
Appendix A: Glossary

ACRONYMS AND ABBREVIATIONS

AC: air conditioner

A&E: architecture and engineering firms

AD: advanced diagnostics

AHP: Assisted Home Performance with ENERGY STAR®

AMP: Assisted Multifamily Program

B/C: benefit-cost

B/I: business and institutional

BPI: Building Performance Institute

Btu: British thermal unit

Cx: commissioning

C/I: commercial/industrial

CBO: community-based organization

CEE: Consortium for Energy Efficiency

CEM: Residential Comprehensive Energy Management Program

CFL: compact fluorescent light

CHG&E: Central Hudson Gas & Electric Corporation

CHP: combined heat and power

CIPP: Commercial/Industrial Performance Program

CO₂: carbon dioxide

Con Edison: Consolidated Edison Company of New York, Incorporated

CSG: Conservation Services Group, Inc.

CSP: curtailment service provider

DCV: demand control ventilation

DEC: New York State Department of Environmental Conservation

DEGI: Dispatchable Emergency Generation Initiative [component of Peak Load Reduction (PLRP)]

DG: distributed generation

DHCR: New York State Division of Housing and Community Renewal

DI: Low-Income Direct Install Program

DOE: United States Department of Energy

DPS: New York State Department of Public Service

DR: demand response

DCV: demand control ventilation

EDRP: New York Independent System Operator (NYISO) Emergency Demand Response Program

EMEP: Environmental Monitoring, Evaluation, and Protection Program

EPA: United States Environmental Protection Agency

ES: ENERGY STAR®

ESCO: energy service company

ESPM: ENERGY STAR® Products and Marketing

ET: Enabling Technology for Price-Sensitive Load Management

EUR: End-Use Renewables Program

FlexTech: Flexible Technical Assistance Program

FR: freeridership

GW: gigawatt

GWh: gigawatt hour

HEAP: Home Energy Assistance Program

HERS: Home Energy Rating System

HFI: Homeowner Financing Incentive

HPD: New York City Department of Housing Preservation and Development

HPwES: Home Performance with ENERGY STAR®

HUD: United States Department of Housing and Urban Development

HVAC: heating, ventilation, & air-conditioning

ICAP: New York Independent System Operator (NYISO) Installed Capacity Program

IDC: Integrated Data Collection

IM: Interval Meters [component of Peak Load Reduction Program (PLRP)]

kW: kilowatt

kWh: kilowatt hour

LC/S: Load Curtailment and Shifting [component of Peak Load Reduction Program (PLRP)]

LEED™: Green Buildings Leadership in Energy and Environmental Design

LI: Low Income

LIFE: Low-Income Forum on Energy

LIPA: Long Island Power Authority

LNG: liquefied natural gas

LSE: load-serving entity

M&V: measurement and verification

MCAC: market characterization, assessment, and causality (attribution) analysis

MF: multifamily

MMBtu: million British thermal units

MOU: Memorandum of Understanding

MW: megawatt

MWh: megawatt-hour

Nat'l Grid: National Grid

NCP: New Construction Program

NEI: non-energy impacts

NEMA: National Electrical Manufacturers Association

NextGen: Next Generation of Energy Efficient End-Use Technologies Program

NO_x: nitrogen oxides

NTG: net-to-gross

NYC: New York City

NYE\$: New York Energy \$martSM Program

NYESLH: New York ENERGY STAR[®] Labeled Homes

NYISO: New York Independent System Operator

NYPA: New York Power Authority

NYS: New York State

NYSEG: New York State Electric and Gas Corporation

NYSERDA: New York State Energy Research and Development Authority

O&M: operation and maintenance

O&R: Orange and Rockland Utilities, Incorporated

OPC: outreach project consultants

OTDA: NYS Office for Temporary and Disability Assistance

PDRE: Permanent Demand Reduction Effort [component of Peak Load Reduction Program(PLRP)]

