the competitive lending market. As these practices are embraced, NYSERDA can then reduce and eliminate its interest rate reduction while maintaining a presence through tools, education, lender marketing, and technical support. As a provider of potential replacement lending and leasing products for certain sectors, NYSERDA will also investigate new dedicated financing avenues for specific customer sectors, for example, schools, municipalities, and hospitals, that will take into account their unique project financing needs.

Program Goals.

Table 4.7. New York Energy SmartSM Loan Fund and Financing Program Goals

Activity	Year One Goal	Five-Year Goal
Customers receiving assistance*	100	500
Participating lenders**	25	75
Leveraged loan amount	\$12,000,000	\$60,000,000

* In 2005, 50% of the commercial applications were for projects that used only the New York Energy SmartSM Loan Fund.

** Current market conditions cause many lenders to be acquired and merged with other institutions, therefore projecting future participation numbers is difficult.

Budget.

Table 4.8. New York Energy SmartSM Loan Fund and Financing Program Budget

Program	Average Annual Budget	Five-Year Budget
Loan Fund and Financing Program	\$2,100,000	\$10,500,000

4.5. New York Energy SmartSM Focus

Background. While the portfolio of commercial and industrial programs provide technical and financial assistance services to commercial and industrial sectors, a targeted, cross-program approach was piloted for k-12 schools in SBC II. The effort has been successful by providing services specifically designed and packaged to encourage energy efficiency throughout the sector, including building operations, transportation, staff training, and student education.

Additional sectors, such as colleges and universities, healthcare, industry, municipal water and wastewater, commercial real estate, and hospitality, hold substantial energy efficiency and energy cost savings potential, but each has unique barriers to acceptance of new technologies and concepts. For example, municipal water and wastewater systems are typically driven to make upgrades only where capacity constraints or improved environmental performance are required by their permits. Industrial facilities are conservative about change and often base their decisions on improved production capabilities. The healthcare industry is a large energy consumer but decision makers generally focus on patient care and related facility changes.

Many cost effective technologies can improve the energy efficiency of the buildings and facilities that are typical of these sectors. By providing a customized, comprehensive approach to these sectors, NYSERDA could instill greater awareness and improve penetration of energy efficiency markets. As noted above, this approach has proven successful in the K-12 schools sector. As part of the ongoing schools initiative, 2,200 buses have been converted to other fuels and have reduced emissions, 30 million square feet of buildings have been benchmarked, and New York schools represent more than 20% of the ENERGY STAR® Leader awards in the United States.

Program Description. New York Energy SmartSM Focus is a sector-based structure that will become the platform for customer interface and program delivery. Sector customized strategies will be employed to market New York Energy SmartSM programs and services, to guide customers to the resources they need to take action on energy projects, and to address customers' unique needs and decision making criteria. Methods to be employed include:

- **BENCHMARKING.** An energy performance rating system tracks and scores energy efficiency in buildings over time. The rating system is available for many customer sectors and allows customers to establish efficiency improvement goals. Benchmarking will be an entry point into NYSERDA programs, a way to develop an ongoing relationship with customers, and a means of assessing energy management performance over time.
- **TARGETED MARKETING MATERIALS AND MESSAGES.** Materials will recognize the motivators and needs of the individual sectors and offer them individualized information and strategies.
- **ONE-ON-ONE INTERACTION.** Direct customer assistance will help facility managers and decision makers develop action plans and take advantage of NYSERDA programs. The focus will be on developing and maintaining ongoing customer relationships.
- **TRAINING.** Educating customers about energy efficiency and demand reduction strategies and encouraging long-term commitment to superior performance will be incorporated.

Training will be strategically tied to program resources and services, and customers will be encouraged to make improvements to their facilities and processes.

- **PARTNERSHIPS WITH TRADE ASSOCIATIONS.** Partnerships with organizations and associations will allow NYSERDA to provide specific ongoing education for each sector and provide an avenue to reach constituents through established resources like newsletters, conferences, and training.
- **INTEGRATION WITH REGIONAL AND NATIONAL EFFORTS.** Collaboration with national and regional efforts like the U.S. Environmental Protection Agency's ENERGY STAR® Program, U.S. Department of Energy's Best Practices, Northeast Energy Efficiency Partnerships, the Consortium for Energy Efficiency's initiatives, the American Council for an Energy Efficient Economy's Building Performance Program, Motor Decision Matters, and the Compressed Air Challenge will keep NYSERDA's programs on the leading edge and leverage resources.
- **RECOGNITION.** Customers will be recognized for their efforts to reduce consumption.

Efforts will center on achieving each sector's core mission and increasing productivity while improving energy efficiency and reducing demand. Strategies will vary by sector and will be developed to leverage non-energy benefits, such as environmental remediation, indoor air quality, and maintenance savings, which often drive energy efficiency decisions. Specific strategies and services will be developed by NYSERDA sector representatives in conjunction with support contractors. These individuals will serve as internal and external advocates and points of contact for their sectors. Their responsibility will be to ensure that services and marketing materials are appropriate and that their sectors' unique needs are adequately represented in other New York Energy SmartSM programs.

The NYSERDA website will be enhanced to provide additional sector-specific portals. These portals will provide sectors with individualized programmatic and technical information and will guide users to appropriate resources. The portals will provide pathways which describe the steps involved in program participation and development of energy projects, along with case studies, technology briefings, links to related associations and regional and national efforts, benchmarking information, training updates, and sector representative contact information. The website will link to the Business Partners who are participating with NYSERDA in the lighting, HVAC, and motor management markets.

Transition Strategies. The Smart Focus program represents a transition to a more sector-based concentration of services from the program-centered approach. As program services, case studies, and success stories are developed and replicated, existing services will be modified to accommodate the special long-term needs of key sectors. Promotional materials, sector-based energy information, and other forms of technology transfer will be developed and widely deployed. For example, program services have reached more than 17% of the eligible k-12 school audience. A benchmark that equated to an average energy cost of \$216 per student per year was developed and disseminated. Establishing benchmarking factors will help school superintendents, officials, business officials, and teachers understand and appreciate the effect of energy use on school operating costs. As a specific sector's participation approaches 50% of the eligible

audience, the program will evolve and provide less direct customer support and disseminate materials more broadly within the sector.

Program Goals. Obtaining metrics for sectors and sub-sectors can be expensive and difficult, particularly for programs that seek to leverage non-energy impacts. The program's success will be measured, to the extent possible, using baselines, including energy, cost metrics, and number of facilities served, for each sector. Traditional metrics will be extracted from individual Commercial and Industrial programs for each sector .

Table 4.9. New York Energy \$martSM Focus Program Goals

Activity	Year One Goal	Five-Year Goal
Customers Receiving Assistance	2,000	21,000
Demand Savings (MW)	1	9
Energy Savings (gWh)	5	46

Budget.

Table 4.10. New York Energy \$martSM Focus Program Budget

Program	Average Annual Budget	Five-Year Budget
New York Energy \$mart SM Focus	\$2,370,000	\$11,850,000

4.6. High Performance New Buildings

Background and Achievements. The New Construction Program (NCP) currently encourages designers and building owners to design, construct, and operate energy-efficient buildings. The program is structured to create long-term changes in design practices by mainstreaming energy efficiency and green building concepts. The High Performance New Buildings program (HPNB) will continue the services of the NCP and provide technical assistance to determine appropriate energy efficiency improvements and financial incentives to offset a portion of the incremental costs of the improvements. Educating design professionals, such as architects and engineers, will transform the market for high performance buildings as design professionals learn to design to higher standards. Over time, use of higher standards will become standard practice and no longer require financial incentives from the program.

NCP saw steady growth in the new construction market and achieved steady growth in awareness of energy efficiency among its targeted market actors. Numerous completed projects and substantial energy savings have been tallied. For example, 526 design firms have participated, representing 18% of such firms in New York State. More than 1,200 active projects address more than 120 million square feet of floor space. Eighty percent of participants would recommend the program to others and 90% would participate again. High spillover rates among participants and non-participants result in a market effects multiplier of 2.06. Non-energy benefits accruing to participants are conservatively estimated by the evaluation contractors to be 40 to 50% greater than the energy and peak demand savings directly attributable to the program.¹²

NYSERDA's leadership in the area of Green Building design was recognized through receipt of a national Leadership Award from the U.S. Green Buildings Council in the fall of 2005.

Program Description. The program is performance-based, and the amount of incentives to be paid is determined by total electric energy savings. Incentives are tiered and better designs will be rewarded with higher incentives. Applicants will be encouraged to participate at the earliest design stages so that an integrated, whole building approach towards designing for energy efficiency can be encouraged. Cost-shared technical assistance will also be available to conduct Green Buildings analysis, LEED™ ratings, and commissioning of funded measures. In addition to numerous electricity saving measures covering building structure and systems, daylighting, geothermal and distributed generation systems, and steam cooling incentives will be offered.

Enhancements under SBC III include program modifications that ensure that small, less complex projects can be reviewed and quickly receive incentives. The approaches may follow existing models, such as the Advanced Building Guidelines and the NCP Custom Measure Tool. The HPNB will integrate other widely-used benchmark systems, such as the ENERGY STAR® Portfolio Manager, to conduct post-evaluation surveys of energy performance. Real-time pricing and peak load management strategies will be investigated for use in technically advanced projects. Geothermal and multifamily projects will participate through collaboration with NYSERDA's residential programs. The program will provide design teams with incentives and recognition to promote green building projects and projects planned for LEED™ certification. The program

¹² New York Energy SmartSM Program Evaluation and Status Report, Final Report, May 2005.

name change reflects increased emphasis on whole-building approaches to energy efficiency and the sophisticated use of green building concepts.

The program will increasingly focus on energy codes and equipment standards to increase adoption of energy efficiency technologies and practices. Results from the program will be used to update the New York State Energy Conservation Construction Code (Code), and field results will help determine when technologies have advanced to the point of becoming standard practice and when cost premiums have dwindled for more advanced measures. A small portion of the program budget will be used to train and educate design professionals on code requirements and energy efficiency opportunities. The program will also promote the goals of the Energy Policy Act of 2005 by supporting applications for Federal commercial building energy tax credits.

Transition Strategies. Several factors will influence whether measures become standard practice, including cost, product availability, customer acceptance, technology advancements, industry standards, and building codes. When advanced energy efficiency strategies become standard practice, as evidenced by program evaluation and market assessments, the program will discontinue direct incentives for certain technologies. Market segments and building types that have a large percentage of their building stock participating in the program will be de-emphasized. The program will shift resources to creating and disseminating guideline documents, increasing training and education, providing benchmarking services to ensure continuing building performance, and leveraging the benefits of other national energy efficiency efforts such as LEED™ and ENERGY STAR®. Web-based training and use of tools such as the Advanced Building and ASHRAE guidelines for designing small buildings will be promoted. Several of these transitional strategies will occur in the first quarter of 2007.

Program Goals. One determinant of the benefits of the HPNB will be kWh and KW savings. Another metric will be penetration of the program into the commercial building marketplace; the existing program is currently enjoying a penetration rate between 10 and 12% statewide and is expected to increase by approximately 1% per year. The number of participating design professionals will be tracked, and pre- and post-program impacts will be measured as will the spillover effects of program activities.

Table 4.11. High Performance New Buildings Program Goals

Activity	Year One Goal	Five-Year Goal
Customers receiving assistance	140	750
Demand reductions (MW)	4	24
Energy Savings (gWh)	35	210
Construction market affected (sq.ft.)	14,000,000	75,000,000
Participating A&E firms	180	800

Budget.

Table 4.12. High Performance New Buildings Program Budget

Program	Average Annual Budget	Five-Year Budget
High Performance New Buildings	\$14,000,000	\$70,000,000

4.7. FlexTech Technical Assistance

Background and Achievements. The FlexTech Program at NYSERDA has produced numerous benefits. The purpose of the FlexTech Technical Assistance Program is to provide customers with objective, customized information to facilitate better energy efficiency, energy procurement, and financing decisions. The program is available to all commercial and industrial sectors. It provides on-site engineering services using NYSERDA's pre-qualified service providers, FlexTech Contractors. Alternatively, customers may choose their own service providers. The program undergoes continual internal and external assessments by program staff and evaluation contractors and receives feedback from the engineering community and customers to ensure that efforts and services are appropriately targeted. The FlexTech Technical Assistance Program integrates with implementation assistance program opportunities when appropriate and necessary for the customer. FlexTech has won national awards including an ACEEE Exemplary Program Recognition.

The May 2005 **New York Energy SmartSM** Program Evaluation and Status Report contains the following FlexTech Technical Assistance findings:

- 61% of surveyed customers had already installed measure(s)
- 80% of surveyed customers had installed measure(s) within three years of study completion

Every cost-shared program dollar spent on FlexTech results in:

- \$5 of direct energy, operational, and productivity savings
- \$17 of capital investment

More than 250 energy engineering and ESCO firms have worked with the program.

Program Description. The program's primary focus will be to increase productivity and economic competitiveness by identifying and encouraging the implementation of cost-effective energy efficiency measures. The program will offer cost-sharing on technical assistance studies and audits. These studies will be provided on a case-by-case basis and may include engineering feasibility studies, energy operations management studies, detailed analysis of specific energy efficiency projects, process improvement analyses, rate analysis, engineering in support of project-financing proposals or other energy related need. Eligible customers will include state and local governments, not-for-profit and private institutions, industry, agribusinesses, commercial businesses, and colleges, universities, public and private K-12 schools.

The program will continue to build and improve the network of qualified engineering firms and service providers. Marketplace feedback and innovative energy efficiency services will provide direction on targeted initiatives. Anticipated initiatives include, but are not limited to:

- Geothermal heat pumps
- Energy procurement
- Retro-commissioning
- Real time pricing

- Non-electric cooling
- Manufacturing and industrial process improvements

Transition Strategies. The program will build on current successes, further explore innovative energy efficiency services, and provide customers with objective technical and financial information to help them make better informed energy management decisions. The program will once more be proactively marketed. The program will increase technology, service, and sector specific initiatives; outreach and training of customers and service providers. Specialist consultants with unique skills in various types of energy management will be utilized to increase effectiveness in these targeted initiatives. Previously, the program relied more heavily on generalist consultants.

Additional emphasis will be placed on load shaping, reliability, metering for monitoring and verification, long-term energy management, distributed generation, and other innovative energy efficiency services. Cost-effectively servicing small commercial customers is an ongoing challenge. Program services that will be investigated include self-audit materials, building operator certification, brochures written in Spanish targeting small businesses, and web-based technical tools for facility managers.

The program will aim for stronger participation in the Con Edison Service territory primarily because it is a strained network with important peak load implications and to reflect stakeholder input from that service territory. Stronger integration of NYISO programs with NYSERDA programs will be pursued by identifying and analyzing opportunities for customers to participate in load curtailment activities of both organizations.

Program Goals. The program will increase customer awareness of energy demand and consumption benefits and methods of integrating energy planning into everyday business decisions. The pool of service providers who participate in the program will be increased.

Table 4.13. FlexTech Technical Assistance Program Goals

Activity	Year One Goal	Five-Year Goal
Customers receiving assistance	540	3,000
Demand reductions (MW)	14	80
Energy Savings (gWh)	70	400

Budget.

Table 4.14. FlexTech Technical Assistance Program Budget

Program	Average Annual Budget	Five-Year Budget
FlexTech. Technical Assistance	\$5,900,000	\$29,500,000

SECTION 5: ENERGY EFFICIENCY, PEAK LOAD, AND OUTREACH AND EDUCATION (RESIDENTIAL)

NYSERDA's residential programs are primarily market transformation programs intended to make permanent changes in the role energy efficiency serves in the residential marketplace, although certain resource acquisition strategies are also used as needed to achieve near-term energy efficiency peak demand reduction goals. Programs are integrated into the residential housing, services, and retail markets by balancing consumer demand with the capacity to deliver energy-efficient goods and energy efficiency services. In supporting the SBC goals and objectives, the programs are guided by the following principles:

- Program designs are market based to ensure viable business models that will provide services long into the future.
- Programs are designed with input from stakeholders to ensure they both meet the needs of residential customers and create the necessary infrastructure and partnerships to deliver high-quality energy-efficient products and energy efficiency services;
- Programs foster a network of market actors who value energy efficiency as a sales and purchase attribute;
- Programs facilitate dialogue between customers and program partners (builders, contractors, retailers) regarding customers' awareness of and demand for energy-efficient products and services.

The programs work closely with the entire marketplace chain to increase the availability of energy-efficient appliances, lighting, HVAC equipment and other products; and provide technical training to contractors, builders, designers and others. The ENERGY STAR® brand serves as the overarching symbol tying all of the programs together, giving them additional value and credibility in the eyes of the public. The programs invest in multi-media marketing of the ENERGY STAR® label to consumers, and educate them on the benefits of energy efficiency.

The programs also strive to change the way consumers use energy in their every-day lives by increasing their awareness of their own energy consumption patterns and how they relate to peak loading of the system, and giving them alternatives that allow them to control their energy consumption and costs. In addition, the programs work with New York's youngest energy consumers, students, by developing an infrastructure of teachers knowledgeable about energy efficiency, renewable resources, and other energy-related topics, and reaching out to students through activities and events.

The SBC II Evaluation found that residential programs are making significant gains in efficiency with an eye toward ongoing improvement and the provision of quality services to the citizens of New York. The programs are affecting their markets positively and signs of market progress are generally in line with the length of time spent and the resources invested. The Evaluation also found that the programs are designed and implemented to support each other.¹ This synergy enables the programs to provide a single point of contact for residential consumers (1-877-NY-SMART or GetEnergySmart.org), and the businesses that serve them, to find information on New York Energy SmartSM programs.

As of 2004, the residential programs provided more than 256gWh per year of electric savings, 93MW of peak savings, increases in recognition and understanding of the **ENERGY STAR®** label well in excess of the national average, and a high degree of satisfaction with the programs among program partners.¹³ Collectively, the program activities are impacting the market, improving energy efficiency, supporting economic development, increasing energy diversity, and facilitating access to competitive market services for residential customers.

Imbedded in the success of NYSERDA's residential programs is the flexibility to respond to a rapidly changing marketplace; to identify through program networks, evaluate and adopt tools that are available naturally in the marketplace; and to integrate new tools and strategies across all programs, including the low income programs. These attributes of the program are demonstrated in the recent collaboration with National Grid to access energy use data before and after implementation of energy efficiency measures through the EmPower New YorkSM program. This data is essential in evaluating the effectiveness of the program and its design, and it is anticipated that this protocol will be expanded to other programs and other utility service territories during SBC III. The data will be included in the Comprehensive Residential Information System (CRIS) database, which provides a single, consistent program data platform for all residential programs. The database and data transfer process are discussed in more detail in Section 9.

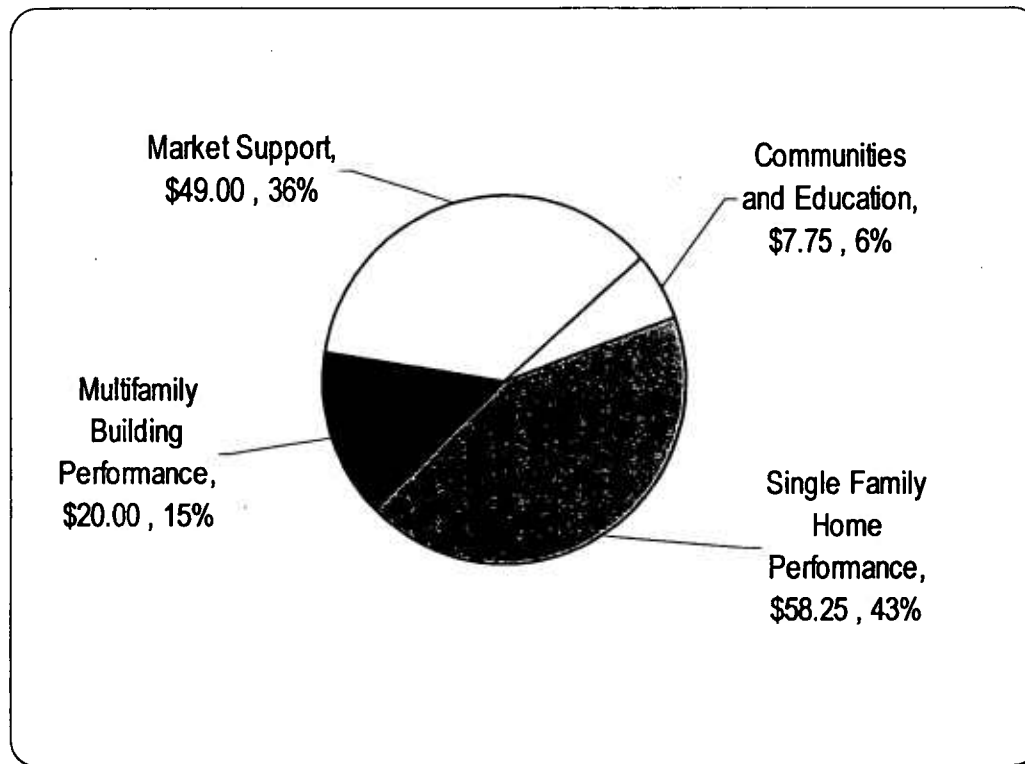
Another initiative demonstrating these attributes is the use of various energy efficiency project financing mechanisms within the program structures. The program partners, such as home performance contractors, can offer their customers access to not only the Energy Smart Loan Fund, but also to low-interest ENERGY STAR financing, and for income-eligible customers, other financing and incentives. NYSERDA will continue to explore opportunities to introduce other financing options, such as energy efficiency mortgages and financing of energy efficiency measures through customer electric savings, that extend the buying power of consumers for energy-efficient products and homes.

Link to Low-Income Programs. Reducing the energy cost burden on low-income customers is a critical challenge facing NYSERDA. Low income consumers are offered comprehensive energy services, including technical information and assistance and access to energy-efficient products and services, with supplemental funding for income-qualified residents and building owners through residential programs such as the ENERGY STAR® Small Homes Programs and the Multifamily Building Performance Program. NYSERDA's low-income programs strive to provide the benefits of competition and energy efficiency to customers who have difficulty obtaining such benefits in the marketplace. At the same time NYSERDA's programs ensure the same level of quality control and benefits achieved throughout the residential sector. The residential low-income programs are described in detail in Section 8:

Figure 5.1 illustrates NYSERDA's funding for its residential programs for SBC III.

¹³ Ibid., Section 6-1-3.

Figure 5.1. Energy Efficiency, Peak Load, and Outreach and Education (Residential) Programs Funding (Five-year budget in millions)



5.1. Single Family Home Performance (One-to-Four Family Homes) Program

Background and Achievements. The Single Family Home Performance Program targets new and existing one-to-four family homes through two initiatives — Home Performance with ENERGY STAR® (HPwES) and New York ENERGY STAR® Labeled Homes (NYESLH). The program strives to educate homeowners on the benefits of the inclusion of energy efficiency in home improvement projects and new construction. Equally important, each program aims to create an infrastructure of competent home builders and home improvement contractors who will permanently change home construction and service practices in New York State.

