SYSTEM BENEFITS CHARGE

Revised Operating Plan for **New York Energy $mart℠** Programs
(2001-2006)

June 12, 2002

New York Energy $mart℠
PUBLIC SERVICE COMMISSION — NYSERDA

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EXECUTIVE SUMMARY

INTRODUCTION

This Operating Plan is being filed with the New York State Public Service Commission (PSC) in compliance with its January 26, 2001 *Order Continuing and Expanding the System Benefits Charge for Public Benefits Programs*, as amended by a July 3, 2001 Order. The Order extends New York's System Benefits Charge-funded public benefits program for five years, from July 1, 2001 to June 30, 2006, increases funding from $78.1 million to $150 million annually, and retains the New York State Energy Research and Development Authority (NYSERDA) as the program administrator. The January 2001 Order, as amended, provides funding for NYSERDA-administered programs for the five year period totaling approximately $766 million. Department of Public Service staff subsequently clarified that approximately $32 million of this amount was provided pursuant to its original July 1998 Order, resulting in approximately $733 million in additional funding being provided for the expansion period.

NYSERDA was named administrator of the State's SBC-funded public benefit program in 1998 as part of the State's transition to a competitive electric industry and to continue funding public policy programs that might not immediately develop in the competitive marketplace.[1] The PSC determined at that time that the need for such programs and funding would be re-evaluated prior to the expiration of the three-year program on June 30, 2001.

The continuation and expansion of the SBC-funded public benefits program is designed to help maintain momentum for the State's efforts to promote competitive markets for energy efficiency and low-income services, research and development (R&D), and environmental protection, and to provide direct economic and environmental benefits to New Yorkers. The extended SBC-funded program will continue to address market barriers to the provision of these services by the marketplace. In addition, the extended program will support new electricity peak demand and price sensitive load initiatives now being developed under the direction of the PSC's Price and Reliability Task Force, and additional information and outreach efforts.

This compliance filing describes the specific programs and actions that NYSERDA is planning over the next five and one-half years to extend the **New York Energy $mart℠** program initiatives currently underway and develop new initiatives to meet peak load reduction and price sensitive load needs. With this Order, the PSC gave NYSERDA the authority to include non-electric energy efficiency measures within its **New York Energy $mart℠** portfolio of programs to provide more comprehensive and attractive financing packages to customers to promote fuel-switching, where doing so might reduce

[1] New York State Public Service Commission. In the Matter of Competitive Opportunities Regarding Electric Service, Opinion No. 98-3. *Opinion and Order Concerning System Benefits Charge Issues*. Issued and effective January 30, 1998. Cases 94-E-0952 *et al.*

electricity demand and lower peak demand. Moreover, this Order expands the Statewide coverage of NYSERDA's **New York Energy $mart℠** program to include the customers of the Rochester Gas and Electric Company service area, in addition to the customers of Central Hudson Gas and Electric Corporation, Consolidated Edison Company of New York, Inc., New York State Electric and Gas Corporation, Niagara Mohawk Power Corporation, and Orange and Rockland Utilities, Inc., which are currently eligible to participate in the **New York Energy $mart℠** Program.[2]

PUBLIC POLICY GOALS

The public policy initiatives funded by NYSERDA through its SBC-funded **New York Energy $mart℠** program are designed to:

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

These program goals build on the PSC's and NYSERDA's earlier public policy goals for SBC-funded public benefits program established in 1998. Those goals were (1) to promote competitive markets for energy efficiency services, and (2) to provide direct benefit to electricity ratepayers, or be of clear economic or environmental benefit to the people of New York.

The major focus of the **New York Energy $mart℠** program is to develop and assist markets for energy efficiency products and services, and effectuate changes in consumer decision-making regarding energy use, in ways that benefit the State's economy and environment. The focus of the proposed **New York Energy $mart℠** Operating Plan is being expanded to address electric system reliability, particularly in the immediate-term, to maintain the integrity and reliability of the electric system pending construction of approved and pending new electric generating resources in the State.

[2] The Long Island Power Authority, and the New York Power Authority administer their own energy efficiency programs. In addition, the Niagara Mohawk Power Corporation and the New York State Electric and Gas Corporation, administer their own low-income programs.

Program Portfolio

Building on the progress and successes of the **New York Energy $mart℠** program to date,[3] NYSERDA will continue to provide a broad portfolio of programs that address the State's identified public policy goals.

A. Energy Efficiency. The energy efficiency program area will receive approximately $436 million in additional funding through June 30, 2006. These programs are designed to help develop a viable energy services industry in New York and support the transformation of markets to higher and 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 view energy efficiency as a value-added service; and, improve the efficiency of electricity use in ways that also provide economic benefits to end-users. In addition to adding funding to current program initiatives, this Operating Plan proposes developing new initiatives to reduce electricity peak demand. These initiatives are funded at approximately $128 million through June 30, 2006.

   The **New York Energy $mart℠** Energy Efficiency programs are specifically intended to identify and effectuate changes in decision-making to improve the efficient use of electricity. Programs will also include energy efficient uses of petroleum and natural gas in order to provide customers more comprehensive and attractive incentive and financing packages and to promote fuel switching where doing so will help reduce electricity peak demand. This includes providing technical and financial assistance to support distributed generation technologies, such as co-generation systems (customer-side of the meter) and renewable energy technologies, that reduce customer electricity demand. The Energy Efficiency programs serve commercial, industrial, residential, and municipal and institutional sectors.

B. Low-Income. This program area will receive approximately $114 million in additional funding through June 30, 2006. These programs are designed to reduce the energy burden of low-income consumers by improving energy efficiency and providing energy management and aggregated energy procurement strategies that will improve the market position and self-sufficiency to low-income consumers. These programs will build on the existing infrastructure of other publicly-sponsored programs by coordinating the delivery of programs and services that reduce energy use and costs low-income households in the State.

C. R&D. This program area will receive approximately $200 million in additional funding through June 30, 2006. These 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 decision-making purposes. The focus of these programs is on field testing new technologies, evaluating performance, disseminating information on their application, and developing strategies to promote widespread private sector involvement in energy

[3] New York State Energy Research and Development Authority. ***New York Energy $mart℠*** *Program Evaluation and Status Report*. September 2000. Report to the Systems Benefits Charge Advisory Group. Interim Report. Albany, NY.

and environmental R&D. These programs are in four broad categories: (1) Renewable Energy, (2) Distributed Power Generation/Combined Heat and Power, (3) Monitoring and Analysis, and (4) Energy Efficiency Strategic R&D.

SBC-funded public benefits program progress toward public policy goals will be continuously monitored to assure that programs are being implemented as intended and that program objectives are being met. Data will continue to be collected and reported quarterly, with interim evaluation reports submitted to the PSC in December of 2001, 2003, and 2005. Detailed evaluation status reports will be submitted to the PSC in December of 2002, and 2004. The SBC Advisory Group will retain its role as the independent

SBC program evaluator, with NYSERDA acting as needed by the Advisory Group. The SBC-funded program evaluation reports will include an assessment of market transformation effects and causal linkage between program activities and reported outcomes.

This Operating Plan presents a comprehensive portfolio of programs and individual initiatives that together help to ensure that: (1) electricity industry restructuring supports broader customer participation and end-user benefits; (2) energy customers continue to receive needed and enhanced value-added energy services; (3) environmental quality of New York's air, land, and water resources is maintained or enhanced; and (4) system-wide electric reliability is strengthened through coordinated peak demand reduction strategies.

SECTION 1

INTRODUCTION

BACKGROUND

New York's System Benefits Charge (SBC) was established in May 1996 by the New York State Public Service Commission (PSC) in Opinion No. 96-12[4] to fund public benefit programs during the State's transition to a competitive retail electricity market. The SBC was designed to fund public policy initiatives not expected to be adequately addressed by competitive markets, in the areas of energy efficiency, low-income energy affordability, research and development (R&D), and environmental protection. SBC funding levels were established within individual electric utility rate cases[5] and funds were collected through a non-bypassable charge on electric utility transmission and distribution (T&D) systems.

NYSERDA was designated the administrator of New York's Statewide public benefits program, pursuant to a January 30, 1998 Order of the PSC. NYSERDA developed and implemented a broad portfolio of programs (the **New York Energy $mart℠** program), designed to continue energy efficiency, low-income services, and R&D and environmental protection programs during the State's transition to electric retail competition.[6] A March 1998 Memorandum of Understanding (MOU)[7] finalized SBC operating arrangements among the PSC, the New York State Department of Public Service (DPS), and NYSERDA, and directed NYSERDA to solicit public input in developing its draft SBC Operating Plan for PSC approval. The MOU also directed the formation of an outside advisory group to serve as independent program evaluator. The SBC Advisory Group held its first meeting in April 1998, following a public hearing on the State's public benefits program earlier in the month. The

[4] New York State Public Service Commission. In the Matter of Competitive Opportunities Regarding Electric Service, Opinion No. 96-12, *Opinion and Order Regarding Competitive Opportunities for Electric Service*. Issued and effective May 20, 1996. Cases 94-E-0952 *et al.*

[5] New York State Public Service Commission. In the Matter of Competitive Opportunities Regarding Electric Service, Opinion No. 98-3. *Opinion and Order Concerning System Benefits Charge Issues*. Issued and effective January 30, 1998. Cases 94-E-0952 *et al.*

[6] The three-year period from June 30, 1998 through June 30, 2001 was initially envisioned as a transition period for full electric retail competition.

[7] Memorandum of Understanding (MOU) among the PSC, DPS, and NYSERDA, March 11, 1998.

Advisory Group has met periodically to review NYSERDA's implementation plans and progress, as well as to help guide program evaluation. In light of the PSC's Order extending funding of the public benefits program, the MOU was modified in December 2001 to cover the period through June 30, 2006.

SBC funds will continue to be collected through a non-bypassable charge on electric utility transmission and distribution (T&D) systems. Each utility's share of funding, however, has been modified from collections required under the first three years of funding to reflect each utilities share of Statewide electric system revenue. Since a large focus of the SBC program will be on load reduction and capacity building efforts, the PSC determined that funding responsibility should be proportional to utility costs (customer revenues), meaning that funding responsibility is more reflective of cost of service.

NYSERDA will continue to regularly assess the changing needs of the marketplace as compared to general market indicators, including: market activity, market barriers, marketplace inequities, transaction costs and risks, lost opportunities, specific customers needs, and financial constraints, to ensure that programs are meeting their objectives.

PROGRAM EXPERIENCE AND OUTCOMES

New York Energy $mart℠ programs are expected to result in peak demand reduction of 250 - 300 MW by Summer 2001 and electricity savings of approximately 670 million kWh. These impacts result from implementation of existing programs using the initial allocation of SBC funds, plus the new or expanded efforts included in this Operating Plan. The savings are projected to increase each year, as shown in Table 1.

When funds are fully expended and implementation is complete, the **New York Energy $mart℠** program is projected to reduce peak demand by nearly 1,300 MW and save more than 3,500 kWh of electricity annually for New York. This savings is equivalent to the annual electricity needs of approximately 500,000 households.

Table 1

Projected Impacts of SBC programs

Reductions/Year[8]	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**
Peak Demand (MW)	250-300	600-660	700-800	800-1,000	1,000-1,200	1,200-1,300
Electricity (million kWh)	670	1,500	2,100	2,600	3,100	3,500

As a result of the electricity savings, the **New York Energy $mart℠** program is projected to reduce air pollutant emissions by over 2,600 tons of nitrogen oxide (NO_X), 5,200 tons of sulfur dioxide (SO_2), and

[8] Electric savings and peak demand reductions are projected based on current program experience. These projections will be revised as necessary once experience is gained in implementing new and expanded SBC programs.

over 1.5 million tons of carbon dioxide (CO_2) annually by 2006. This is equivalent to removing over 300,000 automobiles from the road annually. The program is also expected to result in greater economic development in the State, supporting the creation of over seven thousand jobs by 2006. These jobs will remain in place as long as the energy efficiency measures are installed and operating. The cumulative total impacts from 2001 through 2006 include electric savings of 13,000 GWh and emission reductions of approximately 10,000 tons of NO_x, 20,000 tons of SO_2 and nearly 6.0 million tons of CO_2. The cumulative carbon dioxide emission reductions through 2006 are equivalent to removing over one million automobiles from the road for one year. Further environmental and economic benefits are anticipated from the clean generation and oil and natural gas savings that will result from these programs.

The longer-term market transformation effects of moving markets and consumers to greater levels of energy efficiency are expected to be significant, based on current program experience. In the first two and one-half years of the **New York Energy $mart℠** program, NYSERDA has partnered with over 1,000 program allies including: retailers, vendors and distributors, engineering firms, energy service companies, lending institutions and others.

The **New York Energy $mart℠** program has attracted significant external funding, including matching funds and new investments. The combined private sector co-funding and leveraging investment, based on current program activity, is over $626.1 million.[9] The ratio of external spending to **New York Energy $mart℠** program funding is approximately 3.7 to 1, meaning that for every $1 of **New York Energy $mart℠** funds spent, $3.70 is spent or invested by others. Anticipating similar levels of external funding associated with the $749 million in SBC funding through 2006, this will generate significant economic development impacts of nearly $3 billion in private sector investments.

PROGRAM MODIFICATIONS AND ENHANCEMENTS

As a result of NYSERDA's administrative experiences to date, several modifications and enhancements have been made to the **New York Energy $mart℠** program. A brief summary of these modifications is described below. In addition to those listed, several others are referenced in the individual program descriptions in Section 2 of this Operating Plan.

[9]New York State Energy Research and Development Authority. ***New York Energy $mart℠*** *Program Evaluation and Status Report.* Report to the System Benefits Charge Advisory Group. Initial Three-Year Program. January 2002

- The existing **New York Energy $mart℠** targeted outreach effort has been expanded to market and promote all **New York Energy $mart℠** programs with a single and consistent Statewide message about program opportunities for all customers.

- NYSERDA's **New York Energy $mart℠** program will continue to be coordinated with Long Island Power Authority and New York Power Authority energy efficiency programs to take advantage of opportunities to improve the efficiency and effectiveness of New York's public benefits programs.

- Several of the **New York Energy $mart℠** programs are bundled into a single program opportunity notice (PON) or request for proposal (RFP) to better tailor programs to customers and provide a single point of entry for program services.

- Several of the programs are being expanded to provide greater depth in services. While the **New York Energy $mart℠** program has been credited with good breadth of market coverage across market actors and sectors, it has been recognized that funding was insufficient to provide the depth necessary to transform markets effectively over a relatively short period of time.

- New programs have been added to the **New York Energy $mart℠** program portfolio, including peak reduction and price sensitive load program opportunities. In addition, the program is being modified to include non-electric measures to provide customers more comprehensive and attractive financing packages to promote fuel-switching, combined heat and power, and other measures, where doing so will help to reduce overall electricity usage and especially lower peak demand. Specifically, the Loan Fund and the residential sector programs are being expanded to include non-electric measures. The other commercial and industrial sector programs will continue to include only electricity or peak demand reducing measures.

- NYSERDA's program application and contracting processes have been streamlined to provide faster service to customers without compromising the integrity and rigor of the competitive contractor selection and contracting process. NYSERDA is committed to shorten the total elapsed time for proposal solicitation review and contracting to no more than six months[10]

- NYSERDA is establishing a more formal and systematic program orientation for market allies participating in **New York Energy $mart℠** programs. Allies are introduced to all the **New York Energy $mart℠** programs and are encouraged to introduce their customers to the programs as a value-added service.

- The SBC Advisory group recommended that programs continue until specified criteria for well-functioning markets for efficiency services are established, based on evaluations of need conducted every two years. NYSERDA's program evaluation plan addresses the need to link SBC expenditures to long-term market changes, in addition to tracking of electricity use, demand reductions, and customer energy savings. Due to the increased emphasis on resource acquisition, especially in the

[10]NYSERDA has programs with open enrollment that allow projects to be approved on a continuous basis. Individual projects are completed quickly but the date of the solicitation may extend beyond six months.

near term, greater emphasis will be placed on using evaluation funds to obtain electricity savings data by specific measures and by utility territories, with particular attention on the program's peak electricity demand reductions. Included in this effort will be a comprehensive benefit-cost analysis of measures and programs.

Other program modifications and enhancements are described in the objective descriptions in Section 2.

New York Energy $mart℠ PROGRAM GOALS

Four broad public policy goals were established for the continuation of the **New York Energy $mart℠** program. Each broad goal was further defined with several specific objectives. The goals and objectives are described and summarized below. Section 2 of this Operating Plan discusses each objective in more detail, and defines how the objectives will be met through specific program offerings.

Goal 1: Improve system-wide reliability and peak reduction through end-user efficiency actions.

Peak demand reduction has been identified by the PSC as a key goal of the continuing **New York Energy $mart℠** program. With New York's expanding economy, the State's former surplus of electric generation capacity has been reduced resulting in a tight electricity supply market over the next several years. This goal will target electric peak demand and/or distribution constraints through customer implementation of peak load reduction initiatives, technology demonstrations, market intervention with energy efficient products and public awareness and education campaigns fostering lower electricity consumption. Specific objectives are as follows.