PEM: Premium-Efficiency Motors Program

PET: Program Efficiency Test

PLRP: Peak Load Reduction Program

PM: particulate matter

PON: program opportunity notice

POP: point-of-purchase

PSC: New York State Public Service Commission

PT/LM: Program Theory and Logic Modeling

PV: photovoltaic

QA: quality assurance

QC: quality control

R&D: research and development

RAC: room air conditioner

RCx: retrocommissioning

RFP: request for proposals

RG&E: Rochester Gas and Electric Corporation

RTP: real time pricing

SBC: system benefits charge

SCLP: Small Commercial Lighting Program

SEC: Smart Equipment Choices Program

SEER: seasonal energy efficiency ratio

SO: spillover

SO₂: sulfur oxide

TA: Technical Assistance Program; also technical assistance contractors

TECA: Training, Education, Certification and Awareness

TEP: Technical Evaluation Panel

TMET: Total Market Effects Test

TREAT: Targeted Residential Energy Analysis Tools (software)

TSP: technical service provider

TTW: through-the-wall air conditioner

V/C: value/cost analysis

VSD: variable speed drive

WAP: U.S. Department of Energy (DOE) Weatherization Assistance Program

WNI: Weatherization Network Initiative

GLOSSARY OF TERMS

A

adjusted gross savings: NYSERDA-reported savings adjusted with M&V realization rates.

aggregator: an entity that brings customers (homes, businesses, and communities) together to 1) buy electricity in bulk to increase customers' buying power; and 2) participate in programs that have minimum energy requirements which would exclude small customers.

allies: service providers involved in projects that are funded through the **New York Energy SmartK** Program.

attribution: (used interchangeably with causality): the assertion that the program is responsible for the observed or measured effect.

avoided cost: the cost of power that a load serving entity avoids by not generating or purchasing the power from another source.

awarded funds: funds that have been contracted, approved for contracting, or set aside as a result of incentive applications.

B

base case: first step in the macroeconomic analysis--estimates the impacts that the SBC funds would have had on the New York economy, had they been retained by the customers of the participating utilities in the absence of the Program.

benefit/cost analysis (B/C): the general B/C ratio is the Cumulative Net Present Value of Benefits divided by the Cumulative Net Present Value of Costs.

biomass: materials that are biological in origin, including organic material (both living and dead). Biomass can be used as a fuel, and is made available on a renewable basis through natural processes, or as a byproduct of human activities.

Btu (British Thermal Unit): the standard unit for measuring quantity of heat energy necessary to raise the temperature of one pound of water one degree Fahrenheit.

C

callable: short term load curtailment that can be requested by the New York Independent System Operator (NYISO) to maintain system reliability when generation resources become scarce.

capacity: the volume of electrical power (measured in megawatts) needed to meet the expected demand for electricity.

carbon dioxide (CO₂): the primary greenhouse gas associated with climate change produced from the combustion of all fossil fuels.

causality (term used interchangeably with attribution): the assertion that the program is responsible for the observed or measured effect.

co-funding: financial and/or in-kind services contributions to the **New York Energy \$martK** Program by sources outside NYSERDA that are necessary to complete the Program as designed and achieve the expected benefits. These expenditures would not have been made by the external contributors in the absence of the Program.

combined heat & power (CHP): the use of a single source to provide steam or other energy for an industrial or commercial production or process AND to generate electricity.

commissioning: the process of ensuring that systems on new construction projects are designed, installed, functionally tested, and capable of being operated and maintained according to the original design intent and owner's operational needs.

committed funds: funds that have been set-aside for a **New York Energy \$martK** program or project, but have not yet been awarded to a specific contractor or customer.

confidence interval: the precision range of the answer. For example, a 80/20 confidence/precision implies that the analyst is 80% confident the true answer is within 20% of the reported value.

cumulative annual savings: savings realized in a single calendar year as a result of all measures installed to date.