The Single Family Home Performance Program is market-based and aims to build upon the capabilities of local private contractors and builders by expanding their knowledge base to deliver public benefits as a coincidental attribute of consumer demand. NYSERDA's aggressive marketing of the program through print, radio, and TV advertising builds consumer demand and adds validity to the program, while encouraging contractors and builders to participate.

The first household was served by HPwES in March 2001. By December 2005, nearly 10,000 homes had been served, saving homeowners approximately \$5.9 million annually on their energy costs. The first NYESLH home was built in April 2001. By December 2005, more than 6,600 homes have been built and labeled, saving new homebuyers approximately \$5.0 million per year in energy costs.

This market transformation program has received several awards and undergone extensive evaluation activities over the last four years and has consistently produced favorable benefit-cost ratios.

Program Description. In SBC III, the program will focus on new strategies to expand its service delivery infrastructure. Efforts will target areas of New York State with limited availability of home performance contractors and ENERGY STAR® builders. A dedicated effort will consolidate and expand upon various existing contractor training and educational activities by establishing a single entity that will focus on workforce development. This entity will be coordinated among all NYSERDA's residential programs and include selected renewable and commercial programs. Enhanced training, increased technical assistance, improved integration with the existing trade contractor infrastructure and new incentive strategies for program participants are expected to increase homeowner, contractor, and builder participation throughout New York State. The program will strive to incorporate high efficiency measures and equipment and advanced technologies, including ground source heat pumps and advanced meters. The program currently includes a robust quality assurance system which ensures that participants are delivering quality services to homeowners and providing them with healthy, safe, environmentally conscious, energy-efficient homes..

A brief description of the two initiatives follows:

- HOME PERFORMANCE WITH ENERGY STAR® (HPwES). The purpose of HPwES is to implement comprehensive energy efficiency-related improvements and technologies by qualified contractors. HPwES increases the capacity and expertise of home improvement contractors through training, certification of individual technicians, and accreditation of firms. Included in the comprehensive improvements offered by the program are building

shell measures, heating and cooling measures, electric measures, and health and safety features.

Contractors complete a performance-based Comprehensive Home Assessment (CHA) that uses advanced diagnostic testing equipment and energy modeling computer software. These tools help home performance contractors understand how well the home is functioning as a unit, which measures are most needed, and which measures, singly and in combination, will achieve a targeted level of cost-effective investment.

Results of the CHA are used by contractors and householders to prioritize and select measures for installation and to qualify householders for financing. Low-interest rate financing is the primary consumer incentive, and several options are offered. ENERGY STAR® financing is offered by contractors and offers a one-stop shopping experience for consumers. The New York Energy SmartSM Loan Fund offers consumers access to low-interest rate financing in their own communities.

- **NEW YORK ENERGY STAR® LABELED HOMES (NYESLH).** This enhanced version of the United States Environmental Protection Agency's ENERGY STAR® Labeled Homes Program provides technical assistance and financial incentives to one-to-four-family home builders and Home Energy Rating System (HERS) raters. The program encourages the adoption of energy-efficient design features and the selection and installation of high efficiency equipment in new construction and substantial renovation projects.

NYESLH provides technical assistance and incentives to participating homebuilders who construct or substantially renovate homes that use approximately 30% less energy than conventionally built homes. Increases in home energy efficiency are realized from a variety of measures that include: reduced air infiltration, tightly sealed ducts, increased levels of insulation, high performance windows and doors, energy-efficient heating, air conditioning and domestic hot water systems, mechanical ventilation systems, energy-efficient appliances and lighting products. Independent third-party verification by a certified HERS rater ensures that the home complies with program guidelines, including 600 KWh savings from compact fluorescent lighting fixtures and other energy-efficient household appliances.

Transition Strategies. The program was launched on a market-by-market basis throughout New York with the most recent launches taking place in Long Island and Staten Island in the fall of 2005. As certain markets mature, the participating contractors and builders will assume more responsibility for the success of the program. Mature markets are defined as those where there are multiple competing contractors or builders who have successfully integrated the ENERGY STAR programs into their business models, and the market has demonstrated a balance between consumer demand and the ability to deliver services. Program staff is continually responding to changing markets with the reduction, revision, and, in some cases, elimination of incentives. This trend will continue in SBC III.

As the energy standards in building codes increase and as the adoption of energy-efficient home construction practices and sales of energy-efficient homes increase, NYSERDA will continue its leadership in driving national ENERGY STAR® standards. High efficiency heating, ventilation, and air conditioning (HVAC) systems, savings from the installation of ENERGY STAR®

products, and better construction practices will be used to attain higher standards. At the same time, continued training and support services for existing buildings will ensure that occupant health, comfort, safety, building reliability, durability, and efficiency will be improved.

Higher levels of performance will be rewarded beyond 2006 through an introduction of a comprehensive strategy that includes federal tax credits. NYSERDA will aim to align program offerings so program partners and homeowners are able to realize the maximum benefits of tax credits. Additionally, over time, the program will seek to influence the New York State building code to incorporate performance standards at higher levels.

Program Goals Goals for partner recruitment, training and certification will be established on a market-by-market basis as performance in each market is evaluated.

Table 5.1. Single Family Home Performance Program Goals

Activity	Year One Goal	Five-Year Goal
Existing households served through HPWES	3,225	16,125
▪ Energy savings*(gWh)	3.2	15.8
New Homes built through NYESLH	2,150	10,750
▪ Energy Savings (gWh)**	1.3	6.5

* Five-year mmBtu savings for the HPWES program are 726,000 mmBtu.

** Five year mmBtu savings for the NYESLH program are 378,000 mmBtu.

Budget:

Table 5.2. Single Family Home Performance Program Budget

Program	Average Annual Budget	Five-Year Budget
Home Performance with ENERGY STAR®	\$6,990,000	\$34,950,000
New York ENERGY STAR® Labeled Homes	4,660,000	23,300,000
Single Family Home Performance Total	\$11,650,000	\$58,250,000

5.2. Multifamily Buildings Program

Background and Achievements. The Multifamily Building Program currently consists of several initiatives for low income and market rate buildings. Market rate multifamily buildings were served by the ResTech program, which provides technical assistance to building owners in the form of energy assessments, design and construction assistance and loan interest write downs. In addition, the Comprehensive Energy Management Program (CEM) provided technical and financial incentives for the installation of advanced metering and direct load control technologies, and conducted several pilot programs to help implement real-time based electricity pricing structures in multi and single family buildings. The New York Energy SmartSM Loan Fund supports the implementation of energy efficiency measures.

In 2004, NYSERDA began a pilot initiative for the construction of energy-efficient multifamily buildings. NYSERDA assembled a multi-state working group to coordinate with U.S. EPA in developing criteria for a multifamily building eligible to earn the ENERGY STAR® label. Emphasis was placed on giving architects, engineers, and developers the technical assistance they would need to design and construct an energy-efficient building and construction incentives that would allow them to reach energy efficiency targets. In the pilot initiative, developers received incentives for energy-efficient building designs and for the incremental costs of products, equipment, and materials needed to meet their energy savings targets. The initiative will also emphasize energy saving persistence through ongoing energy monitoring and educating building managers and tenants. The working group proposal was approved by U.S. EPA in January 2006.

The low-income initiative, the Assisted Multifamily Program (AMP), took an all-fuels, whole-building approach to energy efficiency improvements in low-income buildings. Emphasis was placed on energy and bill savings for low income tenants through contractual and policy directives. Under AMP, NYSERDA provides technical and financial assistance to building owners to make energy efficiency improvements. The innovation in this program was financial packaging, in which the AMP team found sources of funds, in cash and loans, that owners could access to complete installation of cost-effective measures. Gap financing was provided when needed. The AMP team also provided assistance during the design and construction phase to help owners complete the construction process, provided training and education to building owners and managers, and monitored energy savings.

These programs were implemented independently as the residential program (and staff resources) grew and progressed from SBC I to SBC II.

Program Description. In SBC III, all existing programs, including the Loan Fund, will be consolidated into the Multifamily Buildings Program to provide an easy and convenient portal for low income and market rate multifamily building owners and developers. They will receive services from one of two tracks — new construction or existing buildings.

A major effort will also involve enhancement of the energy services infrastructure. This effort, started in SBC II, will involve developing market-based business opportunities for building auditors, financial packagers, designers, architects, and construction inspectors.

The new construction track, the ENERGY STAR® Multifamily Building Program (EMP), will be developed during 2006 based on the results of the pilot. This initiative will concentrate on

providing technical assistance to mid-stream market participants and will incorporate 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 in the rationale for energy efficiency measures will be provided for engineers, architects, building owners, building maintenance staff, and tenants.

As noted by the Commission as an interest, real-time pricing structures will be emphasized in SBC III. To this end, Comprehensive Energy Management Program incentives will be brought into the multifamily program and will no longer be a separate program. The new program will emphasize installing new advanced metering and load control technologies as part of a whole-building approach to energy efficiency.

Using data and information gathered from current on-going R&D and demonstration pilots, Real Time Pricing (RTP) Structures, both at the master meter and behind, will be designed and implemented. Load Serving Entities (LSE), ESCO's and consultants will receive incentives to implement RTP strategies by providing owners and tenants with the education needed to raise energy awareness, take advantage of new technologies, and change energy use behavior to attain energy efficiency and reduce load. An ascending incentive strategy will be implemented for (1) advanced meters, (2) advanced meters and load control, and (3) advanced meters, load control and RTP structures. Incentives will be provided to building owners to make cost-effective energy efficiency improvements to their buildings to couple with the RTP structures implemented. NYSERDA will work with DPS staff to address existing barriers and technology issues.

The existing buildings track will be served by the Multifamily Building Performance Initiative. Services currently provided through ResTech, CEM, and the Loan Fund will be transitioned to the new program format during the first year of SBC III. As with the Single Family Home Performance Program, a dedicated effort will be made to consolidate and expand the various training and educational activities by establishing a single entity or institute focused on workforce development.

To ensure persistence of energy savings after installation of measures, efforts will be made to raise consumer awareness of energy issues, train building maintenance staff, and develop a market for energy specialists that will work with building owners and tenants for several years.

Transition Strategies. As a market transformation program, emphasis is placed on making permanent changes in the manner in which multifamily buildings are constructed and maintained. As proficiency and capacity builds, there will be opportunities to impact building codes, raising the bar on energy performance, and pushing for increased requirements for buildings earning the ENERGY STAR. In addition, as building owners and managers experience the benefits of properly trained and certified building and systems technicians, demand for training resources and programs will grow. All multifamily building programs, both market-rate and low-income, will be implemented by a single, competitively selected contractor.

Program Goals. Training goals will be established on a market-by-market basis as program performance is evaluated. In addition, training of appropriate building staff will be accomplished for each building entering the program.

Table 5.3. Multifamily Building Performance Program Goals

Activity	Year One Goal	Five-Year Goal
Number of units receiving services (existing buildings)	7,800	39,000
▪ Energy Savings* (existing buildings) (gWh)	9.4	47
Number of units receiving services (new construction)	1,500	7,500
▪ Energy Savings** (new construction) (gWh)	1.8	9
Tenant Energy Savings (\$250 per unit per year)	\$2,325,000	\$34,875,000

* Five-year mmBtu savings for the existing buildings component of this program are 1,253,000 mmBtu.

** Five-year mmBtu savings for the new construction component of this program are 241,000 mmBtu.

Budget.

Table 5.4. Multifamily Building Performance Program Budget

Program	Average Annual Budget	Five-Year Budget
Multifamily Building Performance (existing)	\$3,200,000	\$16,000,000
ENERGY STAR® Multifamily Building Performance (new construction)	800,000	4,000,000
Multifamily Buildings Total	\$4,000,000	\$20,000,000

5.3. Market Support Program

Background and Achievements. The Market Support Program provides support services to the building performance and low-income programs by addressing the availability of energy-efficient products and providing residential program outreach and marketing services to both recruit mid-stream participants and build consumer demand. This program area has consisted of three initiatives — ENERGY STAR® Products Program, Program Marketing, and the GetEnergySmart.org website.

The ENERGY STAR® Products Program was launched in August 1999 to sustain sales of residential ENERGY STAR® appliances, lighting and home electronics products. This market transformation program has two goals: increasing supply of products through partnerships with retailers, manufacturers and distributors; and creating demand through consumer awareness and understanding of the ENERGY STAR® label. Since the program's inception, the ENERGY STAR® market share of appliance sales has risen by 92%, room air conditioners (RACs) by 187%, and lighting fixtures by 16% in New York State partner stores. ENERGY STAR® products currently account for an estimated 50% of appliances, 80% of room air conditioners, and 9% of lighting fixtures sold in New York State partner stores.

During 2005, the program promoted 19 categories of ENERGY STAR® household appliances and lighting products. NYSEDA'S 390¹⁴ active retail and manufacturer partners are serviced on a 4 to 6 week rotation by 9 field representatives who provide training, program updates, replenish point-of-purchase materials, and label products. Partners submit monthly sales data, hold regular sales staff training sessions and display point-of-purchase materials. Partners meeting these requirements are eligible for co-op advertising, promotional, and market share incentives.

Marketing that will influence consumer behavior is an essential element in a successful market-based program. Supply and demand are continuously monitored, and adjustments are made to marketing plans to support program goals. Too little marketing to maintain or increase demand could cause suppliers to drop out of programs, while too much demand can cause frustration among consumers unable to achieve their goals. Services include: marketing assistance to mid-stream partners; developing brochures and advertising, and placing advertising. The program also performs market research and leverages regional and national initiatives that meet program needs.

The GetEnergySmart.org website was initially developed, under SBC I, to provide consumers with an on-line assessment of their home, and recommendations on how to improve the home's efficiency. As the residential programs were established and grew under SBC II, the website took on a different purpose — providing program and partner information to consumers, providing energy efficiency tips, and providing participation information to potential partners. As more and more consumers began to rely on the Internet for product research and information, on-line marketing campaigns and e-mail newsletters were used to bring consumers to the website. Seasonal or promotional campaigns were implemented through the website, and website visits steadily increased — while hotline calls decreased. It became clear that the website had become an essential communication, marketing and education tool for the residential programs.

¹⁴ As of November 30, 2005.

Program Description. In SBC III, because of steady increases in the presence of these products in homes and small businesses and the increasing amount of energy used per product, the program will address home electronics as a primary focus. Energy efficient lighting will continue as a special focus because of the current slow growth in market share and the high potential energy savings. The program will monitor appliances whose standards will have recently changed, such as clothes washers and dishwashers, and actively promote those that have not yet achieved significant market share, such as ENERGY STAR® refrigerators. ENERGY STAR® room air conditioners have a high market share among program partners, but are increasingly faced with the competition of very inexpensive imported products that have the lowest possible efficiency ratings. Maintenance of the high market share of room air conditioners will require continued consumer education campaigns. In addition, a new focus on installed products, such as HVAC systems, domestic water heaters and windows will be established with emphasis on proper installation to ensure energy savings. This aspect of the program will be implemented in conjunction with the Single Family Home Performance Program.

Program marketing will support the Single Family Home Performance Program, Multifamily Building Performance Program, New York Energy SmartSM Products Program, winter and summer tips campaigns, and special campaigns such as Change A Light, Change the World. The goals of the campaigns are to drive consumer demand for energy-efficient products and services, drive consumers and mid-stream market actors to participate in NYSERDA programs, and educate consumers on energy topics such as home electronics usage and phantom electricity. Program materials will have a consistent look and feel as a more comprehensive and coordinated marketing effort is undertaken, including seeking opportunities to cross-market products emerging from research and development demonstrations. The website and Internet will continue to grow as a prime marketing venue, as will local television programming and community newspapers. These provide excellent opportunities to educate consumers, particularly in markets where the infrastructure has evolved and electricity needs are growing. In new or underserved markets, traditional advertising will also be used to both drive consumer demand and draw mid-stream partners.

Transition Strategies. The National ENERGY STAR® program continuously evaluates product standards and the availability of high-efficiency products. NYSERDA will continue to support the increasing of standards, and will monitor the marketplace to ensure continuing high levels of ENERGY STAR® market share after standards change. In addition, NYSERDA will encourage U.S. DOE and U.S. EPA to develop labels for new product categories that promise to provide significant energy benefits to New York State. As a targeted product achieves a high market share (60%), the strategy for that product will change to monitoring and maintenance rather than active promotion, and efforts will be shifted to products needing further support.

Marketing strategies will also be changed to reflect changing markets. The strategy for a market with a mature infrastructure - meaning there are multiple competing contractors or builders who have successfully integrated the ENERGY STAR programs into their business models, and the market has demonstrated a balance between consumer demand and an ability to deliver services -

is different from the strategy for an underserved market – meaning there are either few participating contractors/builders or little consumer demand. As markets mature, business partners are expected to assume more of the marketing burden and depend less on NYSERDA as the primary driver of consumer demand. In markets where consumer demand has not increased as expected, but potential energy savings are great, marketing strategies will be adjusted to, first, survey the market to determine why participation is low, and second, develop a new strategy with appropriate funding to address the barriers.

Program Goals. NYSERDA's continuing goal is to significantly increase market share of ENERGY STAR® appliances, electronics, and lighting products. The program will expand partnerships to include mass merchandisers, big-box stores, and new retail partners selling home electronics.

Consumer activity related to marketing will be tracked as website visits, hotline calls, and through various consumer surveys. Surveys have demonstrated that consumers respond to campaigns promoting tips to reduce energy consumption or shift demand to off-peak hours. In 2002, it was demonstrated that 94MW of demand were shifted away from peak through the Keep Cool Summer campaign. Additional surveys will be conducted to evaluate the impact of certain campaigns in SBC III, and to determine the sustainability of those behaviors.

Benefits of program marketing will be seen through the achievement of goals for mid-stream partner and consumer participation in the relevant building performance and low-income programs.

During year one, the New York Energy SmartSM Products Program will be developing an initiative for consumer electronics and energy savings will begin to increase late in the year. As a result, fewer savings will be realized in the first year than in subsequent years.

Table 5.5. Market Support Program Goals

Activity	Year One Goal	Five-Year Goal
New manufacturing partners	4	20
New retail partners (independent)	20	100
New retail partners (big box, mass merchandisers)	1+	6
ENERGY STAR® market share increase – targeted products (on average, across products)	5%	25%
Annual energy savings (gWh)*	30	200

* Five-year mmBtu savings for this program are 3,000 mmBtu.

Budget.

Table 5.6. Market Support Program Budget

Program	Average Annual Budget	Five-Year Budget
Market Support	\$9,800,000	\$49,000,000

5.4. Communities and Education Program

Background and Achievements. The Communities and Education Program provides face-to-face contact with New York State residents on energy efficiency topics and NYSERDA programs through schools, local seminars and workshops, and events. Goals of the program include educating 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 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. To date, ESS has conducted 39 energy workshops, training over 600 teachers who will share the information they gained with an estimated 60,000 students this year. An additional 16 workshops are planned through June 2006, resulting in an estimated additional 300 teachers being trained and 30,000 more students being provided a better understanding of energy issues. ESS has also introduced building sciences to vocational schools, laying the groundwork for the growth of the building performance specialists industry.

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 for the public to educate them on saving energy at home and in the workplace; provide public forums for the discussion of energy issues important to their community; staff the NYSERDA booth at countless local events to provide program information to local residents; and work with planners in their community to ensure energy is addressed in local ordinances and growth plans.

Program Description.

- **ENERGY SMART STUDENTS (ESS).** NYSERDA recently convened a schools team to develop a comprehensive and holistic approach to the services that NYSERDA offers to k-12 schools, including facilities, transportation, and curriculum. This provided an opportunity to consider cross-programmatic services to better serve our school customers and to take advantage of the natural learning environment that is created by other **New York Energy SmartSM** Program investments in school facilities and transportation.

EES will continue to offer one-day workshops for classroom teachers and other educators on energy sources, the science of energy and energy efficiency, and more specialized topics, such as bio-diesel and hydrogen. Teachers attending the workshops will be 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 will also sponsor Key Leader Conferences to provide more intensive training to teachers willing to commit to assisting ESS with the training of other teachers.

ESS will offer teachers mini-grants to fund innovative energy projects in the classroom; distribute *Energy Smarts*, a bi-monthly newsletter devoted to energy education; and participate in statewide teacher conferences and organizations, including NYS Technology Educators Association (NYSTEA) and Student Technology Association of New York State (STANYS). The program will also expand training of vocational students on the building sciences to develop a skilled workforce that can enhance the building performance industry.

- **New York Energy SmartSM Communities (NYESC).** The partnerships will continue to provide energy education through seminars and workshops, market NYSERDA programs to the public, refer businesses, local government agencies and community groups to appropriate NYSERDA program entry points and solicitations, and provide valuable feedback on program implementation to NYSERDA project staff. In addition, in SBC III, NYESC will take on primary responsibility for recruiting builders, contractors, retailers, realtors, code officials, architects, engineers and others into the residential programs as mid-stream partners. This will eliminate the need for multiple program implementation contractors to recruit partners within the same regions, thereby reducing confusion and redundancy in the marketplace. Many of the events taking place through NYESC program will also be supported by NYSERDA staff and other contractors.

Transition Strategies. With 568 school districts and more than 185,000 elementary and secondary school teachers in the **New York Energy SmartSM** service territory, the audience for energy education is extensive. Early experience has shown that teachers are very interested in workshops and curricula. As the program grows, alternative workshop opportunities will be incorporated to expand its reach and train increasing numbers of teachers each year. The goal is for teachers who attend a workshop to then incorporate energy education in their classroom activities year after year. And as new energy technologies are developed, new curriculum will also be developed to introduce the future workforce to exciting new opportunities. Support for the development of vocational training will also continue.

The NYESC network is imbedded in the community infrastructure. These "champions" of energy efficiency and environmental stewardship will continue to seek ways to improve their communities and will continue to access the resources that NYSERDA has to offer. Continual training of the NYESC partners will be required to ensure they are aware of program changes, program opportunities and interests, and emerging products and services. Recruitment efforts for a particular program will diminish when it matures — meaning that multiple competing entities have successfully integrated the program into their business models and the market has demonstrated a balance between consumer demand and NYSERDA's ability to deliver services

Program Goals. Energy education is critical to developing a society that can understand and address the energy issues facing us now and in the future. To help drive immediate action, ESS incorporates take-home activities to encourage family involvement in energy efficiency education. While often difficult to measure the direct effects of education, it is undeniable that a firm understanding of energy sources and the benefits of energy efficiency represent a true public benefit to the State of New York.

Specific goals for recruiting partners through NYE\$C will be established annually on a market-by-market basis in collaboration with program staff and will be based on the status of the market at that time. In particular, goals for new partner types, such as realtors and insurance companies, will be established as roles are better defined for those partners through the program design process. However, goals for recruitment of major partner categories are provided in Table 5.7 below. Energy savings will be captured, through the programs supported by the recruitment and outreach activities.