Objective A: Improve customer load management. Programs will:

- assist commercial customers to identify and implement demand reduction strategies;
- promote PV systems;
- assist in fuel-switching that lowers coincident peak;
- replace old residential room air conditioners with new ENERGY STAR® units;
- market the benefits of energy efficiency to consumers;
- install time-of-use meters; and
- promote internet-based solutions and wireless communications devices to monitor and control energy usage.

Objective B: Encourage new options for strategic energy reliability and secure power for critical facilities. Programs will:

- minimize environmental impact of emergency generators;
- develop and demonstrate technologies such as fuel cells and small-scale liquid natural gas facilities; and
- promote on-site generation and energy storage technologies.

Objective C: Increase the availability, promotion, and sale of environmentally preferred energy-efficient commercial products and services. Program elements include:

- promoting use of premium-efficiency motors;
- facilitating energy-efficient lighting for small commercial facilities; and
- promoting high-efficiency unitary HVAC equipment.

Objective D: Develop and evaluate next generation energy-efficient and strategic energy efficiency technologies. Program elements include promoting:

- advanced heat pump hot water heaters;
- alternative cooling technologies; and
- self-powered heating systems.

Objective E: Increase consumer awareness of energy efficiency benefits. The Summer Electric Demand initiative will:

- raise awareness of the tight electricity supply , the shrinking cushion between supply and demand, and the relationship of supply and demand to cost;
- increase awareness of the Energy Star label;
- change customer behavior - reduce overall demand for electricity and change use patterns;
- increase awareness of the efforts made to ensure reliability during peak periods; and
- increase understanding of electricity alerts - what they mean, who calls them, how they are announced, and what actions consumers can take in response to them.

Goal 2: Improve energy efficiency and access to energy options for under-served customers.

In the transition to fully competitive energy markets, some customers will experience the benefits of increased options and lower prices earlier than others. Customers in the low-income, residential, small business and municipal/institutional sectors generally have smaller loads and less access to options for purchasing energy commodities, efficiency measures and services. Specific objectives are as follows.

Objective A: Improve energy affordability and efficiency of low-income sectors. Programs will:

- enhance the New York State Weatherization Assistance Program (WAP) network by implementing electric-reduction measures and other energy-related building improvements;
- stimulate energy efficiency investments in lower income households not eligible for WAP through energy audits and low-cost financing;
- aggregate low-income households to secure lower commodity prices; and
- coordinate State and local low-income programs, and assist community-based not-for-profit groups.

Objective B: Improve energy affordability and efficiency for residential customers. Programs will:

- improve public awareness and spur consumer demand for ENERGY STAR® products;
- develop an infrastructure of product, service and information providers to promote adoption of ENERGY STAR® products, building performance services, and advanced metering and data collection equipment; and
- offer consumer financing to enable the purchase of energy-efficient products and building performance services.

Objective C: Improve energy affordability and efficiency of small business customers. Programs will:

- provide engineering studies to identify energy improvements and load management opportunities;
- offer financial incentives to business customers who initiate demand reduction and direct load control measures, productivity improvements, and energy management and demand monitoring technologies; and
- provide reduced-cost financing for demand saving and energy-efficient capital improvements.

Objective D: Improve energy affordability and efficiency of municipal and institutional customers. Programs will:

- offer energy management for K-12 schools, healthcare facilities, and the municipal sector in the form of internet-based load monitoring, technical assistance, and educational materials;
- provide a process for accelerating the use of energy-efficient and innovative technologies for municipal water and wastewater treatment; and
- coordinate with other **New York Energy $mart℠** programs including those in the energy services industry, new construction and peak load reduction areas.

Goal 3: Reduce environmental impacts of energy production and use.

Energy production and use impose one of the greatest burdens on the environment of any human activity. This goal will encourage more efficient and cleaner energy sources and buildings as a way to mitigate these environmental effects. Through expanded use of renewable energy technologies, a "green" energy market will start to emerge. New buildings and homes that incorporate cost-effective energy efficiency and environmentally conscious designs, have the additional benefit of reducing electric loads and improving indoor air quality. Also, objective monitoring and evaluation research is necessary in order to assist State policy-makers in developing sound policies to mitigate environmental impacts. Specific objectives are as follows.

Objective A: Build a sustainable market for production and sale of renewable energy. Programs will:

- work with manufacturers, distributors, and installers to address barriers to the development of the renewables market;
- provide training to individuals involved in designing, installing and inspecting systems;
- identify viable wind sites;
- build a wholesale market for green power; and
- educate and advise New Yorkers about renewable energy technologies and their value.

Objective B: Increase the environmental performance and sustainability of buildings. Programs will:

- provide technical assistance, training, and financial incentives to building owners, design teams, and builders to increase standard practices in the design and construction of buildings;
- promote the building of ENERGY STAR® homes and use of efficient appliances;
- promote U.S. Green Building demonstration projects;
- promote public awareness and demand for high-efficiency products; and

- promote the use of solar heating, daylighting, and building integrated PV systems.

Objective C: Conduct environmental monitoring and analysis to support informed public policy. Program elements include:

- supporting policy-relevant research in acid deposition, mercury contamination, fine particles, and ozone;
- studying the transport of electricity-related pollutants, including transboundary pollution;
- providing context for electricity-related pollutants by examining other sources and exposure;
- addressing system-wide impacts of new generation, including distributed generation; and
- continuing the long-term monitoring of water quality changes in the Adirondacks.

Goal 4: Facilitate competition to benefit end-users.

Creation of a sustainable and competitive energy service industry will facilitate service delivery by the private sector and encourage energy efficiency services for customers that typically are not being served by the marketplace. This goal will foster an active energy service industry in New York State that encourages customers to access energy efficiency services and technologies, along with commodity services. Specific objectives are as follows.

Objective A: Develop an energy service industry, including a network of energy service providers. Programs will:

- provide performance-based incentives for energy efficiency and demand savings to a broad network of energy service providers;
- provide cost-shared comprehensive energy audits to reduce the risk for institutional, small commercial and multifamily facilities engaging in performance contracts;
- provide training and technical assistance to enable energy efficiency contractors to successfully complete performance-based contracts; and
- provide information and outreach to inform potential customers of performance contracting opportunities and providers.

Objective B: Improve the viability of distributed power generation and combined heat and power as an economic energy option in New York. Programs will:

- demonstrate the viability, cost-effectiveness, reliability, and replicability of distributed generation (DG) and combined heat and power (CHP) systems;
- foster product development of systems designed to address specific issues and opportunities including fuel type, application, and environmental performance;
- develop equipment and installation codes and standards, and inspector/installer training; and
- stimulate and support the service business for emerging DG and CHP technologies.

Objective C: Address institutional barriers to competition. Various projects will be supported under this objective. Examples include:

- facilitating the establishment of clear rules and regulations governing the connection of small power generation devices to the power grid;
- establishing a market for attributes associated with power generation and efficiency; and
- exploring a power exchange for buyers and sellers to trade energy and energy-related products.

Objective D: Increase consumer awareness of energy supply issues. The initiative will:

- raise awareness of the shrinking cushion between electric generation supply and growing demand;
- increase understanding of the electricity production, transmission and supply;
- raise awareness and understanding of the siting and construction process;
- identify and clarify the reasons for the resistance to the siting of new power plants;
- increase understanding about the age, condition, efficiency and environmental consequences of existing plants; and
- increase understanding that there is a need for new power plants.

FUNDING AND DURATION OF SBC PUBLIC BENEFIT PROGRAMS

The amount to be provided for SBC-funded programs for the initial three-year period beginning July 1, 1998 was set in individual electric utility restructuring settlement agreements approved by the PSC through its Order issued and effective July 2, 1998. Over the initial three-year period, a total of approximately $234.3 million was to be collected, of which approximately $59.53 million was to be retained by the utilities for utility-administered programs, resulting in $174,771,123 million to be transferred to NYSERDA for administration of its programs, including $3,000,000 for environmental disclosure approved through a subsequent PSC Order issued and effective December 6, 1999. Pursuant to the initial PSC Order, NYSERDA entered into agreements with each utility for the transfer of funds collected through quarterly payments over the three-year agreement. The initial three-year program funding was also increased by interest earnings ($5,820,366) and unexpended SBC funds transferred to NYSERDA by certain utilities ($1,599,961). Thus, the total approved funding for the initial three-year program period was $182,191,450.

The PSC Order issued and effective January 26, 2001, extended the SBC program through July 31, 2006 and established higher utility collection amounts (to an annual level of $150 million in total) effective beginning in calendar year 2001 and continuing through mid-2006. The Order provided total funding of $788,073,296 for NYSERDA-administered programs over the five year period, with the balance of SBC fund collections to be retained by utilities for utility-administered programs. The Order was subsequently modified by an Order Issued and Effective July 3, 2001, which reduced the approved funding levels for NYSERDA-administered Low-Income programs and, conversely, increased the funding retained by NYSEG and NIMO for their utility-run Low-Income programs. The Order also reduced NYSERDA Low-Income program funding by a total of $15,293,194 and established a placeholder for this funding to be allocated by the Commission in the future. The Commission's decision will be based on an evaluation of the effectiveness of the Low Income programs administered by NYSERDA, NYSEG, and Niagara Mohawk. As a result of these adjustments, total funding approved for NYSERDA-administered programs was reduced to $765,573,296.

The July 3, 2001 Order (Appendix D) directed utility companies to transfer SBC funds to NYSERDA totaling $765,573,296. However, DPS staff subsequently clarified that, because of the six month overlap between the original July 1998 Order and the July 2001 Order, the amounts to be transferred to NYSERDA were to be reduced by the amount of payments previously made to NYSERDA by each utility company on January 1, 2001; these payments totaled $32,128,520. Therefore, NYSERDA was directed to enter into funding agreements with each utility for the transfer of SBC funds through quarterly payments; the total of these payments is $733,444,776 ($765,573,296 less $32,128,520).

This Operating Plan also includes a request, pursuant to the terms of the Memorandum of Understanding, to apply the first $3 million of interest earnings annually during the period 2001 through 2006 to Energy Efficiency programs. Thus, the total funding presented in this Operating Plan is $749,944,776 ($733,444,776 collected from utility companies plus $16,500,000 in interest earnings anticipated to be earned).

The January 26, 2001 PSC Order also directed that $10,000,000 in year 2001 funds be used for Enhanced Peak Load Reduction activities. NYSERDA proposes applying these funds to the program objectives listed below, which are described in Section 2:

Objective		Amount
(I A)	Improve Customer Load Management	$7,552,000
(I B)	Encourage New Options for Strategic Energy Reliability and Secure Power for Critical Facilities	2,448,000
	Total	$10,000,000

The Commission previously issued its approval for this funding by an Order dated April 17, 2001.

In addition, the January 26, 2001 PSC Order also provided Supplemental Set Aside funds for varying amounts from 2001 through 2006. NYSERDA proposes applying these funds to the program objectives listed below, which are described in Section 2:

Objective	Amount Year 1	Amount Years 2-6	Total
(III C) Environmental Monitoring and Analysis to Support Public Decision Making	$1,116,000	$3,451,000	$4,567,000
(IV B) Improve the Viability of Distributed Power Generation as an Economic Energy Option in New York State	9,118,910	47,475,094	56,594,004
(I D) Develop Next Generation of Efficient End-Use Technologies	1,256,000	3,033,000	4,289,000
Total	$11,490,910	$53,959,094	$65,450,004

The Commission previously issued its approval for this funding by an Order dated April 17, 2001.

Table 3 summarizes the proposed funding amounts for SBC Programs.

Table 3

Proposed Funding for SBC Programs (includes evaluation and administration costs)

Objective	Year 1	Years 2-6	Total
ENERGY EFFICIENCY			
Improve Energy Affordability and Efficiency for Residential Customers	$9,472,192	60,828,571	70,300,764
Improve Energy Affordability and Efficiency for Small Business Customers	3,281,028	21,069,231	24,350,259
Improve Energy Affordability and Efficiency for Municipal and Institutional Customers	3,936,893	25,284,615	29,221,509
Increase Environmental Performance and Sustainability of New Buildings	10,213,974	65,594,505	75,808,479
Develop an Energy Service Industry	16,142,503	103,666,178	119,808,681
Improve Customer Load Management	14,704,654	56,891,209	71,595,862
Encourage New Options for Strategic Energy Storage and Secure Power for Critical Facilities	2,551,155	4,215,386	6,766,540
Increase Availability, Promotion, and Sale of Energy Efficient Products and Services	2,953,521	18,963,736	21,917,257
Increase Consumer Awareness of Energy Efficiency Benefits	1,800,000	8,100,000	9,900,000
Increase Consumer Awareness of Energy Supply Issues	1,200,000	5,400,000	6,600,000
Total Energy Efficiency	$66,255,920	369,013,431	436,269,351
LOW INCOME			
Improve Energy Affordability and Efficiency of Low-Income Customers	$14,876,500	98,813,018	113,689,518
Total Low Income	$14,876,500	98,813,018	113,689,518
R&D			
Build a Sustainable Market for Production and Sale of Renewable Energy	$10,837,515	63,000,000	73,837,515
Environmental Monitoring and Analysis to Support Public Decision Making	2,322,325	13,500,000	15,822,325
Improve Viability of Distributed Power Generation as an Economic Energy Option/Combined Heat and Power	9,491,464	64,226,196	73,717,661
Address Institutional Barriers to Competition	729,023	5,024,176	5,753,199
Encourage New Options for Strategic Energy Reliability and Secure Power for Critical Facilities	972,314	6,700,000	7,672,314
Develop and Evaluate the Next Generation of Efficient End-use and Strategic Technologies	3,402,674	19,780,220	23,182,893
Total R&D	$27,755,315	172,230,592	199,985,907
TOTAL NYSERDA SBC PROGRAMS	$108,887,735	641,057,041	749,944,776

The PSC Order provided funding for program evaluation at two percent of SBC funds. NYSERDA proposes to administer the SBC funded programs at an administrative rate not to exceed seven percent of SBC funds. The following table (Table 4) summarizes proposed funding amounts net of evaluation and administrative costs.

Table 4
Proposed Funding for SBC Programs (net of evaluation and administration costs)

Objective	Year 1	Years 2-6	Total
ENERGY EFFICIENCY			
Improve Energy Affordability and Efficiency for Residential Customers	$8,619,695	$55,354,000	$63,973,695
Improve Energy Affordability and Efficiency for Small Business Customers	2,985,736	19,173,000	22,158,736
Improve Energy Affordability and Efficiency for Municipal and Institutional Customers	3,582,573	23,009,000	26,591,573
Increase Environmental Performance and Sustainability of New Buildings	9,294,717	59,691,000	68,985,717
Develop an Energy Service Industry	14,689,677	94,336,223	109,025,900
Improve Customer Load Management	13,381,235	51,771,000	65,152,235
Encourage New Options for Strategic Energy Storage and Secure Power for Critical Facilities	2,321,551	3,836,000	6,157,551
Increase Availability, Promotion, and Sale of Energy Efficient Products and Services	2,687,703	17,257,000	19,944,703
Increase Consumer Awareness of Energy Efficiency Benefits	1,638,000	7,371,000	9,009,000
Increase Consumer Awareness of Energy Supply Issues	1,092,000	4,914,000	6,006,000
Total Energy Efficiency	$60,292,887	$336,712,223	$397,005,110
LOW INCOME			
Improve Energy Affordability and Efficiency of Low-Income Customers	$13,537,615	$89,919,846	$103,457,461
Total Low Income	$13,537,615	$89,919,846	$103,457,461
R&D			
Build a Sustainable Market for Production and Sale of Renewable Energy	$9,862,139	$57,330,000	$67,192,139
Environmental Monitoring and Analysis to Support Public Decision Making	2,113,315	12,285,000	14,398,315
Improve Viability of Distributed Power Generation as an Economic Energy Option/Combined Heat and Power	8,637,233	58,445,838	67,083,071
Address Institutional Barriers to Competition	663,411	4,572,000	5,235,411
Encourage New Options for Strategic Energy Reliability and Secure Power for Critical Facilities	884,806	6,097,000	6,981,806
Develop and Evaluate the Next Generation of Efficient End-use and Strategic Technologies	3,096,433	18,000,000	21,096,433
Total R&D	$25,257,337	$156,729,838	$181,987,175
TOTAL ALL PROGRAMS (net of evaluation and administration costs)	$99,087,839	$583,361,907	$682,449,746
EVALUATION	2,177,755	12,821,141	14,998,896
ADMINISTRATION	7,622,141	44,873,993	52,496,134
TOTAL NYSERDA SBC PROGRAMS	$108,887,735	$641,057,041	$749,944,776

Table 5 summarizes the allocation of SBC funds by Goals and Objectives ($ amounts net of administration and evaluation).