cumulative program savings: the sum of the savings realized across the life of the program. For example, a measure completed in January 2001 and that delivers 100 kWh/year annual savings, will have delivered 500 kWh cumulative program savings as of December 31, 2005. The measure still delivers an annual savings of 100 kWh/year at the close of 2005.

curtail, curtailable, or curtailment: a customer's a short term, deliberate reduction in the electricity used; usually in response to a call by New York Independent System Operator (NYISO) to maintain system reliability.

custom measure: an energy efficiency measure that has been designed to meet specific performance criteria and application requirements, and for which there is no widely available commercial product or application that can be used to substitute the design of such a measure.

cycle time: the interval between the solicitation due date and the date of contract signing that is spent reviewing proposals, selecting winning bidders, and reaching agreement with proposers on specific work scopes and contract terms.

D

deemed savings database: a database developed for NYSERDA by the M&V contractor containing researchable results from a comprehensive review of stipulated savings for over 400 measures used by six **New York Energy \$martK** programs.

demand reduction: a lessening of the energy drawn by end-use customers from the grid.

demand-side: see description of market actor – downstream.

distributed generation (DG): small generation facilities utilizing a range of technologies, including reciprocating engines, small and micro-turbines, fuel cells, photovoltaic array, wind, and other renewable energy sources.

E

electric energy savings: reduction in customer annual KWh consumption.

encumbered funds: describes New York Energy \$martK funding that has been awarded to an energy efficiency project (by signed contract or purchase orders), but has not yet been paid-out (spent) to the specific contractor or customer under contract.

end user: a person or entity (*i.e.*, customer) that purchases or uses electricity at a site.

energy burden: the percentage of household income used to pay for energy.

energy efficiency measures: energy-efficient products that are promoted through the New York Energy \$martK Program. Energy efficiency measures lead to energy and cost savings when they replace standard products.

energy service company (ESCO): load serving entities, retail load aggregators, providers of comprehensive energy services, and formal groups of such entities that serve customers in New York State. ESCOs match buyers and sellers of electric power, tailor physical and financial instruments to suit customers' needs, and develop, install, and finance projects designed to reduce the energy and maintenance costs to customers. NYSERDA's CIPP has expanded program participation beyond traditional ESCOs to include A&E firms, contractors, and manufacturers and uses this more inclusive definition of ESCOs.

F

freeridership: the proportion of in-program impacts (*e.g.*, energy savings) that would have occurred in the absence of the program, or without program incentives.

fuel cell: an electrochemical device to convert chemical energy directly into electricity.

G

gigawatt: one billion watts.

gigawatt hour: a measure of electricity consumption equal to 1,000,000,000 watts of power over a period of one hour.

green marketing: the sale of green power in competitive markets where multiple suppliers and product/service offerings exist.

grid: a network of the transmission of electricity throughout the state or nation.

gross savings: the reduction in energy and power requirements that occur for customers participating the New York Energy \$martK Program. The gross savings do not account for secondary effects that occur outside of the Program, nor do they systematically evaluate the degradation or removal of equipment.

I

incentives: monetary or non-monetary awards to encourage consumers to buy energy-efficient equipment and to participate in programs designed to reduce energy usage.

incremental cost: equals the cost of energy-efficient equipment less the cost of comparable standard efficiency equipment.

infrastructure development: building the supply chain for energy efficient products to facilitate competition among end-use customers.

inputs: resources available to a program, including money, staff time, volunteer time, existing knowledge, etc.

Installed Capacity Program (ICAP): a New York Independent System Operator (NYISO) demand response program where a generator or load facility complies with the requirements in the reliability rules and is capable of supplying and/or reducing the demand for energy for the purpose of ensuring that sufficient energy and capacity are available to meet the reliability rules.

installed measures: energy efficiency measures that have been installed for end-use application as the direct result of one of the **New York Energy SmartK** Program initiatives.

Integrated Data Collection (IDC): a survey that garners participation feedback in near real time on both market characterization and attribution/causality; usually integrated as part of the standard program implementation or other program paperwork process.

interval meter: a meter that captures, stores and communicates energy-use information.

