

System Benefit Charge
High Performance New Construction Program
Logic Model Report

Final Report

Prepared for

**The New York State
Energy Research and Development Authority**

Prepared by
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Navigant, and
Research Into Action, Inc.

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NOTICE

This report was originally prepared by GDS Associates in December 2010 in the course of performing work contracted for and sponsored by the New York State Energy Research and Development Authority (NYSERDA) (hereafter the “Sponsor”). This current version was updated in July 2013 by staff from GDS Associates, Navigant, and Research Into Action, Inc. to reflect recent program changes. The opinions expressed in this report do not necessarily reflect those of the Sponsor or the State of New York, and reference to any specific product, service, process, or method does not constitute an implied or expressed recommendation or endorsement of it. Further, the Sponsor, the State of New York, and the contractor make no warranties or representations, expressed or implied, as to the fitness for particular purpose or merchantability of any product, apparatus, or service, or the usefulness, completeness, or accuracy of any processes, methods, or other information contained, described, disclosed, or referred to in this report. The Sponsor, the State of New York, and the contractor make no representation that the use of any product, apparatus, process, method, or other information will not infringe privately owned rights and will assume no liability for any loss, injury, or damage resulting from, or occurring in connection with, the use of information contained, described, disclosed, or referred to in this report.

NEW YORK STATE ENERGY RESEARCH AND DEVELOPMENT AUTHORITY
SYSTEM BENEFIT CHARGE
HIGH PERFORMANCE NEW CONSTRUCTION (NCP) PROGRAM
LOGIC MODEL REPORT
(UPDATED JULY 1, 2013¹)

INTRODUCTION

This report identifies and documents key elements (inputs, market actors, barriers, goals, activities, outputs, outcomes, potential external influences and researchable issues) associated with the High Performance New Construction Program (NCP).² This logic model addresses NYSERDA's ongoing activities as funded by the System Benefits Charge (SBC) and the New York Energy Efficiency Portfolio Standard (EEPS) Programs.

This document provides:

- 1) A table showing a list of documents relating to NYSERDA's NCP that were used to provide insight during development of this program logic model report;
- 2) A high level summary of the program, including elements associated with enhanced funding that the program receives through the Energy Efficiency Portfolio Standard (EEPS), and the context of the markets within which this program operates. Information is also presented in this section on other complementary NYSERDA programs and other potentially complimentary or competing programs. Available market characterization information is also presented in this section, including a description of baseline conditions, and the portion of that potential that the program is expected to achieve;
- 3) Key program-specific elements, including the ultimate goals of the program, market barriers, targeted market actors, program activities, inputs, anticipated outputs and outcomes, and potential external influences. Information on how program activities are expected to change the behavior of market(s) actors is also presented in this section;
- 4) A program logic model diagram showing the linkages between inputs, program activities, outputs and outcomes, and identifying potential external influences;
- 5) A table listing the key outputs and outcomes, including identification of relevant measurement indicators and potential data collection approaches to guide later prioritization, and development of a monitoring and evaluation plan; and
- 6) A list of potential researchable issues for consideration within evaluation planning.

¹ This logic model updates the December 2010 version by adding PON 1601, which was effective January 4, 2012.

² The program, which operated under the name "High Performance New Buildings Program" for a short time, has reverted back to its old name, "High Performance New Construction Program", which had greater market recognition.(1st Quarter 2009 Report)

Section 1: RELATED NYSERDA DOCUMENTS

Table 1 identifies NYSERDA and other potentially relevant documents that were reviewed for this report:

Table 1. Relevant Documents Reviewed

NYSERDA Document Description
Central Hudson Gas and Electric: http://www.savingscentral.com/business.html
DSIRE website, New York Incentives/Policies for Energy Efficiency http://www.dsireusa.org/incentives/index.cfm?re=0&ee=1&spv=0&st=0&srp=1&state=NY
Energy Efficiency Portfolio Standard (EEPS) Order, dated June 23, 2008
GDS Associates, Inc. <i>NCP Program Logic Model Final Report</i> . March 7, 2007
Megdal & Associates, LLC. <i>New Construction Program Impact Evaluation Report for Program Years 2007 – 2008</i> . August 2012.
National Grid: https://www.nationalgridus.com/niagaramohawk/business/energyeff/3_small.asp
NCP Website and Information: http://www.nyserdera.org/programs/New_Construction/default.asp
NYC/Westchester Market Actor Study, <i>Upstate/Downstate</i> , 2008
NYISO website, http://www.nyiso.com/public/products/demand_response/index.jsp
NYSERDA, <i>New York Energy SmartSM Program Evaluation and Status Report</i> , Year Ending December 31, 2008. Final Report March 31, 2009, Section 3 C&I Programs; New Construction Program (3.8)
NYSERDA, <i>New York Energy SmartSM Program Evaluation and Status Report</i> , Quarter Ending March 31, 2009 (May 2009) Section 3.7 – New Construction Program
NYSERDA, <i>New York's System Benefits Charge Programs Evaluation and Status Report</i> , Year Ending December 31, 2011. (April 2012) Section 3.9 – New Construction Program
NYSERDA, <i>Supplemental Revision to SBC Operating Plan, February 15, 2013</i> . (February 2013).
NYSERDA Program Opportunity Notice (PON) 1501 New Construction Financial Incentives. Effective 10/1/09.
NYSERDA Program Opportunity Notice (PON) 1601 New Construction Financial Incentives. Effective 01/04/12.
Optimal Energy, <i>Achievable Electric Energy Efficiency in New York State DRAFT</i> , November 2008
Research Into Action, Inc. <i>Process Evaluation: New Construction Program Final Report</i> . December 2011.
Summit Blue Consulting, LLC. <i>Final Updated Report. NCP MCAC Evaluation</i> . April 2007.
Summit Blue Consulting, LLC. <i>NCP Market Characterization and Assessment Report</i> . August 2008.
System Benefits Charge <i>Supplemental Revision for New York Energy SmartSM Programs 2008-2011</i> (As amended August 22, 2008 and revised March 12, 2009)
Working Group V, <i>Report on Natural Gas Efficiency Goals</i> , October 17, 2008
Responses to DPS Questions regarding Outreach, Education and Marketing, 2009

Section 2: CONTEXT AND PROGRAM DESCRIPTION

2.1 Program Description

The NCP is the continuation of a mature program that has operated within the complex and technically-sophisticated world of non-residential new construction and substantially renovated buildings since 1999. The program encourages electric and gas energy savings and demand reduction in these buildings by providing technical and financial (capital-cost) incentives that encourage the construction of new or substantially renovated non-residential buildings that exceed the energy efficiency of standard design practice (as determined by NYSERDA and the minimum requirements of the New York State Energy Code).

The NCP is designed to accelerate the incorporation of energy efficiency, renewable energy sources, and green building features in the design, construction, and operation of commercial, industrial, institutional, and larger multifamily residential buildings.³ In order to be eligible to participate in the NCP, applicants are required to pay into the SBC.⁴ The program targets building owners, lease holders, and architecture and engineering (A&E) firms working in the New York Energy Efficiency Programs territory through outreach activities and case studies that communicate the economic and environmental benefits of energy efficient design. The program provides incentives to cover a portion of the capital costs and technical assistance associated with designing integrated, whole building approaches.