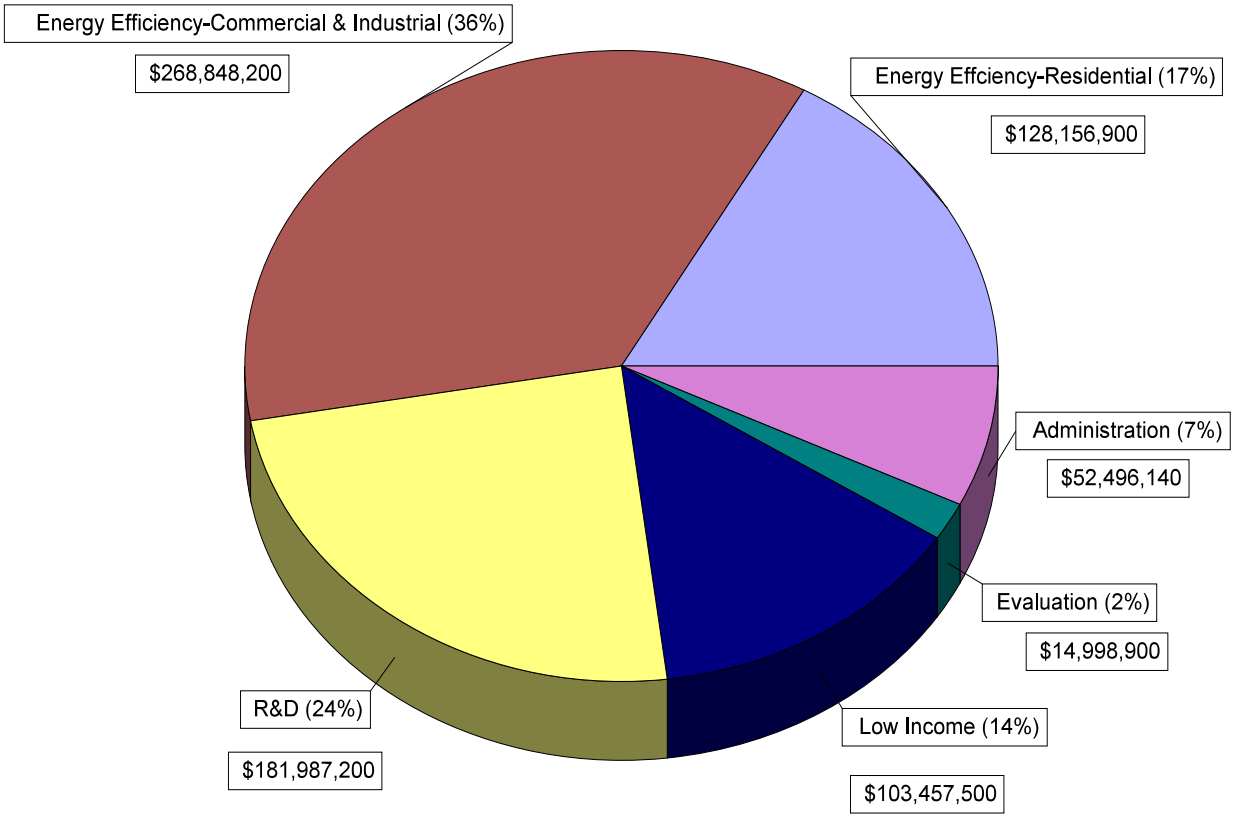
Table 5

Goals and Objectives

Goal I: **Improve *System- Wide Reliability* through end-user efficiency actions**	**Goal II:** **Improve energy efficiency and access to energy options for *Under-Served Customers***	**Goal III:** **Reduce *Environmental* impacts of energy production and use**	**Goal IV:** ***Facilitate Competition* to benefit end users**
Related Objectives			
A - Improve ***customer load management*** 1st year: $ 13,381,235 Total: $ 65,152,235	A - Improve energy affordability and efficiency of the ***low-income sector*** 1st year: $ 13,537,615 Total: $103,457,461	A - Build a sustainable market for production and sale of ***renewable energy*** 1st year: $ 9,862,139 Total: $ 67,192,139	A - Develop an ***energy service industry***, including a network of energy service providers 1st year: $ 14,689,677 Total: $109,025,899
B - Encourage ***secure power*** for critical facilities and strategic ***energy reliability*** 1st year: $ 3,206,357 Total: $ 13,139,357	B - Improve energy affordability and efficiency of ***residential customers*** 1st year: $ 8,619,695 Total: $ 63,973,695	B - Increase the environmental performance and ***sustainability of buildings*** 1st year $ 9,294,717 Total: $ 68,985,717	B - Improve viability of ***distributed power generation/combined heat and power*** as economic energy option 1st year: $ 8,637,233 Total: $ 67,083,072
C - Increase the availability, promotion, and sale of environmentally preferred, ***energy-efficient commercial products and services*** 1st year: $ 2,687,703 Total: $ 19,944,703	C - Improve energy affordability and efficiency of ***small business customers*** 1st year: $ 2,985,736 Total: $ 22,158,736	C - Conduct ***environmental monitoring and analysis*** to support public decision making 1st year: $ 2,113,315 Total: $ 14,398,315	C - Address ***institutional barriers to competition*** 1st year: $ 663,411 Total: $ 5,235,411
D - Develop and evaluate the ***next generation*** of efficient end-use and ***strategic*** technologies 1st year: $ 3,096,433 Total: $ 21,096,433	D - Improve energy affordability and efficiency *of* ***municipal/institutional customers*** 1st year: $ 3,582,573 Total: $ 26,591,573		D - Increase consumer awareness of energy supply issues 1st year: $ 1,092,000 Total: $ 6,006,000
E - Increase consumer awareness of energy efficiency benefits 1st year: $ 1,638,000 Total: $ 9,009,000			
Total for Goal **1st year: $ 24,009,728** **Total: $ 128,341,728**	**Total for Goal** **1st year: $ 28,725,619** **Total: $216,181,465**	**Total for Goal** **1st year: $ 21,270,171** **Total: $ 150,576,171**	**Total for Goal** **1st year: $ 25,082,321** **Total: $ 187,350,382**

Figure 1

Funding for NYSERDA Administered SBC Programs (2001 - 2006)



While this Plan sets out budget levels for individual programs within the energy efficiency/peak load, research and development and low-income categories, NYSERDA may, after consultation with DPS staff, move funds around quickly within a category. This flexibility may be necessary to reallocate funds among the same category of programs to address summer capability periods, leveraging opportunities, etc.

SECTION 2

OBJECTIVE DESCRIPTIONS

Following are descriptions of the objectives associated with each of the four SBC goals. The purpose and context of each objective is provided as well as information on the programs and activities that will be initiated with the additional funding. For those objectives which are continuations or expansions of existing SBC programs, information on the program accomplishments to date is provided.

Each objective includes an allocation of funding by major program area. Amounts presented are net of NYSERDA administrative and evaluation funds (as presented on Table 4 in the previous section). Application of the enhanced peak load reduction funds and the set-aside funds is noted.

The descriptions also include key benefits for each objective, including the expected demand reduction and electric savings for the summer of 2001, summer of 2002, and by the end of the program. These figures represent the benefits associated with the allocation of the additional $749,944,776 (see pages 15-16 for details on this funding amount) of SBC funds and do not include benefits from the initial SBC funding allocation.

I. IMPROVE SYSTEM-WIDE RELIABILITY AND PEAK REDUCTION THROUGH END-USER EFFICIENCY ACTIONS

A. Improve Customer Load Management

Purpose

The purpose of the Customer Load Management programs is to provide for significant electric demand reductions in the State, and especially in the New York City area, through financial incentives for load-reducing capital improvements, distributed generation, and inefficient equipment removals; by fostering direct load-control arrangements; by fostering public awareness of usage-reducing equipment operating and maintenance procedures; and by fostering use of energy management and demand monitoring technologies.

Context

- New York's statewide electric system is currently strained. During periods of peak demands such as the summer months in New York City, power demands on the electrical system will result in system reliability challenges. In the event of unplanned outages or higher than anticipated loads, the ability to provide sufficient supply of electricity is questionable and customers could face unplanned curtailment of power.

- Poorly managed electric load results in higher utility costs to customers. In the deregulated environment, service providers will bid into the Independent System Operator for their customers. As demand for electricity increases, particularly in the summer months, electricity costs will also increase. In addition, inequities in real-time pricing exist for customers in areas where electricity demand is greatest. This price differential is expected to increase in the future in the most congested areas.

- Load management strategies relieve congestion of transmission and distribution systems and provide economic benefits to end users. Programs designed to improve customer load management will result in reduced energy costs to the customer and better system reliability statewide.

Program Description

A multi-faceted strategy will be implemented to assist commercial and residential customers to effectively manage electric load and to reduce peak demand requirements. Strategies include:

- Load curtailment through peak shaving, load shifting, and load shedding.

- Altering energy consumption patterns.

- Operations and maintenance improvements.

- Quick installation of capital improvements and replacement of HVAC equipment, lighting and motors.

- Replacing old inefficient appliances with energy-efficient appliances.
- Fuel switching.
- Educating consumers on strategies to save energy.
- Use of new and innovative energy/information management systems.

The *Peak Load Reduction Program* targets commercial customers by assisting them to identify and implement demand reduction measures and photovoltaic (PV) systems. The majority of the program will be offered statewide, with performance incentive bonuses favoring activity in the downstate area. Some program components will be expressly targeted to areas of the State that are most severely capacity constrained. Lessons learned from implementation of the Cooling Re-Commissioning Program during the summer of 2000 will be incorporated into the program design. The program will provide:

- Technical assistance to identify load management opportunities.
- Financial incentives to implement either permanent or load curtailment measures such as operational and maintenance procedures and capital improvements. Measures will be targeted to reduce customers' peak electric demand loads coincident with system peak loads.
- Incentives to offset a portion of project implementation costs.
- Additional performance incentives for building integrated PV.

All measures and strategies that contribute to reduced system coincident peak demand will be eligible, including fuel switching and automated customer-driven energy management system load shedding. The Peak Load Reduction program will result in permanent installed demand reduction measures.

The *New York Energy $mart^{sm} Equipment Choices Program* targets the equipment replacement and retrofit market of the commercial and industrial sector. The Program provides financial incentives for the purchase and installation of certain cost-effective, high efficiency equipment through a streamlined application process. Eligible measures will initially include lighting, premium-efficiency motors, variable speed drives HVAC equipment and low voltage dry-type transformers. Additional measures may be added based on examination of proven efficiency benefits.

The goal of the *Energy/Information Management Systems Program* is to expand the development and use of innovative technologies that enhance stakeholders' abilities to make sound energy decisions, particularly

with respect to managing demand and consumption in buildings. These goals will be addressed through programs that deploy the following technologies:

- Time-of-use meters that enhance stakeholders' ability to send and receive more compelling price signals related to energy consumption and demand.
- Internet solutions that facilitate load profiling/aggregation in order to improve access to lower priced energy commodities and services.
- Advanced diagnostic and monitoring equipment that helps facilities to operate equipment efficiently and to reduce their operations and maintenance costs.
- Wireless communications devices that improve stakeholders' abilities to remotely manage their energy loads in an efficient manner.
- Non-intrusive load monitoring equipment that segregates a facility's load profile in order to better identify opportunities for conservation and efficiency.
- Geographic Information Systems to facilitate energy related decisions, such as use as a siting tool for combined heat and power or distributed generation systems.

The *Keep Cool Program* targets residential customers and multifamily building owners and management companies. The objectives of the program are to control and reduce load on the electric system, alleviate the impacts of anticipated electricity price increases, increase overall energy efficiency, reduce emissions from generation, and support market transformation efforts by the further penetration of ENERGY STAR® air conditioners into the market. This program will:

- Encourage the purchase of ENERGY STAR® room air conditioners by paying a $75 bounty on returned air conditioners when a new ENERGY STAR® model is purchased.
- Conduct bulk purchase agreements with multifamily building owners and managers to encourage large-scale removal and de-manufacture of inefficient units, and replacement with highly efficient ENERGY STAR® models.
- Foster the retirement and de-manufacture of old inefficient air conditioners for all residential customers.
- Work with appliance manufacturers and over 500 ENERGY STAR® retail partners throughout the state to deploy the bounty and bulk purchase program.
- Encourage the purchase of ENERGY STAR® air conditioners as well as other home appliances and lighting products through an aggressive program of energy management workshops in the facilities of community-based organizations (CBOs) and multifamily buildings participating in NYSERDA's bulk purchasing program.

A Public Awareness and Appeal Campaign will educate consumers on the need for load management and opportunities for achieving load management goals. This effort will be coupled with ways to directly encourage participation in the Keep Cool program through a website (GetEnergySmart.org) and Keep Cool

hotline. The website includes manufacturer rebates and special purchasing arrangements to encourage participation.

The *Comprehensive Energy Management* (CEM) *and Demand Control Measures Program* will subsidize the purchase and installation of needed energy management energy efficiency equipment to complement and support residential load management rate programs. The CEM Program minimizes barriers to energy efficiency and prepares the residential market for customer choice, direct load control programs, and implementation of real time pricing. Incentives will be made available to support energy management and advanced metering systems for owners of multifamily buildings. Demand control measures will provide services to reduce demand as needed and identified through building audits and other means.

Funding Allocation	**Category**	**Year 1**	**Year 2-6**	**Total**
Peak Load Reduction Program	EE/Comm	$7,953,188	$28,301,700	$36,254,888
New York Energy $mart [SM] *Choices Program*	EE/Comm	$387,054	$2,485,000	$2,872,054
Energy/Information Management Systems Program	EE/Comm	$580,581	$3,727,300	$4,307,881
Keep Cool Program	EE/Res	$3,531,482	$17,257,000	$20,788,482
Comprehensive Energy Management and Demand Control Measures	EE/Res	$928,930	0	$928,930
Total		$13,381,235	$51,771,000	$65,152,235

Benefits	**Summer 2001**	**Summer 2002**	**End of Year 5**
Peak MW Reduction	40 - 60	140 - 160	280 - 300
Total annual kWh savings (in millions)	88	202	380
Number of participating C/I customers	150	350	660
Number of participating residential customers (bounty program)	3,300	23,300	48,300
Number of households exposed to at least one of the public awareness mediums	5.4 million	5.78 million	7.23 million

B. Encourage New Options for Strategic Energy Reliability and Secure Power for Critical Facilities

Purpose

The purpose of Strategic Reliability and Secure Power programs is to encourage the reliability of electric power for hospitals and other critical facilities. This involves the use and aggregation of existing emergency generators, the development of innovative energy storage technologies and small and clean on-site generation, the demonstration of storable alternative fuels for meeting electric peak demand, and the demonstration of power quality monitoring devices.

Context

- While the present electric supply system relies primarily upon centrally generated and controlled power, potential capacity constraints and price spikes will likely motivate energy suppliers and customers to seek local options to enhance their power supply security and reliability.

- Among the electric customers most sensitive to supply and/or power quality disruption, many are located in areas where the risk of these disruptions may be most acute. These customers include medical facilities which utilize life support and other electric uses whose disruption could be life-threatening, manufacturing facilities which can have expensive work destroyed and may need elaborate restart procedures, and complex data systems.

- Many customers in the Con Edison service territory have standby or emergency generators in their buildings which could be used to offload some of the capacity constraints.

- An improved ability to store energy would improve reliability for critical use customers, improve distribution system reliability, improve efficiency and facilitate wind, solar and the most desirable power sources.

- Ability to store off-peak power or natural gas in a distributed fashion at or near critical loads would provide economic benefits to the customer and the system.

- Only large scale pumped hydro storage and small scale battery technologies have been successfully demonstrated. Emerging energy storage technologies and options have the potential to provide strategic application in the near future.

Program Description

The Dispatchable Emergency Generator Program will reduce system demand at times of capacity shortfall, by encouraging owners of existing emergency generators to off-load all, or a portion of their electrical needs to those generators. Electricity from the emergency generators will not be allowed to feed into the utility system grid. Eligible measures include:

- Critical dispatching of emergency generators in response to an emergency communication from the New York Independent System Operator (NYISO) Emergency Demand Response Program (EDRP).

- Testing and tuning of emergency generators, rewiring circuits, installation of transfer switchgear, environmental permitting.
- Selective use of catalytic reduction technologies, stack modifications, operational improvements.
- Use of low-sulfur fuel.
- Advanced dual-fuel options and other environmentally superior alternatives.

Use of automatic means to control the operation of emergency generators will be encouraged where practical. Strategies will be employed to minimize the environmental issues associated with the use of emergency generators.

The *Strategic Energy Reliability Program* will be implemented through competitively selected contractors. Solicitations will be issued to:

- Improve small consumer and rural business reliability through emerging technologies for on-site power generation and/or storage that can provide on-peak and emergency generation and off-peak storage. Technologies include solar, wind, fuel cells, and advanced batteries.
- Demonstrate devices to improve power quality and reliability for critical facilities.
- Develop and demonstrate innovative energy storage technologies such as superconducting magnetic energy storage, flywheels, and small-scale liquid natural gas facilities.
- Demonstrate alternative storable fuels to be used during high peak periods and emergencies.
- Conduct a technical assessment to identify new natural gas storage opportunities.
- Evaluate and demonstrate powering New York City's public transportation system with off-peak power and stored energy.
- Develop and demonstrate self-generating and stand-alone heating systems for applications where winter power disruptions can cause prolonged emergencies.
- Support other new projects to develop, demonstrate and deploy secure power options to be defined over the period of the SBC program.