K

kilowatt: one thousand watts.

kilowatt hour: a measure of electricity consumption equal to 1,000 watts of power over a period of one hour.

L

leveraged funds: financial and/or in-kind service expenditures made or planned by sources outside NYSERDA that would have occurred in the absence of the **New York Energy SmartK** Program, and are supplemented with NYSERDA funds to increase the effectiveness and benefits beyond what **New York Energy SmartSM** Program funding could have achieved alone.

load: the electric power consumed at one time by customers.

load curtailment: characterized by instantaneous, short term (*i.e.*, several hours) reductions in power consumed by customers.

load management: activities designed to influence the timing and magnitude of customer use of electricity.

load serving entity (LSE): an entity, including a municipal electric system, energy service company and electric cooperative, authorized or required by law, regulatory authorization or requirement, agreement or contractual obligation to supply energy, capacity, and/or ancillary services to retail customers located within the New York Control Area (NYCA), including an entity that takes service directly from the New York Independent System Operator (NYISO) to supply its own load in the NYCA.

load shifting: a form of load management that involves shifting energy use to different time periods of the day.

logic model diagram: a document that discusses the logical relationships among elements of a program through a diagram constructed with boxes and circles that 1) maps the step-by-step process of inputs, activities, outputs, and outcomes embedded within the programs 2) identifies hypotheses and key indicators; and 3) identifies potential external influences.

low-income customer: for purposes of the **New York Energy \$martK** Program, low-income households are those having an income that is less than or equal to 80% of the State's median income. Median income is determined by the number of persons in the household. In 2005 80% of State median income was \$55,488 a family of four; this figure varies from year to year.

M

macroeconomic benefits: the economic value added by the **New York Energy \$martK** Program comparing the impacts of the program's expenditures and energy savings to the impacts that would have resulted had the program not been implemented and the money not been paid by ratepayers into the System Benefits Charge fund. Value added includes labor income (employee compensation and proprietor income), property income (interest, rental income, royalties, dividends, and profits), and indirect business taxes (primarily sales and excise taxes).

market actor: an entity (*i.e.*, person, organization, group) that influences (*e.g.*, buys, sells, provides a service, provides information, distributes, transports, manufacturers, consumes, etc.) the decision chain for energy-efficient or renewable resource products, services, technologies, and program endeavors.

- **upstream (supply-side):** market actors who provide the initial energy-efficient or renewable resource product, service, or technology, such as manufacturers, developers, and R&D organizations.
- **mid-stream (market infrastructure):** market actors who purchase the energy-efficient or renewable resource products, services, or technologies from upstream actors and who then sell them to downstream customers. Retailers, distributors, wholesalers, contractors, installers, energy service companies, designers, governmental units, building owners, commodity providers, aggregators, and architects and engineers are examples of mid-stream market actors.
- **downstream (demand-side):** market actors who purchase and utilize the energy-efficient or renewable resource products, services, and technologies. Typical downstream market actors can include residential home owners, small business customers, and power plant owners/operators.

market barrier: instances that prevent or inhibit market adoption of specific technologies or higher levels of energy efficiency. Market barriers to the adoption of high efficiency and renewable resource measures can include lack of awareness, knowledge, and information on the technology, product, and service offerings; lack of product or service availability; and perceived higher risk or difficulty financing the higher incremental cost often associated with energy efficiency and renewable resources.

market effects: change in the structure of a market or the behavior of participants in a market that is reflective of an increase in the adoption of energy-efficient products, services, or practices.

market infrastructure: see description of market actors — mid-stream.

market price effects: cost savings by all rate payers due to lower wholesale electricity prices.

market sector: a semi-homogeneous group with similarities in their use of end-use applications, composition of activities, or recognized values. Examples include the residential buildings sector, the commercial buildings sector, and the small business sector.