The NCP is one of several NYSERDA programs receiving funding through the EEPS. In order to meet its energy savings goals, NCP efforts include: increasing the number of participants, targeting larger (more complex) high-energy consuming projects, increasing the capability to provide a whole-building design approach and interactive analysis, increasing incentives for project design teams and energy performance incentive tiers, increasing the number of consulting and technical assistance (TA) services (while continuing to encourage its existing contractors to expand their current capabilities), and educating technical assistance contractors to aggressively promote the installation of the most cost-effective new technologies.

NYSERDA recently increased the list of contracted TA providers capable of meeting the increased need for services in Consolidated Edison (Con Ed) and National Grid specific geographic areas, leveraging national resources (e.g., ASHRAE Design guidelines), and expanding its network of consulting firms to provide general program marketing and promotional services, addressing the unique challenges in the commercial new construction industry. In addition, while smaller projects (buildings less than 20,000 square feet) are not well suited for whole-building design analysis, through the EEPS funding and enhancements, NYSERDA is exploring more cost-effective methods, including the enhancement of a comprehensive custom analysis tool, to identify energy efficiency opportunities requiring less of an investment.⁵

In response to the New York State Department of Public Service (DPS) priorities and overall direction under the EEPS, the program recently shifted its focus from one of broad market transformation to a

³ NYSERDA Program Opportunity Notice (PON) 1601 New Construction Financial Incentives. Effective 1/4/12.

⁴ The Long Island Power Authority (LIPA) does not collect the SBC, so LIPA customers who obtain gas and electric from LIPA cannot participate in NYSERDA programs. Some Long Island customers obtain electric service from LIPA, but gas service from either National Grid New York or National Grid Long Island, both of which collect a gas SBC. These customers can participate in NYSERDA gas programs including those offered by NCP.

⁵ System Benefits Charge Supplemental Revision for **New York Energy \$martSM** Programs 2008-2011 (As amended August 22, 2008 and revised March 12, 2009)

narrower focus on cost-effective resource acquisition. This requirement to deliver greater energy (kWh) savings has also shifted the program's focus away from peak load reduction and demand response.

NYSERDA's NCP program remains performance based, so that the amount of incentives paid is determined by the total electric energy savings. Accordingly, incentives are tiered, better designs are rewarded with higher incentives, and applicants are encouraged to contact the program at the earliest design stages (when integrated, whole building approaches are still an option). The program offers incentives that offset up to 75% of the incremental capital costs to purchase and install energy-efficient equipment.⁶ Specifically, incentives are capped at 50% of the incremental cost for custom measures, 60% for Whole Building Design, and 75% for the Green Building Option. No pre-qualified or whole building design incentives are available for measures which reduce paybacks to less than one year. Building owners can choose from one of four incentive paths:⁷

- Pre-Qualified Path, where pre-set incentives are offered for select common measures
- Custom Measure Path, where custom measure, or system-based incentives are provided
- Whole Building Design Path, where whole building design incentives are provided for energy modeling
- Green Building Option Path, where incentives are provided to promote Green Building construction

Through the end of 2007 funding, pre-qualified measures accounted for approximately 23% of the program savings and whole building incentives accounted for 24%, while the bulk of energy savings (53%) resulted from custom projects. Cost-shared technical assistance has been available since the start of the New Construction Program to conduct Green Building analyses, LEED[®] ratings, and commissioning of funded measures. Additionally, bonus incentives for Applicant LEED[®] incentives continue to be offered in the current NCP program.

The current program also continues to offer technical assistance incentives to applicants and their design teams to:

- Assist in the evaluation of energy-savings options for each qualified project
- Manage peak electrical demand in buildings (peak refers to summer on-peak, the period May 1 to October 31 and the hours between 12 pm and 6 pm Monday through Friday, excluding holidays)
- Design and construct a qualified Green Building (a building that meets the requirements of the USGBC LEED[®] rating system)
- Install advanced solar and daylighting technologies such as lighting controls, electrochromic glazing, light shelves, building overhangs, passive solar design features, and solar preheated ventilation.⁸
- Technical Assistance (TA) Report Review Meeting – allows an opportunity for the TA contractor to speak directly with the Customer and their Design Team about the findings of the analysis

Program achievements through December 31, 2011 include:⁹

⁶ NYSERDA Program Opportunity Notice (PON) 1601 New Construction Financial Incentives. Effective 1/4/12

⁷ Gas incentives are subject to regulatory approval.

⁸ NCP serves as a vehicle for offering advanced solar and daylighting incentives, the funding comes from NYSERDA's R&D programs and R&D reports the savings for advanced solar and daylighting measures.

- 667 customers receiving assistance (completed projects)
- 71.4 million construction market affected (square feet)
- 1,067 participating A& E firms (completed projects)
- 480,100 MWh/year net savings
- 112.9 MW On-Peak
- 259,287 MMBtu net savings

2.1.1 Incentives Under Program Opportunity Notice (PON) 1501

PON 1501, issued in December 2009, was developed in accordance with the approved EEPS program budget and goals and resulted in the reduction and adjustment of NCP incentives from levels prescribed in the previous PON 1222. PON 1501 made \$83 million available to conduct cost-shared technical assessments of energy-efficiency measures in building designs and to offset up to 75% of the incremental capital costs to purchase and install energy-efficient equipment across NYSERDA's entire New York Energy Efficiency Programs territory.¹⁰ The funds were available from January 4, 2010 for electric efficiency measures and August 30, 2010 for natural gas, through December 30, 2011 or until fully exhausted. Incentives were based on a tiered approach with maximum incentive amounts varying by project type and incentive category, providing increased incentives to customers for projects achieving higher levels of energy performance. Incentive amounts for projects in the Con Ed service territory were generally higher than incentive amounts for projects in other utilities' service territories. The total per project limit was \$1.65 million for applicants in Con Ed's service territory who paid into the SBC (not including bonus incentives) and \$850,000 for eligible NCP program customers of other participating utilities who paid into the SBC (not including bonus incentives).

Under PON 1501, funding was available on a cost-shared basis for the following measures and services: technical assistance, pre-qualified measures, custom measures, whole-building design, advanced solar and daylighting, demand response, LEED® projects, and commissioning services. Additional bonus incentives were also offered for demand response, energy storage/electric to non-electric cooling, super-efficient chillers, and participating in NYSERDA's Industrial and Process Efficiency Program. The PON 1501 program incentives were based on the predicted energy performance of the building design and were available on a first-come, first-served basis.

2.1.2 Updated Incentives Under PON 1601

PON1601, effective on January 4, 2012, has made \$90 million available on a first-come, first-served basis through December 30, 2015 or until funds are fully committed. Under PON 1601, the total per project limit is \$1.57 million for program customers in Con Ed's service territory who pay into the SBC and \$825,000 for those operating in other utilities' territories who pay into the SBC. The maximum per-project incentive limit on pre-qualified measures has been reduced from \$200,000 to \$30,000 under the revised PON and, due to the limited allocation of funding for natural gas, incentives for the implementation of natural gas measures are no longer offered. The program continues to provide technical assistance to help customers identify natural gas opportunities on-site but customers are financially responsible for implementing these opportunities on their own. Similarly, PON 1601 no longer offers incentives for the implementation of demand response options, but continues to offer customers technical assistance to identify these opportunities. Aside from the LEED® applicant bonus incentive, all

⁹ New York's System Benefits Charge Programs Evaluation and Status Report Year Ending December 31, 2011 (April 2012) Section 3.9 – New Construction Program

¹⁰ NYSERDA agreed to cost-share up to \$100,000 on selected studies performed by an independent service provider.

other bonus incentives have also been formally removed from the NCP as a result of changes made in PON 1601.