Funding Allocation	Category	Year 1	Year 2-6	Total
Dispatchable Emergency Generator Program	EE/Comm	$2,321,551*	$3,836,000	$6,157,551
Strategic Energy Reliability	R & D	$884,806	$6,097,000	$6,981,806
Total		$3,206,357	$9,933,000	$13,139,357

*includes $2.228 million allocated from enhanced peak load reduction funds

Benefits	Summer 2001	Summer 2002	End of Program
MW Reduction	30 - 45	85 - 95	100 - 116
Number of companies participating in development, testing, evaluation, or commercialization of new or under-utilized technologies	7-10	30	50

C. Increase Availability, Promotion, and Sale of Environmentally-Preferred, Energy-Efficiency Products and Services

Purpose

The purpose of these initiatives is to increase the availability, promotion, and sale of environmentally-preferred, energy-efficient commercial products and services, especially air conditioning units, motors, and lighting technologies.

Context

- Commercially available energy-efficient products operate using up to 75 percent less energy than conventional or standard efficiency counterparts, while offering the same or better quality, features, and performance.
- Key products in terms of energy use and opportunities, are lighting, heating, ventilation and air conditioning, and industrial systems including motors.
- Barriers such as higher first costs, lack of information on benefits, unanswered concerns on performance, reliability, or compatibility, difficulty in identifying products, or supply, distribution, and stocking constraints, prevent customers from purchasing these products.
- Market participants, including contractors, vendors, suppliers, installers, and specifiers, do not have the tools, resources, skills, or information necessary to adequately integrate newly available energy efficiency products and technologies into building designs, equipment specifications, diagnostic testing, and other building services, or to effectively market these options and services.
- With the initial SBC funding allocation NYSERDA introduced several programs and projects in this area including Premium Efficiency Motors, Commercial HVAC, Small Commercial Lighting and Innovative Opportunities. One of the first programs to begin, Premium Efficiency Motors, has established a network of 25 participating motor vendors. As of November 2000, these vendors sold 698 premium efficiency motors, resulting in electricity savings of more than 500,000 kWh and demand savings exceeding 120 KW. Motor sales are expected to increase with enhanced customer marketing and vendor support. Through the Innovative Opportunities program, studies are being conducted to identify ways to promote more widespread use of energy efficient technologies including geothermal heat pumps, ENERGY STAR® TP-1 transformers, and LED traffic signals. These efforts will be continued and expanded with the additional SBC funding.

Program Description

Approaches consider market participants at all levels from manufacturer to consumer, and involve key mid-market participants capable of influencing an end user's decision (e.g., retailers, vendors, specifiers,

builders, contractors, etc.). Projects combine multiple strategies to influence market dynamics towards efficiency. Common elements include:

- Studies in targeted product and services areas that increase knowledge on existing market structures, recommend key opportunities for influencing market practices with respect to efficiency, and track progress. Specific activities include: commercial lighting and design practices, commercial unitary air conditioning equipment, and motors.

- Coordinated independent and collaborative activities that increase visibility for targeted products and services and thereby encourage market supply and customer demand. Specific activities will include:

  - Premium-efficiency motors campaign with direct vendor contact, workshops, trade shows, web site and print media.

  - Small commercial energy-efficient lighting campaign with video news releases, cooperative advertising, direct mail and internet outreach, and trade shows.

  - High-efficiency unitary HVAC campaign with web site and print media marketing to increase customer awareness and to support local contractors for providing high quality services. Aggregated procurement of unitary AC equipment will also be considered.

- Tools and assistance that lead to permanent market changes. Specific activities include:

  - Product testing and reports, demonstrations and evaluations of lighting technologies and applications, voluntary certification and other resources.

  - Design tools, design assistance, case studies, sales training, and information on benefits to suppliers, contractors and other lighting decision makers.

  - Vendor-assistance support activities for premium-efficiency motors, and energy-efficient commercial unitary HVAC including sales staff support and training on benefits of efficient products and services, software tools, model specifications, marketing and sales tools, customer brochures, and product information.

- Financial rewards, recognition, or other mechanisms that will accelerate adoption of new practices and behaviors by mid-market participants. Specific activities will include:

  - Distributor and vendor incentives for sale of premium-efficiency motors.

  - Incentives for coop advertising, demonstrations, training, design and participation competitions, and lighting certification for lighting suppliers and contractors.

In addition, funds will be used to explore innovative ideas and approaches for establishing new market practices that result in higher market penetration for energy-efficient products and services. This includes program partnerships with non-profit material and regional organizations, such as the Consortium for Energy Efficiency and the Northeast Energy Efficiency Partnerships.

The SBC programs that provide technical and financial assistance directly to end-use customers and those that target the upstream market providers of energy-efficient products and services will be integrated in terms of product and efficiency levels and closely coordinated for consistency of key messages. The programs will be designed to achieve widespread recognition and availability of highly efficient products, and a well-informed and -trained service provider network that offers improved applications, installations, and diagnostic and maintenance services. Integrating these products and services into the product and service provider market will address comfort and performance needs for customers while reducing costs and improving the environment. The result will be service providers who differentiate themselves in the marketplace with quality energy-efficient equipment and services.

Funding Allocation	Category	Year 1	Year 2-6	Total
Energy Efficient Products and Services	EE/Comm	$2,687,704	$17,257,000	$19,944,704

Benefits	Summer 2001	Summer 2002	End of Program
MW Reduction	0.5	3-5	10 - 14
Annual kWh Savings (millions)	3	25-30	60-70
Participating Motor Vendors	25	25	25
Participating Lighting Suppliers	6	8	15
Participating HVAC Contractors	2	10	12
Participating Electrical Contractors	50	100	100

D. Develop and Evaluate the Next Generation of Efficient End-Use and Strategic Technologies

Purpose

The purpose of the Next Generation End-Use and Strategic Technologies program is to demonstrate and evaluate emerging, energy-efficient electro-technologies, in part by assisting ESCOs and end users to participate in the NYISO wholesale markets by offering demand-side bidding of price-sensitive loads. Also, the program will demonstrate and evaluate the operation of strategic technologies fostering the reliability of electric systems, and thus contributing to the success of competitive electric markets.

Context

- Load reduction can result from new technologies which reduce load absolutely, which operate efficiently under a wide range of outputs, and improve the use of waste heat.
- Participation in price responsive load programs requires flexible load technologies which do not compromise the primary mission of the end-user. Next generation technologies need to be capable of operating under different power requirements either set manually or by automation in response to system load conditions.
- Advances in two-way communications infrastructure are needed to enable end-users account aggregation for price responsive load programs, however research, development and demonstration of these enabling technologies are not always undertaken by private organizations because of uncertain, diffuse or delayed economic returns.
- Many strategic projects that could achieve broad energy and environmental benefits are not always readily undertaken by private organizations because of uncertain, diffused or delayed economic returns. Research, development and demonstration of certain projects which accelerate the development of a sustainable market for emerging energy and environmental products of strategic importance to the State's energy and environmental future are also unlikely to be undertaken without the support of public benefit funds.
- With the initial SBC funding, this program supported development of distributed generation, energy storage, and electric vehicle technologies. Some of these technology areas, such as distributed generation, have gained sufficient momentum to become the focus of their own programs in this Plan.

Program Description

Through competitive solicitations, the *Next Generation Efficient End-Use and Strategic Technology Program* will demonstrate and evaluate technologies which can reduce load and/or facilitate price responsive demand for building environment or manufacturing applications. Examples include:

- Advanced heat pump hot water heaters.
- Alternative cooling technologies that reduce air conditioning loads.
- Ultra-low and self-powered heating systems which reduce load and are capable of operating during utility power outages.
- Advanced commercial lighting systems which reduce peak loads and cooling requirements.
- Electro-technologies for use by key New York industries such as food processing, agriculture, materials processing and re-manufacturing.
- Advanced conductivity devices such as superconducting transformers and transmission cables.
- Innovative cooling and power management technologies for large telecommunications facilities or "carrier hotels" that reduce peak loads.
- Energy-efficient indoor air quality technologies that improve human health while reducing inefficiencies associated with high air exchange/turnover rates.

Funding Allocation	Category	Year 1	Year 2-6	Total
Next Generation Efficient End-Use and Strategic Technology Program	R & D	$3,096,433*	$18,000,000	$21,096,433**

* includes $1,143,000 of set-aside funds
** includes $3,902,000 of set-aside funds

Benefits	Summer 2001	Summer 2002	End of Program
MW Reduction	0	5	10 - 20

E. Increase Consumer Awareness of Energy Efficiency Benefits

Purpose

The purpose of the Public Awareness and Education Program is to ensure consumers have the awareness, information and understanding they need to make informed decisions regarding their energy consumption, including the benefits of energy conservation and energy efficiency.

The goals of the Public Awareness and Education Program include the following:

1. Increase consumer awareness and understanding regarding energy product and service choices, utility service, utility competition/choice, energy conservation, energy supply, siting of new power generation facilities and transmission lines, and alternative energy sources.

2. Increase consumer understanding of how to get additional information and provide comment on energy and utility service related issues and programs.

Context

New York State is facing a number of energy challenges over the next few years:

- Tight electricity supply, which threatens the ability to meet the state's electricity demand, particularly in New York City.
- Resistance to siting new facilities and an underlying skepticism about the severity of the shortage and it's cause.
- The need to embrace conservation practices and energy efficiency to reduce demand and upward pressure on prices.
- The need to increase awareness and understanding of, and participation in, electricity demand reduction programs for commercial and industrial customers.

An aggressive, comprehensive and effective outreach and education program is an essential step in addressing these challenges.

Public awareness and education consist of broad messaging and information regarding energy challenges facing the State, such as those outlined above. Public awareness and education does not include program marketing that is designed to drive consumers to participate in specific NYSERDA programs, such as the Keep Cool Bounty Program or Home Performance with Energy Star Program. However, the public

awareness and education activities and such programs as Keep Cool may be associated with, complement, and potentially piggyback on each other to maximize overall effectiveness.

Program Description

Two interrelated areas will be the focus of the Public Awareness and Education Program:

- Summer Electric Demand (Conserve a Little. Save a watt; Lighten Your Load)
- Winter Heating Costs (Keep Warm; Conserve a Little, Save a Lot)

These initiatives will use paid media, brochures, direct mail, billboards, and other means to educate the public. NYSERDA will administer the related contracts for program implementation in consultation with Public Service Commission staff. In coordination with NYSERDA staff, Public Service Commission staff will be responsible for program design, development, implementation, evaluation and oversight of these programs. Coordination between NYSERDA and Public Service Commission staff will be essential to ensure the effectiveness of the outreach efforts.

Summer Electric Demand (Conserve a Little. Save a watt; Lighten Your Load)

Tight electricity supply for the next few years will continue to put pressure on New York's ability to meet its electricity demand. Increasing demand and at least a two-to-three-year lead time needed before any 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 initiative 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. The primary focus of the Public Awareness and Education campaign will be to educate consumers about energy efficiency and electricity conservation, and to offer specific tips on ways to keep cool during the summer months while controlling energy costs. The public appeal will highlight “why” such an effort is needed and explain how to conserve electricity and be more energy efficient. NYSERDA will conduct a marketing program for Energy Star products and home performance ratings to complement the program.

Objectives

Specific objectives for the Summer Electric Demand initiative include the following:

- Raise awareness of the shrinking cushion between supply and demand, and the relationship of supply and demand to cost.
- Change consumer behavior - reduce overall demand for electricity, increase energy efficiency, and change use patterns.

- Increase awareness of the efforts made to ensure reliability during peak periods.

- Increase awareness of the need to ensure reliability during peak periods and encourage participation in demand reduction programs by commercial and industrial customers.

- Increase understanding of and participation in programs targeted at consumer purchases of ENERGY STAR products and services.

- Increase understanding of electricity alerts - what they mean, who calls them, how they are announced, and what actions consumers can take in response to them.

Message

The messages will include the following:

- Due to years of a robust economy, we are using more electricity than ever. Development of new electricity supplies has not kept up with increased demand. Reducing the amount of electricity we use can make a difference.

- Consumers can make a difference by using ENERGY STAR household appliances, shifting electricity use to off-peak hours, and participating in programs such as electric demand reduction and energy efficiency programs for business.

- An alert is called when the supply of electricity cannot meet the demand. If an alert is announced, specific actions should taken to reduce demand, such as reducing or curtailing use of appliances such as air conditioners, pool pumps, etc., during critical time periods.

Communications Strategy

Messages and media will be tailored to target audiences based on experience during the summer of 2000 and the results of focus groups with residential and business consumers, retailers and multifamily building owners. These efforts will include, but not be limited to, the following: Radio, a combination of 10 second Metro Traffic spots, 30 and 60 second spot advertisements, and 15, 30, and 60 second PSAs; Outdoor – a mix of outdoor advertising including billboards, transit platform posters and bus cards, telephone enclosure advertisements, and kiosks; Printed material identifying conservation strategies and practices, and demand reduction programs for commercial and industrial customers - distribute at shows and events, through direct mail, as utility bill inserts, through partnerships with retailers, service organizations, local government and other agencies; School, other education programs and youth organizations – deliver and distribute materials, lessons, and programs as part of ongoing education programs and initiatives; Website – use New York State websites, as well as others, and web advertising techniques (e.g., banner ads); Participation in events, business and service organization conferences, training sessions, educational forums, conferences, fairs, and other public gatherings – staff exhibits, distribute materials, exchange information, and make presentations;

Placement of advertisements in newspapers and business publications; Utilities – encourage, facilitate, and monitor utility awareness and education programs

Winter Heating Costs (Conserve a Little. Save a Lot)

Increased demand on natural gas for heating and cooking, and as the fuel to produce electricity, is likely to keep prices volatile for the foreseeable future. Efforts will continue, and build on, the success of the the "Conserve a Little. Save a Lot." campaign. Program recognition and increased behavioral change should result. Consideration, based on an annual review of the campaign, should be given to substituting or adding new messages, and increasing efforts directed toward selected audiences or areas of the state. The goals of this initiative are to increase awareness and understanding of natural gas production, price influences, availability, and use, and to provide consumers with the tools to reduce energy use through conservation activities and practices, including the purchase of ENERGY STAR products.

Objectives

Specific objectives of this initiative include the following:

- Increase understanding of natural gas supply and pricing
- Raise awareness that natural gas prices can be volatile.
- Increase knowledge and use of conservation practices.
- Increase awareness of the ENERGY STAR label and the availability and value of Energy Star products.
- Increase awareness and understanding of, and access to, assistance programs, billing options and other methods, which can reduce the financial impact of volatile natural gas prices.

Messages

The messages will include the following:

- 98% of New York's natural gas comes from outside the state, most from the Gulf of Mexico and Alberta, Canada. Volatile natural gas prices are the result of national and international markets and are not under the control of the Public Service Commission. The volatility of natural gas prices, not only in New York but all across the country, make it difficult to determine future prices.
- Demand for natural gas will continue to increase.
- There are two parts to your natural gas bill: delivery and supply. Conservation practices, such as lowering your thermostat at night and when you are away from home, increasing insulation, and using ENERGY STAR heating systems can reduce the amount of natural gas you use and will save you money. Bill payment options and assistance programs are available. Shop around for suppliers.

Communications Strategy

Based on the experience during the 2000 – 2001 heating season, a similar media mix will be used, along with additional communications tools. These efforts will include, but not be limited to, the following: Radio - a combination of 10 second Metro Traffic spots and 60 second spot advertisements; Outdoor – a mix of outdoor advertising including billboards, transit platform posters and bus cards, telephone enclosure advertisements, and kiosks; Printed material identifying conservation strategies and practices - distributed at shows and events, through direct mail, as utility bill inserts, through partnerships with retailers, service organizations, local government and other agencies; Website - specific information and links will be added to the AskPSC.com website; Participation in events, business and service organization conferences, training sessions, educational forums, conferences, fairs, and other public gatherings – staff exhibits, distribute materials, exchange information, and make presentations; Provide weekly newspapers with camera ready copy and graphics and a variety of grassroots strategies; Encourage, facilitate, and monitor utility awareness and education programs.

Funding Allocation	Category	Year 1	Year 2- 5	Total
Summer Electric Demand	EE/Res	$910,000	$4,095,000	$5,005,000
Winter Heating Costs	EE/Res	$728,000	$3,276,000	$4,004,000
Total		$1,638,000	$7,371,000	$9,009,000

Benefits

This general awareness program will be accomplished in coordination with NYSERDA's summer and winter awareness messages for Keep Cool and Keep Warm. MW reductions based on consumer behavior/awareness information will be collected on messages in conjunction with Keep Cool and Keep Warm. Evaluation procedures will be coordinated with Public Service Commission staff.