market transformation (used interchangeably with market development): a market state in which desired activities and behaviors are now, or become, standard practices, due to a reduction in market barriers resulting from a market intervention. Market transformation is evidenced by a set of market effects that lasts after the intervention has been withdrawn, reduced, or changed. Market transformation programs are designed to induce lasting structural and behavioral changes in the marketplace.

master metered: the utility owns the single building meter and provides electricity to the entire building, including the apartments and common areas. The building receives one electric bill, often at the bulk residential utility rate.

measurement & verification (M&V): used to confirm that baselines are accurately defined, ensure that energy measures are properly installed to generate the predicted savings (or energy output), and determine the actual savings achieved by the energy efficiency, or renewable resource, project.

megawatt: one million watts or one thousand kilowatts. Generally, one megawatt will power 1,000 homes.

megawatt hour: a measure of electricity consumption equal to 1,000,000 watts of power over a period of one hour.

N

net savings: the amount of energy savings, determined after adjusting for free ridership and spillover (market effects), attributable to the program.

New York Energy \$martK: New York's public benefits program that was established by order of the New York State Public Service Commission (PSC) in January 1998.² The program began July 1, 1998, with funds collected from customers by the electric utilities through a non-bypassable system benefits charge (SBC). The PSC designated the New York State Energy Research and Development Authority (NYSERDA) as the Statewide administrator of most of the program funds. **New York Energy \$martK** is the service mark name of the Program. Under this service mark, NYSERDA administers a portfolio of energy efficiency, low-income, and research and development programs.

nitrogen oxides (NO_x): gases produced from the combustion of fossil fuels (coal, oil, natural gas, diesel, and gasoline). Oxides of nitrogen are pollutants associated with a number of environmental problems,

² 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-092 *et al.*

including ground-level ozone (smog), acid deposition, formation of particles, and eutrophication (oxygen depletion of water bodies associated with excessive growth of algae).

non-energy impacts (NEI): difficult to measure net effects monetized as a percentage of energy savings. Examples of NEI's include perceived increase in comfort, safety, and productivity.

non-participant: any customer who was eligible but did not participate in a NYSERDA program.

O

off-peak: period of time when the demand by customers for electricity is relatively low compared to other periods of time.

opinion leader: a person or organization viewed by other members within their profession as demonstrating good professional practice.

outcomes: the result of programs, services, or products provided and also refer to changes in knowledge, attitude, or behavior in participants.

outputs: the immediate products of the activities of a program.

P

participant: an individual or entity that received service or incentive through a **New York Energy \$martSM** Program.

payback: the ratio of the estimated annual savings of a new measure to its estimated cost (expressed in years) used to determine whether a measure is cost effective.

peak demand: demand that occurs during periods of high electricity use. For this report, it is defined as June 1 to August 31, Monday through Friday, excluding holidays, 12 PM- 6 PM.

Portfolio (New York Energy \$martK Program Portfolio): includes diverse programs that are designed to meet the specialized needs of the State's numerous energy-using markets and sectors. Programs are designed to address different barriers and to work synergistically to achieve the State's energy policy goals.

portfolio level: views the **New York Energy \$martK Program** as a whole; may also refer to program areas under which individual **New York Energy \$martK** programs are grouped: Business/Institutional, Low Income, Residential, and Research and Development.

pre-qualified: energy efficiency measures that were tested and verified as capable of achieving energy savings prior to their installation in an end use application. Savings for such equipment use deemed savings for calculated impacts.

program case: the second step in the macroeconomic analysis--estimates the impact on the New York economy of SBC funds allocated to the complete portfolio of **New York Energy \$martSM** Program expenditures on goods and services.

process evaluation: an evaluation that examines the extent to which a program is operating as intended by assessing ongoing program operations and whether the targeted population is being served.