The table in Attachment B, at the end of this Program Logic Model report, presents the incentives that NYSERDA changed or added in PON 1601 relative to the previous PON 1501.

The remainder of this section presents NCP-related information and includes: the program budget, a market assessment of current new construction energy efficiency activities and other relevant NYSERDA and New York area programs.

2.1.3 Program Budget

In the past, the NCP has operated with market transformation goals: providing technical assistance to educate design professionals in higher efficiency standards in order to transform the market for high performance buildings. Results from the program’s most recent market characterization and assessment report, NCP was found to have achieved 32% market penetration in eligible parts of New York State (2007).¹¹ Through December 2011, the NCP had resulted in estimated cumulative net annual program savings of 480 GWh/year at a cost of \$129.5 million dollars.¹²

As shown in Table 2 the budget for EEPS2 funding is projected to be \$143.3 million for 2012-2015. The estimated outreach and marketing budget will total approximately \$3.6 million for 2012-2015.

Table 2. Projected Budget for the New Construction Program (\$million) (2012-2015)

Funding Component	2012	2013	2014	2015	Total
EEPS Electric	\$35.8	\$35.8	\$35.8	\$35.8	\$143.3
EEPS Gas	\$1.4	\$1.4	\$1.4	\$1.4	\$5.4
Total	\$37.2	\$37.2	\$37.2	\$37.2	\$148.7

2.2 Market Assessment

All data in this section, unless otherwise noted, are from the 2008 NCP Market Characterization and Assessment (MCA) Final Report completed by Summit Blue Consulting, and describes the energy efficiency market in New York State based on interview responses compiled for activities completed over the previous two-year period (2006 and 2007).

2.2.1 Description of Baseline Condition

Buildings Already Served

Through December 2011, 667 customers had received assistance (completed projects), 52% of the original target of 1,272 from July 1, 2006 through December 31, 2011.¹³

Market Share

The NCP is performing well in engaging projects across utility areas and building sectors. Participating projects are distributed throughout New York State generally in proportion to statewide new construction

¹¹ NYSERDA, *New York Energy \$martSM Program Evaluation and Status Report*, March 31, 2009. Section 3.8 – New Construction Program. Pg 3-29.

¹² NYSERDA, *New York’s System Benefits Charge Program Evaluation and Status Report*, Year Ending December 31, 2011. (Revised April 2012).

¹³ New York’s System Benefits Charge Programs Evaluation and Status Report, Year Ending December 31, 2011 (April 2012) Section 3.9 – New Construction Program

activities in terms of both number of projects and building area. In addition, the program has had participating projects in each of the major structure types tracked by McGraw Hill Construction Dodge and has influenced more than half of the new construction activities in terms of building area that has occurred in the Government Service Buildings (69%), Miscellaneous Nonresidential Buildings (69%), and Schools, Libraries, and Labs (52%) building sectors during 2000-2007 timeframe.

Participating and non-participating A&E respondents overwhelmingly reported that the focus on energy efficiency in new construction projects has “increased” or “increased significantly” over the past five years. The most common reasons cited for the increased focus on energy efficiency were increasing awareness of energy efficiency in the market place and rising energy costs. This trend towards an increased focus on energy efficiency relates directly to NYSERDA’s overarching goal of creating a larger, more robust and sustainable market for energy efficiency services and products.

Market Barriers

The most common reasons given by non-participants for not participating in the NCP include:

- lack of awareness of the NCP (cited by 39% of non-participating building owners and 20% of non-participating A&E respondents),
- projects did not meet program participation criteria, and
- design team or building owner unwillingness to consider program participation.

When building owners and A&E respondents were asked about general barriers to energy efficiency measures and design approaches, the most common barriers for participating owners were: A&E unwillingness (20%), time issues (11%), and lack of training or expertise in the design community (10%).

Non-participating owners more frequently mentioned: performance uncertainties (22%), competing priorities for attention or capital (13%), and lack of awareness and understanding of energy efficiency (9%). However, performance uncertainty was not mentioned by a single program participant; this indicates that participation in the NCP has convinced participating building owners of the potential energy savings from energy efficient measures and designs.

The most common barriers for participating A&E respondents were: competing needs for attention or capital (30%), information costs (12%), and organizational and management undervaluing of energy efficiency and innovative technologies (9%). Non-participations more frequently cited: financial reasons (47%), information costs (14%), and competing needs for attention or capital (13%).

It is important to note that broader economic conditions will impact program participants and non-participants commercial new construction activities. Such conditions are identified in this report as external influences (see Table 10 in Section 3.5) and can also be seen within the above responses as “competing needs for attention or capital”.

Awareness

According to the 2008 MCA study, the vast majority of non-participating building owners and A&E respondents were aware of NYSERDA (85% AND 86%, respectively). Awareness of the NCP has risen significantly since the last evaluation (in 2005, 33% of non-participating owners and 29% of non-participating A&E respondents were aware of the NCP, compared to 53% and 54%, respectively in 2008).

When asked to rate familiarity with the NCP, non-participating A&E respondents reported being slightly more familiar with the program than non-participant building owners; 34% of non-participant A&E respondents who were aware of the NCP indicated that they were “extremely” or “somewhat familiar” with the NCP, compared to 28% of non-participant owners who reported similar levels of familiarity.

In terms of general knowledge of energy efficiency, in 2008, nearly all (95%) of the participating A&E respondents considered themselves “very” or “somewhat knowledgeable” with energy efficiency and

green building design compared to 77% of non-participating A&E respondents who reported the same. A somewhat smaller share of both participating and non-participating building owners (69% and 68%, respectively) considered themselves “very” and “somewhat knowledgeable” about energy efficiency and green building design.

Availability of Energy Efficiency Products

In 2008, participating and non-participating A&E respondents were asked about changes in availability of six energy efficiency measures and design approaches (green building design, building commissioning, whole building design, ENERGY STAR® benchmarking, advanced solar and daylighting, and peak load reduction technologies). In all instances, the majority of respondents, both program participants and non-participants, reported that availability of the measures or design approaches had increased over the past five years. The vast majority of A&E respondents (88% of participants and 74% of non-participants) reported that the availability of green building design services had increased significantly, corresponding with the increased market demand for green building options. Interestingly, the 2008 study found that very few A&E respondents (15% of participants and 5% of non-participants) reported that peak load reduction technologies had become significantly more available in the past five years.

2.2.2 Expected Savings and Statewide Technical Potential

Table 3 below shows the NCP program’s achievable potential energy savings estimated within the New York State Commercial New Construction sector. These numbers come from Optimal Energy’s assessments of technical potential savings in New York State for 2009-2015 and are compared against the SBC and EEPS plan detailing expected program savings.

Table 3. Cumulative Energy Savings (GWh) and Percentage of Achievable Potential

	2009	2010	2011	2012	2013	2014	2015
New Construction Achievable Potential Total	153	430	833	1,315	1,854	2,501	3,274
EEPS (GWh)	14.6	29.6	53.7	72.3	67.7	35.0	5.8
SBC III (GWh)	21.1	31.7	60.7	68.6	58.1	21.1	TBD
Cumulative NCP Program Expected Total	35.7	97.0	211.5	352.4	478.2	534.4	540.0
Percentage of Achievable Potential	23.3%	22.6%	25.4%	26.8%	25.8%	21.4%	16.5^a%
^a The reduced percentage in year 2015 is largely due to SBC funds ending in year 2014							
Sources: Optimal Energy, <i>Achievable Electric Energy Efficiency in New York State DRAFT</i> , November 2008, and NYSERDA, <i>Supplemental Revision to SBC Operating Plan</i> , September 16, 2010							

In January 2010, the Public Service Commission approved an additional \$4.3 million through the EEPS to fund natural gas efficiency measures for the NCP. Targeted savings specified for the natural gas funds for 2010 through 2015 are shown in Table 4.