Table 5.7. Communities and Education Program Goals

Activity	Year One Goal	Five-Year Goal
Teachers trained	1,000	5,000
Students reached	30,000	150,000
Community events held statewide	200	1,000
Recruiting seminars held statewide	100	500
Home performance contractors, technicians, builders and raters recruited for the Single Family Home Performance Program	160	800
Building analysts, designers, energy consultants, equipment installers, etc recruited for Multifamily Building Performance Program	20	100

Budget.

Table 5.8. Communities and Education Program Budget

Program	Average Annual Budget	Five-Year Budget
Energy Smart Students	\$350,000	\$1,750,000
New York Energy Smart SM Communities	1,200,000	6,000,000
Communities and Education Total	\$1,550,000	\$7,750,000

SECTION 6: ENERGY EFFICIENCY, PEAK LOAD, AND OUTREACH AND EDUCATION (GENERAL AWARENESS)

New York State is facing a number of energy challenges over the next few years, including the ongoing transition to a competitive energy market, increasing demand for energy, the need for energy efficiency and conservation to reduce demand and upward pressure on prices, and the need to raise awareness and understanding of renewable energy, renewable portfolio standards, and the ability and benefit of choosing renewable energy.

An aggressive, comprehensive and effective outreach and education program is an essential component of any program intended to address these challenges. The General Awareness Program will seek to ensure residential and business consumers have the awareness, information and understanding they need to make informed decisions regarding their energy needs.

Five interrelated areas will be the focus of the General Awareness Program:

- Commercial and industrial demand response (“Keep the Power Flowing”)
- Energy and economic development
- Energy competition (“Power to Choose”)
- Summer electric demand (“Have an Energy Smart Summer”)
- Winter heating costs (“Have an Energy Smart Winter”)

In coordination with NYSERDA staff, Department of Public Service (DPS) staff will direct and manage program design, development, and implementation. NYSERDA will administer the related contracts for program implementation in consultation with Department of Public Service staff. DPS staff will coordinate evaluation efforts with NYSERDA and its contractors. Overall coordination between NYSERDA and DPS staff will be essential to ensure the effectiveness of the programs.

Commercial and Industrial Demand Response (“Keep the Power Flowing”)

Background and Achievements. Tight electricity supply continues to put pressure on the State's ability to meet its electricity demand particularly in the downstate region. The State has undertaken a number of steps to ensure that electricity supply is adequate to meet demand. Among these steps is the implementation of compensated programs by the NYISO—Installed Capacity Special Case Resources(ICAP-SCR), Emergency Demand Response and Day-Ahead Demand Response Program. Additionally, NYSERDA's Peak Load Program provides incentives for permanent and short-term demand reduction, distributed generation (NYC) and interval metering. From 2001 through 2004, approximately 2,300 C&I customers were paid \$14.8 million by the NYISO for reducing the average hourly statewide peak demand by about 800MW. During the same period, NYSERDA's Peak Load Reduction Program enabled nearly 400 MW in demand reduction. In 2002, the Peak Load Management Alliance recognized New York's demand-response programs and the comprehensive outreach and education campaign.

Program Description. Under SBC III, the goal of the program is twofold: (1) motivate customer participation in the NYISO's incentive programs to curtail electricity usage during peak demand

periods to ensure reliability of the electric grid and (2) encourage increasing participation in NYSERDA's Peak Load Management Program incentives which offer a wide range of benefits that help support the electric system reliability and provide for the purchase and installation of energy-efficient equipment. The program will incorporate various communication strategies, such as paid media, educational brochures, direct mail, trade shows and expos, specialized workshops, websites, and other means to educate the public.

Transition Strategies. The program will build upon the success of the program under SBC II in informing customers of the need for demand response and referral to the State's demand response programs. The messaging and communication strategies will change periodically to keep the message current and to maximize consumer response.

Energy and Economic Development Program

Background and Achievements. Promoting and sustaining economic growth through effective energy policies is an important objective for New York State. To overcome relatively higher energy costs, various programs, policies and initiatives have been developed to retain, attract and expand businesses in the State. The "energy tools" to build and expand businesses in New York include: competitive energy suppliers, energy efficiency programs, electric load curtailment or demand response programs, distributed generation, NYPA's Power for Jobs Program, Empire Zone discounted energy rates, NYSERDA's Economic Development Programs, Empire State Development's Shovel-Ready sites, and utility economic development rates and non-rate economic incentives. Also, greater use of renewable technologies, fuel cells and photovoltaics will create jobs. According to the June 2002 State Energy Plan, low-cost energy programs has been successful in retaining and expanding employment opportunities in the State. The need and success of economic development programs is demonstrated by the designation of additional Empire Zones that offer special incentives (including energy price discounts) to encourage economic development, business investment and job creation.

Program Description. Under SBC III, the primary focus of the program is to assist businesses in learning about energy, environmental and economic development programs and working with State and local government in retaining, attracting and expanding businesses in New York. The initiative will use educational brochures, direct mail, trade shows and expos, specialized workshops, websites, and other means to inform business regarding the State's energy initiatives to attract, retain or expand businesses in New York.

Transition Strategies. The State's success with businesses that could relocate to other states frequently depends on the availability of discounted, low-cost energy and incentives offered through various State and local government and utility-sponsored programs. Therefore, the need for outreach and education about energy-related economic development programs for businesses continues to be critical to retain, expand or expand businesses in the State.

Energy Competition ("Power to Choose")

Background and Achievements. Unlike most other states, New York has carried out its transition to competitive energy markets administratively. The much-needed flexibility and innovation allowed by this approach has proven vital to our success. Rather than impose a specific solution,

the Commission developed a comprehensive vision, and worked with industry participants and interested parties to implement that vision.

Migration rates are a key indicator of the development of competitive markets. Even though New York has not yet fully implemented the best practices identified in the Commission's Competitive Markets Policy Statement issued August 25, 2004, growth in retail electric migration has been steadily increasing over time and the market is responding. A January 23, 2006 article in *Restructuring Today* hailed New York for a 28% annual growth in competitive sales and 33% growth in total customer accounts enrolled with ESCOs.¹⁶ As of January 1, 2006, 527,508 electric accounts had switched to ESCOs for their energy commodity. Thus far, 55.6% of large commercial and industrial time-of-use (TOU) electric customers have switched to ESCOs. Further, 38.5% of all customer load has migrated to ESCOs and more than 75.7% of all large TOU electric customer load is now supplied by ESCOs. In the residential market, 6.7% of customer accounts statewide now receive electric service from an ESCO.

ESCO entry and activity in New York retail energy markets are key indicators of the health and progress of competitive markets. As of January 2006, 100 eligible ESCOs were operating in New York State, and 73 different ESCOs are currently serving customers. In 2005, 31 new ESCOs became eligible, and 14 of those are serving New York consumers. The Reason Public Policy Institute recognized New York as a role model for customer choice and the National Energy Marketers Association cited New York's cutting edge strategies and resulting new participant entry as reasons to "expect more states will implement similar migration strategies, incentives and best practices." We anticipate that Direct Energy, a large, well-capitalized ESCO, with more than 1.5 million electric and natural gas residential, commercial, and industrial retail access customers in the United States, will enter the New York market to provide offerings to residential and commercial customers in March 2006.

In most utility service areas, customers can choose to purchase electricity generated from renewable resources, either from an ESCO offering green power or from a green energy provider through the utility. The latest available annual data from the environmental disclosure program indicates that 162,000 MWhs were purchased in New York's voluntary green market in 2004. A pre- and post-awareness survey of our green power education campaign – "New York's future is in your hands – Green Power is clean power" – shows that advertising appears to have had a significant impact on increasing awareness of customer choice to purchase green power in the upstate and downstate regions of New York. The proportion of consumers who are aware in the post-advertising wave was much higher than in the pre-advertising survey and upstate awareness increased 12.5 percentage points while downstate awareness of green power availability increased by 7.0 points. In 2005, the Commission and NYSERDA's advertising agency won a prestigious MarCom Creative Award for this campaign.

The "Power to Choose" energy supply guide is the first website in the nation with monthly updates of prices and other details of supply offerings from each of the major electric and natural gas utility territories in New York, ESCO pricing and service offers, green power provider offers, and links to energy efficiency and alternative energy providers. The new website was launched in

¹⁶ "NEW DATA: New York power shopping up more than 30%," *Restructuring Today*, January 23, 2006, pages 3-4.

November 2005 and had approximately 7,500 unique hits from consumers in a two-month period, even though the site has not been heavily advertised.

Program Description. Under SBC III, the program will continue to work to educate consumers about awareness and understanding of energy related issues such as how to get additional information and provide comments on energy and utility service related decisions, conditions, and programs that they need to make informed decisions regarding energy products and service choices, utility competition and choice, energy supplies, and alternative energy sources.

An aggressive, comprehensive, effective outreach and education program is an essential step in addressing this challenge. Public awareness and education consist of broad messaging and information regarding energy challenges facing the state, such as those outlined above.

Continuing to build public awareness and understanding of competition is an essential element in the transition to a competitive market. The "Use Your Power to Choose" program will complement the summer peak demand, winter heating, and need for more generation programs. The goals of this program are to increase awareness of energy competition, and how to make informed choices in the competitive market. This initiative will use paid media, brochures, direct mail, billboards, energy fairs and shows, and other means to educate the public.

The specific objectives of this initiative will be to inform and educate consumers about companies other than their local utility that now compete to supply their gas and electricity; renewable, green power is an option available to consumers; saving money or getting other value added service benefits by switching to an ESCO; the local utility will still deliver the gas and electricity and will continue to handle emergencies; aggregating load to save money by purchasing gas or electricity in bulk; and switching back to the utility if they choose.

The communications strategy will integrate the "Use Your Power to Choose" messages into the summer peak demand and winter heating campaigns. Radio, print, outdoor advertising, and grassroots education programs will be used. Specific advertising and outreach strategies and campaigns will be designed to: promote and educate consumers about choice by increasing awareness of the opportunity to consider an alternative energy services company (ESCO); facilitate New Yorkers' ability to find out which ESCOs serve their area; increase understanding of the potential advantages of having a choice in suppliers; increase awareness of green power choice through ESCO and utility choice programs; increase New Yorkers' understanding of their rights, responsibilities and protections; increase New Yorkers' understanding of, and access to, information necessary to shop for an ESCO; and increase New Yorkers' understanding of using available information to make informed choices.

Summer Electric Demand (Have an Energy Smart Summer)

Background and Achievements. Tight electricity supplies for the next few years will continue to put pressure on New York's ability to meet increasing electricity demand. Increasing demand and long lead-time before additional new, large, electric generation facilities will be on line create the need for a statewide demand reduction effort, with particular focus on New York City. The goal of this program is to motivate consumers to reduce electricity usage during peak periods through conservation and energy efficiency actions, thereby contributing to the overall effort to ensure that demand does not exceed supply.

Over the past five years, a highly successful outreach and education effort has been carried out for the summer electric demand program. Through a combination of media advertisements, consumer-friendly publications, partnerships with community-based organizations, utilities and local governments, and face-to-face meetings with people of all ages, incomes, and backgrounds, New York's energy consumers are seeing and hearing the electric demand reduction program messages more than 200 million times a year.

Program Description. The primary focus of the summer electric demand reduction public awareness campaign will be to educate consumers about New York's summer electric supply situation — what's happening and why. The public appeal, known as "Have an Energy Smart Summer," is designed to provide consumers with an understanding of New York's electricity needs and the steps that are taken to ensure the reliability of the electric system, as well as information on controlling energy costs through energy efficiency and electricity conservation measures. The program highlights the increasing demand for electricity and New York's need for more electric generation supply and emphasizes the importance of reducing the amount of electricity consumed, especially during periods of peak demand. In addition, NYSEDA will conduct a marketing program for ENERGY STAR® products and home performance ratings to complement the program.

In SBC III, messages and media will be tailored to target audiences based on program experience over the last several years. The outreach and education program will combine media buys with grass roots programs and initiatives. The media buy will include, but not be limited to, radio, outdoor and print advertising. Grassroots efforts will include developing printed materials identifying conservation strategies and practices; working with partner organizations, schools, other education programs and youth organizations to deliver and distribute materials; participating in events, service organization conferences, training sessions, educational forums, conferences, fairs, and other public gatherings; and maintaining communication tools such as Websites and toll-free numbers to facilitate information exchange with New York consumers.

Transition Strategies. The program will continue the overall strategies utilized successfully in SBC II, including the use of grassroots communications, mass media, and coordination of messages and methodologies with other SBC programs and other state agencies, including NYSEDA and the New York State Consumer Protection Board (CPB).

Winter Heating Costs ("Have an Energy Smart Winter")

Background and Achievements. Prices for natural gas and other heating fuels, like oil and propane, have increased dramatically. Demand for natural gas for heating and cooking and as the fuel to produce electricity continues to grow and is likely to keep prices high and cause price volatility. Taking active, comprehensive steps to raise consumer awareness about the rise in natural gas prices and the factors that drive those prices, how to control energy bills through conservation activities and practices, and where to go for assistance are essential to helping consumers deal with the rising cost of winter heating.

The winter heating program carried out under the SBC II used a variety of outreach and education methods, including paid media, grassroots efforts and partnerships with community leaders across the state. During a typical year of the program, a variety of communication tools are used to disseminate information to and receive feedback from consumers including media campaigns

(radio, outdoor advertisements and newspaper), events and speaking engagements, the internet, toll-free telephone numbers, market research, publications and marketing materials such as posters and promotional items. The reach and frequency of the media campaign ensures that the program messages are seen, heard or read more than 250 million times a year. In addition, each winter season staffed exhibits are present at numerous shows and events statewide that draw hundreds of thousands of utility consumers. Using events, direct mailings, the internet, toll-free telephone numbers and distribution through partner organizations, hundreds of thousands of publications and printed materials with natural gas information, assistance program information and energy saving tips to help consumer's better deal with high energy bills are distributed each year.

Program Description. Efforts will continue, and build on, the success of the previous "Have an Energy Smart Winter" campaign funded under the SBC II. The primary focus of the winter heating costs program is informing consumers about New York's natural gas outlook — estimated price levels and the factors that drive prices — or the coming winter seasons, what can be done to control energy bills including efficiency and conservation steps and where to go for assistance. The campaign stresses the importance of energy conservation through low-cost or no-cost measures to reduce energy consumption and lower bills. In addition, outreach and education material will provide information on financial assistance programs, bill payment options that can help customers better manage higher winter heating bills, and alternative energy suppliers.

Based on experiences during previous heating seasons, the program and messages will be delivered using three major strategies: (1) a comprehensive and proactive mass media and grassroots campaign, (2) close coordination with the state's utilities, and (3) partnerships with service organizations, other state agencies and local governments. The media buy will include radio, outdoor, and print advertising. Outreach and education activities will include developing printed materials identifying conservation strategies, energy efficiency measures and financial assistance programs for distribution at shows and events, through direct mail, through partnerships with retailers, service organizations, local government and other agencies and posting on state Websites. In addition, staff will participate in events, conferences, training sessions, educational forums, conferences, fairs, and other public gatherings.

Transition Strategies. The program will continue the overall strategies utilized successfully in SBC II, continue the use of grassroots communications and mass media, and coordinate our messages and methodologies with other PSC programs and other state agencies, including NYSERDA and CPB.

Program Goals. Informed commercial and industrial customers will help support electric system reliability and relieve the pressure on the need for new generation through participation in demand response programs. Participation in demand response programs avoids the dire economic consequences of blackouts and brownouts and enables commercial and industrial customers to realize energy cost savings during high demand and high price periods.

The Energy and Economic Development program is a one-stop shop program for commercial and industrial customers to find out about all the State's energy and economic development programs. The program provides a referral mechanism to match commercial and industrial customer energy needs with the appropriate State, local agency or utility regarding discounted energy rate or economic development program. The partnership among State and local agencies provides an

The Energy and Economic Development program is a one-stop shop program for commercial and industrial customers to find out about all the State's energy and economic development programs. The program provides a referral mechanism to match commercial and industrial customer energy needs with the appropriate State, local agency or utility regarding discounted energy rate or economic development program. The partnership among State and local agencies provides an awareness and coordination of New York's initiatives to retain, attract or expand businesses in New York.

The energy competition ("Power to Choose") program contributes to a greater awareness and facilitates the transition and availability of customer choices, including renewable energy, bill management, energy efficiency services, and the fostering of innovative solutions based on customer needs. ESCOs traditionally bundle and/or offer energy efficiency services with their commodity pricing offers to primarily commercial and industrial customers. These bundling of value-added services are expected to expand and extend to the residential market as well. Through coordination with other NYSERDA efforts, the information provided through this program will lead to greater levels of customer awareness, migration, innovation, and will highlight to customers the value-added benefits that competitive providers can offer.

The summer electric demand program and winter heating costs programs will contribute to increasing awareness of energy efficiency and its role in controlling energy bills and other bill management tools consumers can take advantage of. The programs will be accomplished in coordination with NYSERDA.

Budget. The program annual and five-year budget are show in Table 6.1.

Table 6.1. General Awareness and Education Program Budget

Program	Average Annual Budget	Five-Year Budget
Commercial and Industrial Demand Response	\$200,000	\$1,000,000
Energy and Economic Development	\$100,000	\$500,000
Energy Competition	\$1,350,000	\$6,750,000
Summer Electric Demand	\$500,000	\$2,500,000
Winter Heating Costs	\$850,000	\$4,250,000

SECTION 7: RESEARCH AND DEVELOPMENT

NYSERDA's SBC research and development (R&D) programs seek to advance innovative technologies and bring reliable, efficient, and clean energy technologies into the marketplace. NYSERDA's R&D programs strongly focus on demonstrating technologies and providing objective information on the performance, costs, and environmental impacts of a variety of energy systems, so that consumers and policy makers can make informed decisions.

Strategies. The R&D programs employ strategies and program delivery mechanisms that include traditional R&D competitive solicitations for projects where risk is shared with the customer and subscription-based incentive programs for deploying new technologies.

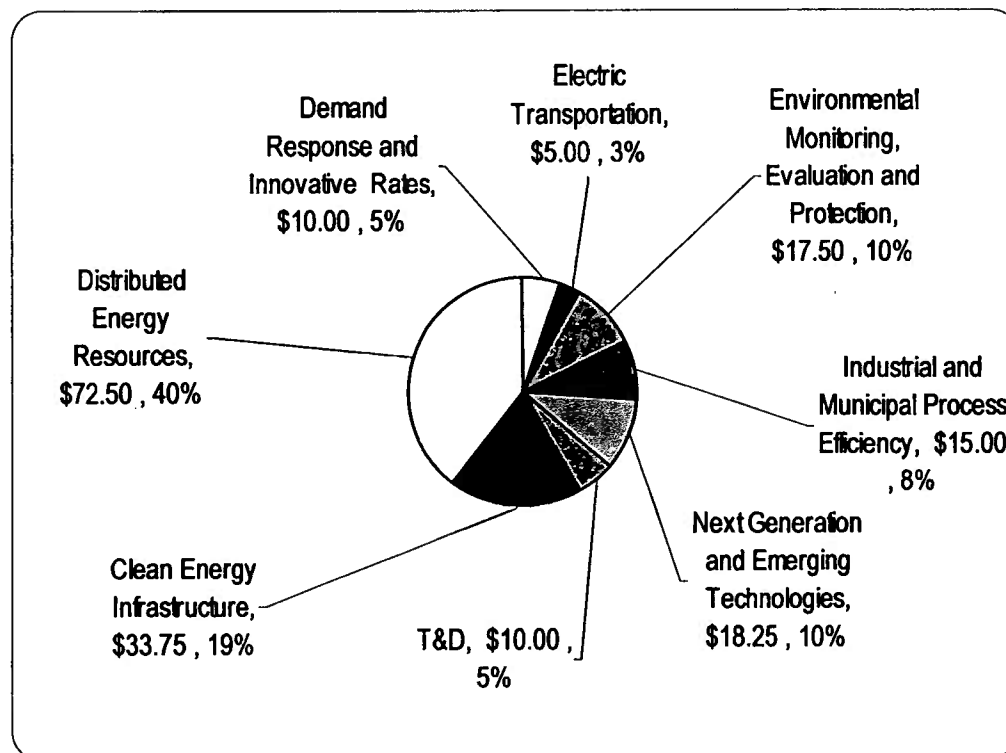
- **COMPETITIVE PONS.** NYSERDA's primary operational strategy for implementing its R&D program is to identify and select projects through a competitive solicitation process and then provide funding and technical assistance to make such projects successful. Most projects involve cost-sharing by project sponsors to encourage serious efforts, ownership, and use of project results.
- **SUBSCRIPTION PROGRAMS.** Selected NYSERDA R&D demonstration programs have begun using subscription-based programs to increase the penetration of promising technologies and applications in the marketplace. Typically these technologies are not intrinsically cost effective, yet they offer benefits that justify public support and investment.
- **FIELD MONITORING AND TECHNOLOGY DEMONSTRATION.** A key strategy for advancing new technology is to provide consumers with objective information on the cost and performance of the technology in a variety of applications. This provides necessary data to assess the risk of new technologies, make improvements in the technology, and ultimately expand market penetration. This strategy is employed in several R&D areas, *e.g.*, CHP.
- **DATA SHARING.** Along with investment in technology demonstrations and field monitoring, NYSERDA's R&D program establishes forums for exchanging information and provides public access to performance data on new technologies and research projects via NYSERDA's web page.
- **PRODUCT DEVELOPMENT, MANUFACTURING, AND BUSINESS DEVELOPMENT.** A goal of the New York Energy SmartSM program is to create economic opportunity by helping initiate new energy businesses in New York State. To capitalize on economic development opportunities associated with new technologies, NYSERDA offers performance-based financial support for expanding manufacturing, assembly, installation, distribution, and sales of clean energy technologies in New York State.
- **TRAINING AND BUSINESS INFRASTRUCTURE SUPPORT FOR EMERGING TECHNOLOGIES.** Trained service providers are needed to build sustainable industries. As new technologies emerge, NYSERDA will need to ensure that there are skilled service providers in New York State to meet customer needs. NYSERDA's R&D program has invested significantly in the development of trained, certified professionals for photovoltaic systems. New areas could include small wind systems, fuel cells, and biogas systems.

These efforts on new technologies complement deployment training programs on established efficiency technologies in the buildings, weatherization, and lighting areas.

- **COLLABORATIVE RESEARCH AND LEVERAGING.** NYSERDA's R&D programs collaborate with the activities of hundreds of organizations, including businesses, consumer groups, universities, and government entities. This is done both to leverage resources and ensure that the research results make it into the hands of the target user group. This type of collaborative research is particularly critical in areas requiring large capital investments such as transmission and distribution research projects.
- **EXTENSIVE STAKEHOLDER AND EXPERT INPUT.** An important R&D staff responsibility is maintaining awareness of emerging developments in the energy and environmental industries by regularly interacting with stakeholders and experts in various energy and environmental fields. Staff periodically hold scoping sessions with interested parties to forge a common understanding of research needs. Some programs, the Environmental Monitoring, Evaluation, and Protection Program (EMEP) is an example, rely on a standing program and technical advisory committee to provide critical input.