Program Efficiency Test: Ratio of program benefits divided by NYSERDA costs.

program opportunity notice (PON): a NYSERDA solicitation approach for identifying and procuring projects that demonstrate technical, economic, environmental, and other aspects within a particular technology area. Multiple awards and cost-sharing are generally expected.

program summary: program-specific information developed from secondary research.

program theory: identifies the assumptions underlying each program and describes how the program fits within a broader market context; also show how the program is expected to work and identifies the intended outcomes.

public benefits programs: programs funded by a surcharge on energy bills that promote energy efficiency and renewable energy. **See New York Energy SmartK.**

R

realization rate: the energy or demand savings measured and verified divided by the energy or demand savings claimed by NYSERDA. A rate of 1.0 means that the savings measured and verified aligned exactly with the savings claimed. A rate greater than 1.0 means that the savings were under-reported, while a rate less than 1.0 means the savings were over-estimated.

real-time pricing: a pricing mechanism for power sales to consumers that bases the price on the spot market price for power at the time of consumption.

recommissioning: the ongoing process to resolve operating problems, improve comfort, optimize energy use and identify retrofits for existing buildings, often called “continuous commissioning” this process focuses on improving overall system control and operations for the building under actual conditions and current occupancy requirements.

renewable resources: naturally replenishing energy sources including: biomass, hydropower, geothermal, solar, wind, and tidal action.

request for proposals (RFP): a NYSERDA solicitation approach for identifying and procuring projects that represent a specific area of interest and describe in a statement of work the high degree of specificity regarding the work contemplated and the evaluation criteria to be used. A single award with no cost-sharing is expected; contrast this with a **program opportunity notice** which will typically result in multiple contract awards.

resource acquisition: installation of energy efficiency measures to reduce demand.

retrocommissioning: a systematic investigation process for optimizing building performance by identifying and implementing relatively low-cost operational and maintenance improvements within existing buildings.

S

Scenario 1: Benefit-cost test including only resource savings such as energy, demand, fuel, and water (as prescribed by the PSC in its total resource cost test).

Scenario 2: Benefit-cost test including resource savings and market price effect benefits.

Scenario 3: Benefit-cost test including resource savings, market price effect benefits, and non-energy impacts.

sector: a categorization of customers as commercial, industrial, institutional, government, non-profit, farm-agribusiness, multifamily, or residential.

solicitation: an instrument that is used to identify an energy efficiency, renewable resource, or research and development project or program. A solicitation is the device used to publicly announce funding and seek proposals for a specific program effort.

spillover: the proportion of outside-program impacts (*e.g.*, energy savings) that occurred as a result of the program, but without any program incentives and are not reflected in the program records.

submetering: the measurement and billing of electric use in individual apartments in a master metered building. The meters (or submeters) are owned by the building and the utility continues to read the building master meter and issue a single bill to the building. This permits the cost of electricity to be distributed to the residents fairly – residents pay only for what they use.

sulfur dioxide (SO₂): a gas emitted into the atmosphere largely through the combustion of fossil fuels (coal, oil, diesel, and gasoline) that contributes to acid rain and the formation of particulate matter (PM_{2.5}).

supply-side: see description of market actor -- upstream.

System Benefits Charge (SBC): a charge on a consumer's bill from an electric distribution company to pay for the costs of certain public benefits such as low-income assistance and energy efficiency.

system-wide reliability: measure of the ability of the system to continue operation while some lines or generators are out of service. Reliability deals with the performance of the system under stress.

T

Total-Market-Effects Test (TMET): Ratio of program benefits divided by NYSERDA and customer costs.

Total Resource Benefits: Avoided cost benefits including electric energy and demand, fuel, and water.

Total Resource Costs: The sum of program costs and customer costs.

U

utility service area: defined area approved by the PSC which defines a utility's boundaries within which it serves end-use customers.

V

value/cost analysis (V/C): an analysis to assess the cost-effectiveness of research and development (R&D) programs. R&D programs are designed to accomplish a range of objectives, many of which cannot be monetized.

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**NEW YORK ENERGY \$MARTSM PROGRAM EVALUATION AND STATUS REPORT
FINAL REPORT**

MAY 2006

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