Table 4. Projected Natural Gas Savings by year for NCP (2012-2015)

	2012	2013	2014	2015
EEPS (Dth)	57,741	57,741	57,741	57,741

Source: NYSERDA, *Supplemental Revision to SBC Operating Plan*, February 15, 2013

2.3 Other Relevant NYSERDA and New York Area Programs

In addition to the NYSERDA NCP, a number of other potentially relevant programs are being implemented in New York State, including other NYSERDA programs. These programs are included in Section 3.5- Program Inputs and Potential External Influences of this report and are identified in Table 7 –

Market Barriers, Table 9 – Program Inputs, Table 10- Potential External Influences, and the program logic diagram Figure 1 as factors with the potential to impact (help or hinder) achievements of NYSERDA’s NCP goals.

2.3.1 NYSERDA Programs

Industrial and Process Efficiency Program

This NYSERDA program offers funding for capital improvement projects that save energy and improve productivity within existing or newly constructed industrial facilities. Energy savings projects can fall into different categories: 1) Projects that reduce overall electric consumptions (energy efficient lighting, energy efficient motors and variable speed drives, energy efficient HVAC, and new buildings that are more energy efficient than building code); 2) Projects that reduce energy use per production unit (increased throughput, reduced scrap, and increased energy efficiency versus the existing or standard method of production); 3) Data center projects that reduce energy per unit of data processed (virtualization, application management, cooling efficiency, and improved airflow).¹⁴

Incentives are provided for custom applications of commercially available technology. Each project must be unique based on the applicant's needs and site-specific processes. Eligible facilities must pay into the System Benefits Charge (SBC) as electricity distribution customers, although gas customers may also be eligible. This program potentially overlaps or duplicates incentives available through the NCP program.

FlexTech Program

NYSERDA’s FlexTech program aims to increase the productivity and economic competitiveness of participating commercial, industrial, institutional, government, and not-for-profit facilities by offering cost-sharing for various types of energy studies. Cost-sharing incentives are available for technical evaluations, process improvement analysis, energy master plans, retro-commissioning, development of peak load curtailment plans (PLCPs), and combined heat and power (CHP) projects. Facilities must pay into the electric or gas SBC in order to be eligible for this program.¹⁵

Multifamily Performance Program for New Construction

The Multifamily Performance Program for New Construction provides expertise, technology and incentives to residential property owners, builders, co-ops and condo governing boards to improve the energy performance of their multifamily buildings. To be eligible for the program, the intended use of the building must be for residential purposes, and the building must be new or undergoing a gut rehab, contain five or more units, and have at least four floors. Available for both market-rate buildings and affordable housing, this program offers new construction and substantial renovation incentives for certain projects which do not fit within NCP’s multifamily guidelines.¹⁶

2.3.2 Other New York State Utility Programs

Central Hudson Gas and Electric – Business Energy Savings Central Program

Central Hudson Gas and Electric (Central Hudson) offers a Business Energy Savings Central Program that provides rebates for the installation of energy-efficient heating equipment and lighting measures to non-residential customers with electric demand of less than 350 kilowatts on average per month. Eligible

¹⁴ NYSERDA website: http://www.nyserdera.org/programs/Existing_Facilities/industrial.html and DSIRE website, New York Incentives/Policies for Energy Efficiency, NYSERDA – Industrial and Process Efficiency Performance Incentives, http://www.dsireusa.org/incentives/incentive.cfm?Incentive_Code=NY56F&re=1&ee=1

¹⁵ NYSERDA website: http://www.nyserdera.ny.gov/Commercial-and-Industrial/CI-Programs/FlexTech-Program.aspx?sc_database=web

¹⁶ NYSERDA website: <http://www.nyserdera.ny.gov/Multifamily-Performance-Program/Multifamily-Performance-Program.aspx>

customers include businesses, local governments, not-for-profits, private institutions, public and private schools, colleges and healthcare facilities. The program offers a free energy audit by one of Central Hudson's participating Trade Allies or a representative of Central Hudson. The energy audit report provides details on where efficiency measures can produce the most savings, the cost of installing each measure, and the expected payback period for each installation. The program offers rebates for up to 70 percent of the equipment cost of a qualified efficiency upgrade. After installation, a Central Hudson representative inspects the project based on a quality assurance plan at completion to verify that the upgrade matches the performance specified in the auditor's proposal. This program potentially duplicates efforts of the NCP program for major renovations in existing buildings in the Central Hudson service territory.¹⁷

Various Existing Facilities Programs

Apart from NYSERDA programs, utilities in New York State do not offer new construction programs. However, many utilities offer existing facilities efficiency programs that provide services for buildings undergoing substantial renovations. Whereas buildings participating in the NCP are vacant at the time program services and measures are implemented, buildings participating in existing facilities programs remain occupied during this time. Utilities do not recognize the distinction between occupied and vacant existing buildings, so they occasionally pursue the same gut renovation projects as the NCP.

2.3.3 New York Independent System Operator (NYISO) Programs

Although the NCP no longer offers incentives for the implementation of Demand Response options, NYISO's Demand Response programs potentially duplicate NCP efforts by offering technical assistance to identify potential Demand Response opportunities. NCP customers may then turn to NYISO to implement opportunities identified by technical assistance services through NCP. The NYISO has three potentially relevant Demand Response programs: the Emergency Demand Response Program (EDRP), Day-Ahead Demand Response Program (DADRP) and Installed Capacity (ICAP) market Special Case Resources (SCR) Program. These programs can be deployed in energy shortage situations to maintain the reliability of the bulk power grid.¹⁸

- The Emergency Demand Response Program is designed to reduce power usage through the *voluntary* shutting down of electrical end-uses (or turning on on-site electric energy generators) within businesses and large power users. Companies, mostly industrial and commercial, sign up to take part in the EDRP. The program provides payments to companies to reduce energy consumption in response to NYISO requests during peak demand events.
- The NYISO's Day-Ahead Demand Response Program (DADRP) also allows energy users to bid their load reductions, or "negawatts", into the Day-Ahead energy market as generators do. Offers determined to be economic are paid at the market clearing price. DADRP allows flexible loads to effectively increase the amount of supply in the market and moderate prices.
- Special Case Resources is a program designed to reduce power usage through *mandatory* interruption of large electrical end users within participating businesses and large power users' facilities. Companies, mostly industrial and commercial, sign up to become SCRs. As part of their agreement, the companies must curtail power usage, usually by shutting down critical end uses, when asked by the NYISO during peak demand events. In exchange, they are paid in advance for agreeing to cut power usage upon request.