II. IMPROVE ENERGY EFFICIENCY AND ACCESS TO ENERGY OPTIONS FOR UNDER-SERVED CUSTOMERS

A. Improve Energy Affordability and Efficiency of Low-Income Sectors

Purpose

The purpose of the Low-income program is to improve the affordability of energy, and the improved efficiency of its use, by low-income consumers. This involves fostering energy-efficient building design and installation of efficient appliances in public housing; conducting a low-income forum on energy to coordinate low-income activities with related agencies and operating a related public awareness campaign; weatherizing low-income dwellings in conjunction with other low income energy assistance programs; and aggregating low-income customers to secure lower prices for electricity and fossil fuels.

Context

- More than 2.9 million New Yorkers live below 125% of the poverty level[11]. The energy burden for low-income households, defined as the ratio of energy cost to income, ranges from 25-35%, compared to 3-8% for higher-income households. Between $500 million to $1 billion in public expenditures is spent on energy for low-income households each year, which is only a portion of the total $4 billion spent annually in low-income households for energy.

- The combination of poor housing stock, high energy costs, and New York's cold climate forces low-income households to face serious energy hardships.

- Affordable housing can be achieved by improving the energy efficiency and energy management of low-income energy consumers. As energy markets are restructured, special interventions will be required to ensure that low-income clients can compete effectively to lower their energy costs. Market-based energy procurement and efficiency strategies not only will reduce the energy burden of low-income households, but also, when coordinated with community-based organizations and existing public programs, will reduce taxpayer cost for energy-assistance subsidies.

- Programs offered with initial SBC funding period include Low-Income Direct Installation, Low-Income Aggregation, Technical Assistance for Publicly Assisted Housing, and Low-Income Public Awareness. The Direct Installation program, which was the first to be offered, has approved applications for 7,350 units in 846 buildings. As of December 31, 2000, 3,046 units in 346 buildings had been considered for electric reduction measures. More than $1.3 million has been invested in the installation of electric measures including nearly 10,000 compact fluorescent bulbs and about 1,600 refrigerators. Learning from this program will be incorporated into the efforts described below.

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[11] *Statistical Abstract of the United States, The National Data Book. U.S. Department of Commerce, 119th Edition, 1999, p. 485.*

Program Description

Energy Efficiency Initiatives will address energy affordability and demand within households, including publicly-assisted housing, through the:

- Weatherization Network Initiative, which will build on the New York State Weatherization Assistance Program (WAP) network. Funds will be used to supplement WAP and other available building improvement funds to implement cost-effective electric-reduction measures and other energy-related building improvement efforts. Electric measures include energy-efficient lighting, appliances, and replacement technologies, strategies to reduce the usage of electric-resistance space and water heating, and demand management opportunities that address utility summer system peak constraints.

- Low-Income Energy Affordability Program (LEAP), which will stimulate energy efficiency investment through two initiatives. One will target the residences of lower income households that are not eligible for assistance under the WAP network (those between 60% and 80% of median income). By working with the WAP network and other community-based service providers, income-eligible households will be identified to receive energy efficiency services (energy audits, technical assistance, and financing of energy-related improvements) at a reduced price that will vary with household income. The second initiative, the Publicly-Assisted Housing Initiative, will work with the New York State Division of Housing and Community Renewal (DHCR) to provide technical assistance, training, and financial incentives to enhance incorporation of energy-efficient design features and the selection and installation of energy-efficient equipment in the State's portfolio of public and publicly-assisted housing. This will include an expanded focus on peak demand management opportunities.

Community-Based Initiatives promote local actions to implement energy efficiency and aggregation activity in the low-income sector. Programs include:

- Low-Income Aggregation which is designed to help the State's low-income households compete effectively in the energy marketplace. Funds will support a variety of electric load-aggregation strategies as well as expand the eligible population to include households above statutory income guidelines. These aggregation efforts seek to: use the untapped market power of aggregated low-income energy buyers to secure lower prices for electricity, natural gas, fuel oil, and propane, while supplying energy efficiency services that reduce demand (e.g., develop a summer fill program for low-income fuel oil customers); enhance how public and private weatherization resources are targeted; and incorporate locally available budget counseling and energy-management education as integral services provided to low-income consumers. This program will include subsidies for advanced meters in eligible buildings. The program will also create lasting community-based mechanisms to facilitate low-income customer awareness and access to the competitive energy marketplace.

- State and Local Program Coordination which is designed to improve the effectiveness of existing public resources for energy assistance by facilitating information sharing and strategy coordination among government agencies and community-based organizations, including active participation in the Low Income Forum on Energy. A statewide public awareness effort will target community-based organizations providing services to the low income sector, as well as the low-income population.

- Community-based not-for-profit groups are often housed in facilities that have high energy bills and are in need of maintenance and repair. Energy efficiency upgrades for this sector will support more

effective use of the groups' funds, which are often targeted at providing community services and assistance to underserved consumers.

Funding Allocation	Category	Year 1	Year 2-6	Total
Energy Efficiency Initiatives	Low Income	$12,061,473	$80,114,985	$92,176,458
Community Based Initiatives	Low Income	$1,476,142	$9,804,861	$11,281,003
Total		$13,537,615	$89,919,846	$103,457,461

Benefits	Summer 2001	Summer 2002	End of Program
Peak MW Reduction	0.7-1	10 - 20	38 - 60
Annual kWh savings (in millions)	0.7 - 2	19 - 36	96 - 180
Households served	1,400-2,000	16,000-20,000	80,000-100,000

B. Improve Energy Affordability and Efficiency for Residential Customers

Purpose

The purpose of the residential programs is to improve the affordability of energy and the efficiency of its use by residential customers. This involves: spurring, in conjunction with the ENERGY STAR® public awareness campaign, consumer demand for energy-efficient products and services, and ensuring ENERGY STAR® product availability and financing mechanisms; increasing public awareness of cost savings through retail choice, aggregation, and energy management; and, with ESCOs and others, exploring opportunities to link energy efficiency and demand reductions with commodity price reductions.

Context

- New York's 3.7 million residential buildings are responsible for 17% of the State's total energy consumption, including energy consumed in electric generation. The residential sector consumes 33% of the electricity, 26% of the natural gas, and 12% of the petroleum consumed in New York State. These households account for approximately one third of the annual energy expenditures, more than $10.9 billion each year, which is more than any other sector in New York.

- Residential customers are often unfamiliar with new products and their energy saving potential. In addition, these items often have a higher first cost, are often unavailable for immediate installation and are often not sized properly by contractors.

- By September 30, 2000, the existing ENERGY STAR® Public Awareness Campaign had placed more than 30,000 paid ads promoting these products in various media including television, radio, print, and transit. This program has also leveraged more than $700,000 in advertising promoting residential energy efficiency and ENERGY STAR® through public service announcements and media relations. The existing Residential Appliances & Lighting program has developed a significant network of product and service providers throughout the SBC territory consisting of approximately 440 retail stores, 50 contractors and remodelers, and six manufacturers. Early results indicate that these programs are contributing to increased sales of ENERGY STAR® products. Between the baseline and follow-up surveys, consumer reported market shares for 14 out of 15 ENERGY STAR® products targeted by the program had increased. These efforts will be continued and expanded with the additional SBC funding.

Program Description

The goal of these programs is to improve energy efficiency of the residential sector, improve system-wide reliability, reduce environmental impacts, and ensure access to energy options, particularly with respect to under-served customers. This will be achieved by increasing consumer demand for and availability of energy efficient products and energy efficiency services, and improving awareness of and means for

enabling the selection of energy efficient options. Project impact and effectiveness will be monitored and enhanced through an active field presence throughout the state, providing quality assurance, and program assistance and marketing functions.

The ENERGY STAR® *Public Awareness* program will spur consumer demand for energy-efficient products and homes by building upon the existing national ENERGY STAR® partnership to continue the ENERGY STAR® Public Awareness Campaign for New York. The label makes it possible for purchasers to identify high-performing, energy efficient products.

The *Infrastructure Development* program will establish a network of product, service, and information providers. The program focuses on retailers, builders and re-modelers, building owners, energy service providers, and community organizations using the following strategies:

- Increasing the supply, promotion, and sales of ENERGY STAR®-qualifying residential products by providing assistance, tools, consumer incentives and support to those retailers, contractors, re-modelers, multifamily building owners, and product vendors who are in a position to influence consumers' purchasing decisions.

- Developing a building performance services network (broadly defined as HVAC contractors, insulation contractors, re-modelers, building performance contractors, home energy raters, and trade groups) to evaluate and make energy efficiency improvements to1-4 family dwellings through Home Performance with ENERGY STAR®.

- Providing technical assistance and incentives to building owners for advanced metering and data collection equipment. This includes working with ESCOs, energy marketers and other market participants to link energy efficiency and peak demand management strategies with commodity price reductions. Web-installed software will be encouraged to control and manage energy supplies. This effort will help prepare the residential sector for aggregation, allowing customers to apply for lower energy rates.

Consumer-oriented *Financing* Programs will be used to enable the purchase of energy efficient products and building performance services. Strategies will leverage private investment in energy efficiency and renewable technologies and reduce barriers to energy financing in markets where energy service companies are least likely to participate.

Funding Allocation	Category	Year 1	Year 2-6	Total
ENERGY STAR® *Public Awareness*	EE/Res	$1,543,572	$9,912,000	$11,455,572
Infrastructure Development	EE/Res	$5,594,480	$35,926,000	$41,520,480
Financing	EE/Res	$1,481,643	$9,516,000	$10,997,643
Total		$8,619,695	$55,354,000	$63,973,695

Benefits	Summer 2001	Summer 2002	End of Program
Peak MW Reduction	6.6 - 9.0	20 - 30	60 - 75
Annual kWh savings (in millions)	20	60	200
Multi-family and single-family households participating	26,500	80,000	265,000
Number of new or renewing participating retailers	400	550	700
Number of participating contractors and remodelers	50	150	500

C. Improve Energy Affordability and Efficiency of Small Business Customers

Purpose

The purpose of the small business programs is to improve the affordability of energy and the improved efficiency of its use by businesses, with special program components for small businesses, by advising them of cost-reduction opportunities via load management, rate analysis, aggregation, capital improvements, and operating improvements; and by fostering implementation strategies and financing services for these cost-reduction opportunities.

Context

- Many businesses lack in-house technical expertise to identify and implement energy efficiency opportunities. Energy service providers do not generally market to small customers since the opportunity for profit is limited.

- Because of their smaller size, many businesses often have higher transaction costs to develop knowledge, retain private-sector services, and participate in government programs. Businesses frequently miss energy efficiency opportunities as their attention is focused on priorities related to their core mission. Customers are frequently upgrading or initiating new buildings, facilities and processes to deliver better productivity, product quality, service, or market value.

- Small customers are often confronted with higher prices in a competitive market. Consequently, a kilowatt-hour of energy used represents a higher overall cost burden relative to larger competitors or facilities.

- With the initial SBC funding allocation, NYSERDA established a number of Technical Assistance programs and the **New York Energy $mart℠** Loan Fund. The Technical Assistance programs are now well established, with approximately 260 participants from the commercial and industrial sectors. The **New York Energy $mart℠** Loan Fund has built a network of more than 25 participating lenders and is beginning to offer reduced interest loans to small commercial customers. These efforts will be expanded with the additional SBC funding.

Program Description

Multiple strategies will be employed to overcome barriers to increased energy efficiency for the business sector. Programs will provide pre-designed options for energy technology choice, implementation, and service, and incorporate easy-to-use templates, applications, and incentives designed to improve small customer participation. Program design and marketing will integrate with customer priorities and attempt to deliver better mission performance for the customer while also improving energy performance.

Program areas will address customer needs based on their energy-efficiency knowledge level and technology utilization. While each of the three program components described below have different internal program design, one-stop shopping for the customer will be a critical program design feature.

Although the programs will be aggressively marketed to small customers, large commercial and industrial customers will also be eligible.

The *Technical Assistance Program* will provide on-site engineering services, using a highly qualified network of technical assistance providers. The program will build on the success of services provided through the initial SBC funding, including an expansion of the FlexTech program. Cost-shared technical services will include:

- Energy Audits which are low-cost, quick examinations of small business facilities to identify energy improvements that, while obvious to experienced service providers, are often not implemented by customers due to lack of knowledge and risk aversion.

- Targeted Technical Studies to address critical sectors, technologies, or goals. Examples include energy efficiency studies focused on load management opportunities, the agriculture sector, renewable technologies, small customer load aggregation, building commissioning, and compressed air systems.

- Custom Studies which are detailed technical analyses tailored to a specific customer's energy efficiency needs, concerns, and opportunities.

Through the *Peak Load Reduction Program*,[12] business customers will receive financial incentives to accelerate or initiate:

- Implementation of demand reduction measures
- Improvements which deliver more productivity per unit of demand or energy use.
- Direct load-control measures.
- Implementation of energy management and demand monitoring technologies.

Through the ***New York Energy $mart℠*** *Loan Fund*, reduced-cost financing for demand-saving and energy-efficient capital improvements will be available through a statewide network of financial institutions. This Program will provide access to low cost capital for proven energy efficiency measures,

[12]This Program, including the funding allocation, is described in more detail in Section D1: Improve Customer Load Management.

custom projects that provide energy and economic benefit (including non-electric measures) and renewable technologies, and educate the banking community on the value of making loans for these types of projects. The Program will be expanded to include lease financing, in addition to conventional loans in order to provide more energy project financing options for customers.

Funding Allocation	Category	Year 1	Year 2-6	Total
Technical Assistance Program	EE/Comm	$1,514,930	$10,315,000	$11,829,930
New York Energy $mart℠ *Loan Fund*	EE/Comm	$1,470,806	$8,858,000	$10,328,806
Total		$2,985,736	$19,173,000	$22,158,736

Benefits	Summer 2001	Summer 2002	End of Program
MW Reduction	0 - 2	25 - 35	110 - 130
Annual kWh reduction (millions)	3.6	101	430
Natural gas and oil savings (BTU's)	5.0×10^{10}	3.9×10^{11}	6.0×10^{12}
Number of participants	220	660	4,000
Leveraged capital investment	$2,300,000	$18,000,000	$270,000,000

D. Improve Energy Affordability and Efficiency of Municipal/Institutional Customers

Purpose

The purpose of the municipal and institutional programs is to improve the affordability of energy and the efficiency of its use, by municipal and institutional customers, through technical assistance to schools, hospitals, and government units, and through offering various financial incentives (including standard performance contracting arrangements and equipment leases and loans) to institutional customers, and process efficiency reviews and technology demonstrations for water and wastewater treatment facilities.

Context

- Public school districts in New York spend nearly $400 million annually on utility costs, possibly more than is spent for books and computers combined.[13] Increasing educational costs have prompted school administrators to seek energy efficiency.

- Facility managers at New York's more than 200 hospitals and other health-related facilities seek to control health care costs by reducing operating costs.

- New York State owns and operates more than 8,000 buildings with total energy costs of nearly $300 million annually. Over the last decade, limited capital has been invested in energy improvements in State-owned buildings and has typically been used for projects with quick paybacks, such as high-efficiency lighting. Many cost-effective opportunities to reduce facility energy operating costs remain.

- Municipal street and traffic lighting costs over $130 million annually. Existing rate tariffs pose barriers to the implementation of energy-efficient measures and the realization of savings by the municipalities. Energy-efficiency measures for street and traffic lighting have the potential for reducing energy use by 10-20%.

- Electricity costs for municipal water and wastewater operations exceeds $200 million annually. These public facilities are generally risk adverse and often lack the resources and information to take full advantage of innovative technologies and opportunities for reducing energy costs. To date, the energy services sector has largely ignored these facilities.

Program Description

Multiple strategies will be employed to overcome barriers to increased energy efficiency for the municipal and institutional sector. Strategies include provision of outreach and technical assistance services geared to the needs of schools, hospitals, and government units, and financial incentives for building energy improvements, as well as for improvements to water and wastewater treatment facilities.

[13]Based on a national survey of public schools conducted by the Alliance to Save Energy.

The *Energy Management Program* will be initiated for public and private K-12 schools, the healthcare sector, and the municipal sector, to reduce energy consumption, lower electric demand, and spur price-sensitive load strategies. Special emphasis will be placed on the K-12 market. Activities include:

- Internet-based monitoring of electric loads via advanced metering technology.
- Outreach to make facilities aware of their energy management opportunities.
- Technical assistance services.
- Educational materials highlighting energy and environmental issues.
- Recognition programs targeted to facility staff and administrators.
- Construction incentives for public and private K-12 school districts contemplating renovation projects too small for energy performance contracting.

The program will be coordinated with energy efficiency financial assistance programs described elsewhere in this Plan in order to provide incentives for the implementation of larger energy projects. A database on energy consumption patterns for the municipal/institutional sectors will be created through installation of advanced metering/monitoring devices. The programs are expected to achieve a reduction of 10-25% in utility costs for institutional customers resulting in estimated savings of $15 - $20 million per year and potentially lower taxes.