Figure 7.1 shows the funding distribution for NYSERDA's SBC III research and development programs.

Figure 7.1. Research and Development Programs (Five-year budget in millions)



7.1. Public Benefit Power Transmission and Distribution (T&D)

Background and Achievements. The Commission Order regarding the continuation of SBC III allocated an annual expenditure of \$2 million for transmission and distribution projects that clearly demonstrate broad public benefit. The Order specifically states that projects "should be promoted that provide improvements to power reliability, quality and security, and reduce the cost of energy and energy delivery." New York State Independent System Operator (NYISO) is responsible for managing the wholesale electric power market in accordance with stringent reliability requirements as defined by the New York State Reliability Council (NYSRC), while concurrently matching consumer demand with least cost marginal supply. The management of this competitive market, and the real-time monitoring of compliance with system reliability standards, are critical public benefit tasks and uniquely qualify the NYISO and the NYSRC as key stakeholders in the T&D research program.

The new SBC III program will support T&D research consistent with the Commission's Order that is not utility specific and has broad statewide energy efficiency and reliability benefits.

Program Description. To ensure that its programmatic objectives are satisfied, NYSERDA will coordinate with the New York State Independent System Operator (NYISO) and the New York State Reliability Council (NYSRC) to implement projects that provide significant statewide benefits for electric ratepayers. A T&D strategic plan was recently prepared by Electric Power Research Institute (EPRI) and identified several projects that should be initiated in cooperation with the NYISO and the NYSRC. These include:

- **FAST SIMULATION MODELING.** Analytical system models will be developed that rapidly assess grid stability and anticipate and respond automatically to power system disturbances.
- **REGIONAL PATTERN RECOGNITION.** System modeling data, phasor measurements, and historical trends will be analyzed to develop real-time grid performance indices. These indices will be displayed through a simplified graphical user interface to improve operator situational awareness.
- **PINPOINTING INITIAL SYSTEM DISTURBANCES.** Electric power frequencies will be monitored at critical locations on the grid. Minor perturbations in these measurements will be analyzed using triangulation software to locate the initial sources of disturbances.
- **BUSINESS MODELS PROMOTE SUSTAINABLE INVESTMENT IN TRANSMISSION AND DISTRIBUTION (T&D) INFRASTRUCTURE.** Additional investment is necessary to increase the capacity of the T&D system throughout the State and reduce congestion charges for ratepayers. A set of business models will be developed to encourage private investment in power delivery infrastructure.

The projects identified in the EPRI report were recommended by a diverse coalition of key New York State stakeholders at a T&D planning workshop convened in March 2005.

Transition Strategies. NYSERDA will seek external funding opportunities to leverage in-state resources and implement numerous projects that address the recommendations identified in the *Final Report on the August 14th Blackout* prepared by the U.S. and Canada Power System Outage

Task Force. These include (1) adopting better real-time tools for system operators; (2) improving the quality of system modeling and data exchange practices; (3) requiring the use of real-time synchronized data monitoring; and (4) implementing strategies to improve network monitoring. Successful adoption of project outcomes will enhance grid reliability, security, and end-use power quality; reduce environmental impacts; and eliminate electric system constraints that impede the State's economic growth.

Program Goals and Objectives. The program will commence with a strategy and coordination meeting with DPS staff, representatives of the NYISO, NYSRC, and utility companies, and other interested parties. At this meeting, to be held in spring 2006, the recently completed T&D strategic plan will be discussed and priority R&D areas will be identified. A solicitation targeting those areas will be issued. By fall 2006, a minimum of five projects or studies are expected to be funded using available year one funds. At the conclusion of SBC III, the T&D research program will have supported more than a dozen activities that have accomplished one or more of (1) establishing uniform statewide diagnostics to assess T&D system reliability, (2) integrating advanced communication, control, and monitoring technologies, power electronics, and innovative T&D technologies, (3) deploying remote sensors for continuous monitoring of T&D infrastructure with real-time monitoring of real and reactive power, and (4) facilitating the delivery of electricity from renewable generation resources such as wind, hydropower, and geothermal energy.

Table 7.1. Public Benefit Power Transmission and Distribution Research Program Goals

Activity	Year One Goal	Five-Year Goal
Strategy and coordination meeting	Identification of priority R&D areas by spring 2006	
Issue annual solicitations	Select and fund five or more projects and studies aimed at the priority R&D areas by fall 2006	12 or more projects resulting in one or more aforementioned accomplishments
Technology transfer		Identify successful projects, undertake specific outreach and knowledge transfer activities aimed at utilities

Budget.

Table 7.2. Public Benefit Power Transmission and Distribution Research Program Budget

Program	Average Annual Budget	Five-Year Budget
Public Benefit Power Transmission and Distribution Research	\$2,000,000	\$10,000,000

7.2. Clean Energy Infrastructure

Background and Achievements. High cost is one of the major barriers to adoption of renewable and clean energy systems. Activities in this program will be integrated with other SBC efforts, in particular Distributed Energy Resources, to develop and commercialize clean energy technologies to a point where the value of the technology to the consumer is worth the investment and the infrastructure is in place to deliver and support the technology. The primary focus of the Clean Energy Infrastructure Program will be renewable energy development. As specified in the Order, and further outlined below, SBC funds will not be used to provide incentives for the construction and operation of renewable energy systems that are eligible for Renewable Portfolio Standard (RPS) support. The Customer-Sited Tier component of the RPS currently includes photovoltaics, fuel cells, small wind, and anaerobic digestion systems. Using RPS funding, NYSERDA will develop and implement programs designed to maximize the installation and operation of RPS-eligible technologies. The SBC program will support programs for the RPS-eligible technologies that address training, education, and market development activities. For clean energy technologies that are not eligible for RPS funding, SBC funds may also be used to reduce the cost of installation and operation of the systems.

The success of previous renewable energy activities provided the foundation for evolution of the program. NYSERDA placed significant emphasis on training renewable energy professionals, establishing voluntary certification standards for photovoltaic system installers, establishing and promoting accredited training programs in New York State, establishing an internship program to give students from the training programs the experience necessary to sit for the certification exam, developing a series of specialized workshops and training tools, and creating a program to integrate photovoltaic systems on schools with lesson plans that meet New York State learning standards for math, science, and technology. Past efforts have resulted in the installation of over 3.4 MW of photovoltaics across the State and the site evaluation of over 1,000 MW of wind and biomass power plants.

Program Description. The Clean Energy Infrastructure program will continue to develop a vibrant, sustainable market for renewable and clean energy technologies using the following strategies:

- **EDUCATION, CONSUMER AWARENESS, AND MARKET DEVELOPMENT.** A strong base of qualified clean-energy system installers will be established and maintained by offering accredited training and voluntary certifications. Local communities will be helped to attract renewable energy facilities and will be provided with tools and assistance necessary to identify appropriate types of development and to evaluate the impact of renewable technologies on their communities. Communication tools and educational programs will be developed and disseminated that convey reliable and comprehensive information on the benefits, costs, and varieties of renewable technologies and the value of renewable power.
- **RENEWABLE RESOURCE APPLICATIONS.** SBC initiatives in this program will include targeted research, analytical and educational projects to address technical and information barriers to develop and market renewable and clean energy technologies.

- **CLEAN ENERGY TECHNOLOGY BUSINESS DEVELOPMENT AND MANUFACTURING.** The SBC program and the Renewable Portfolio Standard are providing a strong market for renewable energy technology. The goals of this initiative are to capture the economic value of this market through an integrated program that features innovative manufacturing of clean energy technologies in New York State. The program includes: support for innovative business strategies and mechanisms to reduce costs to customers; expansion of markets; easing purchases by customers; improving system reliability and performance; and fostering an array of technology choices.

Transition Strategies. A successful outcome of the Clean Energy Infrastructure program will be evident when there is broad consumer awareness of various clean energy technology options and a manufacturing, distribution, and installation infrastructure in place to meet consumer demand. At the moment, there is not a clear path from the manufacturer to the final consumer to deliver a variety of clean energy systems at a near competitive price.

Program Goals and Objectives. Outreach efforts allow consumers to make informed decisions, resulting in increased customer satisfaction and accelerated market demand. Training and business assistance programs foster installation under the RPS program of higher quality, lower cost, more reliable systems. Lower costs will accelerate the adoption of renewable energy systems and allow lower incentive levels. This will allow NYSERDA to install more eligible technologies under the RPS. More reliable systems will increase the kWh produced from the systems that are installed and increase customer satisfaction. Through the support of the SBC program, there will be an increase in the variety and application of clean energy systems for consumers to consider and an increase in the number of qualified companies to support consumer demand for these technologies. Given the complexity of developing products and starting new businesses, it is difficult to forecast the level of expansion of clean energy technology manufacture or the movement of new businesses into the distribution of these technologies. Program success will be measured by the number of trained professionals in various clean energy technology areas, the number of institutions offering independently accredited training programs, the number of green power marketers doing business in the State relative to the number active at the outset of the program, the movement of new companies into the business of designing, installing and servicing clean energy technology systems, and an increase in the number of companies manufacturing clean energy technologies in the State.

Table 7.3. Clean Energy Infrastructure Program Goals

Activity	Year One Goal	Five-Year Goal	
Education, Consumer Awareness and Market Development <ul style="list-style-type: none"> New accredited training institutions New certification exams Training workshops 	1 1 5	3 5 25	Self-sustaining accredited training and certification programs for clean energy technologies in addition to photovoltaics.
Renewable Resource Applications <ul style="list-style-type: none"> Stakeholder workshops Competitive research solicitations 	2 3	7 5	Reduction of knowledge and technical barriers currently affecting the installation and operation of wholesale and end-use clean energy technologies.
Clean Energy Technology Manufacturing and Business Development <ul style="list-style-type: none"> Companies expanding renewable business networks Companies expanding manufacturing 	5 2	25 10	Increase the number of companies developing and manufacturing clean energy technologies, and serving the clean energy business in New York State.

Budget.

Table 7.4. Clean Energy Infrastructure Program Budget

Program	Average Annual Budget	Five-Year Budget
Clean Energy Infrastructure	\$6,750,000	\$33,750,000

7.3. Distributed Energy Resources: Products and Demonstrations

Background. Distributed energy resources (DER) are devices and technologies that support and strengthen central-station electricity generation, transmission, and distribution systems. DER systems include both small energy storage and management devices and extensive distributed power generation (DG) systems. DER technologies and strategies (ex. electricity storage, demand response, and peak shaving) can be used to reduce peak electricity demand, to maintain local power quality, to improve overall grid reliability, and to stabilize peak electricity prices. Other DER strategies such as a customer installed onsite generating system, or DG, is typically designed to meet a customer's needs for premium, standby (backup or peak-shaving), or baseload power. DG can play a critical role in meeting energy needs in New York and many other places in the United States. They can be built much quicker than large central plants and can be strategically located in congested areas of the electric power grid, thereby alleviating, or at minimum deferring, the need for transmission and distribution upgrades. Use of DG in a combined heat and power (CHP) application, also known as cogeneration, is an efficient, clean, and reliable approach to generating power and thermal energy at or near the point of use. CHP uses heat that is otherwise discarded from conventional power generation to produce thermal energy. This thermal energy is used to provide cooling and heating for industrial facilities, institutional and commercial buildings, and homes. CHP systems typically achieve overall energy efficiencies of 50 to 70% — a dramatic improvement over the average 33% efficiency of conventional fossil-fueled power plants. Higher efficiencies result in reduced emissions of nitrogen oxides (NO_x) and carbon dioxide (CO₂), the leading greenhouse gases associated with climate change. In addition to reducing air pollution, CHP conserves limited fossil fuel resources, contributing to the State's energy self-sufficiency.

Recognizing the end-user and societal benefits offered by DG-CHP as well as the risks and hurdles facing its adoption, a SBC II funded DG-CHP program was initiated in 2001. Throughout the SBC II Program, NYSERDA pursued a concerted effort to develop DG technologies and to demonstrate DG in innovative CHP applications through the following two subprograms.

Power Systems Product Development

Program Achievements. The goal of this program is to work with New York technology companies to develop distributed generation and storage products and expand the number of marketable competitive products that reduce peak load, improve power quality, and provide improved cost-effective environmental performance. During SBC II, the program invested more than \$25,000,000 in 72 projects that have clustered in the following technical areas: DG aggregation; energy storage; emerging renewable energy technologies; fuel cells; reliability and power quality; and, activities designed to overcome barriers to DG adoption. Program accomplishments include

- Successful validation and the Commission's adoption of New York State's standard interconnection testing protocol for DG
- FERC licensing of the first low-impact tidal current hydropower project in the United States
- Sales of four new products developed under the program
- Development of a business model and establishment of two business that have aggregated more than 80 megawatt equivalents (MWe) of DG for peak load reduction and are accepted by the NYISO
- Establishment of standardized testing protocols for DG systems
- Creation of a nationally accepted database for DG performance testing results
- Identification of "best practices" in DG and CHP implementation.

Program Description. The product development cycle typically takes more than five years from inception to commercial sales. The program logic developed during the SBC II program evaluation described the sequential phases of product development. Development efforts are funded in phases and each project needs to successfully achieve certain milestones on the path from feasibility to commercial sales. Project funding from NYSERDA never exceeds 50% of development cost, insuring that the contractor has a significant stake in project success. There are several sources of funding incentives for customer-side commercially available renewable and clean energy generation through SBC deployment incentives and the RPS program. However, the power systems product development program is the only source of funding assistance designed to improve the performance of these products and "stock the shelves" with new options. The program will be delivered through at least annual competitive Program Opportunity Notice solicitations. Areas of product development will include: new renewable energy technologies, including stationary fuel cells and waste heat to energy systems; customer-sited reliability and power quality technologies; energy storage; and, activities providing policy guidance and overcoming barriers to adoption of clean distributed generation power sources.

Transition Strategies. The product development program supports emerging technologies from inception through field testing and pre-commercial deployment. Once a product becomes commercial, *i.e.*, has achieved all necessary certifications such as Underwriters' Laboratory approval, and offers a commercial warranty, continued support is frequently available through other NYSERDA and SBC funded programs. Developing products that make this transition is a fundamental goal of the program.

Program Goals and Objectives. The product development program will include energy, environmental and economic benefits for the State's electric rate payers. Long term environmental benefits accrue with large-scale use of the products and services developed. Economic benefits are measured in terms of leveraged investment into the State, new businesses and products created, product sales and jobs. Energy benefits are measured in terms of peak load reduction enabled, improved energy efficiency and improved reliability/power quality and energy cost to consumer.

Table 7.5. Power Systems Product Development Goals

Activity	Year One Goal	Five-Year Goal
Product development contracts awarded	10	75
New products commercially launched	1	5
Sales (cumulative \$)		\$50,000,000
Successful new product field tests and demonstrations	2	15
Projects successfully completing milestones	4	25
Assessments and studies of new technologies	3	20

DG-CHP Demonstration

Program Achievements. The SBC II funded DG-CHP Demonstration subprogram supports and funds nearly 100 CHP demonstration projects and 20 feasibility and technology transfer studies. NYSERDA contributes nearly \$55 million to a cumulative project cost total of some \$275 million. As of today, thirty seven demonstration projects are operational producing 16 MW of electricity. A few projects of interest are (1) fuels cells at a telecom switching facility [Verizon's 1.4 MW fuel cell power plant in Garden City, NY is the largest operating fuel cell plant in the world], at several waste water treatment plants, the Sheraton hotel, and the Grand Central Station; (2) microturbines installed at half a dozen apartment buildings, a supermarket, and a plastics manufacturer; and (3) clean reciprocating engines operating at food processors and Class A office buildings and the ones being installed at the new New York Times Building in the Times Square and at a Macy's Department store in Brooklyn. The program showcases a synchronous, grid-parallel DG system operating on a network grid. At the conclusion of the current SBC II program, the DG-CHP demonstration subprogram will result in installations producing 100 MW of electricity at an annual fuel use efficiency of 60 percent and at NO_x emissions rates of one-half the state's grid.

Conducting active technology transfer through project reports and field-events, and monitoring the performance of DG-CHP systems are critical aspects of the demonstration program. NYSERDA played a key role in developing a national standard, referred to as the ASERTTI protocol, for DG systems' performance monitoring. Now the DG-CHP program is applying this protocol to monitoring the performance of the demonstration projects.

Program Description. Improving awareness by end-users and project developers of DG-CHP related issues will increase the adoption of DG-CHP systems. Important issues include: DG permitting; Standard Interconnection Requirements (SIR); utility standby service; tariffs; technology risk; renewable fuel options, such as anaerobic digester and landfill gas; and fluctuating prices of natural gas. Under the SBC III program, the DG-CHP Demonstration Program will continue supporting energy-efficient, environmentally friendly DG-CHP technologies and applications that enhance such knowledge and understanding of DG. The program will: (1) demonstrate the use of DG resources on the grid to manage peak demand, improve power quality, provide reactive power, alleviate T&D load pocket constraints, defer

distribution system upgrades, and stabilize peak electricity prices; (2) support demonstration of recently developed technology options such as Stirling engines and Organic Rankin Cycle generating options; (3) encourage the use of "opportunity fuels" such as waste steam, natural gas pipeline pressure drop for onsite generation; (4) examine the cost and performance of advanced tailpipe clean up options for systems incorporating reciprocating engines; (5) encourage installation and operation of packaged CHP systems; and (6) encourage replication of successful DG-CHP demonstration projects from the SBC II program demonstrations such as synchronous grid-parallel onsite generation.

During the SBC III period the DG-CHP program will undertake a focused effort to support customer sited DG using commercially available DG technologies such as reciprocating engines via an incentive program. This incentive approach will co-exist along with similar offerings from RPS Customer-Sited tier and Clean DG program in the Consolidated Edison's System Wide Demand Reduction programs. The incentive offer will strive to achieve replication of successfully demonstrated SBC II funded DG-CHP applications in health care, commercial, and multi-family residential sectors at lower costs than those achieved in the current SBC II funded project portfolio.

Transition Strategies. At the conclusion of the SBC III program, the DG-CHP Demonstration program will have (1) demonstrated strategies to address institutional and business hurdles such as siting and permitting, utility interconnection, standby service costs, project economics, technology risk, and fuel diversity facing the broad acceptance of DG and CHP and other DER technologies (2) showcased the most promising DG and DER technologies and innovative CHP applications to evaluate impacts on and benefits for electricity provider and end-user business and operations; (3) documented the realized efficiency and environmental benefits that depend on use and functionality of thermal output and field emissions; (4) validated business models and regulatory approaches that reward electricity utilities for integrating DER into their systems where it provides demonstrable societal and customer benefits; and (5) conducted technology transfer and outreach activities to broaden the acceptance of successful DER and DG technologies and approaches.

Program Goals and Objectives. The first year solicitation and incentive offer will be issued in spring 2006. Year-1 program will target to fund a minimum of 10 CHP demonstration projects with a cumulative capacity of 20 MW. During SBC III, the program is expected to result in installation of 50 or more projects with 100 MW of clean and efficient DG in grid-supported and customer-sited CHP applications. This portfolio of projects will have an energy efficiency of 50% higher than the grid and operate at NOx emissions less than that of the grid. The systems will surpass all applicable State air emissions regulations. The portfolio of projects will aim to reduce utility peak demand by 100 MW and maintain utility connections while satisfying customer's needs for reliability and availability.

Table 7.6. DG-CHP Demonstration Program Goals

Activity	Year One Goal	Five-Year Goal
Initiate DG-CHP incentive program	Develop and implement a CHP incentive program in cooperation with other DG-CHP programs	
Issue annual solicitations and incentive offers	Fund up to 10 CHP demonstration projects with a cumulative capacity of 20 MW and with 10 MW downstate	Fund 50 or more CHP demonstrations with a cumulative capacity of 100 MW and associated efficiency and environmental benefits and with 50 MW downstate
Technology transfer	Require performance monitoring of all demonstration projects and export data to the CHP website	Conduct technology transfer and outreach activities to broaden acceptance of DG and CHP. Hold annual workshops and publish at least 10 final reports per year.

*Budget.***Table 7.7. Distributed Energy Resources: Products and Demonstrations Program Budget**

Program	Average Annual Budget	Five-Year Budget
Power Systems Product Development	\$5,000,000	\$25,000,000
DG-CHP Demonstration	\$7,500,000	\$37,500,000
DG-CHP Incentive Program	\$2,000,000	\$10,000,000
Distributed Energy Resources Total	\$14,500,000	\$72,500,000

7.4. Demand Response and Innovative Rate Research

Background and Achievements. New York's wholesale electric market has experienced summer peaks events that compromise its reserve margins. As a result, a variety of demand response products have been introduced (EDRP, SCR-ICAP, and DADRP) to allow for compensated load curtailments. Today, the NYISO has identified approximately 1,900 MW of curtailable load that are available when peak load conditions approach 30,000 MW. Residential and small commercial loads constitute a small percentage of participants in these programs because of their relatively small loads, the high cost of aggregation, and the lack of flexible metering options and other load control technologies. Energy industry experts advocate increasing the share of New York electric customers using time-based rates, such as real-time pricing (RTP) and time-of-use (TOU) rates, to directly incorporate marginal costs into price signals to achieve demand response. Except for direct wholesale customers and large accounts with more than one megawatt, small customers are not able to participate because of problems associated with meters, billing, and settlement issues. Competitive suppliers are inhibited from offering time-based products, and equipment manufacturers are discouraged from the commercial introduction of flexible load technologies.

Under SBC II, the R&D Enabling Technologies program sought to increase participation by small customers by supporting the development and demonstration of aggregation technologies, such as communications tools that reduced the logistics of managing small dispersed loads, remote metering, and automated load controls. The program resulted in the addition of about 150MW to total curtailable resources at costs under \$50 per KW. R&D also initiated six pilot projects supporting the administration of time sensitive electric rates to small customers. These projects have coordinated the interests of competitive suppliers, technology vendors, and multifamily housing customers to identify and develop stratagems to realize time sensitive rates despite the structural issues mentioned above. More than 1,000 customers are participating in the program.

Program Description. Under SBC III, the program will continue to support participation by small customers in the NYISO's wholesale demand response and time-sensitive retail electric pilots. Both programs will support the development, demonstration, and use of end-use technologies that have flexible load capabilities. Flexible load technologies are end-use devices, such as air conditioners and lighting, enhanced with features that allow remote access and group control thereby allowing easier load reduction in response to peak demand and price signals. The time-sensitive pilots will promote the development of innovative electric service rates by energy services companies. The goals of the pilots are to: (1) realize load shifting and reductions during peak and relatively expensive time periods; (2) create cost avoidance opportunities for customers; and (3) create sustainable businesses for providers. Projects in this program will be located principally in the New York City metropolitan area where capacity is constrained and value propositions for load reductions are most desirable.