¹⁷ Central Hudson Gas and Electric website: <http://www.savingscentral.com/business.html> and DSIRE website: New York Incentives/Policies for Energy Efficiency, Central Hudson Gas & Electric –Commercial Energy Efficiency Program, http://www.dsireusa.org/incentives/incentive.cfm?Incentive_Code=NY85F&re=0&ee=0

¹⁸ NYISO website, http://www.nyiso.com/public/markets_operations/market_data/demand_response/index.jsp

Section 3: KEY ELEMENTS SUMMARY

Based on a review of relevant NYSERDA documents, below is a summary of some key elements of NYSERDA’s New Construction Program.

3.1 Ultimate Goals:

The NCP is part of NYSERDA’s Commercial and Industrial (C/I) sector program portfolio. The C/I sector portfolio is designed to address SBC key program goals by promoting competitive markets for energy efficiency services, engendering widespread adoption of high-efficiency technologies, and increasing customer participation in peak demand response initiatives. The market infrastructure and demand-side goals for the broader C/I portfolio are listed in Table 5 below.¹⁹

Table 5. Goals for NYSERDA’s C/I Programs

Market Infrastructure/Policy	Demand-Side
Expanded delivery channels for energy efficiency and demand response services	Projects demonstrate persistent energy savings and provide other benefits to end-users
Larger, robust and sustainable market for energy efficiency services and products	Customers have reliable information on which to base energy-related decisions
Increased capacity of energy services companies to deliver quality projects that produce reliable benefits	Customers have confidence in energy savings estimates and value the energy efficiency and green building features of their projects
Increased number of firms with experience and confidence in delivering energy efficiency and peak load reduction measures	Access to energy efficiency services is improved for all types of customers including underserved customers

The NCP contributes to achievement of the goals on the demand-side through increased marketing, outreach and technical assistance activities. In addition, the NCP contributes to the Market Infrastructure and Policy goals by increasing recruitment of design teams seeking to work with energy modeling, and increasing the number of design firms that have had experience with the program including consideration of comprehensive, and whole building approaches to energy-efficient design.

Ongoing success of the NCP program will be measured, in part, by quantifying acquired kWh, kW, and MMBtu savings and the program’s penetration in the commercial building market place. NCP has previously achieved a penetration rate of 32% (2007) statewide, and this increase is expected to continue.²⁰ Additionally, the number of participating design professionals will be tracked along with other key market progress indicators, as will post-program impacts and spillover effects. Specific numeric four-year goals have been established for the NCP as shown in Table 6.

¹⁹ GDS Associates. **New York Energy \$martSM** Business and Institutional Programs Sector-Level Logic Model Report. May 11, 2006

²⁰ NYSERDA, **New York Energy \$martSM** Program Evaluation and Status Report March 31, 2009 Section 3.8 – New Construction Program

Table 6. Energy Efficiency Program Goals for NCP

Activity	Four-Year Goal (2012 – 2015)
Electric Customers Receiving Assistance	1,020
Gas Customers Receiving Assistance	840
Energy Savings (GWh)	350
Gas Savings (Dth)	231

Source: NYSERDA, *Supplemental Revision to SBC Operating Plan, February 15, 2013.*

3.2 Market Barriers and Issues the Program Attempts to Address (“the Problem”):

The new construction market is large and complex, with each project involving multiple decision-makers and competing priorities. The MCA report completed in 2008 found that non-residential new construction activity in New York State “remains robust” and appeared to be growing; that a majority of activity has been concentrated in the urban Con Ed and large National Grid service territories; and that nearly 750 unique A&E firms had participated in the NCP between 2001 and the end of 2008, 37% of which have participated in more than one NCP project, and many of the top performing A&E firms on a statewide basis have been touched by the NCP.²¹

The program operates within the larger NYSERDA portfolio designed to create market opportunities and maximize benefit for participants and society. To encourage participation, the NCP works to overcome a variety of market barriers and issues including:²²

- Lack of information on energy efficiency technologies and expected savings affecting information search costs
- Undervaluing energy efficiency (creating a perceived high first cost barrier)
- Uncertainty about reliability and performance
- Perception of risk (both to install energy efficiency measures for building owners and to recommend energy efficiency measures for A&E firms)
- Split incentives (operational benefits accrue to the tenant rather than the owner who would pay for the higher efficiency measures)
- Availability of and competition for capital for financing projects

A more detailed list of market barriers, broken out by sector, is provided in Table 7. NCP market barriers associated with the commercial, industrial and institutional sectors can be broken down into three general categories: barriers affecting the supply side, mid-market and infrastructure barriers, and barriers affecting the demand side market actors. Supply-side and mid-market infrastructure barriers include business practices and policies that deter the development or delivery of energy-efficient products and services, or indicate an insufficient commitment to such energy efficient products and services. Demand-side barriers primarily revolve around competing needs for capital, performance uncertainties, and information or search costs.

²¹ The MCA 2008 report found that these two utility areas account for 85% of cumulative activity in terms of number of projects, 79% of cumulative activity in terms of building area, and 84% of cumulative activity in terms of building value

²² From the 2004 New Construction Program Theory and Logic Model. GDS Associates

Table 7 lists specific barriers related to market actors (not ordered by priority) for the NCP program. Items marked with an asterisk (*) denote barriers that are currently being directly addressed through the NYSERDA NCP. Note –Table 7 is meant to be a comprehensive list of market barriers that could potentially impact achievement of key NCP program goals. Each of these potential barriers would need to be tested and evaluated in order to determine to what extent they specifically impact the NCP market.

Table 7. Commercial, Industrial and Institutional Sector Market Barriers and Actors

Market Area	Barriers	Market Actors
Supply Side	S1 – Limited availability of energy efficiency equipment. S2* – Lack of demand for energy efficiency equipment.	Manufacturers and suppliers of energy using equipment.
Market Infrastructure and Policy	M1* – Information or search costs. Specifically, the lack of expertise among equipment sales staff & installers unable to provide the analysis required by commercial and industrial customers in choosing a higher efficiency option. M2* – Performance uncertainty. Limited experience with energy-efficient equipment, load management equipment, and energy monitoring equipment. M3* – Uncertainty about product performance and profit potential for providing energy efficiency services. M4* – Service unavailability. Refers to the limited availability of market actors with training and experience necessary to identify and install efficient equipment or design buildings for optimum energy performance. M5* – Undervaluing energy efficiency and sustainability M6 – Contractors unwilling to learn or conduct services outside their specific trade M7* – Lack of knowledge of real-time pricing and other load management options. M8* – “Split incentives” (operational benefits do not accrue to the owner who would pay for the higher efficiency measures). M9* – Competing NYISO, NYSERDA, and utility programs	Engineers and others capable of providing accurate information in an energy audit Builders, designers, contractors, retailers, sales staff, and installation contractors Sub-contractors and building trades

Market Area	Barriers	Market Actors
Demand Side	<p>D1* – Lack of awareness, knowledge and understanding of energy efficiency, renewable energy and load management features, products and services.</p> <p>D2 – Competing priorities for attention and resources among business owners.</p> <p>D3* – Information costs associated with understanding the energy related features and associated benefits of energy-efficient technologies and services.</p> <p>D4* – Limited availability of investment capital and competing needs for capital (higher first or incremental cost).</p> <p>D5* – Lack of reliable information on energy-efficient choices and how they may apply to a given building or business.</p> <p>D6* – Resistance to new or innovative technologies.</p> <p>D7* – Performance uncertainties (uncertainty of savings).</p> <p>D8* – Lack of knowledge of real-time pricing & other load management options.</p> <p>D9*- “Split incentive” (operational benefits do not accrue to the owner who would pay for the higher efficiency measures)</p> <p>D10* – Confusion caused by overlapping NYISO, NYSEERDA, and utility programs</p>	<p>Commercial and industrial business owners and managers</p> <p>Purchasers</p> <p>General contractors hired to oversee renovations or remodels that include energy efficient equipment</p>

*indicates barriers that the NCP program seeks to directly address

3.3 Targeted Market Actors:

The NYSEERDA NCP targets design professionals, building owners, and building lease holders, and encourages them to design, construct, and operate energy-efficient buildings by providing technical assistance to determine appropriate energy efficiency improvements and financial incentives to offset a portion of the incremental costs of the improvements. The program expects that educating design professionals will transform the market for high performance buildings as those service providers become more familiar with the higher standards, and that increasing numbers of building owners and lease holders will be convinced to install high efficiency equipment through the provision of incentives that reduce the incremental capital cost. It should be noted that other actors in the market not directly targeted by NCP play an important role in the program’s success. For example, as part of the EEPS goals the State’s utilities will be passing on potential NCP leads to NYSEERDA (NCP Group) so that program staff can follow-up with these customers regarding incentive opportunities available through NCP.