The *Municipal Water and Wastewater Initiative* will provide a process for accelerating the use of energy-efficient and innovative technologies by municipal water and wastewater systems in New York through risk reduction, demonstration, and education. The program will provide:

- Specialized technical assistance services such as energy efficiency reviews of new construction, and equipment and process changes.
- Energy efficiency audits and electricity submetering.
- Demonstrations of new energy-efficient technologies.
- Deployment of proven, energy-efficient technologies and processes through technology transfer.

Incentives to encourage fuel switching of water and wastewater treatment pumps from electric to dual-fuel (electric/natural gas) will be provided through financial assistance programs described elsewhere in this Plan.

Funding Allocation	Category	Year 1	Year 2-6	Total
Energy Management Program	EE/Comm	$3,133,590	$20,689,000	$23,822,590
Municipal Water and Wastewater Initiative	EE/Comm	$448,983	$2,320,000	$2,768,983
Total		$3,582,573	$23,009,000	$26,591,573

Benefits	Summer 2001	Summer 2002	End of Program
Peak MW Reduction	20 - 27	50 - 60	130 - 160
kWh Reduction (in millions)	49	280	873
Number of participating schools	10	30	60
Number of participating municipal/institutional facilities	10	50	200

III. REDUCE ENVIRONMENTAL IMPACTS OF ENERGY PRODUCTION AND USE

A. Build a Sustainable Market for Production and Sale of Renewable Energy

Purpose

The purpose of the renewable energy programs is to build a sustainable market for the production and sale of renewable energy technologies and the development of "green" energy markets. This involves developing partnerships with renewable resource brokers, dealers and installers, training appropriate personnel, and demonstrating innovative renewable technology installations.

Context

- Generating electric power with renewable energy technologies offers the opportunity to reduce air emissions associated with power generation and bring power production closer to the consumer. Recent surveys conducted by the Public Service Commission illustrate the interest in clean energy. While customers have a preference for clean power, they also desire competitive prices.

- The ultimate goal of research and development efforts in the renewable energy program is to develop mechanisms that increases the value of renewable energy technology to the point where it is greater than the cost of energy. The use of photovoltaic (PV) technology to offset peak power demand is one example of the value of renewable energy. During the July 1999 New York City power outage, the photovoltaic energy potential was coincident with the peak power demand and was at 93% of the maximum achievable on a clear, cloudless day.

- The majority of states across the Northeast have instituted programs to support the development and deployment of electric power production using renewable energy technology. In particular, states bordering New York will allocate a total of $68-$102 million/yr to support renewables. Coordination within the region is necessary to foster the development of critically needed regional green markets and insure that New York State continues to grow the renewable industry.

- With the financial support of SBC funds, the first merchant wind power plant was constructed in Madison and two other wind farms are expected before the end of 2001. NYSERDA is also negotiating with contractors to provide them with assistance in the identification and development of additional wind sites across New York State. In the solar area, approximately 1 MW of photovoltaic (PV) energy systems will be installed. This includes upwards of 250 residential PV installations and numerous commercial and institutional buildings. Over 350kW of the PV will be located in New York City. The Tompkins County Library now has a 150kW PV roof installation.

Program Description

Programs target both the end user and the wholesale market for renewable energy technology and power. Success in each of these sectors requires different, but integrated approaches. Strategies include creating partnerships with businesses with an interest in the renewable energy field in order to share the technical and financial risk of bringing new technologies to market, and supporting technical and analytical research

necessary to reduce barriers to market development. Competitive solicitations will continue to target companies along the manufacturing, distribution and installation path and provide them with the tools necessary to install and maintain high-quality systems. It is anticipated that wind energy systems will provide the major share of renewable energy for the wholesale market. As with any new market, the program will need to be flexible to take advantage of new opportunities that arise.

Requirements differ with the wholesale and end-user markets. At the wholesale level (large wind, bioenergy, low-impact hydropower), power marketers need access to sufficient renewable energy supplies to meet demand. In addition, market conditions are necessary that enable consumers to purchase green attributes in as seamless and efficient a manner as possible; viable market mechanisms need to exist to support traditional, non-recourse debt financing for green energy projects; information on the environmental attributes of energy products consumed in the market that is available and easy to understand by consumers; and, renewable energy resources that are not unduly penalized by traditional and uninformed administration of the power markets

At the end-user level (photovoltaics, small wind, and small bioenergy), a widespread wholesale and retail infrastructure that can support the market will need to be established for a working market to exist. Once this infrastructure exists, consumers will be able to purchase appropriate renewable energy technology with confidence that it will perform to specifications; local, qualified/certified service companies will be available to maintain the systems; and the installation of renewable energy systems will not result in unreasonable penalties imposed by the incumbent provider(s) of service (interconnection, backup rates and exit fees).

Through the *End-use Renewable Energy Market* program, activities will focus on performance-based installer/customer activities for residential and municipal, and commercial customers to encourage use of PV systems, as well as small-scale wind and biomass. Programs will:

- Provide training for individuals involved in designing, installing and inspecting systems and, long term efforts to educate the marketplace in the use and value of renewable energy technologies. The latter effort may include activities to bring renewable energy technology and curriculum to schools around New York State.

- Support a series of projects to evaluate the performance of systems in the field and develop, as necessary, tools that might increase renewable technology effectiveness. Installing renewable energy technology systems that are reliable over the long term is critical to establishing a viable market.

Wholesale Renewable Energy Market programs will support renewable-based distributed generation (i.e. large wind, bioenergy, low-impact hydropower) through risk-sharing of deployment and resource prospecting/cultivation. The Program will:

- Expand on efforts to identify viable wind sites across New York State by sharing the risk with developers, and others along the value chain.
- Include market-pull strategies for either green power or attributes. Building a wholesale market for power generated from renewable energy technology involves working with all parties involved in the construction, operation and, sale of the power. New York State is not alone in the development of a wholesale market for green power. Neighboring states have initiated renewable portfolio standards and public-benefit research programs in this area. Efforts to coordinate activities to increase the level of green power produced in New York will be continued.

An important component of the power market is the ability of consumers to make informed decisions about the power they purchase. The Department of Public Service is developing an *Environmental Disclosure* program to provide consumers with information on the environmental impact of the power they purchase. Efforts will be supported under the Renewable Energy program to coordinate with neighboring states to develop regional data requirements and the software to enable the disclosure process to work effectively.

Funding Allocation	Category	Year 1	Year 2-6	Total
End-use Renewable Energy Market	R &D	$3,359,630	$19,330,000	$22,689,630
Wholesale Renewable Energy Market	R & D	$6,502,509	$38,000,000	$44,502,509
Total		$9,862,139	$57,330,000	$67,192,139

Benefits	Summer 2001	Summer 2002	End of Program
MW of installed wind power	0	18.5	200-300
Mwh from wind (30% capacity factor)	0	48,618	525,600-788,400
MW of installed PV	0	1	2
Mwh from PV (16% capacity factor)	0	1,402	2,803
Number of PV supply and service firms in New York	10	35-50	100-200

B. Increase Environmental Performance and Sustainability of New Buildings

Purpose

The purpose of the new buildings programs is to increase the environmental performance and sustainability of buildings through technical assistance and financial incentives to home builders and remodelers, especially to those building ENERGY STAR® homes; by encouraging the installation of energy management equipment in commercial buildings; by increasing consumer demand for energy-efficient "green" buildings; and by offering continuing education to design professionals in energy-efficient green buildings.

Context

- Over $3 billion in new commercial construction activity, $3 billion in residential construction involving 20,000 homes and $6 billion in energy-related substantial renovation and upgrades occurs annually in New York State.

- Opportunities to implement improvements in the building envelope, major systems, and equipment and appliance selection at time of construction and major renovation are often lost due to lack of information, perceived risks, and shortage of capital. If not captured at the time of construction, opportunities to improve these systems cost-effectively may not exist for a decade or more. The building industry is particularly slow to adopt new technologies or solutions. Access to advanced technology in the New York State construction industry is limited.

- Energy-efficient/green buildings: use less energy; can increase use of renewable and clean energy technologies; increase the demand for environmentally preferable building materials, finishes and furnishings; decrease pollution (indoor and outdoor); and create industry and public awareness of new technologies that can improve the quality of life, health, and productivity of building occupants.

- Commercial and residential new construction programs have commenced under the initial SBC funding period. By December 31, 2000, the commercial New Construction program had 280 active applications with a total incentive value of nearly $15 million. Once completed, these projects are expected to result in electric savings of 38 million kWh and summer peak demand reduction of approximately 13 MW. The commercial New Construction program is also building a network of qualified service providers with a total of 250 architecture and engineering firms, 150 contractors, and 35 vendors participating in the program. The Residential New Construction program has assembled an implementation team and is currently conducting program design and market assessment work.

Program Description

This initiative will improve the design and operation of homes and new/renovated commercial buildings by developing an infrastructure of builders and design professionals to produce permanent improvement in design and construction practices that will continue without need for short-term incentives. The *New Construction Program* and the *New York ENERGY STAR® Homes Program* will be expanded and refined to encourage the adoption of energy-efficient design features and the selection and installation of more

energy-efficient equipment in commercial, institutional, and multi-family buildings and single-family homes. These programs will:

- Provide technical assistance and training to building owners, design teams, and builders to assess and model efficiency options beyond standard practice and to evaluate products and approaches that assure good indoor air quality and minimal environmental damage.

- Provide financial incentives to building owners and developers for building designs and measures that are more energy-efficient than standard design, reduce electric load, improve indoor air quality, incorporate advanced technologies and load management strategies, or use renewable or other clean generating technologies.

- Facilitate the use of DOE2.1 computer modeling to analyze projected energy consumption and improvement opportunities.

- Provide tools and incentives to builders to encourage them to build ENERGY STAR® Homes, install ENERGY STAR® appliances and other energy-efficient equipment, and incorporate ventilation standards to assure improved indoor air quality.

- Provide the Architectural and Engineering (A/E) community with access to experts, case studies of successful projects, model designs, educational services and technical tools to increase understanding and sustained use of energy-efficient design practices.

- Provide commissioning assistance and incentives for new and existing buildings to assure that measures and equipment have been installed properly and are operating correctly.

- Provide high performance building guidelines and support for LEED certified U.S. Green Building demonstration projects.

- Demonstrate and evaluate innovative day-lighting and solar-thermal technologies that reduce electric use associated with connected lighting load and with building heating and hot water systems.

- Develop new solutions to deal with problems associated with poor indoor air quality.

These programs will also increase demand for energy-efficient and green buildings and homes by making the public aware of their benefits and creating a direct link with other mid-stream market activities. The programs will:

- Create customer pull to increase the number of premium-efficiency motors, efficient HVAC equipment, lighting systems, building transformers and other products installed in new or renovated buildings through customer marketing campaigns and incentives.

- Expand the ENERGY STAR® Homes program statewide and include the design community, realtors, distributors, and subcontractors. The program will be linked with the ENERGY STAR® Public Awareness Campaign and Appliance and Lighting programs to stimulate consumer demand for ENERGY STAR® Homes and assure that ENERGY STAR® appliances and lighting are installed.

- Provide public recognition for the most energy efficient buildings and homes, and those which incorporate environmentally sensitive design and products.

Changes contemplated to the New York State Energy Conservation Construction Code will raise minimum baseline practices and eliminate the need to provide incentives for a number of energy measures in the future. The focus of the program can then shift from capital cost incentives to increased adoption of building commissioning as a strategy to assure initial and continued energy savings in buildings, and to ongoing education of the A/E community on advanced technologies. Similarly, once construction of ENERGY STAR® Homes reaches a rate of 15%, program incentives will be reduced.

Funding Allocation	**Category**	**Year 1**	**Year 2-6**	**Total**
New Construction Program	EE/Comm	$7,464,106	$47,919,800	$55,383,906
New York ENERGY STAR® Homes Program	EE/Res	$1,830,611	$11,771,200	$13,601,811
Total		$9,294,717	$59,691,000	$68,985,717

Benefits	**Summer 2001**	**Summer 2002**	**End of Program**
Peak MW Reduction	1.5	9 - 11	26 - 35
Annual kWh savings (in millions)	28.5	57	150
Number of participating A/E firms	60	120	300
Number of commercial buildings funded	150	300	785
Number of participating ENERGY STAR® home builders	75	150	375
Number of ENERGY STAR® Homes funded	250	750	2,000

C. Environmental Monitoring and Analysis to Support Public Decision Making

Purpose

The purpose is to conduct monitoring and analysis of electricity-related environmental impacts, to support public decision-making.

Context

- Electricity generation is a major source of nitrogen and sulfur oxides, volatile organic compounds, fine particles, air toxics such as mercury, and greenhouse gases. These pollutants are associated with environmental and public health problems including acid deposition, smog, visibility degradation, climate change, and increased human mortality and morbidity. These pollutants also impose considerable economic burdens by increasing health costs; degrading building materials; and reducing the value of fishing, tourism, recreational, and scenic resources.

- Research and monitoring data are necessary to formulate effective and equitable public policies. There are no market incentives to spur private investment in ecosystem monitoring and assessment, given that the benefits are diffuse and cannot be captured by any one private investor. With utility restructuring, utilities have stopped sponsoring environmental field programs, leaving a gap in funding.

- An Environmental Monitoring and Evaluation Program (EMEP) was established with the initial SBC funds. The program funded 17 research projects covering significant environmental issues of acid rain, ozone, fine particles, and mercury, leveraged over $4 million in national co-funding, and established an environmental research infrastructure in New York. Results of the projects are being used by policy makers and analysts. Nearly 200 people representing a wide cross section of policy makers and scientists participated in a conference sponsored by the program.

Program Description

The goal of the *Environmental Monitoring, Evaluation, and Protection (EMEP) Program* is to provide scientifically credible and objective information on the impacts of pollution associated with electricity generation. This will assist policy-makers in developing cost-effective and equitable policies to protect public health and the environment in New York. The program will:

- Support baseline ecosystem monitoring and assessment of electricity-related pollution and ensure public accessibility to data.

- Increase understanding of fate and transport of electricity-related pollutants and impacts of transboundary pollution (i.e., pollution originating outside New York).

- Support science-policy studies that place electricity-related pollution in the context of other sources and exposure, including indoor versus outdoor.

- Provide science-policy integration in energy-related environmental areas, such as acid deposition, mercury contamination, fine particles, and ozone.

The program will contain the following components:

- A broad competitive solicitation issued in Yr 1 and Yr 3 to provide funding for critical environmental monitoring and analysis projects that support program goals.

- A series of targeted, competitive solicitations, with the focus defined by stakeholders in the EMEP Program, including EMEP's Program Advisory Group and Science Advisors. Potential topics include:

  - Fine particulates (source profiles and apportionment studies, characterization of ambient particulates including organic components/ultrafines, pollutant interaction, indoor vs outdoor exposures, health effects research).

  - Mercury (ecosystem cycling, monitoring and characterization of levels, source-receptor relationships, relationship with acidification; other critical areas based on results of the EMEP study on "Critical Gaps in Research on Mercury in New York State").

  - Acid deposition (will be defined as needed based on results of the current EMEP project "Integrated Assessment of the Recovery of Surface Waters from Reduced Levels of Acid Deposition in the Catskills and Adirondacks").

  - Ozone (e.g., assessment of ozone formation potential of small vs large point sources as it relates to potential changes in the electric grid).

  - Cross-cutting and integrated analysis (e.g., development of tools to identify and address system-wide multimedia impacts of new generation including distributed generation, development of multiple pollutant control strategies).

  - Air toxics, global climate change research of critical significance to New York, and possibly alternative mitigation strategies.

- Continuation of the Long-Term Monitoring Project for Evaluating Changes in Water Quality in Adirondack Lakes. This unique program, conducted by the Adirondack Lakes Survey Corporation (ALSC), will provide critical data to enable policymakers to evaluate effectiveness of acid deposition control strategies.

- A robust science/policy communication component to deliver program findings and other pertinent information to policy-makers, scientists and the public. This includes conferences, workshops, technical communication products, other information transfer initiatives, and peer review.

- The program will continue to leverage national co-funding into New York to address critical State issues and provide a forum for exchange of information between policy makers and scientists in New York. Specific benefits include providing scientifically sound information to:

  - Help develop effective State Implementation Plans for complying with new fine particle standards.
  - Guide next generation of acid deposition mitigation strategies.
  - Assist in formulating effective and equitable mercury controls strategies - currently under development by EPA.
  - Support equitable and effective ozone control strategies.
  - Help assess the environmental impacts of the restructured electricity sector and emerging distributed sources of electricity.