Transition Strategies. These programs will be de-emphasized when time-based rates, or their equivalents, and flexible load appliances become widely available to residential and small commercial customers.

Program Goals and Objectives. Benefits and metrics include:

- A 50 to 100 MW increase in small customer participation in wholesale and local load curtailment programs
- An additional 3,000 customers — primarily tenants in multifamily housing — participating in real-time pricing or other marginal cost-based electric rate pilots
- Product development and commercialization, curtailable load under management, and number of participating retail customers

Table 7.8. Demand Response and Innovative Rate Research Program Goals

Activity	Year One Goal	Five-Year Goal
Increase small customer participation in wholesale and local demand response programs (MW)	33	100
Increase the number of multifamily apartment units participating in real-time and other time-sensitive electric rate pilots	500 apartment units	3,000 apartment units

Budget.

Table 7.9. Demand Response and Innovative Rate Research Program Budget

Program	Average Annual Budget	Five-Year Budget
Demand Response and Innovative Rate Research	\$2,000,000	\$10,000,000

7.5. Electric Transportation

Background and Achievements. Electric transportation R&D was a focus area under SBC I but was not funded in SBC II. These projects and other non-SBC funded activities during the period revealed additional opportunities to significantly improve New York's energy efficiency, reduce peak load, reduce costs, and benefit the grid through continued electric transportation initiatives. New York's electrified commuter rail and subway system is a 1,100 MW load connected to the Con Edison distribution system, consuming over 2 billion KWh a year. Analysis has shown that development, qualification and deployment of advanced technologies within the electrified rail system could reduce peak load by as much as 100 MW in the highly constrained New York City T&D load pocket. As a side benefit, these new products and services can be supplied by New York state businesses, adding to the current 16,000-30,000 private sector jobs annually and over \$6 billion/year of economic activity which results from NYS private sector sales to the State's electric rail system. The subway system pays an SBC fee as do the private sector suppliers.

Prior SBC-funded projects focused on improving the State's energy efficiency through the use of off-peak power to reduce the use of petroleum-based transportation fuels. The Electric Station Car Project leased small neighborhood electric cars to the public and provided charging stations in reserved parking slots at commuter rail stations. Demand for the vehicles exceed supply by nearly three to one. Thousands of gallons of gasoline consumption were replaced by off-peak power.

A second successful project, the Truck Stop Electrification Project, developed infrastructure technology, sponsored initial demonstrations and created a New York State based business that allows long haul trucks to eliminate sleeper cab engine idling during mandatory rest periods. Systems developed for the program are currently being sold nationally and are eligible for State and federal incentives.

Program Description. The program will be delivered through competitive Program Opportunity Notice solicitations. Financial participation by technology developers and users will be required. The program will address all stages of technology advancement, and higher risk projects will be funded in phases. Successful completion of milestones will be required before beginning the next phase. Two solicitations are anticipated. (1) Improving energy efficiency in the State's current electrified transportation infrastructure will be accomplished in collaboration with the New York City Metropolitan Transit Authority and the New York Power Authority. Activities will target conductor rails, regenerative braking systems, and propulsion efficiency. (2) Improving energy efficiency through the use of off-peak power in the transportation sector will target electrified anti-idling, plug-in hybrid vehicles, and reduced on-peak demand associated with producing and fueling alternative fuel vehicles.

Transition Strategies. The program supports emerging technologies from inception through field testing and pre-commercial deployment. Once a product is commercial and has reliably demonstrated energy benefits, continued support is frequently available through other NYSEDA-funded deployment programs and from State and Federal tax allowances. Developing products that will make this transition is a fundamental goal of the program.

Program Goals and Objectives. The goals of the program are: (1) improve the energy efficiency of the New York's current electrically powered commuter rail and subway system which consumes in excess of 500 MW of on-peak electric power in the New York City load pocket and

(2) reduce costs of power transmission by allowing unused off-peak capacity in generation and transmission to generate revenue and reduce transportation petroleum use, green house gases, and criteria emissions. The benefits of the electric transportation program will include peak load reduction in the NYC load pocket and permanent energy use reductions. These reductions will result in cost reductions to the subway and commuter rail systems and reduced transmission congestion to the region. Additionally, many projects are expected to reduce transportation costs and emissions from petroleum fueled vehicles. Program metrics will include feasibility studies conducted, number of measures implemented as a result of funded analysis, energy saved, KW peak load reduced, emissions reduced, and jobs created.

Budget.

Table 7.10. Electric Transportation Program Budget

Program	Average Annual Budget	Five-Year Budget
Electric Transportation	\$1,000,000	\$5,000,000

7.6. Environmental Monitoring, Evaluation, and Protection

Background and Achievements. The Environmental Monitoring, Evaluation and Protection (EMEP) program was launched in SBC I to increase understanding of the environmental impacts of electricity production. Forty-three research projects focusing on electricity and fossil fuel-related environmental issues have been initiated and 15 have been completed. Among the issues addressed by the projects are fine particle pollution, mercury pollution, acid rain, and ozone. EMEP funds have leveraged \$24 million in co-funding, helping to establish a vibrant environmental research capability in New York State. Advanced environmental instrumentation has been developed and commercialized in New York. More than 125 peer-reviewed journal articles have been published. Results have been widely disseminated through conferences, workshops, briefings, in print, and through the EMEP webpage. EMEP research and monitoring data are being used by policymakers and scientists in New York and at the national level to: develop new acid deposition reduction initiatives; develop the scientific basis for fine particle air quality management plans; refine emissions inventories; and define the environmental baseline that will be used to evaluate effectiveness of new mercury emission reduction policies affecting utilities.

Program Description. Future EMEP initiatives will support research in three areas:

- Ecosystem response to deposition of sulfur, nitrogen, and mercury, including continued support of the Adirondack Lake Water Quality monitoring program with the Adirondack Lake Survey Corporation and the NYS Department of Environmental Conservation;
- Air quality and related health research associated with particulate matter, ozone and co-pollutants, including energy-related research to support continued development of sound air quality management plans for attainment of new ozone and fine particle standards;
- Crosscutting environmental science, technology and policy projects, including new initiatives in:
 - Regional climate change research, which will (1) explore innovative policy, institutional, and technical solutions to help reduce greenhouse gas emissions and mitigate potential impacts of climate change; and (2) support necessary monitoring data in New York State to assess and evaluate impacts;
 - Research to evaluate, assess and minimize environmental impacts of alternative energy resources (e.g., wind, tidal); and
 - Research to mitigate environmental impacts of electricity generation critical to maintaining fuel diversity in New York State.

The program will be guided by a steering committee comprised of major stakeholder groups. In addition a separate science advisory committee will provide technical review. The program will contain a robust science and policy communication component to deliver program findings to policy-makers, scientists, and the public. As with previous efforts, NYSERDA will collaborate with regional entities and national entities to leverage funds.

Transition Strategies. The research funded by EMEP is unlikely to be funded by private markets. Where possible, NYSERDA will try to use its limited seed funding to encourage federal investment to support necessary research in New York State.

Program Goals and Objectives. The goal of the program is to increase understanding and awareness of the environmental impacts of energy choices and emerging energy options and provide a scientific, technical foundation for formulating effective, equitable, energy-related environmental policies and resource management practices. The program will build research capability in New York State. Primary evaluation metrics will include: number of projects completed in priority areas; financial leveraging; extent and effectiveness of information dissemination; and use of information by policy and scientific communities.

Table 7.11. Environmental Monitoring, Evaluation, and Protection Program Goals

Activity	Year One Goal	Five-Year Goal
Develop detailed multi-year EMEP research plan with input from policymakers, scientists, and stakeholders	Complete EMEP research plan in year 1	Update as needed to ensure relevancy
Develop, contract, and manage research projects aimed at priority energy-related environmental research areas	<ul style="list-style-type: none"> ▪ Issue 1 solicitation for outreach and science-policy analysis in year 1 ▪ Issue 1 solicitation addressing priority research needs ▪ Contract 8 projects 	<ul style="list-style-type: none"> ▪ Issue 6 to 10 solicitations ▪ Contract 40 projects ▪ Leverage \$20 million into New York, help build a knowledge-based research infrastructure in New York
Disseminate information <ul style="list-style-type: none"> ▪ Sponsor workshops, conferences, and seminars ▪ Provide web-based EMEP data and information ▪ Publish NYSERDA research reports ▪ Publish peer-reviewed journal articles ▪ Provide briefings to decision makers 	<div style="text-align: center;">2</div> 40,000 customer "visits," inquiries, and downloads from EMEP's web page <div style="text-align: center;">5</div> <div style="text-align: center;">15</div> <div style="text-align: center;">2</div>	<div style="text-align: center;">5 to 10</div> 200,000 total customer "visits," inquiries, and downloads to EMEP's web page <div style="text-align: center;">40</div> <div style="text-align: center;">100</div> <div style="text-align: center;">15</div>

Budget.

Table 7.12. Environmental Monitoring, Evaluation, and Protection Program Budget

Program	Average Annual Budget	Five-Year Budget
Environmental Monitoring, Evaluation, and Protection	\$3,500,000	\$17,500,000

7.7. Industrial and Municipal Process Efficiency

Background. New York State's industrial sector directly employs nearly a million people and contributes \$80 billion to the Gross State Product. This sector is suffering a decline, due, in part, to high energy costs. The industrial sector uses most of its energy in manufacturing products and processing waste. Industrial process improvements can significantly reduce energy use, mitigate negative environmental effects, and improve product quality. Another major opportunity for energy efficiency lies in the processing of municipal water and wastewater, which consumes three to four billion kWh per year. This sector provides a vital infrastructure enabling economic development and protecting public health. The new SBC III initiative will include financial and technical assistance, research, and implementation.

Industrial Process and Productivity Improvement (IPPI)

Program Achievements. Over the past ten years NYSERDA R&D's statutory-funded industrial process improvement program has averaged \$1.75 million in annual funding, and resulted in cumulative energy savings of almost \$20 million, non-energy benefits in excess of \$21 million, project-related incremental sales of almost \$40 million, and approximately 85 new jobs. The program typically funded only a third of the viable projects due to lack of funding. Addition of SBC III funding to the IPPI program will double the current funding available for process improvements and allow the solicitation to be offered multiple times a year instead of once.

Program Description. The IPPI program supports feasibility studies and technology demonstrations that (1) improve energy productivity and competitiveness of NY manufacturers (minimize cost per unit output), (2) encourage capital investment and employment growth in NYS facilities, (3) introduce NYS-manufactured goods into new markets, and (4) encourage adoption of process changes that minimize waste. Cost-shared demonstration projects reduce risk and encourage manufacturers to adopt innovative process alternatives. The program will seek to fund pre-competitive research within a sector with an emphasis on sharing the project outcome and results.

Transition Strategies. Conducting active technology transfer through project reports, published case studies, and field-events will provide impetus for replicating process improvements.

Program Goals and Objectives. Year-1 program implementation will begin with issuance of a solicitation in Spring 2006. By fall 2006 the program would have contracted six to ten projects. At the conclusion of the SBC III program, the IPPI program will have funded 30 to 40 cost-shared demonstrations of innovative technologies that save industrial process energy and improve productivity; documented the realized energy efficiency, environmental, and economic benefits; and conducted tech transfer and outreach activities to broaden the acceptance of successful technologies and approaches. During the five-year SBC III period, IPPI project portfolio is expected to result in cumulative energy savings of almost \$5 million, non-energy benefits in excess of \$5 million, and project-related incremental sales of almost \$10 million.

Table 7.13. Industrial Process and Productivity Improvement Goals

Activity	Year One Goal	Five-Year Goal
Issue annual solicitations	By fall 2006, contract for 6 to 10 demonstrations and feasibility studies of innovative technologies that save energy and improve productivity in the industrial sector	At the conclusion of the SBC III program, the IPPI program will have funded 30 to 40 cost-shared demonstrations
Technology transfer		Conduct technology transfer and outreach activities to broaden the acceptance of successful technologies and technical approaches via participation in at least two workshops. Publish at least six final reports per year.
Program metrics	Document realized energy efficiency, environmental, and economic benefits	IPPI projects supported during the SBC III period are expected to result in cumulative energy savings of \$5 million, non-energy benefits of \$5 million, and project-related incremental sales of \$10 million

Municipal Water and Wastewater Efficiency

Program Achievements. A small water and wastewater efficiency pilot program was launched in SBC II, with annual investment of approximately \$500,000. The program supported demonstrations, a Statewide assessment of energy efficiency potential, technical feasibility studies and submetering, and several technology transfer studies. As of May 2005, the program has directly assisted 29 water and wastewater facilities in New York State, with anticipated annual benefits of \$2.3 million. The targeted water and wastewater program was supplemented by a variety of other SBC programs such as FlexTech and CIPP.

Program Description. The SBC III program will focus on cost-shared demonstration projects to reduce risk and encourage adoption of innovative and energy efficient technologies and practices. The program will support: (1) development and demonstration of innovative, energy efficient technologies at water and wastewater facilities in New York, (2) energy management training for treatment plant operators, municipal decision makers, consultants, and product vendors, and (3) technology transfer and outreach to encourage adoption of innovative and energy-efficient technologies. The program is part of a collaborative effort between R&D and the Commercial and Institutional program area and will be marketed as part of the "Energy Smart Water Focus," one of several new New York Energy SmartSM programs tailored to the needs of specific customer groups.

Transition Strategies. Technologies, processes, and practices demonstrated in this program will be transitioned into deployment programs, where appropriate, such as CIPP or possibly EPA's newly developed Energy Star program for the municipal water and wastewater sector.

Program Goals and Objectives. The goals of the program are to: demonstrate innovative technologies that save energy, increase process efficiency, improve the State's water quality and supply; and promote implementation of energy-efficient technologies and practices. The primary evaluation metrics will be (1) energy reduced per unit of water treated and supplied and (2) annual cost savings to the municipality. A minimum of 25 municipalities will receive assistance under this program.

Table 7.14. Municipal Water and Wastewater Efficiency Program Goals

Activity	Year One Goal	Five-Year Goal
Issue annual solicitation	Select and fund 5 or more projects, provide assistance to a minimum of 5 municipal wastewater and water treatment facilities.	Select and fund 25 or more projects, provide assistance to a minimum of 25 municipal wastewater and water treatment facilities.
Technology transfer	Provide critical information on technologies and strategies that will optimize energy production and use at municipal wastewater and water treatment facilities. Provide information to 100 treatment facilities in New York.	Provide critical information on ways to optimize energy use at municipal wastewater and water treatment facilities. Provide information to 1,000 treatment facilities in New York.
Energy cost savings		Anticipated energy savings of approximately \$2-3 million a year

Budget.

Table 7.15. Industrial and Municipal Process Efficiency Program Budget

Program	Average Annual Budget	Five-Year Budget
Industrial Process and Productivity	\$2,000,000	\$10,000,000
Municipal Water and Wastewater	\$1,000,000	\$5,000,000
Industrial and Municipal Process Efficiency Total	\$3,000,000	\$15,000,000

7.8. Next Generation and Emerging Technologies

Background and Achievements. Under SBC I and II, this program supported the development, demonstration, and dissemination of public information on industrial and building related efficient end-use and energy supply technologies. The program was also supported new technologies that were relevant to New York State.

The program supported a broad range of technologies and activities including combined heat and power, fuel cells, superconducting distribution cable, truck stop electrification, daylighting, low- and self-powered heating systems, industrial compressed air management, remanufacturing, submetering, enabling technologies for demand response and time sensitive electric rate pilots. Even though the program is intended to support high-risk development, the program realized several tangible metrics including 150 MW of demand reduction; kWh savings; and development of 100 new products.

Program Description. Under SBC III, the program will emphasize discrete and integrated end-use technologies for buildings; daylighting and solar thermal applications; and emerging technologies for industry and buildings not covered elsewhere in the plan. The bulk of funds will be administered through narrowly defined competitive solicitations. Potential focus areas include:

- **DISCRETE BUILDING TECHNOLOGIES.** Support product development and demonstrations of discrete building technologies including low and self-powered heating and cooling systems; advanced lighting sources, fixture and control technologies; efficient indoor air quality; advanced building automation systems for monitoring and control of energy and demand.
- **ADVANCED BUILDING DEMONSTRATION.** Support demonstrations of integration, storage and control technologies at research facilities and owner occupied sites. Emphasis will be placed on beneficial recovery and reuse of thermal energy from one process to another (air conditioning to hot water, micro CHP to space heating); optimized thermal storage systems to economically carry thermal energy from one period to another; high-performance building envelopes; advanced thermal distribution networks; and intelligent building automation that learns building thermal response and occupancy patterns.
- **DAYLIGHTING APPLICATIONS.** Support demonstration and technical assistance to advance daylight applications in commercial buildings.
- **SOLAR THERMAL APPLICATIONS.** Support demonstration and technical assistance to advance economical collection and utilization of solar thermal energy.
- **EMERGING TECHNOLOGIES.** Support an annual solicitation for development and demonstration of discrete technologies that improve electric end-use efficiency.

The program addresses the Commission's goals to emphasize small commercial and residential customers.

Transition Strategies. As technologies and applications supported by the program become commercially viable and in widespread use, the Next Generation and Emerging Technologies

Program will shift emphasis to new technology areas. When possible, newly commercial technologies will be included in NYSERDA's deployment programs.

Program Goals. The goal of this program is to develop, test, and commercialize new energy products that will provide benefits to electric ratepayers, while providing opportunities for economic development in New York State. Program targets include: up to 50 product development projects with New York companies through the discrete building and emerging technology program component; two or more system test-bed or model home demonstrations featuring advanced integrated building technologies; technical assistance for 50 to 100 new construction projects and five demonstrations of advanced controls and shading technologies in the daylight applications program areas; and up to 5 advanced collector and storage system demonstrations for residential application of solar thermal technology.

Table 7.16. Next Generation and Emerging Technologies Program Goals

Activity	Year One Goal	Five-Year Goal
Discrete Building Technologies	1 solicitation, 5 product development projects	5 solicitations, 25 product development projects
Advanced Building Demonstrations	1 solicitation, 1 demonstration test bed	2 solicitations, 2 or more demonstration test beds
Daylighting Applications	5-10 design assistance projects, 1 daylighting implementation in buildings	50-100 design assistance projects, 5 daylighting implementations in buildings
Solar Thermal Applications	1 solicitation, 2 demonstrations	2 solicitations, 5 demonstrations
Emerging Technologies	1 solicitation, 5 product development projects	5 solicitations, 25 product development projects

Budget.

Table 7.17. Next Generation and Emerging Technologies Program Budget

Program	Average Annual Budget	Five-Year Budget
Next Generation and Emerging Technologies	\$3,650,000	\$18,250,000

SECTION 8: LOW-INCOME PROGRAMS

NYSERDA's low income programs are designed to reduce the energy cost burden on low-income households in New York and deliver services that improve the energy efficiency and overall performance of the homes of low-income residents. The program addresses the lack of money, access to funding, and other barriers that typically limit low-income consumers ability to use services. The program actively seeks to partner with energy services organizations serving this sector to increase the leverage value of NYSERDA's funding. Unlike other programs funded with SBC funds, NYSERDA's low income programs are fuel neutral, allowing the program to significantly reduce the energy cost burden on low-income households. Fuel neutrality provides flexibility in selecting electric and fossil fuel efficiency measures that are the most cost effective and have the biggest impact on alleviating the energy burden on consumers.

To achieve its goals, the program will use the following strategies:

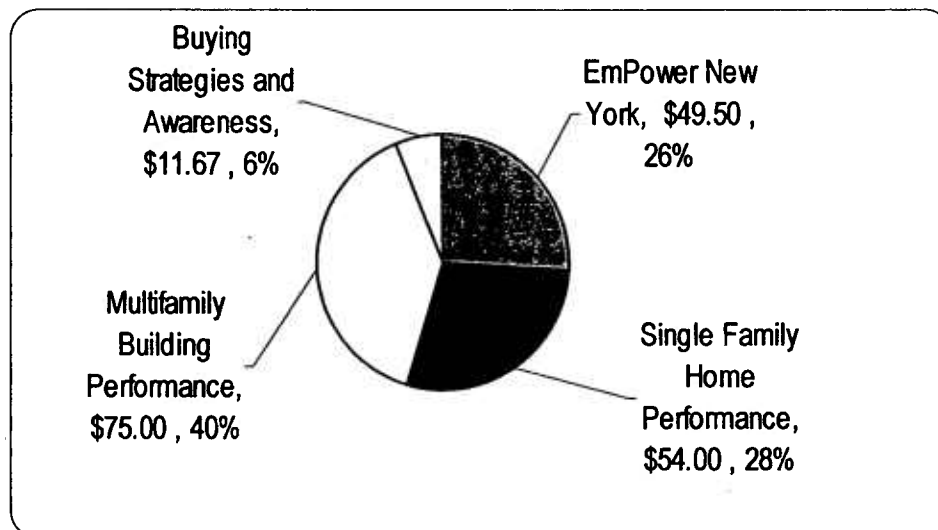
- Deliver comprehensive energy efficiency services to low-income households in new and existing one-to-four family and multifamily buildings through market-based residential programs. The low-income components will offer incentives to help overcome the financial barriers to adoption of energy efficiency measures that are most pronounced in the low-income sector.
- Reduce energy costs and improve the affordability of energy for low-income households by influencing the energy standards and specifications of major housing entities;
- Target specific underserved populations, including seniors and others on limited incomes not reached by or eligible for federally-funded weatherization services, for delivery of NYSERDA's energy efficiency services;
- Use local community agencies and organizations to deliver energy efficiency and energy use management education to low-income residents, including those in multifamily buildings, to give residents more control over their energy costs;
- Coordinate energy efficiency services with utility low-income payment assistance programs to maximize their impact on affordability.
- Increase the availability of low-cost energy efficiency project financing opportunities for low-income borrowers through nontraditional lenders including housing advocacy groups that offer financing to households with low credit scores;
- Use the collective buying power of the low-income sector to reduce energy costs where possible;
- Include health and safety, quality control, and quality assurance as primary outcomes for all programs.

Whereas in SBC II the low-income sector was served by a number of programs, due in some part to the transition of certain low-income programs from the utilities to NYSERDA, under SBC III activity will be consolidated into the four programs described below. One of the programs serving this sector, Single Family Home Performance, is based on and integrated with the successful market-based residential program, but includes additional incentives to help overcome first-cost

hurdles for low-income consumers. On the other hand, the successful low-income program serving the multifamily sector under SBC II, the Assisted Multifamily Program, will serve as the model for the Residential Multifamily Building Performance Program.

Figure 8.1 shows NYSERDA's funding distribution among low-income programs for SBC III.

Figure 8.1. Low-Income Programs (Five-year budget in millions)



8.1. EmPower New YorkSM

Background and Achievements. EmPower New YorkSM was launched in July 2004 to provide energy efficiency measures and energy-use management education to participants in the Niagara Mohawk and NYSEG low-income programs. The Weatherization Network Initiative (WNI) was launched by NYSERDA in 2003 to deliver electric reduction measures through a statewide network of Community Based Organizations (CBOs) in coordination with the Weatherization Assistance Program. CBOs are not-for-profit agencies that provide low-income households with services that complements the services of New York Energy SmartSM programs. In SBC III, WNI will be merged with EmPower New YorkSM to simplify the program structure and provide more comprehensive services to eligible participants. The energy savings methodologies used in the two programs have been reviewed by the evaluation contractor and found to be appropriate.