3.4 NCP Implementation Approach (“Activities”):

NYSEERDA’s NCP program works mainly with design professionals and building owners by providing incentives and technical support, establishing benchmarks and facilitating program participation among contacts. These activities can be grouped into three main areas:

- (1) marketing, outreach and relationship building and promotion,
- (2) technical assistance, and
- (3) providing performance-based incentives (Table 8).

Table 8. NCP Program Activities

Marketing, Outreach - Relationship Building and Promotion Activities (Demand-Side)
<p>Marketing activities designed to inform and excite the market (case studies, website information, presentations)</p> <p>As of the March 12, 2009 Revision of the SBC plan, this expanded marketing program includes:</p> <ul style="list-style-type: none"> • (Direct outreach, telephone calls, meetings, workshops, trade shows, press events, award programs, advertisements in trade journals and magazines, webinars, etc) • Outreach to developers and development organizations (through Outreach Project Consultants - OPC) • Outreach to building owners (through OPC) • Outreach to architecture and design firms (through OPC) <p>Develop, cultivate and maintain relationships with building owners and especially architecture and design (A&E) firms</p>
Technical Assistance and Monitoring and Verification Activities (Demand-Side)
<p>Technical assistance provided (through Technical Assistance-TA contractors) directly to architecture and design firms by program implementation contractors (e.g., energy options evaluation, peak load management, Green Buildings design, etc.)</p> <p>Assistance provided to inform decision makers (via sharing and presentation of results to owners or leaseholders)</p> <p>Project details entered into models (such as Advanced Building Guidelines or the NCP Custom Measure Tool) to add credibility and veracity regarding savings estimates</p> <p>TA Report Review Meetings</p> <p>OPC verification of measures installed at project completion</p> <p>Commissioning of projects larger than \$100K incentive</p>
Providing Performance-Based Incentives for Measures and Services Activities
<p>Incentives provided for custom, whole building, and green building measures</p> <p>Incentives offered based on energy or demand savings</p> <p>Incentives and stipend payments to design teams and firms to cover additional design costs involved in incorporating energy efficiency into the building design</p> <p>Incentives offered for Building Commissioning Services (encouraged on all projects and required on projects where incentives exceed \$100K)</p> <p>Incentives provided for innovative measures, such as advanced solar and daylighting, peak-load management features, industrial and process efficiency and for LEED® certified buildings</p>

3.5 Program Inputs and Potential External Influences

The ability of the NCP to accomplish the outputs and outcomes that will contribute to reaching the ultimate program goals depends on the level, quality and effectiveness of inputs that go into these efforts. There are also external influences that can help or hinder the development of anticipated outcomes. Key inputs and potential external influences are presented in Table 9 and Table 10.

Specific outputs and outcomes anticipated for the NCP activities are shown in the logic diagram in Section 4 below. More information on these outputs and outcomes, and associated measurement indicators can be found in Table 11 and Table 12 immediately following the diagram (see Section 5:).

Table 9. NCP Program Inputs

Program Inputs
<p>SBC and EEPS funding</p> <p>NYSERDA’s program staff resources and prior experience implementing SBC-funded programs</p> <ul style="list-style-type: none"> • NYSERDA’s credibility and relationships with key stakeholders and policy makers • Staff experience implementing commercial energy efficiency New York Energy Efficiency Programs NYSERDA’s and program staff’s market knowledge and existng relationships with key training partners <p>Coordination and cross promotion with other NYSERDA programs</p> <ul style="list-style-type: none"> • Best practices learned through other programs, especially Industrial and Process Efficiency Program <p>Expertise of trade allies and technical assistance contractors</p>

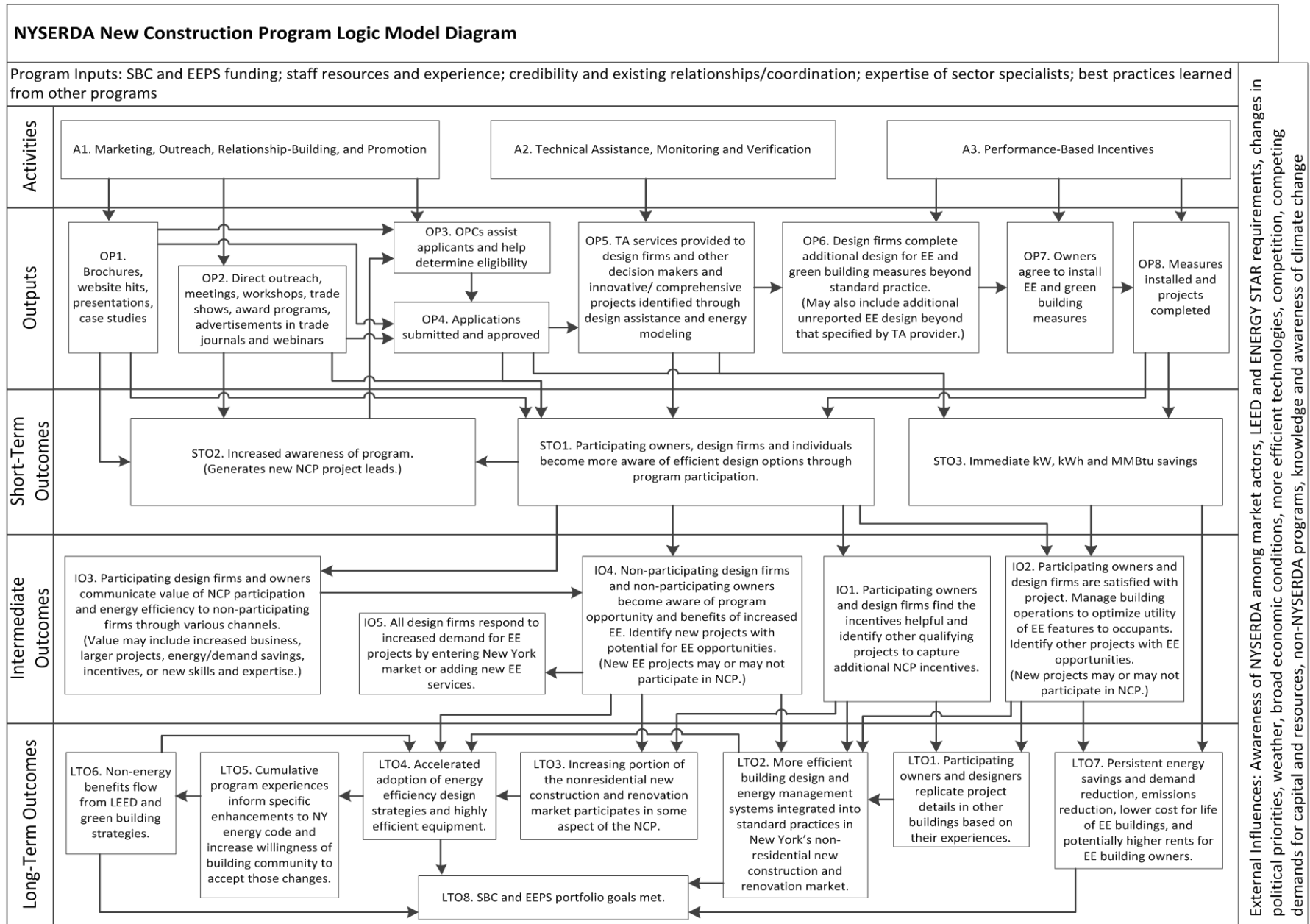
Table 10. NCP Program Potential External Influences