Funding Allocation	**Category**	**Year 1**	**Year 2-6**	**Total**
Environmental Monitoring and Analysis Program	R & D	$2,113,315*	$12,285,000	$14,398,315**

* includes $1,016,000 of set-aside funds

** includes $4,157,000 of set-aside funds; $2,403,000 is allocated for the ALSC, @ $480,600/yr

IV. FACILITATE COMPETITION TO BENEFIT END USERS

A. Develop an Energy Service Industry

Purpose

The purpose of the energy service industry program is to foster an enhanced energy services industry by providing performance-based incentives fostering energy efficiency savings (focusing on summer demand reductions), and fostering customer aggregation; by providing training and marketplace assistance to ESCOs; and by covering a share of the costs of providing comprehensive energy surveys to under-served customer sectors.

Context

- Development of a strong energy efficiency services industry is key to success of a competitive electric commodity market. Energy service companies (ESCOs) are increasingly using the promise of increased energy efficiency, with associated bill savings, as the driver for energy commodity contracts. Lower commodity prices, a key goal of deregulation, is enhanced by comprehensive efficiency efforts that reduce energy use and demand.

- Barriers to the development of a sustainable energy efficiency market include transaction costs and performance uncertainty.

- Implementation of energy efficiency on a performance-basis offers assurance of real energy cost savings that persist over the life of the equipment upgrade.

- At present, commodity savings are too small to cause all but the largest electricity using consumers to explore alternatives to their existing utility supplier. By bundling with efficiency and other services ESCOs can offer a more attractive package that will encourage more consumers to take the risks that participation in competitive markets demands.

- Performance-based energy efficiency programs are compatible with emission reduction trading initiatives and should be more formally linked.

- With the initial SBC funding, NYSERDA established the Standard Performance Contract program. As of December 31, 2000, the Standard Performance Contract program has awarded more than $37 million in incentives for projects that are expected to lead to electricity savings of over 233 million kWh. This program will provide performance contracting for 140 customers through more than 40 energy service companies.

Program Description

Efforts to build a strong energy efficiency services industry will continue with a focus on increasing participation of small commercial, institutional, and multi-family residential customers. The number of ESCOs that offer both energy efficiency and commodity is also expected to grow providing a significant impetus for the development of a competitive electric commodity market. The program will:

- Provide performance-based incentives for energy efficiency and demand savings (focused on summer peak demand reductions) to a broad network of energy efficiency service providers through the *Standard Performance Contract Program*. The name of the Standard Performance Contract (SPC) program is being changed to the **New York Energy $mart℠ Commercial/Industrial Performance Program**. The new name emphasizes the broad applicability of the program in promoting comprehensive efficiency projects in the commercial, industrial, institutional, and governmental sectors, regardless of the underlying contract structure between the customer and the contractor.

  - Incentive rates will vary by end use to reflect a percentage of the cumulative present value of savings. The percentage may vary based on the need to stimulate energy efficiency in a market sector, end-use, specific technology, or area of the state. The incentive will be reduced when the customers pays the SBC charge on less than half of the total on-site electrical consumption.

  - Higher incentive rates will be offered to encourage aggregation of customers in under-served market sectors.

  - Fuel conversions that address summer peak are eligible. An additional incentive will be offered for reduction of nitrogen oxides to emphasize the environmental benefits of energy efficiency.

  - The program will include a marketing component to reach under-served market sectors. To achieve sustainable market activity, end-use customers participate indirectly through an energy efficiency contractor, including ESCOs, lighting and HVAC contractors, and architecture and engineering (A&E) firms.

  - Measurement and verification (M&V) requirements will be based on the International Performance Measurement and Verification Protocol with duration periods varying based on the reliability and persistence of savings for specific measures. M&V requirements will be kept simple, streamlined, and cost-effective.

- Provide cost-sharing through the *Energy Performance Contract Assistance Program* for comprehensive energy audits, or other costs associated with the development of an energy-efficiency project in order to reduce the risk of engaging in performance contracts for institutional, small commercial, and multi-family residential building customers. Technical assistance will be provided to assist in the development of performance-based projects for niche markets.

- Provide *Training and Technical Assistance* for energy efficiency contractors in areas such as calculation of energy savings, energy savings measurement and verification, and other project development and management skills that will better enable them to complete successful performance-based projects.

  – Training and certifying midstream market participants provides consumer protection and ensures consumers receive quality energy efficiency and demand savings services through Home Performance with ENERGY STAR®.

- *Information and Outreach* strategies will be implemented that will inform consumers of the providers of energy-efficiency services through web-based and community-based programs.

Funding Allocation	Category	Year 1	Year 2-6	Total
Standard Performance Contract	EE/Comm	$11,611,623	$75,000,000	$86,611,623
Energy Performance Contract Assistance Program	EE/Comm	$1,224,106	$7,341,169	$8,565,275
Training, Technical Assistance, Information and Outreach	EE/Res	$1,853,948	$11,995,053	$13,849,001
Total		$14,689,677	$94,336,222	$109,025,899

Benefits	Summer 2001	Summer 2002	End of Program
MW Reduction	20 - 29	55 - 69	140 - 160
Annual kWh savings (in millions)	75 - 100	200	600 - 675
Number of performance contracting projects	45	145	400 - 500
Leveraged Investment	$9 - $12 million	$34 - $40 million	$400 million
Number of ESCOs offering performance contracting	50	70	100
Number of certified home contractors	50	150	500

B. Improve Viability of Distributed Power Generation/Combined Heat and Power as an Economic Energy Option

Purpose

The purpose of these programs is to demonstrate and promote the use of distributed generation (DG) technologies and combined heat and power (CHP) applications. This involves demonstrating these technologies in various industrial, municipal, institutional, and building applications; testing the technologies, including fuel cells; and developing appropriate equipment and installation codes.

Context

- Over the past decade NYSERDA's statutory research program has sponsored micro-generation technology development in the areas of fuel cells and micro-turbines. Over 60 field tests and demonstrations are being undertaken to validate various DG technologies. In 2000, NYSERDA's first ever CHP solicitation attracted thirty-five proposals offering to reduce peak electricity demand by 11 MW by year 2002. From these proposals, sixteen projects offered to reduce demand by nearly 2 MW in 2001 and an additional 2.8 MW in 2002 were selected for a $4 million funding. All projects are expected to result in economic and environmental benefits associated with improved fuel-use efficiency.

- Emerging distributed generation (DG) technologies offer the potential to self-generate electric power at efficiencies and with emissions competitive to central station generation. When heat is recovered for useful purposes, i.e., cogeneration or CHP, these options can provide the consumer with a highly efficient and reliable energy supply option at prices competitive with the grid while reducing emissions. The DG/CHP systems can exceed 80% fuel-use efficiency and can significantly reduce NOx and other air pollutant emissions.

- Use of DG/CHP offers a means to enhance a customer's power quality and reliability, alleviate load pocket constraints, and provide customers with an option to load shedding, in addition to energy-efficiency and air quality benefits. Therefore, DG/CHP represents an opportunity to improve energy-efficiency and to reduce environmental impact associated with power generation/use.

- New York's deregulated electricity market furthers the potential for DG/CHP growth in the long-term, but faces hurdles such as utility interconnection, exit fees, and standby/backup charges in the near-term. Today's uncertain electricity prices, continued demand for reliable and high quality power, and the development of numerous viable DG technology options offer a unique opportunity to promote DG/CHP. A DG/CHP system needs to be tailored for size, application, end-user load profiles (electric/thermal), and site constraints. The thermal energy may be used for process/space heating and/or refrigeration/space cooling via an absorption chiller. The coincident production and use of electrical and thermal energies could necessitate electric/thermal load changes to make DG/CHP a more viable option, thus providing an opportunity for energy-efficiency improvements.

Program Description

The *DG/CHP Program* will be implemented through competitively selected contractors. Emphasis will be placed on demonstrating system/application viability, cost-effectiveness, reliability, and replicability. DG/CHP generating options include turbines (steam, combustion, micro), reciprocating engines (diesel, natural gas), and fuel cells (phosphoric acid, molten carbonate, solid oxide, alkaline, proton exchange membrane (PEM)). These systems offer a wide range of capacity starting at a 2 kW PEM fuel cell to a 25 MW gas turbine at prices ranging from several thousands of dollars per kW for fuel cells to $500 per kW for combined cycle turbines. Solicitations will be issued to:

- Demonstrate and promote DG and CHP technologies and applications in industrial, agricultural, institutional, and building applications.
  - Emphasis will be placed on demonstrating the use of early commercial offerings, assessing technology viability, analyzing regulatory, policy, and economic barriers, and increasing end-user awareness.
  - The documented performance characteristics will be utilized to develop analysis tools that will enable energy service companies, performance contractors, and designers to predict system performance. The analysis tools will also be designed to model and predict the environmental impact of technology implementation.
- Develop and test advanced DG and CHP systems.
- Test small fuel cell, micro turbine and other clean micro-generation and energy storage product offerings for different end-use applications such as load peaking, load following, base load and power quality functions.
- Solicitations will allow product development of systems designed to address specific issues and opportunities including: fuel type (natural gas, bio-derived methane, propane, etc.); application (load following, base load, peaking, power quality, grid support); efficiency; and environmental performance.
- Develop equipment and installation codes and standards for emerging micro-generation products and inspector/installer training.
  - National standards organizations are working on code development issues but New York State specific issues need to be represented. Local and state regulatory and enforcement organizations will be provided with information and a mechanism for input to the process.

- Stimulate and support the service business for the emerging distributed generation products market.
  - Training of installers and service technicians and the establishment of service centers for this new industry will be supported. The core program is anticipated to include all distributed generation technologies including PV and small wind installations.
- Demonstrate and evaluate opportunities for system aggregation of systems and impacts on utility interface, regulatory issues, distribution system reliability and power quality.
  - Funded elements will include advance hardware development and testing for DG control and emissions reductions.

Funding Allocation	Category	Year 1	Year 2-6	Total
Distributed Generation/Combined Heat and Power Program	R & D	$8,637,233*	$58,445,839	$67,083,072**

* includes $8,298,000 of set-aside funds

** includes $51,499,000 of set-aside funds

Benefits	Summer 2001	Summer 2002	End of Program
Peak MW Reduction	0	8 - 12	60 - 75
Number of units installed		15 - 25	100+

C. Address Institutional Barriers to Competition

Purpose

The purpose of this objective is to address existing barriers to competition and increased participation by small and low-income consumers in retail energy service markets facilitating conservation and energy efficiency; promotion fuel diversity; exploring strategies to establish a working marketplace for conventional and green power supplies; and demonstrating customer aggregation techniques.

Context

- The transition to a competitive electric power market is a complex process that requires an ongoing evaluation and assessment of regulatory infrastructure, and institutional issues and opportunities.
- Attribute trading (the stripping of some or all of the environmental value from renewable energy-based electricity generation in the form of a derivative) is one example of a market opportunity. Attributes, or renewable energy credits, are tradable in and of themselves and may represent a market mechanism for meeting requirements of renewable portfolio standards in other states.
- Creation and sale of renewable energy credits is largely a market-driven phenomenon with limited statutory or regulatory support. Success will require close coordination with neighboring states and creation of public or private mechanisms to measure and verify the renewable energy credits.
- Another area targets the needs of the low-income sector including ways to allow low-income households to secure lower prices for natural gas, fuel oil, propane, and electricity while receiving energy efficiency and demand management services.

Program Description

Examples of the types of projects that could be supported under this objective include:

- Addressing existing and future barriers to the increased participation of small and low income consumers in retail energy service markets through customer aggregation techniques.
- Exploring the support of a power exchange for the buyers and sellers to come together and trade energy and energy-related products.
- Facilitating the establishment and implementation of clear rules and regulations governing the connection of small power generation devices to the power grid.
- Assisting state and local governments in the development of consistent codes and standards for the deployment of new, energy-efficient technologies.
- Establishing a market for attributes associated with clean power generation and efficiency.

- Allowing state and local agencies to identify and assess impediment to and ways to ease the transition to a competitive power market and to provide input and feedback to state and federal legislation and policy.

Funding Allocation	**Category**	**Year 1**	**Year 2-6**	**Total**
Institutional Barriers to Competition	R & D	$663,411	$4,572,000	$5,235,411

Benefits	**Summer 2001**	**Summer 2002**	**End of Program**
MW Reduction	0	0	.5 - 1

D. Increase Consumer Awareness of Energy Supply Issues.

Purpose

Ensure consumers have the awareness, information and understanding they need to make informed decisions regarding their energy product and service choices, utility service, utility competition/choice, energy supply, siting of new power generation facilities and transmission lines, and alternative energy sources.

Ensure that consumers know how to get additional information and provide comment on energy and utility service related decisions, conditions, and programs.

Context

The transition to competitive markets poses a consumer education challenge over the next few years:

- Raising awareness and increasing understanding of the competitive energy market to develop a knowledgeable public that can make informed decisions.

An aggressive, comprehensive and 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 that outlined above.

Program Description

Two interrelated areas will be the focus of the Public Awareness and Education Program:

- Need for More Generation (New York Needs More Power)
- Energy Competition (Your Energy, Your Choice)

These initiatives will use paid media, brochures, direct mail, billboards, and other means to educate the public. NYSERDA will administer the related contracts for program implementation in consultation with Public Service Commission staff. In coordination with NYSERDA staff, Public Service Commission staff will be responsible for program design, development, implementation, evaluation and oversight of these programs. Coordination between NYSERDA and Public Service Commission staff will be essential to ensure the effectiveness of the outreach efforts.

Need for More Generation (New York Needs More Power)

Years of sustained growth in an economy that increasingly relies on electricity to power the information age continues to increase New York's need for more electricity. Although the Siting Board is approving new

plants, they will not be on line for at least two to three years. The result is a shrinking cushion between electric supply and demand. The goals of this initiative are to further understanding of New York's dependence on a reliable electric supply, the need for additional capacity, the role of conservation and energy efficiency, and the many issues involved in siting new large generation plants.

Objectives

Specific objectives for the initiative include the following:

- Raise awareness of the shrinking cushion between electric generation supply and growing demand.
- Increase understanding of electricity production, transmission and supply.
- Raise awareness and understanding of the siting and construction process.
- Identify and clarify the reasons for the resistance to the siting of new power plants.
- Increase understanding about the age, condition, efficiency and environmental consequences of existing plants and their environmental impacts.
- Increase understanding that there is a need for new power plants.

Messages

The messages will include the following:

- Due to years of a robust economy, we are using more electricity than ever.
- Development of new electricity supplies has not kept up with increased demand.
- Older existing power plants are not as reliable, efficient or environmentally friendly as new plants.
- It takes a number of years before a proposed power plant can be brought on line.
- There are constraints on the storage and transmission of electricity - it is not easy to store and sell when needed, transmission over long distances is less efficient, and transmission is not always possible.
- Upward pressure on prices may be relieved with an increase in capacity.
- Additional electrical generation may increase our independence from foreign influences on New York's electricity production and price.

Communications Strategy

Predictably, there is often opposition to the siting and construction of new power plants. This very sensitive subject must be dealt with in a tactful, factual manner so New Yorkers all across the state understand the shrinking cushion between supply and demand. In particular, this important information and message must be brought to the public in affected areas, such as the Hudson Valley. New York's need for more power will complement the summer demand, energy competition, and winter heating campaigns. Cable TV is

extremely targeted and will allow directing of the campaign to specific demographics. While the need for more power is a national and statewide issue, there are areas of New York where the need for building new plants is considerably greater, e.g., Long Island, New York City, and the Hudson Valley. Due to the opposition to siting and construction of new plants and a skepticism about the need for new plants, care must be taken in how this message is presented. Newspaper advertising and participation in conferences and events may also be effective tools.

Energy Competition (Your Energy…Your Choice.)

Continuing to build public awareness and understanding of competition is an essential element in the transition to a competitive market. The "Your Energy…Your Choice" program will complement the summer electric demand, winter heating, and need for more generation programs. The goals of this program are to increase awareness and understanding of energy competition, and how to make informed choices in the competitive market.

Objectives

Specific objectives of this initiative include the following:

- Increase awareness of the opportunity to consider an alternative energy service company (ESCO).
- Facilitate New Yorker's ability to find out what ESCOs serve their area.
- Increase understanding of the potential advantages of having a choice in suppliers.
- Increase New Yorker's understanding of their rights and protections.
- Increase New Yorker's understanding of, and access to, information necessary to shop for an ESCO.

Messages

The messages will include the following:

- Companies other than your utility may now compete to supply your gas and electricity. You may save money or get other service benefits by switching to these companies, known as ESCOs.
- Your utility will still deliver the electricity or natural gas to you, and will still handle any emergencies.
- You may save money by joining together with others to purchase your natural gas or electricity.
- Your utility must allow you to switch back if you choose to.

Communications Strategy

Integrate the "Your Energy…Your Choice" messages into the winter heating campaign and the summer electric demand campaign. Radio, print, and outdoor advertising, and grassroots education programs will be used. Identify and implement as needed and appropriate specific advertising and outreach strategies and campaigns designed specifically to promote and educate consumers about choice.