Program Description. The proposed program builds on the successes of both EmPower New YorkSM and the WNI. EmPower New YorkSM is intended to serve as a portal for customers participating in utility payment assistance programs. In response to numerous requests, direct referrals will also be accepted from area Offices for the Aging and CBOs. Households with incomes below 60% of state median income or enrolled in utility low-income payment assistance programs are eligible for services.

Home performance services will be available where they offer the best means of improving energy affordability and comfort. Whenever possible, services will be coordinated and cost-shared with the federal Weatherization Assistance Program. Home performance services include insulation, heating system repair and replacement, air-sealing, and health and safety measures.

All participants receive energy use management education conducted in the home by a trained member of the energy efficiency services contractor team. Participants are also invited to energy-use management and financial management workshops conducted under the EmPower New YorkSM Program.

Transition Strategies. Redundancy and segmentation of services to low-income households in a community lead to confusion for the consumer and to the possibility of households overlooking available services. Efforts to better coordinate services to low-income households are expected to result in expanded services and benefits to low-income households in the future.

Program Goals. The program will prioritize cost-effective efficiency measures for low-income households with high energy costs. The annual energy cost savings are estimated at \$250 per household served. The program will supplement the efficiency services with energy use management and financial management education. An effective referral mechanism will be developed to target services to households with high energy burdens and improve coordination of complementary low income energy programs. The program will enhance the network of energy service providers, including CBOs and private contractors, that can provide services in a timely manner.

Table 8.1. EmPower New YorkSM Program Goals

Activity	Year One Goal	Cumulative 5 Year Goal
Households served	6,300	31,500
Savings* (gWh, mmBtu)	10.219	51.1

* Five-year mmBtu savings for this program are 108,500 mmBtu.

Budget.

Table 8.2. EmPower New YorkSM Program Budget

Program	Average Annual Budget	Five-Year Budget
EmPower New York SM	\$9,900,000	\$49,500,000

8.2. Low-income Single Family Home Performance Program

Background and Achievements. The Low-Income Single Family Home Performance Program targets new and existing one-to-four family homes through two initiatives - Assisted Home Performance with ENERGY STAR® (HPwES) and Assisted New York ENERGY STAR® Labeled Homes (NYESLH). Both Assisted components are subsets of the residential market-rate initiatives, but provide increased incentives, in some instances up to 50% of the cost of eligible improvements, for income eligible consumers. The program strives to educate low-income homeowners on the benefits of including energy efficiency in home improvement projects and new construction. Equally as important, the program aims to create a competent infrastructure of home builders and home improvement contractors providing services to this sector.

The "Assisted" components of the program are available to residents with incomes up to 80% of the State Median Income (SMI), as opposed to the 60% SMI requirement for the federally funded Weatherization Assistance Program (WAP).

The Single Family Home Performance Program is market based and aims to build upon the capabilities of local private contractors and builders by expanding their knowledge base to deliver public benefits as a coincidental attribute of consumer demand. NYSERDA's aggressive marketing of the HPwES and NYESLH through print, radio and TV advertising also helps build demand for the Assisted components, and adds validity to the program, while encouraging contractors and builders to participate.

The first household served under the Assisted HPwES occurred in September 2002. By December 2005, nearly 4,000 homes had been served through Assisted HPwES. The homes have an estimated annual energy cost savings to low-income homeowners of \$2.9 million.

The first Assisted NYESLH home was built in October 2003. By December 2005, more than 200 low-income new construction projects have been completed and labeled in the NYESLH program. These homes have an estimated annual energy cost savings to low-income new homebuyers of \$200,000 per year.

In a short period of time, this successful low-income market transformation Program has received several awards, undergone extensive evaluation activities, and consistently produced favorable benefit-cost ratios.

Program Description. In SBC III, the Single Family Home Performance Program will focus on new strategies to expand its service delivery infrastructure, and make the program available to a greater number of income eligible New York homeowners and homebuyers. Efforts will be targeted to specific low-income areas of New York State that currently have a limited number of available home performance contractors and builders of affordable housing. Efforts will target low-income housing agencies such as New York City Housing Preservation and Development, Affordable Housing Corporation, First Time Homebuyer Programs, U.S. HUD, FHA, and especially Habitat for Humanity. The Assisted program will focus on the specifying agencies to ensure energy-efficient design practices are incorporated into the home specifications ensuring eligible homebuyers realize the financial benefits of lower energy costs in their new homes. Enhanced training, increased technical assistance, improved integration with the existing trade contractor infrastructure and new incentive strategies for Program participants is expected to

promote both the low-income homeowner and contractor and builder participation throughout New York State. The program will strive to incorporate high efficiency measures and equipment and advanced technologies, such as renewable systems, ground source heat pumps, and advanced meters. The program currently includes a robust quality assurance system that shall be expanded to include ensuring that innovative health, safety, environmentally conscious, and energy-efficient technologies are provided to existing low-income homes.

A brief description of these two initiatives follows:

- **ASSISTED HOME PERFORMANCE WITH ENERGY STAR® (HPWES.).** The Assisted HPwES program provides low-income homeowners and renters of one-to-four family homes with information, resources, and financing options to implement improved energy efficiency measures. The purpose of the Assisted HPwES program is to improve the energy efficiency of low-income homes by increasing the capacity and expertise of home improvement contractors with training, certification of individual technicians, and accreditation of firms. Through improved contractor training, NYSERDA fosters home efficiency and facilitates low-income customers' implementation of comprehensive energy efficiency improvements. Included in the program are comprehensive measures such as building shell measures, heating and cooling measures, electric measures, and increased health and safety features.

Assisted HPwES offers low-income consumers the ability to make educated decisions based on recommendations made during site visits. Participating contractors complete performance-based Comprehensive Home Assessments (CHA) using state-of-the-art computer software. The software helps home performance contractors understand how the homes are functioning, which measures are most needed, and when combined, which measures will achieve a targeted level of cost-effective investment.

Results of CHAs are used by contractors and homeowners to prioritize and select measures for installation and to qualify for the Assisted HPwES subsidy and financing. Several financing options are offered. ENERGY STAR® financing, the most commonly used option, is offered by contractors and provides a one-stop-shopping experience for consumers. The New York Energy SmartSM Loan Fund offers consumers low-interest financing in their own communities. Additional incentives are offered to Loan Fund lenders that agree to offer low-interest rate loans to households with lower credit scores.

- **ASSISTED NEW YORK ENERGY STAR® LABELED HOMES.** Assisted NYESLH is an enhanced version of U.S. DOE and U.S. EPA's ENERGY STAR® Labeled Homes Program, providing technical assistance and financial incentives to builders of one-to-four family homes and to Home Energy Rating System (HERS) raters. The program encourages the adoption of energy-efficient design features and the selection and installation of energy-efficient equipment in low-income new construction and substantial renovation projects.

The Assisted NYESLH program provides technical assistance and incentives to homebuilders who construct and substantially renovate homes that use approximately 30% less energy than conventionally built homes. The low-income component provides a \$500 incentive to income eligible homebuyers to help offset the cost of attaining the higher

efficiency standard. Increases in home energy efficiency are realized from the installation and use of a variety of measures including: reduced air infiltration; tightly sealed ducts; increased levels of insulation; high performance windows and doors; energy-efficient heating, air conditioning and domestic hot water systems; mechanical ventilation systems; energy-efficient appliances; and efficient lighting.

Transition Strategies. Any new home, including an affordable home, can be built to ENERGY STAR® standards. As this fact becomes understood by the marketplace, agencies and organizations serving low-income populations are expected to require that all new homes be built to these high standards. In addition, lenders will value energy efficiency improvements as a means for improving cash flow and will establish additional financing options for low- to moderate-income households.

Program Goals.

Table 8.3. Low-Income Single Family Home Performance Program Goals

Activity	Year One Goal	Five-Year Goal
New low-income homes built through NYESLH	800	4,000
▪ Energy Savings (gWh)*	0.48	2.4
Existing low-income households served through HPWES	2,100	10,500
▪ Energy Savings (gWh)**	2.1	10.3

* Five-year mmBtu savings for the NYESLH component of this program are 140,500 mmBtu.

** Five-year mmBtu savings for the HPWES component of this program are 473,000 mmBtu.

Budget.

Table 8.4. Low-Income Single Family Home Performance Program Budget

Program	Average Annual Budget	Five-Year Budget
Assisted Home Performance with ENERGY STAR®	\$6,480,000	\$37,800,000
Assisted New York ENERGY STAR® Labeled Homes	4,320,000	21,600,000
Single Family Home Performance Total	\$7,560,000	\$54,000,000

8.3. Low-Income Multifamily Building Performance

Background and Achievements. NYSERDA's low income multifamily program serves tenants who earn less than 80% of the State Median Income. Eligibility is determined using various "surrogate" indicators, and each building owner is required to verify the income status of their tenants before work is begun on the building.

The low-income multifamily program currently consists of the Assisted Multifamily Program (AMP). AMP began as the \$9,900,000 Direct Install Program (DI) that mirrored the Weatherization Assistance Program (WAP). DI consisted of installation of lighting and appliances in low income multifamily and single family homes, many of which had been previously weatherized. DI was replaced by a large pilot, implementation program — the Publicly Assisted Housing Program (PAHP) — which had an eight year budget of \$76,200,000.

PAHP began as a \$3,000,000 pilot that investigated the cost effectiveness of all fuel energy efficiency measures. Due to overwhelming demand, and the advent of SBC II, full scale implementation of PAHP was begun in February 2001. The first tasks consisted of development of policies and procedures that would be used for implementation. These policies and procedures have changed with the program, which has served over 125,000 low income units to date. The program's name was changed to the Assisted Multifamily Program and continues to experience high market demand due to the high cost of energy.

AMP developed procedures to coordinate with several state, local, and federal housing agencies to develop standard auditing procedures and pool financial resources. For example, NYSERDA developed a two-way referral process to work effectively with DHCR in the Weatherization Assistance Program (WAP). NYSERDA and DHCR collaborate when installing measures by splitting the cost of the eligible measures. DHCR funds measures allowed under their regulations, the building owner pays a share, other sources of funding are sought, and NYSERDA fills the gap with funds or provides an interest-rate reduction for an **New York Energy SmartSM** loan. In these cases, either DHCR or NYSERDA conduct the energy assessment using auditing software called the Targeted Residential Energy Assessment Tool or TREAT. All audits are reviewed by a central technical service provider to ensure consistency.

AMP also conducted several pilots with New York City Housing Preservation and Development (HPD) in their gut rehabilitation and new construction programs. Together NYSERDA and HPD developed new energy efficiency building specifications that were eventually adopted by HPD, and HPD's technical staff were trained in the design and installation of energy measures. While HPD funds the majority of building costs, NYSERDA funds are used to upgrade building measures for more efficiency.

In addition, NYSERDA worked with the United States Office of Housing and Urban Development to develop procedures for serving Public Housing Authorities (PHA). PHAs prefer to use Energy efficiency services companies (ESCOs) rather than power marketers to minimize costs to the PHA. ESCOs conduct energy assessments on multifamily buildings, pay for and install the measures, and share future energy savings with the PHA. NYSERDA uses TREAT software to verify expected savings and assists PHAs with the installation of cost-effective measures not supported by ESCOs, facilitating the installation of the maximum number of energy efficiency

measures by pooling resources. Energy savings resulting from measures paid for by ESCOs are tracked separately from energy savings from measures supported by NYSERDA and other funds.

The AMP underwent program, process, measurement and verification, and Market Characterization, Market Assessment, and Causality evaluations in 2004. Based on these evaluations, several changes have been made to the program to make participation easier and to reduce implementation and incentive costs. Changes include development of a small building audit protocol and standard offer for in-unit measures, providing a guaranteed minimum grant equal to half of the NYSERDA cost share so owners have a better idea of how much assistance they will be getting, ensuring owners cannot raise rents to cover their share of the work, and ensuring that tenant benefit measures cannot be deleted by owners from the work scope .

Program Description. In SBC III, one multifamily program will serve both low income and market rate buildings. The current existing building efforts will be expanded to include gut rehabilitation and new construction. The new offerings will be based on the results of a statewide new construction pilot NYSERDA is conducting, with input from a national working group which includes the U.S. EPA. The program will ensure maximum energy and bill savings to tenants and will include expanded efforts to provide technical assistance to market participants, from the design stage through operation of buildings' mechanical systems. Training will be provided for engineers, architects, building owners, building maintenance staff, and tenants, so the rationale behind energy efficiency measures are better understood within the marketplace. Special efforts will continue at the national level to develop an ENERGY STAR® standard for multifamily buildings. See Section 5.2 for additional information.

Transition Strategies. Tenant energy and bill savings will be the ultimate goal of the low income program. As a market transformation program, this will be accomplished by placing emphasis on making permanent changes in the manner in which multifamily buildings are constructed and maintained. As proficiency and capacity build, opportunities to impact building codes will arise, improving energy performance, and increasing requirements for buildings earning the ENERGY STAR®. To meet tenant needs, building owners and managers will experience the benefits of properly trained and certified building and systems technicians. More organizations will be trained in packaging financing options for low-income building owners and operators.

These energy services are currently under the umbrella of AMP and are directed by the implementation contractor. These services will be pushed more into the market as demand drives the need to building owners starting in year 2 of SBC III and be completed by year 5.

Program Goals. The intent of the low income multifamily program is to reduce the energy burden on low income tenants, improve the health and safety of the indoor and outdoor environment, and to raise the comfort level of residents. Reducing the energy burden will reduce operating costs for building owners, save energy, reduce the impact associated with energy production, distribution and use, and save money.

Table 8.5. Low-Income Multifamily Building Performance Program Goals

Activity	Year One Goal	Five-Year Goal
Number of units receiving services (existing buildings)	29,640	148,200
▪ Energy savings* (existing buildings) (gWh)	35.7	178.5
Number of units receiving services (new construction)	2,540	12,700
▪ Energy cost savings** (new construction) (gWh)	3.0	15.0
Direct tenant bill savings (at \$195 per unit per year)	\$6,275,100	\$31,375,500

* Five-year mmBtu savings for the existing buildings component of this program are 4,761,500 mmBtu.

** Five-year mmBtu savings for the new construction component of this program are 408,000 mmBtu.

Budget.

Table 8.6. Low-Income Multifamily Building Performance Program Budget

Program	Average Annual Budget	Five-Year Budget
Multifamily Building Performance (existing)	\$12,000,000	\$60,000,000
ENERGY STAR® Multifamily Building Program (new construction)	\$3,000,000	\$15,000,000
Multifamily Building Performance Total	\$15,000,000	\$75,000,000

8.4. Buying Strategies and Energy Awareness Program

Background and Achievements. This program provides additional outreach, education, communication and marketing support targeted specifically at underserved, low-income regions or sectors. Initiatives included in the program are Buying Strategies, Targeted Marketing and Outreach, Energy Smart Students, and the Low-Income Forum on Energy (LIFE).

In response to the SBC charge to coordinate with other low-income programs and identify and serve underserved markets, NYSERDA has been working with the New York State Office of Temporary & Disability Assistance (OTDA) to increase the buying power of the federally funded Home Energy Assistance Program (HEAP). Through this partnership, NYSERDA provides technical and implementation support to assist OTDA in leveraging approximately \$60 million in HEAP funds to purchase home heating fuel on behalf of low-income New Yorkers. Economies of scale available through this partnership allow more home heating fuel to be purchased than under previous practices.

Most of the Low-income programs are marketed through community-based organizations or other direct contact from organizations who have identified the consumers as being in need. However, market-based programs such as the Single Family Home Performance Program use more traditional marketing approaches, such as television, radio, and print, to identify program opportunities. Due to the increased need to promote this program in the fall of 2005, and these traditional marketing approaches failing to reach certain low-income residents, such as the elderly or those in rural areas, certain marketing activities were undertaken to supplement traditional marketing activities in those hard-to-reach areas. This included articles and ads in community newspapers, radio advertising, and local events.

The Low-Income Forum on Energy (LIFE) is the longest running statewide low-income energy policy dialogue in the United States. LIFE brings together a diverse range of parties committed to addressing the challenges and opportunities facing low-income New Yorkers as they seek safe, affordable and reliable energy. Since its inception in 1999, LIFE has held four statewide conferences, twenty-two regional meetings, and two rounds of focus groups, with over 1,770 individuals from 937 organizations participating

Each of these initiatives is described in more detail below.

Program Description.

- **BUYING STRATEGIES.** Due to the success of earlier pilot efforts, the HEAP oil buying component of the program is being phased in statewide over a three year period, with 20 counties participating in the 2005-2006 heating season. This component of the initiative will be expanded prior to the 2006-2007 heating season to serve a total of 40 counties and then to all 62 counties in the state prior to the 2007-2008 heating season. The initiative is expanding the buying power of HEAP funds used for oil purchase by 7 – 13%.

A second component of the initiative offers preventive maintenance for oil-fired heating systems. Many low-income households do not perform regular maintenance of their heating systems, resulting in inefficient systems and the potential for serious health and safety problems. The Heating Equipment Repair and Replacement Component of HEAP

assists HEAP households when their system is found to be inoperable but does not address preventive maintenance. This component offers participating oil vendors with a benefit that they can pass on to their HEAP-eligible customers and is a means for building support for the oil discounts.

With the completion of the first year of the HEAP Oil Buying Component, NYSERDA's role will shift from extensive implementation assistance and focus on required technical assistance. Technical assistance will include: monitoring energy markets and program pricing; policy development; vendor recruitment; maintenance of the program price phone line and website; and evaluation of program impacts. NYSERDA will provide additional technical assistance, as needed, to OTDA to expand the program beyond HEAP funds to include other forms of publicly-funded payment assistance, which has the potential to dramatically increase the impacts of this initiative.

Under SBC III, NYSERDA will pursue an expanded relationship with OTDA to provide technical assistance to increase the buying power of HEAP funds used to purchase natural gas on behalf of low-income households. Additionally, NYSERDA will expand the Heating System Preventative Maintenance component to include natural gas systems.

- **TARGETED MARKETING AND OUTREACH.** To supplement traditional marketing approaches for NYSERDA programs, the targeted marketing and outreach initiative will use community-based organizations, events, seminars and meetings. For example, briefings at senior gatherings will advise those seniors on opportunities to receive grants for energy improvements to their home. Print ads and articles in local weekly newspapers or free publications targeting seniors will provide information on how to save energy without giving up comfort. Advertisements in Hispanic newspapers in urban areas will provide residents with program information, and inform them that Spanish-speaking operators are available to answer their questions through the program hotline. Radio advertising may also be used in some markets. In particular, this expanded marketing initiative will deliver messages specifically designed for the low-income population to ensure they can make informed choices about their options for reducing their energy costs. In addition, through **New York Energy SmartSM Communities**, increased effort will be made to recruit contractors in regions where demand for services by the low-income sector far exceeds the capacity to provide services.
- **THE LOW-INCOME FORUM ON ENERGY (LIFE).** The LIFE events are planned by a steering committee with representation by state agencies, utilities, state associations and Community Based Organizations concerned with energy and low-income issues. It is anticipated that during the SBC III period LIFE will conduct two Statewide Conferences in 2008 and 2010 and regional meetings in 2007, 2009, and 2011. LIFE was originally developed as a forum to discuss low-income energy issues as New York began to restructure the retail electric market. The LIFE dialogue has evolved to provide a forum for discussion on the most pressing energy issues of the day. Additionally, we will continue to enhance the LIFE dialogue by the inclusion of additional steering committee members, reaching out to groups that have not traditionally attended LIFE events, and further development of the program website, as a tool to provide an ongoing exchange of information.

- **ENERGY SMART STUDENTS.** These funds supplement the residential funding of the Energy Smart Students Program. See Section 5.4. for a description of the program.

Transition Strategies. Outreach, marketing, communication and coordination strategies will be adjusted as needed to support the needs of specific regions, and specific Low Income Programs, throughout the State. For example, using feedback from community organizations and agencies serving the low-income populations, as well as program activity and capacity analysis, markets needing more outreach to specific underserved populations, such as seniors, will be identified. Resources will be allocated based on that need, and additional outreach accomplished through senior centers and newsletters, local weekly newspapers, direct mail and other means. These efforts will be over and above the marketing and outreach taking place under the residential Market Support Program and the residential Communities and Education Program (Sections 5.3 and 5.4). Targeted marketing and outreach to the low-income sector will be closely monitored to maintain a balance between demand for services and capacity to provide services.

It is anticipated that NYSERDA's technical assistance for the Oil Buying Component of HEAP will diminish after the statewide roll out in the 2007-2008 heating season. NYSERDA's ongoing technical assistance will focus on wholesale and retail price monitoring and program impact measurement. NYSERDA will work with OTDA to expand the discount pricing to other publicly-funded fuel purchases and explore opportunities to increase the energy efficiency of heating equipment installed under the Heating Equipment Repair and Replacement Component of HEAP.

Program Goals. When fully implemented in 2007, the increased buying power of HEAP funds for home heating fuel will increase an estimated 7 to 13%, resulting in leveraged buying power of \$4 to \$8 million a year. The preventative maintenance component is expected to result in average efficiency gains of approximately two percent additional energy cost saving realized by HEAP households attributable to avoided service calls and increased system longevity.

Consumers most in need will receive information on programs available to them. Effectiveness of these marketing efforts will be evaluated based on surveys of consumers calling the hotline or visiting the website, indicating where they learned of the NYSERDA programs.

The LIFE dialogue encourages an interactive exchange of information and collaboration among the programs and resources that help the State's low-income households. These events provide a venue for policy makers to hear of emerging issues from those at the front end of program delivery, identification of best practices, and networking opportunities for those in the low-income energy field.

Table 8.7. Buying Strategies and Energy Awareness Program Goals

Activity	Year One Goal	Five-Year Goal
Funds leveraged through buying strategies initiative (annual \$)	\$4 million	\$20 million
Additional* low-income individuals reached (newsletters, weekly newspapers, etc)	1,000,000	5,000,000
Additional low-income individuals reached (seminars, workshops)	3,000	15,000
Additional contractors and other partners recruited in low-income districts	10	50
Additional students reached in schools serving largely low-income populations	20,000	100,000

* Additional goals reflect increases over and above achievements made under the residential programs and from which the low-income sector also benefits. Additional goals will target regions where marketing and outreach through the residential program have not yielded desired results among low-income consumers.

Budget.