External Influences and Other Factors
<p>Existing awareness of NYSERDA among market actors</p> <p>LEED® and ENERGY STAR® policies and requirements</p> <p>Changes in political priorities</p> <ul style="list-style-type: none"> • Codes and standards • Federal energy policies including energy related tax credits, ARRA funding, etc. • State and local action & requirements (including local energy commissions) <p>Weather and associated impacts on customer actions and energy bills</p> <p>Broad economic conditions that affect capital investment and energy costs (rapidly changing economic conditions)</p> <ul style="list-style-type: none"> • Energy prices and regulation (changes in fuel and energy prices) • Perceptions of the value of being “green” building and LEED® <p>Costs, performance and availability of more efficient technologies</p> <p>Competition</p> <ul style="list-style-type: none"> • Competition among target market actors and contractors that affect willingness to promote energy efficiency • Other service organizations investments and commitments to energy efficiency <p>Competing demands for capital and resources</p> <ul style="list-style-type: none"> • Internal – demand-side customers competing priorities • External – broad market and demand for provisions and supply of building performance and technologies and services <p>Activities of non-NYSERDA funding public and institutional energy efficient programs</p> <ul style="list-style-type: none"> • Awareness of and enthusiasm for LEED® and ENERGY STAR® • NYISO and other utility programs promoting and providing incentives for energy efficiency <p>Knowledge, and awareness of climate change and actions that can be taken to mitigate or adapt to climate change</p>

Section 4: PROGRAM LOGIC MODEL DIAGRAM

The following page (Figure 1) contains the NYSERDA New York State Energy Efficiency Programs NCP logic model diagram showing the linkages between activities, outputs and outcomes, and identifying potential external influences. The logic model depicts the program as it is described in the updated EEPS Operating Plan. The logic diagram presented here is intended as a visual reference for the more detailed tables in this report. Evaluation research should use the more detailed tables, in addition to the diagram, in examining the anticipated linkages and performance through the various outcomes.

Figure 1. NYSERDA New Construction Program Logic Model Diagram



Section 5: OUTPUTS, OUTCOMES AND ASSOCIATED MEASUREMENT INDICATORS

It is important to distinguish between outputs and outcomes. For the purposes of this logic document, outputs are defined as the immediate results from specific program activities. These results are typically easily identified and quantified, as they can often be counted by reviewing program records.

Outcomes are distinguished from outputs by their less direct (and often harder to quantify) results from specific program activities. Outcomes represent anticipated impacts associated with program activities and will vary depending on the time period being assessed. On a continuum, program activities will lead to immediate outputs that, if successful, will collectively work toward achievement of anticipated short-, intermediate-, and long-term program outcomes.

The following tables list outputs (Table 11) and short-term (Table 12), intermediate (Table 13), and long-term (Table 14) outcomes from the logic model diagram. Each output or outcome is labeled to match its corresponding box from Figure 1. The tables include examples of the indicators that can be used to measure progress against each output and outcome, as well as a proposed data source or collection approach for that indicator. When required, the need for baseline data is also noted.

The logic model diagram and tables present outputs and outcomes that reflect both direct program impacts (i.e., energy savings from incentivized efficiency measures) and more indirect impacts associated with the program's market transformation effects that may be leading to spillover energy savings. Items in these tables should be prioritized and subsequently considered as potential areas for investigation as part of a formal program evaluation plan. Note that these tables provide only a few examples of indicators for each output or outcome; additional indicators may exist. Evaluators should consider other potential data sources and indicators in consultation with NYSERDA during the development of program evaluation plans.

Program Spillover

Spillover refers to energy savings from projects or measures that, while not directly incentivized by the program, may have been induced by various program influences on the market (e.g., non-participant owners' or designer teams' conversations with owners or design firms who have participated in and benefited from the program). The intermediate and long-term outcome tables (Table 13 and Table 14, respectively) indicate some of the specific pathways and outcomes associated with these program spillover effects, with specific outcomes and indicators associated with such spillover savings shown in *italics*.

The potential pathways to and market outcomes associated with program spillover, however, are more numerous and complex than can be effectively illustrated in this brief logic model report. See Appendix A for definitions of the different types of program spillover considered in the development of this logic model as well as additional discussion and examples of potential spillover pathways that should be considered when developing work plans to evaluate the NCP.

Table 11. NCP Outputs, Associated Indicators and Potential Data Sources

Diagram Label	Outputs	Indicators	Data Sources and Potential Collection Approaches
OP1	Brochures, website hits, presentations, and case studies generated	Number and types of brochures and case studies created and presentations given	Program documents
		Unique visitors and website hits	Web tracking data
		Target audiences and number of attendees and media hits	
OP2	Direct outreach, telephone calls, meetings, workshops, trade shows, press events, award programs, advertisements in trade journals and magazines, webinars, etc.	Numbers of telephone calls, meetings, workshops, trade shows, press events, award programs, trade journal and magazine ads, webinars	Program documents and records
		Target audiences and number of attendees and media hits	
OP3	OPCs assist applicants and help determine eligibility	Number of OPCs providing assistance (by type and geography)	Program records
		Number of clients helped by OPCs (by type and geography)	
OP4	Applications are submitted and approved	Number of applications submitted	Program records
		Number of applications approved	
		Breakout by types of building and geography	
OP5	TA services provided to design firms and other decision makers and innovative or comprehensive projects identified through design assistance and energy modeling	Number of projects receiving design assistance (by type and location)	Program records
		Number of projects with unique, comprehensive, or green building elements (by type and location)	Measurement and Verification results
OP6	Participating design teams complete additional design for EE and green building measures (beyond their otherwise standard building design practices). (May also include additional unreported EE design beyond that specified by TA provider.)	Number of applications received and approved	Program records
		Number of design incentives provided, by type	
		Number of design firms participating	
		Number of EE and green building measures identified, by type	
OP7	Owners agree to install EE and green building measures	Number of applications received and approved	Program records
		Number of incentive awards by project path	
		Location of projects by utility territory	
		Number of participating LEED® certified buildings	
OP8	Measures installed and projects completed	Number of energy efficiency and green building measures installed, by type and location	Program records
		Incremental cost of measures	
		Number of projects commissioned	

Table 12. NCP Short-term Outcomes, Associated Indicators and Potential Data Sources