Funding Allocation	Category	Year 1	Year 2- 5	Total
Need for More Generation	EE/Res	$546,000	$2,457,000	$3,003,000
Consumer Choice	EE/Res	$546,000	$2,457,000	$3,003,000
Total		$1,092,000	$4,914,000	$6,006,000

Benefits

There are no direct MW reductions associated with this awareness effort.

SECTION 3

PROGRAM EVALUATION

Evaluation Budget

The evaluation budget for the initial 3-year **New York Energy $mart℠** funding period was 0.32% of SBC funds administered by NYSERDA, or $133,000 annually. The evaluation budget approved by the Public Service Commission (PSC) for the upcoming funding period is two percent of NYSERDA's funding, or approximately $2.8 million annually.

Evaluation Objectives

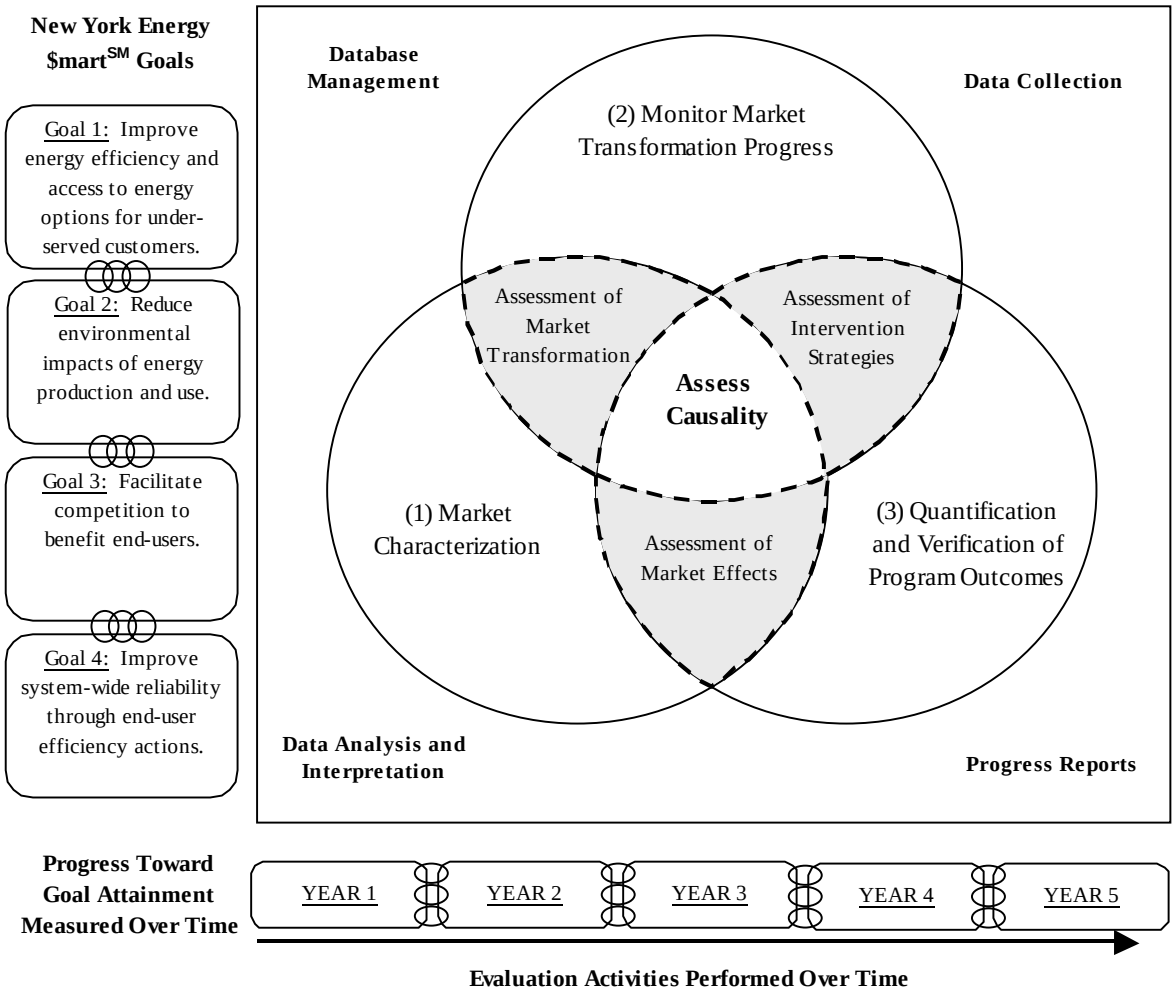
The goal of the evaluation is to provide objective, policy relevant information on the impact that the **New York Energy $mart℠** program is having on the public benefits program goals established by the PSC. The evaluation effort is designed to:

- Provide a credible evaluation of the **New York Energy $mart℠** program, including all of the existing programs under the initial funding period and all new programs.
- Provide timely information to the PSC, SBC Advisory Group, and NYSERDA managers on the:
  - Efficiency and effectiveness of program administration and implementation.
  - Market transformation progress toward moving markets to improved energy efficiency.
  - Progress toward the PSC's broad policy goals including energy efficiency resource acquisition, energy savings, and economic and environmental benefits.

These objectives will be achieved by a series of tasks broadly categorized as (1) market characterization, (2) assessing market transformation progress, and (3) quantification and verification of program outcomes. The evaluation framework depicted in Figure 2, illustrates the simultaneous performance of these tasks in fulfillment of the evaluation objectives. The figure also includes specific functional activities that will support the task categories: (1) data collection, (2) database management; (3) data analysis and integration, and (4) progress reports. Each evaluation report will provide the most comprehensive view possible at any given time, including both process and progress indicators.

Figure 2

New York Energy $mart[SM] Evaluation Model



Evaluation Activities

Market Characterization

Market characterization activities will enhance the current knowledge about how markets work and availability of baseline data regarding New York State's electricity users in terms of (1) energy use, (2) perceptions and values regarding energy efficiency; (3) current behaviors regarding the purchase and use of energy-efficient products and services; (4) barriers to reducing energy use and adopting energy efficiency products and services; and (5) future intentions regarding energy and electricity use including investment in energy efficiency.

Energy-use sectors to be characterized include the small and large commercial buildings sector; the small and large industrial sector; and the residential sector, including low-income customers. An overview of the end-use sectors, markets, and data collection efforts to be undertaken is provided in Table 6.

Table 6

Market Characterization Studies

End-use sector	Markets	Data
Commercial - Small <10,000 sq.ft. - Large >10,000 sq.ft. Facility types - Office - Retail - etc.	• New Construction • Retrofit/Replacement • Equipment	Energy Use Energy cost burden Energy-intensive activities or equipment Energy-efficiency baselines Access to energy options Key energy-related decision makers, decision processes, and criteria Geographic distribution of needs, particularly for low-income initiatives Potential adoption of load modifying measures, including solar, wind, and distributed generation
Industrial - Small <50,000 sq.ft. - Large >50,000 sq.ft.	• Retrofit/Replacement • Process improvements • Equipment	
Residential - 1-4 family - Multi-family - Low-Income	• New Construction • Retrofit/Replacement • Appliance and Lighting Equipment	

Market characterization data will be used to: (1) target customers and measures most in need of assistance in overcoming barriers to improved energy efficiency, (2) assess program and market logic needed to develop and implement programs, and (3) make program modifications when deemed necessary. The market characterization effort is expected to be conducted over several years, rather than all at once. This effort will be coordinated with the market characterization and baseline work that has been conducted at the program level under the initial public benefits charge funding and planned work.

Monitor Market Transformation Progress

Evaluation of market transformation effects will assess the impact of individual programs as well as market changes resulting from the portfolio of programs working in concert. Portfolio-level monitoring allows for a more comprehensive assessment of the progress being made toward moving markets to higher levels of energy efficiency. Sample measurement variables include:

- Measuring market transformation outcomes such as energy use, awareness of high-efficiency products and services, and changes in consumer and decision-making behavior. These outcomes will be assessed by the sectors listed in the first column of Table 6.

- Monitoring product and service markets that are being targeted by **New York Energy $mart℠** programs. Impacts such as increased access to high-efficiency energy options (*e.g.*, equipment availability, choice in selecting energy provider, *etc.*) will be assessed.

Quantification and Verification of Direct Program Outcomes

The current scope of progress measurements in the initial 3-year funding period will be expanded to include:

- Load Reduction by sector and service area.
- Energy Savings by sector and service area.
- Environmental Impacts.
- Economic Impacts.
- Distribution of benefits by utility service area.
- Cost-effectiveness of programs.

Additional Evaluation Activities

In addition to the activities already mentioned, evaluation assistance contractors will support NYSERDA in the following data collection and coordination activities:

- Process evaluations, including tracking cycle-time and participant satisfaction with NYSERDA's administration.

- Updating the current methodology and data being used to screen cost-effectiveness of energy efficiency measures supported by the **New York Energy $mart℠** incentive programs.

- Additional case studies to provide richer descriptions of programs and to assess continued influence of program and market logic.

- Integration of information from multiple evaluation contractors in the reporting of specific program area outcomes.

Structure of Evaluation Team

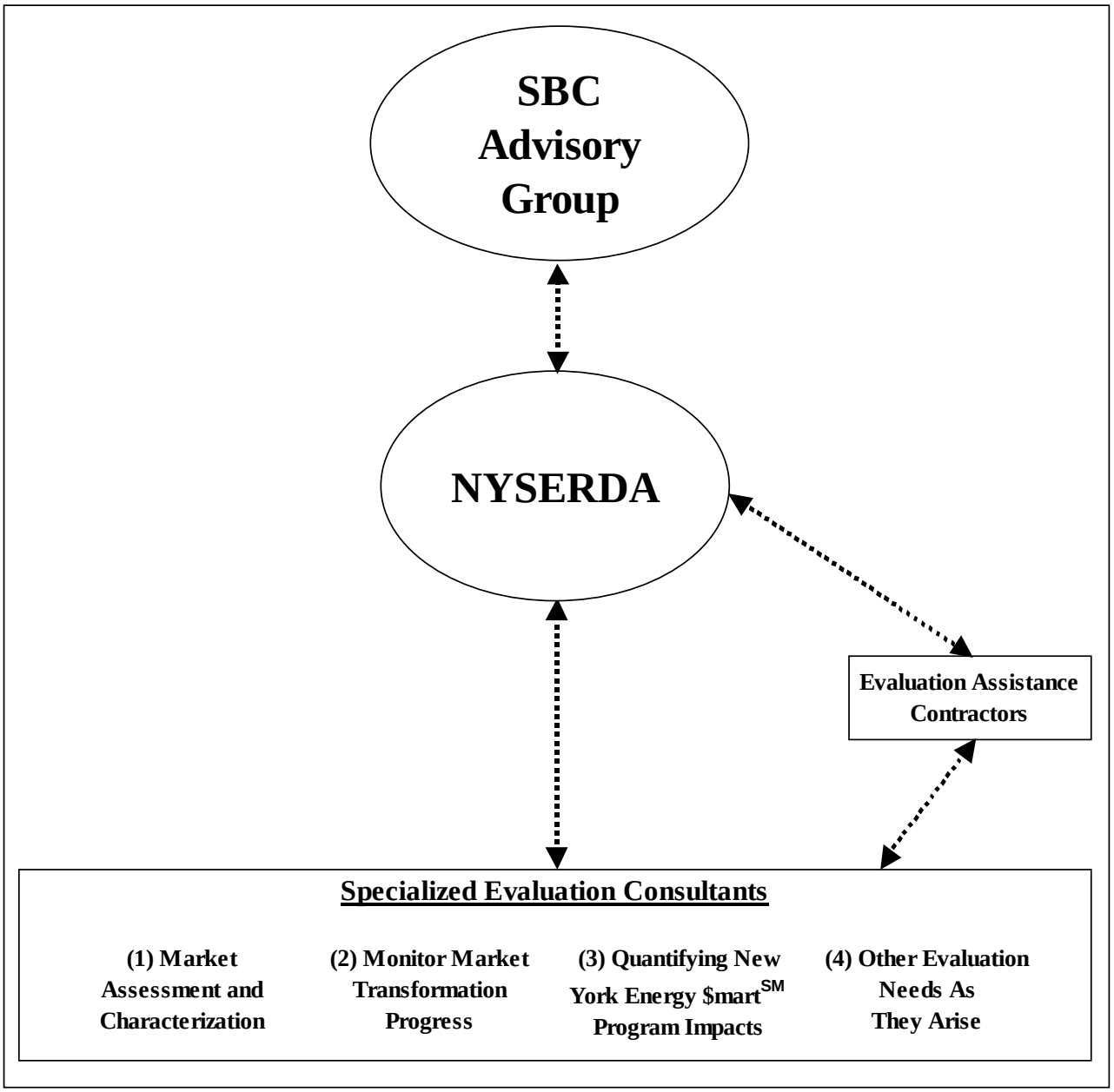
NYSERDA will continue to oversee the evaluation of the **New York Energy $mart℠** program, coordinating the work of various contractors. NYSERDA will maintain a close working relationship with its evaluation assistance contractors and will have them assist NYSERDA with selection of specialized consultants for the evaluation activities shown in Figure 3. In addition to providing oversight and coordination support, the evaluation assistance contractors will provide independent appraisals of the evaluation process, creating a system of checks and balances and assuring independence and objectivity in the reporting of results. NYSERDA will continue to report to the SBC Advisory Group and seek input on evaluation methodology and findings. The team approach to evaluation is depicted in Figure 3.

Evaluation Reporting

Consistent with PSC's January 26, 2001 *Order Continuing and Expanding the System Benefits Charge for Public Benefit Programs*, NYSERDA will provide detailed status and evaluation reports biennially in December 2002 and December 2004. This two-year cycle for detailed reporting is consistent with the SBC Advisory Group's recommendation that the criteria of well-functioning markets should be evaluated every two years to determine the need for further intervention. NYSERDA will also provide interim status reports in December of each year that a detailed report is not prepared. These interim reports, the first of which will be submitted in December 2001, will provide overall results for both phases of New York's public benefit program. In addition to the detailed and interim reports, NYSERDA will also continue to provide quarterly reports to the DPS and SBC Advisory Group, updating the current status of program implementation and evaluation findings.

Figure 3

Evaluation Structure, Oversight, and Responsibility



SECTION 4

PROGRAM IMPLEMENTATION

Procurement Guidelines

In administering SBC-funded public benefit programs, work will be procured in accordance with its Procurement Guidelines, approved annually by NYSERDA's Members (board of directors) pursuant to Public Authorities Law, §2879. NYSERDA's Procurement Guidelines generally require it to use its best efforts to secure offers from potential contractors on a competitive basis, selecting from the offerors the one providing the most favorable terms, including weighing expected ability to perform and project costs. Among the requirements NYSERDA must conform are:

- Advance notice must be given in the State Contract Reporter of pending solicitations, although notice is waived for emergency solicitations and those that will be re-bid within 45 days.
- Proposals must be solicited from multiple organizations and potential contractors, including those identified by NYSERDA's own efforts and those responding to the notice in the State Contract Reporter.
- Proposals must be evaluated based on a variety of criteria, including but not limited to, technical and professional qualifications, financial preparedness, past performance and experience, price, and consistency with the SBC plan and identified priorities.
- The selection process must be thoroughly documented.

NYSERDA's Board has waived competitive solicitation requirements for the following circumstances:

- The work being solicited is valued at $15,000 or less.
- The proposal is for an R&D project, is unsolicited, and does not duplicate ongoing work.
- NYSERDA's Chairman or President determines either that timeliness precludes competitive selection or that the work requires unique or exceptionally specific qualifications, experience, equipment, or facilities or patents, copyrights, or proprietary data. All such determinations must be documented in writing.

Personal service contracts extending beyond one year must be approved by NYSERDA's Board of Directors. Other contracts in excess of one year may be entered into if the Chairman or President determines that the work is within the scope of approved Operating Plans and budgets.

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. Some of NYSERDA's control procedures include:

- NYSERDA's banking accounts are under the control of the Commissioner of the Department of Taxation and Finance, NYSERDA's statutory fiscal agent. A separate bank account will be established for all SBC funds and will not be commingled with any other funds, to facilitate an accurate accounting of all receipts, interest earnings, and disbursements.

- Pursuant to NYSERDA's bylaws, contracts and agreements may only be signed by one of four designated NYSERDA officials.

- All invoices receive a multi-disciplinary review prior to payment. Accounting 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; and contract management staff ensure that all terms and conditions of the contract have been followed.

- NYSERDA's financial controls and accounting records are reviewed annually by its independent auditors as part of the annual audit of its financial statements.

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 bi-weekly time sheets maintained by staff to track their hours by activity code. Contractual expenditures, in addition to being charged to the SBC cost center, will be entered into a computerized project tracking system used to track each individual contract or agreement, noting the amount of the contract agreement and expenditures incurred to date.

Monitoring and Reporting

The automated accounting system and project tracking system described above allow NYSERDA to produce various monthly financial reports which are distributed to NYSERDA management and program staff for review. In addition, NYSERDA will prepare a semi-annual financial report for the Department of Public Service as required in the MOU.