Table 8.8. Buying Strategies and Energy Awareness Program Budget

Program	Average Annual Budget	Five-Year Budget
Buying Strategies	\$934,000	\$4,670,000
Targeted marketing and outreach	1,000,000	5,000,000
Low-income Forum on Energy (LIFE)	150,000	750,000
Energy Smart Students	250,000	1,250,000
Buying Strategies and Energy Awareness Total	\$2,334,000	\$11,670,000

SECTION 9: PROGRAM DELIVERY AND COLLABORATION

NYSERDA is committed to providing, and will continue to provide, efficient and effective administration of the SBC-funded programs. NYSERDA has reviewed its program portfolio and each of its constituent programs and identified opportunities for program consolidation and simplification that are expected to lead to a more homogeneous presentation to the public and greater ease of access by customers. In addition, NYSERDA has identified ways to improve coordination among programs through joint marketing strategies, a streamlined customer application process, and by simplifying and standardizing program monitoring and data collection. This section summarizes efforts under way or recently completed to improve the efficiency and effectiveness of program delivery, administration, and collaboration.

9.1. Streamlined Program Offerings and Presentation to the Public

As NYSERDA's programs evolved, some confusion was experienced by customers who were eligible for incentives and services from more than one program. For example, certain technologies were eligible for incentives when implemented individually and when included in building-wide projects. Such duplication sometimes led to unnecessary confusion.

In SBC III, NYSERDA has carefully crafted programs to avoid potential overlaps. In the future, NYSERDA programs will, where possible, provide customers with a "single entry point" to programs. For example, although the low-income multifamily buildings sector has been served by a single program, the Assisted Multifamily Program, the market-rate multifamily building sector had to obtain services through a number of other NYSERDA programs. In SBC III, all multifamily buildings, regardless of income status, will be served by a single program. The program implementation contractor will be responsible for ensuring seamless participation in all incentive programs for which a building is eligible. In another example, incentives for commercial and industrial customers to install energy efficiency improvements in existing buildings will be consolidated under the new Enhanced Commercial and Industrial Performance Program (ECIPP). Building on the successful Commercial and Industrial Performance Program and Smart Equipment Choices, ECIPP simplifies customer access by having a single entry point.

Consolidation of programs will provide the marketplace with streamlined, simplified processes. These program consolidations will be addressed as solicitations and program offerings are issued during 2006 and in the future.

9.2. Increased Coordination of Program Marketing

A central coordination point and centralized corporate marketing strategy will be developed that will enhance the image and recognition of the New York Energy SmartSM programs. Where possible, marketing across programs to a single market sector will be accomplished, and use of a consistent "look and feel" within a market sector will be implemented.

For example, NYSERDA is developing standardized and consolidated materials for the k-12 schools sector, combining information about buildings, classrooms, and demonstration programs into a single package. School administrators and staff will be able to review information about all of NYSERDA's programs relevant to individual schools.

To consolidate outreach at the local level, local outreach contractors and staff will be trained to market all **New York Energy SmartSM** programs. The local outreach function will be examined to determine where consolidation can be implemented, and consistent training functions will be implemented to ensure outreach contractors and staff are kept informed of program changes and regional goals. The outreach function will be closely coordinated with NYSERDA economic development staff and local economic development organizations.

NYSERDA's website will be examined to determine ways that it can be used to improve marketing to the commercial and industrial sectors. Sector entry points, or portals, will guide customers to the technical and financial resources available throughout NYSERDA that best fit their needs and interests. The same website will highlight to customers the vendors, contractors, and energy providers who are working with NYSERDA to provide high efficiency equipment and services to the marketplace.

The efforts described above are expected to be implemented during 2006 and 2007.

9.3. Program Database and Application Consolidation

NYSERDA maintains a number of program databases which are used to maintain program-specific information for program management and reporting. These databases are regularly revised as necessary to improve their effectiveness. One example of this is the web-based Comprehensive Residential Information System (CRIS), a system originally created in SBC II under the Comprehensive Energy Management (CEM) program to collect data and metrics information needed for evaluation. Additional modules are being developed to support all residential and low-income deployment-related programs. In addition, the system was modified to permit automated upload of pre- and post-installation information on energy use by National Grid customers participating in the EmPower New YorkSM program to facilitate reporting of better and more accurate metrics. The Buildings Portal database, originally developed for the **New York Energy SmartSM** Schools program on the CRIS database platform, has also been expanded to incorporate additional commercial and industrial energy efficiency programs and is eventually expected to support all NYSERDA's commercial and industrial deployment programs. This singular and consistent database platform will permit consistent data management across all facilities-related deployment programs.

The May 2005 *New York Energy SmartSM Program Evaluation and Status Report* (May 2005 Report) recommended that NYSERDA improve the data integrity of various program databases because certain data inconsistencies were identified among these databases and NYSERDA's central financial tracking database system. NYSERDA's central financial tracking database system, referred to as the Projects Database System, is used to track contracts and program expenditures for all SBC-funded programs. NYSERDA has formed a working group which is addressing how program databases and the Projects Database System can be better integrated to eliminate redundant data entries and management activities, thereby improving data integrity. The first systems to be addressed in this effort are the CRIS and Buildings Portal database systems described above, since these systems are used in nearly all deployment-related programs. This effort is anticipated to be completed by 2007.

Additional recommendations included in the May 2005 Report call for standardized program incentive application forms and access by applicants to programs via the Internet. A NYSERDA

working group was formed to address these issues, and applications are being reviewed for all subscription-based incentive programs with the goal of developing a common, "boilerplate" section for all programs. Necessary program-specific information will be provided separately. The working group has developed a plan to implement a web-based application submission process for incentive program applicants who are required at present to submit hard copies. An analysis required under the New York State Electronic Signatures and Records Act has been prepared, a policy statement has been developed, and staff and consultant resources are being retained to develop and implement the web-based application system; this system is expected to be implemented by 2007.

9.4. Cross-Program Coordination

NYSERDA has established working groups across programs to explore program synergies and to identify technology transfer opportunities. Some of these working groups include k-12 schools, industrial process improvements, municipal water and wastewater, demand response and metering, renewables, and technical training. Through participation in the working groups, energy efficiency and other deployment program staff can identify research and development needs, while products emerging into the market can begin to receive support from technical training, incentive and marketing initiatives through deployment programs. In addition, opportunities can be identified for coordinating programs that address similar products and services used in different sectors, such as single family homes and small businesses.

For example, collaboration among the residential programs and the renewable resources program through the renewables working group will result in continued growth of the infrastructure needed to design, install, and service photovoltaic systems for New York ENERGY STAR® Labeled Homes. Collaboration among the programs will also ensure that existing homes applying for installation incentives for photovoltaic systems will receive energy efficiency services through Home Performance with ENERGY STAR®, making investment in photovoltaic systems much more effective.

Improvements to processes, facilities, and equipment for industrial manufacturing and municipal water and wastewater plants provide unique opportunities that often result in significant local and statewide economic benefits. Improvement projects for these facilities benefit from collaboration between the innovative assistance provided by research and development program funding and the mainstream technology assistance provided through energy efficiency funding. The New York Energy SmartSM Focus program will help industry and municipal water and wastewater projects coordinate receipt of available, although small and diffuse, State, federal, and regional resources, with SBC III resources. Through collaboration, research and development funding for innovative process improvements for industrial and municipal water and wastewater projects will be made available to these critical sectors.

SECTION 10: ADMINISTRATION

10.1. Guiding Principles

The members of NYSERDA's Board of Directors and NYSERDA management and staff are committed to carrying out their responsibilities with accountability and transparency, through efficient and effective operations. The following excerpts from NYSERDA's Mission Statement underscore certain guiding principles and values which influence its operations.

We place a premium on objective analysis, as well as collaboration, reaching out to solicit multiple perspectives and share information. We are committed to public service, striving to be a model of what taxpayers want their government to be: effective, flexible, responsive, and efficient.

NYSERDA uses an open, stakeholder-based planning process in developing, operating, and evaluating its programs. The involvement between NYSERDA's technically diverse and knowledgeable staff and external stakeholders in program planning, project selection, and program evaluation results in more effective program administration and provides for increased transparency and effectiveness. NYSERDA places emphasis on independent and objective analysis, and the free exchange of ideas and information in an effort to produce the best programs and policies. Management also promotes and encourages values of honest and ethical behavior within the work place to fulfill its responsibility of ensuring proper stewardship of public resources. Lastly, NYSERDA strives to achieve efficient and effective operations, using relatively modest staffing levels. Programs are adapted to changing needs and carried out in a responsive manner, while maintaining sound fiscal and managerial controls.

10.2. Procurement Policies and Procedures

In administering the SBC-funded public benefit programs, contracts are procured in accordance with NYSERDA's "Procurement Contract Guidelines" (Guidelines), approved annually by NYSERDA's Board of Directors pursuant to Public Authorities Law Section 2879. The Guidelines generally require NYSERDA to use its best efforts to secure offers from potential contractors on a competitive basis and requires advance notice of pending solicitations to be published in the *State Contract Reporter*. Historically, more than 97% of NYSERDA's contracts are awarded on a competitive basis. For the remaining three percent, the Guidelines permit waiver of the competitive solicitation requirements for work that is expected to cost \$15,000 or less; for unsolicited proposals, for one source and sole source and other designated reasons.

Program planning activities are carried out with extensive outside review. The SBC Advisory Group, which is composed of approximately 24 individuals who represent varied interests, serves as the Independent Program Evaluator of SBC-funded programs. The Advisory Group meets several times a year and provides guidance and feedback on program administration. The Group receives program evaluation reports from independent program evaluation contractors.

SBC-funded programs also receive extensive internal review. NYSERDA's Program Planning Committee annually reviews and NYSERDA's Board approves a multiyear strategic program plan setting forth NYSERDA's programmatic goals and strategies. Internal oversight of program planning activities is also carried out by a multi-disciplinary Program Development Management

Committee (PDMC), consisting of senior management from all NYSERDA units, which reviews and approves requests for issuance of solicitations and procurement. Solicitations and program contracts are also reviewed and approved by a project team, including program staff and representatives of Contracts Management, Energy Analysis, Communications, and Counsel's Office.

Selection of contracts through the SBC-funded programs is accomplished in an extremely transparent manner. Proposals submitted in response to solicitations are reviewed and evaluated in accordance with the criteria noted in the solicitation by a Technical Evaluation Panel (TEP), comprised of NYSERDA staff and outside reviewers with relevant expertise; the number of outside reviewers always exceeds the number of NYSERDA staff reviewers. The TEP makes recommendations to program staff, who presents the results for review and approval to the Management Review Team (comprised of the Vice President for Programs, General Counsel, and Director of Contract Manager) or, at the Vice President for Programs' discretion, to the PDMC. A number of NYSERDA programs also provide incentives to any qualified program participant who meets pre-defined program terms and conditions.

10.3. Financial Tracking Systems

NYSERDA will provide for an efficient and accurate accounting of all SBC-funded program expenditures and administrative costs using its well-established system of internal controls and a variety of systems and procedures. The SBC-funded programs are subjected to annual audit by independent auditors appointed by the NYSERDA Board, and since the inception of the SBC-funded programs, the auditors have provided an unqualified opinion on the annual results of the programs. The SBC-funded programs have also been audited three times by the Office of the State Comptroller since 2002. In each instance, the Comptroller provided only minor recommendations for improving NYSERDA's system of internal controls. Some of NYSERDA's control procedures include:

- NYSERDA's accounts are under the control of the Commissioner of the Department of Taxation and Finance, NYSERDA's statutory fiscal agent. A separate bank account is used for all SBC funds to facilitate an accurate accounting of all receipts, interest earnings, and disbursements.
- Pursuant to NYSERDA's By-laws, contracts and agreements may only be signed by one of NYSERDA's Officers. This centralized authorization function provides for effective segregation of financial and contracting duties and facilitates effective accountability.
- All payment requests receive a multi-disciplinary review prior to payment. Finance department staff check the mathematical accuracy of the invoice and compliance with contract budget terms. Project management staff ensure that costs are appropriate and that the contractor's activities are consistent with the statement of work. Contract Management department staff ensure that terms and conditions of the contract such as insurance requirements are followed.

NYSERDA uses an automated accounting system which facilitates an accurate and timely accounting of all SBC-funded program expenditures. Staff salary costs charged to the SBC-funded programs are based upon staff time allocations and the allocation of staff salary costs to

various activity and funding codes are reviewed and approved by management quarterly. Contractual arrangements and program incentives are entered, maintained and monitored in the Project Database System; the system tracks each individual contract or agreement, recording the amount of the contract agreement and expenditures incurred to date.

The automated accounting system and Project Database System described above allow NYSERDA to produce various monthly financial reports which are distributed to NYSERDA management and program staff for review. In addition, this information is used to prepare evaluation and financial status reports provided to the Department of Public Service and the SBC Advisory Group as required by the evaluation plan.

10.4. Programmatic and Fiscal Management

NYSERDA has established strong program management and financial tracking processes to monitor the allocation of the funds. NYSERDA has been audited three times in the last five years by the Office of the State Comptroller for various aspects of its financial and program administration. For example, the SBCII program was reviewed and audited by the Office of the State Comptroller and a draft audit report was issued on January 20, 2006 stating that: *"The Authority has established good controls to ensure that SBC funds are expended on authorized programs and used to achieve the goals set by the Commission."* [Emphasis supplied.]¹⁷

Additionally, the SBC program is subject to an annual, detailed and stand-alone independent audit by an independent public accounting firm selected by NYSERDA's Board. Since inception of the SBC, NYSERDA's financial statements have included an unqualified opinion from the independent auditors.

NYSERDA will continue to use an open, transparent, stakeholder-based process in developing, operating, and evaluating its programs. As a Public Authority of the State of New York, NYSERDA is subject to Public Officers Law §§84-90, "Freedom of Information and Public Officers Law" §§100-111, "Open Meetings Law." Its Members and employees are subject to §§ 73 and 74 of the Public Officers Law "Business or professional activities by state officers and employees and party officers" and "Code of ethics".

10.5. Process Streamlining

NYSERDA regularly reviews its internal administrative processes to identify opportunities for improving operational efficiency. One example of this which was completed in 2005, was implementing an electronic (paperless) approval process for program contract and incentive payments. Previously, contract invoices and incentive payment requests were sent to program staff for manual signature for payment approval after being processed by Finance staff. In June 2005, NYSERDA implemented a new process whereby contract invoice and payment requests are scanned upon receipt, entered into a financial database system which notifies the project manager via e-mail of the request for approval, and permits the project manager to review and approve the payment request electronically. This new process has reduced processing time and increased staff efficiency for payment processing, and has also reduced document filing time and provided

¹⁷ New York State Office of the State Comptroller, *Administration of the System Benefits Charge*, 2005-S-16, January 20, 2006, page 2.

improved disaster recovery preparedness. NYSERDA is designing a similar electronic approval processing system for internal approvals of contract and incentive award documents which is expected to be implemented in 2006.

SECTION 11: EVALUATION AND REPORTING PLAN

Budget. The Evaluation budget is two percent of SBC III funding — approximately \$17.9 million for the five years of the program. Evaluation funds are used to pay the costs of NYSERDA evaluation staff as well as independent specialty evaluation assistance contractors. The evaluation funds to be used for NYSERDA evaluation staff are estimated at \$5.8 million for six full-time equivalent positions and overhead costs for the five years of program operations. The balance of the evaluation funds — \$12.1 million — is to be used for hiring evaluation assistance contractors as described below. The \$12.1 million evaluation budget will be distributed in roughly equal proportions over a five and one-half year period, beginning in July 2006 extending through December 2011, to allow for a final Program evaluation wrap-up report six months after the completion of the program funding cycle.

Table 11.1. Evaluation Budget

Activity	Average Annual Budget	Five-Year Total
Impact Assessment	\$1,120,000	\$5,600,000
Market Characterization and Assessment	\$720,000	\$3,600,000
Program and Evaluation Management	\$580,000	\$2,900,000
Total	\$2,420,000	\$12,100,000

Background: Design and Approach. During the first two cycles of the system benefits charge program, evaluation and monitoring activities were designed to provide the most comprehensive evaluation possible, given the limited funding available for evaluation and the competing priorities of the program's many stakeholders. The overarching goals of the evaluation effort were:

- To provide a credible evaluation of the New York Energy SmartSM Program portfolio and individual program offerings.
- To provide timely information to the SBC Advisory Group, which serves as the Independent Program Evaluator, the New York State Public Service Commission (the Commission), Department of Public Service (DPS), and NYSERDA program staff and managers on the (1) efficiency and effectiveness of program administration and implementation, (2) progress toward moving markets to improved energy efficiency, and (3) progress toward accomplishing the Commission's broad policy goals.

Consistent with the guidance of the stakeholders, seven nationally recognized evaluation contractors assisted NYSERDA in its evaluation efforts — two general evaluation assistance contractors, one contractor developing a macroeconomic impact analysis, and four contractors conducting specialty evaluations in the areas of measurement and verification (M&V), program theory and logic, process evaluation, and market characterization, assessment, and causality (MCAC). The NYSERDA evaluation contractors conducted individual program evaluations using these prescribed modalities. Additionally, NYSERDA was supported by stakeholders in its

determination that the full impact of the New York Energy SmartSM Program, an analysis at the portfolio level, was an important aspect of the evaluation effort and could be best conducted across programs by giving the specialty contractors crosscutting responsibilities for the entire portfolio. This innovative model allowed NYSERDA to serve as evaluation coordinator overseeing and conducting the evaluation, consistent with the Memorandum of Understanding among NYSERDA, the Commission, and the DPS. As a result of the design and operation of the evaluation framework, NYSERDA was able to cost-effectively and efficiently evaluate many programs and projects quickly and thoroughly, providing data and information about their progress in a timely manner to meet stakeholders' needs.

Proposed Evaluation Framework and Revisions. The goal of evaluation activities is to provide a credible and comprehensive evaluation of the New York Energy SmartSM Program portfolio and individual program offerings, consistent with available resources, and to provide timely information to the SBC Advisory Group, the Commission, DPS staff, and NYSERDA managers and staff about the impacts, efficiency, and effectiveness of program administration and implementation, progress in transforming constituent markets, economic impact and cost-effectiveness of programs, and progress toward the Commission's policy goals.

A variety of evaluation approaches are necessary to ensure that the successes and short-comings of diverse programs are accurately and appropriately measured and reported, individually and at the portfolio level. The constituent parts of the comprehensive evaluation program to be undertaken by NYSERDA and its evaluation contractors are described below. These elements constitute a streamlined approach compared to prior years and are the essential building blocks of NYSERDA's program evaluation effort. The individual tasks included under each element are listed for reference, but the specific tasks that are selected for any one evaluation period will result from further discussions with NYSERDA, the SBC Advisory Group, and DPS. NYSERDA will work with these stakeholders to identify evaluation priorities that balance the limited evaluation resources with NYSERDA's data requirements and DPS staff's monitoring objectives identified in the Commission's Order. Evaluation activities will be scheduled over the five and one-half year evaluation period, with some programs being evaluated fully in a given year but not others, and some programs being evaluated partially over several years. Criteria that will be used to select particular programs for evaluation and scheduling are as follows, in priority order:

1. Program budget and spending, with emphasis on the 15 highest budgeted programs
2. Reported energy savings and peak demand reduction achieved or enabled for resource acquisition programs and expected magnitude and persistence of market effects for market transformation programs
3. Number of customers served by a program and market actors participating in a program
4. Program sector representation, *i.e.*, residential, business and institutional, low income – such that all sectors are covered by the evaluation
5. Relationship of program outcomes to program theory and logic and relevance of indicators to demonstrate progress toward the Commission's policy goals
6. Stakeholders interest and recommendations, including SBC Advisory Group, the Commission, DPS, and NYSERDA, that are not covered by the previous five criteria

7. Time lapsed since last full evaluation

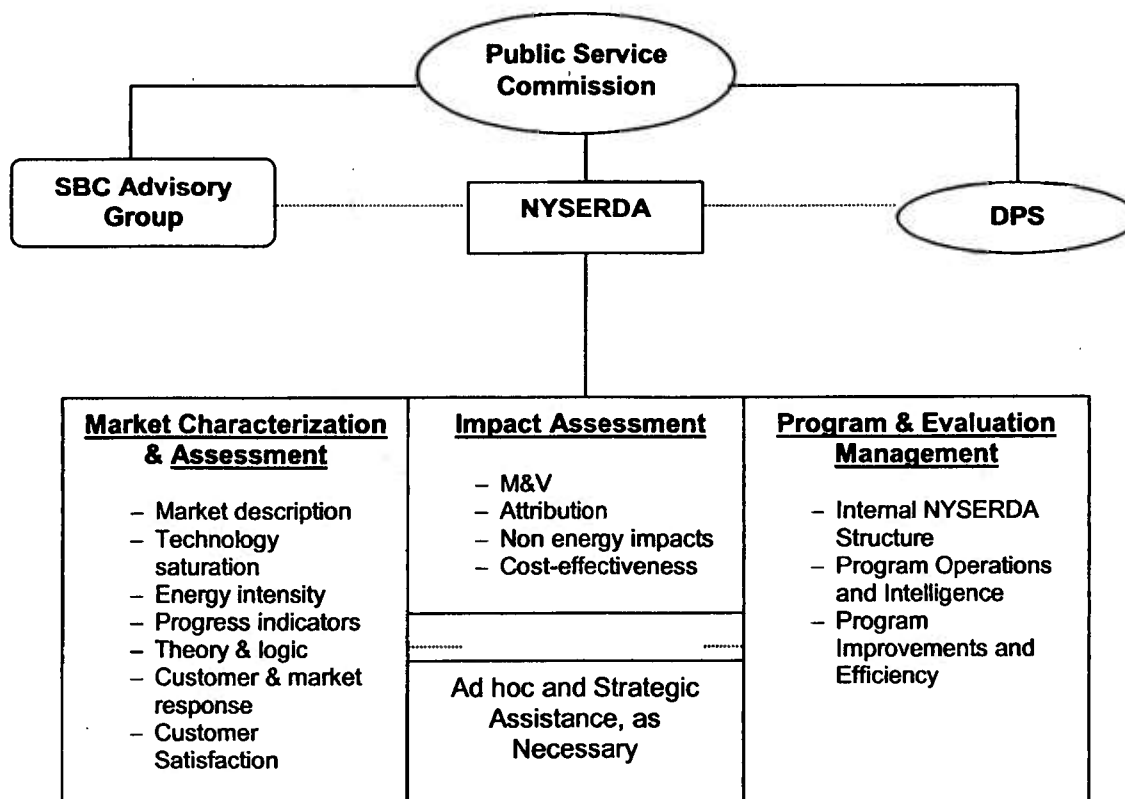
Each year, the list of programs evaluated in the previous year(s) will be reviewed. Recently evaluated programs meeting the above eligibility criteria will be noted prior to selecting new programs for evaluation, so that programs not yet evaluated and those requiring evaluation updates can be scheduled and duplicative program evaluations can be avoided. Program risk will be an additional factor used to screen and select programs for evaluation.

Some of these criteria will also be used to determine which sector and portfolio level evaluation tasks should be undertaken.

Evaluation Framework. The evaluation framework is depicted below. (See

Figure 11.1.) NYSERDA oversees and conducts evaluations with the assistance of competitively selected specialty evaluation contractors and reports to the SBC Advisory Group and the Commission, with guidance from DPS.

Figure 11.1. Evaluation Framework



While each of the specialty areas of evaluation are valuable, DPS Staff and the SBC Advisory Group have repeatedly supported placing a higher priority on impact measurement and tracking of progress toward goals. For this reason, impact assessment will be allocated approximately 47% of the evaluation budget available for contractor assistance. The remainder of the budget will be allocated to market characterization and assessment (30%) and program and evaluation management (23%). Ad hoc and strategic evaluation assistance activities, requested by the SBC Advisory Group, DPS Staff, or NYSERDA, will be funded from one of the three evaluation assistance contractor budgets. (See Table 11.1.)

Constituent Evaluation Modalities.

1. *Impact Assessment (\$5.6 million total budget, \$1.12 million per year).* The objectives of the impact assessment are to: (1) determine the cumulative and post-program outcomes of the **New York Energy Smartsm** Program; measuring and verifying energy and non-energy impacts that are attributable to the program; (2) calculate the cost effectiveness of the program in terms of the total resource costs and full Program benefits; and (3) compare the outcomes and cost effectiveness of the program to the goals set forth in the Commission's Order. The primary elements of the impact assessment are measurement and verification, program attribution (the extent to which NYSERDA is able to claim credit for savings), non-energy impacts, and cost effectiveness. Potential tasks under each of the primary elements of the impact assessment are shown in Table 11.2.

Table 11.2. Impact Assessment. Elements and Tasks

Elements	Tasks
Measurement & Verification	KWh and KW reduction, fuel savings, bill savings, realization rates, measure costs, measure life, load shapes and in-service rates, persistence, and snapback
Attribution	Freeridership, spillover, market changes and effects, and naturally occurring adoption
Non-Energy Impacts	Water savings, operations and maintenance changes, productivity, comfort, health and safety, environmental, and economic impacts
Cost Effectiveness	Cost of programs, reliability and macroeconomic benefits, benefit and cost ratios, value and cost of R&D, post-program effects

2. *Market Characterization and Assessment (\$3.6 million total budget, \$720,000 per year).* The objectives of market characterization are to (1) develop a comprehensive understanding of current markets, *e.g.*, market structure and market actors, served by the **New York Energy Smartsm** Program and (2) provide baseline and background information required by NYSERDA to define and deliver programs to target markets. The objective of the market assessment is to track changes in markets over time with a specific focus on market indicators that are likely to be impacted by Program offerings. The primary elements of the market characterization and assessment are: market description; technology saturation; energy intensity; progress indicators; theory and logic of markets; and, customer and market response. Potential tasks under each of the primary elements of the market characterization and assessment are shown in Table 11.3.

Table 11.3. Market Characterization and Assessment. Elements and Tasks

Elements	Tasks
Market Description	Actors and customers, building data, product data, structure
Technology Saturation	Age, efficiency level, and other characteristics of equipment currently in use
Energy Intensity	Sector measurements
Tracking Progress Indicators	Awareness, knowledge, market share, practices, and their change over time
Theory and Logic of Markets	Barriers, outcomes, linkages, inputs, activities, outputs
Customer and Market Response	Market information as it affects customer response to programs, awareness, barriers

3. *Program and Evaluation Management (\$2.9 million total budget, \$580,000 per year).*

The objectives of program and evaluation management are to: (1) review Program oversight and operations; (2) gauge customer satisfaction; (3) provide recommendations for program and process improvements and efficiency; and (4) serve as evaluation liaison and advisor to the NYSERDA evaluation team. The primary elements of program and evaluation management are process evaluation, internal NYSERDA structure, program operations and intelligence, customer satisfaction; program improvements and efficiency; and evaluation advisor. Potential tasks under each of the primary elements of program and evaluation management are shown in Table 11.4.

Table 11.4. Program and Evaluation Management. Elements and Tasks

Elements	Tasks
Internal NYSERDA Structure	Review of documents and interviews
Program Operations and Intelligence	Program implementation, delivery, administration, design, life cycle, customer satisfaction
Program Improvements and Efficiency	Needs, opportunities, assist with implementing changes and track progress
Evaluation Advisor	Liaison with evaluation contractor team, report writing, database issues

The above activities will be completed by teams of evaluation contractors operating under three primary agreements with NYSERDA. (1) impact assessment; (2) market characterization and assessment; and (3) program and evaluation management. NYSERDA plans to hire three teams of evaluation contractors through competitive solicitations, with solicitations planned for fall 2006 and hiring of contractors by the first quarter of 2007. During the first six months of 2007, NYSERDA will prepare the *2006 Program Evaluation and Status Report* for the SBC Advisory Group, to be filed with the Commission. It is expected that transition contractor teams will be necessary to accomplish this task, requiring some minimal overlap in contractor responsibilities and work during these six months. Once the transition is completed, the previous evaluation

contracts will be terminated, and the new contractor teams will assume full responsibility for conducting the evaluation.

Reporting. Every year, NYSERDA and its evaluation contractors will prepare three quarterly reports and one annual report on the **New York Energy SmartSM** Program progress to date. NYSERDA will meet with DPS Staff and the SBC Advisory Group to develop outlines and templates for quarterly and annual reports. The reports will include program progress, financial status, energy savings, benefits and costs, recommendations by evaluation contractors with NYSERDA's response, and progress toward goals. NYSERDA also will submit copies of all reports prepared by evaluation contractors with respect to the previously described quarterly and annual reports.

Progress indicators in the reports will include program budgets, achievements to date toward program goals, energy and peak demand reductions, customer bill savings, non-energy impacts, and cost-effectiveness. Progress indicators will be tailored to individual programs as sufficient data becomes available.

The precise definition of program indicators may vary by program; however, the quarterly report will be used to track progress toward program goals and to maintain current program data. The quarterly reports will track the progress of major programs, as determined by the criteria provided above. Quarterly reports are not expected to report on all programs. The quarterly reports will also include information about recently completed evaluation studies and major program milestones. Because the reports are quarterly, some programs may have little progress to report. The quarterly reports will include both the quarterly and cumulative data to date. Quarterly reports will be provided to the Commission within 60 days of the end of each quarter.

The annual report will substitute for the fourth quarterly report, summarizing program and portfolio progress throughout calendar year. Repeating quarterly data will enable NYSERDA to report each year's cumulative results in a single volume. Because of the amount of work necessary to prepare an annual report and the need to deliver draft and final results to the SBC Advisory Group, DPS staff, and NYSERDA, and to schedule a meeting with the Advisory Group, the annual report will be submitted to the Commission within 90 days of end of the calendar year.

APPENDIX

Program Transition from SBC II to SBC III and SBC III Program Descriptions	
Residential Program Area	
SBC II	<ul style="list-style-type: none"> Community Coordination and Education New York Energy SmartSM Communities
SBC III	Communities and Education
SBC III Program Description	<p>The Communities and Education Program will focus on direct outreach and education through classroom instruction, seminars, workshops, and events. Two primary initiatives are New York Energy SmartSM Students (ESS) and New York Energy SmartSM Communities. ESS offers workshops for K-12 teachers with ongoing teacher support in the form of curricula and materials.</p> <p>A home performance vocational pilot will be enhanced and expanded to train the next generation of building science technicians. New York Energy SmartSM Communities coordinators will use community infrastructure and networks to deliver energy efficiency education and information about NYSERDA programs to all sectors in the communities. Aspects of this program may be cofunded by U.S. DOE.</p>
SBC II	<ul style="list-style-type: none"> Home Performance with ENERGY STAR® New York ENERGY STAR® Labeled Homes New York Energy SmartSM Fund Home Performance Financing Small Homes Comprehensive Energy Management
SBC III	Single Family Home Performance
SBC III Program Description	<p>By establishing a single point of entry for program participants, delivery will be facilitated of the Home Performance with ENERGY STAR® program for existing homes and the ENERGY STAR® Labeled Homes program for new construction. NYSERDA staff will strive to better integrate single family home performance programs, increasingly focus on installed products, incorporate renewable technologies, expanded emphasis on advanced metering, concentrate on green technologies and healthy homes, and expand quality assurance and control efforts. Marketing for this program will be conducted through the market support program and will also be integrated and consistently presented across all residential programs.</p>

Program Transition from SBC II to SBC III and SBC III Program Descriptions	
SBC II	<ul style="list-style-type: none"> ▪ ResTech for Multifamily Buildings ▪ Multifamily Financing Loan Fund ▪ Multifamily Comprehensive Energy Management
SBC III	Multifamily Building Performance
SBC III Program Description	<p>Multifamily buildings programs include new and existing market-rate and low-income buildings. These programs will serve customers through a single entry point. Increased marketing through the Market support program will encourage apartment dwellers to include energy savings when making decisions among rental options. In SBC II, incentives will be limited to training and certification and expanded quality assurance and control. Renewable energy, CHP strategies, and "green" building practices will be incorporated in the program. New York Energy SmartSM Loan Fund will be a key component in the program.</p> <p>Advanced meters and data management practices will be incorporated in the program design and tied to promoting real-time pricing and time-of-use rates.</p>
SBC II	<ul style="list-style-type: none"> ▪ Product Support for ENERGY STAR® Products Program ▪ Program Marketing / Website
SBC III	Market Support
SBC III Program Description	<p>This program includes all marketing and promotion of energy efficient products to residential consumers. Partnerships will continue with manufacturers and retailers of appliances and lighting. In collaboration with the single family home performance program, the market support program will focus on home electronics management, power supplies, and installed products. Co-op advertising and market share incentives will continue to be provided to mid-stream partners. The marketing support program will use the GetEnergySmart.org web site, seasonal campaigns, and multi-media marketing to push participation by residential consumers and to encourage mid-stream partnerships. NYSERDA's strategy will shift from program awareness to consumer education to better reflect changing market characteristics. The program will coordinate and collaborate with the national ENERGY STAR® program. Marketing of residential programs will be more integrated and consistent than SBC II And support renewable technologies and emerging products and systems.</p>
SBC II	Keep Cool
SBC III	Merged
SBC III Program Description	<p>The Keep Cool program was in operation for four years and increased the market share for ENERGY STAR® room air conditioners. Additional efforts will be incorporated in the market support program.</p>

Program Transition from SBC II to SBC III and SBC III Program Descriptions

Low-Income Program Area

SBC II	<ul style="list-style-type: none"> ▪ Buying Strategies ▪ Coordination / LIFE ▪ Energy Program Awareness
SBC III	Buying Strategies and Energy Awareness
SBC III Program Description	<p>Programs will address the specific needs of the low-income community through three initiatives: (1) buying strategies, (2) targeted marketing and outreach, and (3) support for the Low-Income Forum on Energy (LIFE). The buying strategies program will provide technical support for expanding the buying power of the Home Energy Assistance Program (HEAP) by 7 to 13%. Targeted marketing and outreach will supplement the residential market support program for hard-to-reach audiences in the low-income sector. LIFE will continue to encourage the interactive exchange of information and collaboration among programs to assist low income energy consumers.</p>
SBC II	Coordination, Training, and Outreach
SBC III	Completed
SBC II	Direct Installation
SBC III	Completed
SBC III Program Description	Merged with the Assisted Multifamily Program and Weatherization Network Initiative.
SBC II	<ul style="list-style-type: none"> ▪ EmPower New YorkSM ▪ Weatherization Network Initiative
SBC III	EmPower New York SM
SBC III Program Description	<p>EmPower New YorkSM in its first 18 months delivered energy efficiency services to low-income households in the National Grid and NYSEG utility service territories. In SBC III, the program will be expanded to the other SBC utilities and replace the Weatherization Network Initiative, which provided similar services to those regions.</p>
	<p>The target population for this program is households earning 60% or less of the state median income and for whom assistance is not available through the Weatherization Assistance Program and who can benefit from the educational component of the program.</p>
SBC II	<ul style="list-style-type: none"> ▪ Assisted Home Performance with ENERGY STAR® (HPwES) ▪ Assisted New York ENERGY STAR®-Labeled Homes (NYESLH)

Program Transition from SBC II to SBC III and SBC III Program Descriptions

SBC III	Single Family Home Performance (Low-Income component)
SBC III Program Description	This program is based on NYSERDA's successful market-based residential program, and provides incentives for eligible households with incomes 80% or less than the state median income. Customers will access the programs through the same entry point as the residential program. Services will be delivered through two initiatives — Assisted HPwES and Assisted NYESLH — but marketing will be integrated. Existing incentives through Assisted HPwES for low-income qualifying households will be restructured and Assisted NYESLH, previously offered as a pilot program, will be expanded to target specifiers and regulatory agencies, such as New York State Division of Housing and Community Renewal, HUD, and New York City HPD.
SBC II	<ul style="list-style-type: none"> Assisted Multifamily Program (AMP) ENERGY STAR® Multifamily Program (EMP) Pilot
SBC III	Multifamily Building Performance (low-income component)
SBC III Program Description	Requests for services from owners and operators of multifamily buildings, new and existing market rate and low-income, will be processed through one entry point and financial packaging will continue to be NYSERDA's primary service. A component of the program will be teaching financial packaging to other organizations. The program will provide eligible buildings with gap funding to implement energy efficiency measures. Advanced meters. and peak load reductions will continue to be addressed.
Business and Institutional	
SBC II	New Construction Program
SBC III	High Performance New Buildings
SBC III Program Description	<p>Increased emphasis will be placed on architect and engineer training; developing design guidelines that address more diverse buildings and customer groups, increasing support for the Energy Code, post-verification of design intent and energy savings; and supporting sustainable communities. Support will continue for green building activities such as contractor and trades training and certification that contribute to creation of an industry infrastructure capable of building green buildings.</p> <p>Program delivery mechanisms will be streamlined to allow contractors to meet aggressive project schedules and incorporate an extensive list of eligible efficiency improvements.</p>
SBC II	<ul style="list-style-type: none"> Peak Load Reduction Program (PLRP) Institutional Energy Performance Contracting Assistance Program
SBC III	Peak Load Management Program (PLMP)

Program Transition from SBC II to SBC III and SBC III Program Descriptions

SBC III Program Description	<p>The new program consolidates the Peak Load Reduction Program and the advanced metering component of the Institutional Energy Performance Contracting Assistance Program. The goal of the program is to improve electric system reliability and reduce customers' electric rates, especially in New York City load pockets. The program will emphasize enhanced building automation and dynamic retail pricing.</p> <p>Incentives provided will include preparing large customers to manage demand by purchasing electricity through dynamic retail rates. Customers will be educated about the economics of commodity purchasing. Incentives will be used to develop a infrastructure for participating in LSE or NYISO's demand response programs. This helps customers reduce demand in response to emergency calls from the NYISO. A special effort will be made to assist steam customers in the Con Ed service territory.</p> <p>New economic initiatives will be introduced that encourage dynamic retail pricing, market-based pricing initiatives, urban heat island mitigation, load shedding, self-generation, and advanced metering.</p>
SBC II	<ul style="list-style-type: none"> ▪ Technical Assistance ▪ Energy Audits ▪ FlexTech
SBC III	FlexTech Technical Assistance
SBC III Program Description	<p>The program provides customers with objective, flexible information necessary to make energy efficiency, procurement, and financing decisions. The FlexTech programs will remain available to all commercial and industrial customers. Program focus areas will include peak load impacts, distributed generation, commodity purchase, load shaping, reliability, retro-commissioning, comprehensive energy management, industrial and water processes, metering and monitoring and verification, and integration with Con Edison and NYISO programs.</p> <p>The program will undergo continuous internal and external evaluation to ensure efforts are appropriately targeted. Tangible capital improvements, as well as less-verifiable long-term operational and managerial results will be sought. Studies will integrate with implementation incentive programs where necessary for customers.</p>

Program Transition from SBC II to SBC III and SBC III Program Descriptions

SBC II	<ul style="list-style-type: none"> ▪ Energy & Information Mgmt. Systems ▪ EE Products & Services / Motors ▪ EE Products & Services / Lighting ▪ EE Products & Services / HVAC ▪ EE Products & Services / Innovative Opportunities.
SBC III	New York Energy \$mart SM Business Partners
SBC III Program Description	<p>This comprehensive program targets building and systems contractors, product distributors, vendors, designers, energy services providers, and energy companies involved with business and industrial customers. A suite of new and expanded strategies will be launched that, collectively, increase the availability, promotion, and sale of energy-efficient commercial products and services. Under this umbrella approach, objectives will be met by creating a new "brand" identity that conveys the message that the mid-market players, <i>i.e.</i>, NYSERDA's "Business Partners," are vital to the growth of the energy efficiency industry and important to the economy of the State. As business partners, participants will market the New York Energy \$martSM programs; have access to training, tools and incentives; and be able to differentiate their business in a highly competitive marketplace. Increasing market concentration will be developed for existing, but underutilized, products and services and newly commercialized technologies developed through research and development activities.</p>
SBC II	<ul style="list-style-type: none"> ▪ Commercial Institutional Performance (CIPP) ▪ Smart Equipment Choices (SEC) ▪ Institutional Energy Performance Contracting Assistance Program (IEPCAP)
SBC III	<ul style="list-style-type: none"> ▪ Enhanced Commercial Performance Program (ECIPP) ▪ IEPCAP Completed
SBC III Program Description	<p>ECIPP consolidates the CIPP, SEC, and energy performance contracting component of the IEPCAP programs to serve commercial and industrial customers and streamline and simplify program delivery. Fewer programs result in less customer confusion.</p>

Program Transition from SBC II to SBC III and SBC III Program Descriptions

	<p>The program targets commercial and industrial customers making energy efficiency improvements in buildings and non-building integrated loads. The program will offer tiered incentives for kWh and kW savings. A special effort will be made to help steam-retention customers in the Con Edison service territory. The program will support the growing ESCO community in New York State and expand services for small contractors to include performance-based offerings. Incentives will be added for demand reduction. The program's presence in New York City will be increased since that is the location of the largest electric demand.</p>
SBC II	New York Energy Smart SM Loan Fund
SBC III	New York Energy Smart SM Loan Fund and Financing
SBC III Program Description	<p>The availability of capital for energy efficiency and process improvements will continue and new avenues for financing projects through non-traditional lenders, pension funds, and investment trusts will be explored. Also under consideration is the addition of a network of local and state banking and leasing companies.</p> <p>The successful State EnVest program will be expanded to other public and municipal facilities. NYSERDA will competitively procure a group of ESCO's to provide energy performance contracts, using ESCO financing and third-party financing for project implementation.</p>
SBC II	<ul style="list-style-type: none"> ▪ Energy management Program ▪ Municipal Water and Wastewater
SBC III	New York Energy Smart SM Focus program
SBC III Program Description	<p>The new approach will expand the successful concept of Energy Smart Schools to other sectors such as commercial real estate, the hospitality industry, small business, agriculture, and state and local governments. Tools and messages will be crafted especially for each sector. Non-energy benefits will be quantified and used to market expanded energy services. Case studies will be prepared, and metrics will be developed and presented at appropriate venues to enlarge the audience. Post-installation monitoring and verification will be conducted. Linkages with national efforts such as ENERGY STAR® and LEED™ will be highlighted. Special deployment efforts will target municipal water and wastewater managers by providing special assistance with plant energy efficiency, pump optimization, process enhancements, industrial process improvement, and pressure systems. The latter effort will be coordinated with the municipal process and efficiency efforts in the research and development program area.</p>

Program Transition from SBC II to SBC III and SBC III Program Descriptions

Research and Development

SBC II	Transmission and distribution research and development
SBC III	Public Benefit Power
SBC III Program Description	With the exception of support for development of superconducting cable, the activities in this program will be new for SBC III. Activities will be consistent with the Commission's SBC III Order.
SBC II	<ul style="list-style-type: none"> Secure Power Energy Storage Institutional Barriers to Competition Distributed Power Generation / CHP
SBC III	<ul style="list-style-type: none"> Distributed Energy Resources - Products and Demonstrations CHP Demonstrations and Studies Power Systems and Energy Storage Product Development and Pre-Commercial Demonstration DG/CHP Systems Performance Monitoring; Regulatory and Institutional Barriers, Environmental Emissions; Subscription Program for Clean Reciprocating Engines
SBC III Program Description	Development and demonstration of new technologies will be supported. Distributed energy resources with utility and end-user benefits will be supported. Product development efforts will focus on renewable generation and energy storage technologies. Demonstration programs will build on the knowledge and momentum established in SBC II and all distributed energy resources demonstration activities will be consolidated.
SBC II	Next Generation Strategic
SBC III	Next Generation and Emerging Technologies
SBC III Program Description	This program accommodates unique, promising research and development applications that do not fit neatly elsewhere.
SBC II	End-Use Renewable Energy Market
SBC III	Clean Energy Infrastructure
SBC III Program Description	This program supports activities necessary to develop a sustainable market for renewable and clean energy technologies. An integrated program will promote the manufacture of innovative clean energy technologies. An implementation program will support innovative business strategies and mechanisms to reduce costs to customers, expand markets, ease purchases by customers, improve system reliability and performance, and foster a wide array of technology choices.

Program Transition from SBC II to SBC III and SBC III Program Descriptions

SBC II	Wholesale Renewable Energy Market
SBC III	Addressed by RPS
SBC III Program Description	Renewables incentives are now covered under the RPS program.
SBC II	Environmental Monitoring, Evaluation and Protection (EMEP)
SBC III	Environmental Monitoring, Evaluation and Protection (EMEP) (Includes Fossil Fuel Impacts Assessment and Mitigation; Renewable Energy Impacts Assessment and Mitigation; Science Policy Integration and Outreach)
SBC III Program Description	This new program addresses regional climate change and potential economic and environmental impacts on New York. Work continues to emphasize providing accountability through long-term monitoring of acid rain and mercury impacts and fine particulate effects on health. New efforts will evaluate, assess, and minimize environmental effects of renewable energy on New York's environment.
SBC II	Projects Transferred from ESEERCO
SBC III	Six projects were transferred to NYSERDA. five were completed, one will continue.
SBC III Program Description	A long-term lake water quality monitoring program in the Adirondacks is proposed to be continued.
SBC III	<ul style="list-style-type: none"> ▪ Electric Transportation ▪ New technology R&D, feasibility studies and demonstration projects
SBC III Program Description	The new SBC III program in electro-transportation will emphasize demand reduction and energy efficiency in commuter rail and subway systems. Program staff will coordinate with the New York City Metropolitan Transit Authority, New York Power Authority, and Con Edison.
SBC III	Industrial and Municipal Process Efficiency
SBC III Program Description	The industrial component will be new for SBC III. Technology demonstrations that improve energy productivity and competitiveness of New York manufacturers will be supported. On the municipal side, research and development efforts will be coordinated with the commercial and industrial program area's marketing and outreach efforts under the New York Energy SmartSM Water Focus program.
SBC III	Demand Reduction and Innovative Rate Research.
SBC III Program Description	This new program will be offered in coordination with the commercial and industrial program area's efforts in this area.