Diagram Label	Short-term Outcomes	Indicators	Data Sources and Potential Collection Approaches
STO1	Participating owners, design firms and individuals become more aware of efficient design options through program participation.	Increase in the cumulative number of owners and building developers that are participating in program (by type and location)	Program records to assess participation trends
		Increase in the number of A/E firms and building designers (or fraction of total market) that are participating in the program or using program design assistance (by type and location)	Market surveys to assess awareness trends
		Increase in the number of A/E firms and building designers (or fraction of total market) that are participating in the program or using program design assistance (by type and location)	Program records to assess participation trends
		Increase in the number of A/E firms and building designers (or fraction of total market) that are participating in the program or using program design assistance (by type and location)	Market surveys to assess awareness trends
STO2	Increasing awareness of program generates new NCP project leads.	Fraction of market reporting awareness of the program	Causality assessment (program awareness generates more leads)
		Change in the number of new project leads and sources of leads to program (both previously participating and new design teams and owners)	Program records to assess project lead trends
STO3	Immediate kW, kWh and MMBtu savings	Modeled savings estimates confirmed and increasing (by type and location)	M&V results

Table 13. NCP Intermediate Outcomes, Associated Indicators and Potential Data Sources

Diagram Label	Intermediate Outcomes	Example Indicators	Data Sources and Potential Collection Approaches
IO1	Participating owners and design firms find the incentives helpful and identify other qualifying projects to capture additional NCP incentives.	Change in fraction of owners and design firms who believe a project would not have gone forward at the same time or at the same level of energy efficiency without incentives	Participant surveys (owners and design firms) to assess usefulness of incentives
		Increase in the number of additional qualifying projects that participating owners and design firms bring into the program	Program records to assess project trends Participant and design firm surveys
IO2	Participating owners and design firms are satisfied with project. Manage building operations to optimize utility of EE features to occupants. Identify new projects with EE opportunities that may or may not participate in NCP. <i>(New projects that do not participate in NCP signify participant spillover).</i>	Change in the number of owners and design firms that believe installing more efficient projects saves them energy and money	Participant surveys (owners and design firms) to assess satisfaction with outcomes and benefits and willingness to replicate
		Change in the number of owners and design firms who received design incentives that are satisfied with the design outcome	
		Change in the number of participating multi-building owners and design firms that are willing to replicate a project, measure, or strategy promoted by the NCP in subsequent NPC projects	
		<i>Change in the number of participating multi-building owners and design firms that replicate a project, measure, or strategy promoted by the NCP, but without program incentives</i>	
IO3	<i>Participating design firms and owners communicate value of NCP participation and energy efficiency to non-participating firms through various channels (Channel for non-participant spillover)</i>	<i>Increase in number of participating design firms stating that they are communicating the value of the program to non-participating firms</i>	<i>Surveys of participants and non-participants to assess communications between these two groups and to determine non-participant's perceived value of the program</i>
		<i>Change in number of non-participating firms that recognize value of program-promoted investments and promote these designs to clients</i>	
IO4	Non-participating design firms and non-participating owners become aware of the program opportunity and benefits of increased energy efficiency. Identify new projects with potential for EE opportunities. <i>(New projects that do not participate in NCP signify non-participant spillover).</i>	Change in number of non-participating design firms aware of the program and cognizant of how to participate	Surveys of participants and nonparticipants; program database
		Change in number of non-participating owners aware of the program	
		Number of new project design firms and owners reporting awareness of program based on familiarity with previous NCP projects	
		Number of previously non-participating design firms and owners identifying potential efficiency projects (by type and location) that participate in NCP	
		<i>Number of non-participating design firms and owners identifying potential efficiency projects (by type and location) that do not receive program incentives</i>	
IO5	All design firms respond to increased demand for EE projects by entering New York market or adding new EE services.	Number of design firms providing EE services or completing EE projects in New York	Program database and secondary databases
		Diversity of EE-related services offered by existing design firms	Surveys of participant and non-participant design firms.

Table 14. NCP Long-term Outcomes, Associated Indicators and Potential Data Sources

Diagram Label	Long-term Outcomes	Example Indicators	Data Sources and Potential Collection Approaches
LTO1	Participating owners and design firms replicate project details in other buildings based on their experiences. New projects may or may not participate in NCP. <i>(Previously participating owners' new projects that do not participate in the NCP may be generating participant spillover. Projects completed by participating design firms for non-participating owners may signify non-participant spillover).</i>	Change in the number of design teams and owners who implement similar designs and EE measures in subsequent new construction projects or renovations, <i>including those that do not receive NCP incentives.</i>	Surveys of participant owners and design firms
LTO2	More efficient buildings and energy management systems integrated into standard practices in New York's non-residential new construction and renovation market.	Change in number of buildings in New York that are more efficient than code and more efficient than other states	Market surveys Benchmarking data
		Changes in standard building/design practice among all design teams	Participant and non-participant surveys
		Changes in requirements or scope for new construction or retrofit design bids issued by owners	Participant and non-participant surveys
LTO3	Increasing portion of the nonresidential new construction and renovation market participates in some aspect of the NCP.	Portion of new construction market influenced by program (fraction of projects applying to NCP)	Market surveys
LTO4	Accelerated adoption of energy efficiency design strategies and highly efficient equipment. <i>(Adoption of EE design and equipment without NCP incentives may signify both participant and non-participant spillover if those decisions were influenced by past program participation or participants).</i>	Change in the adoption rate of energy efficiency design strategies and new high efficiency equipment in New York Energy Efficiency Programs service area	Market research
		Change in the number and types of measures that are becoming standard practice and are subsequently removed from program incentive list	Program data
		Change in the standard efficiency design practices among all design firms	Nonparticipant project details Design firm interviews to assess changes in standard practice
LTO5	Cumulative program experiences inform specific enhancements to NY energy code and increase willingness of building community to accept those changes.	Flow of information on project performance from program to NYSERDA code group	Internal interviews
		Updates to energy codes occurring in part due to program influences	Review of code documents and interviews with code revision entities
		Changes in level of market actor support for energy code changes toward more efficient design	Participant and non-participant surveys

Table 14. NCP Long-term Outcomes, Associated Indicators and Potential Data Sources (Continued)

Diagram Label	Long-term Outcomes	Example Indicators	Data Sources and Potential Collection Approaches
LTO6	Non-energy benefits flow from LEED® and green buildings strategies.	Change in the amount of non-energy benefits resulting from LEED® and green buildings in New York Energy Efficiency Program service area Lower overall CO2 emissions for NY nonresidential buildings	Measurement and verification; air pollution control state implementation plans
LTO7	Persistent energy savings and demand reduction, emissions reduction, lower cost for life of EE buildings, and potentially higher rents for EE building owners	Benchmarking indicates the fraction of new buildings are above New York State Energy Code and saving money	Results of M&V
		Peak demand reduction per square foot reduces monthly demand fees	Benchmarking data
		Reduced building energy usage or intensity for most buildings influenced by NCP	Utility data
		Changes in rent values for buildings incorporating EE measures or green building features	Surveys with participants and non-participants; real estate data
LTO8 - NCP contributes to achievement of overall SBC and EEPS C&I portfolio goals			

Section 6: TESTABLE HYPOTHESES (RESEARCHABLE ISSUES) FOR EVALUATION EFFORT

Based on this program logic model assessment for the NYSERDA NCP, a number of researchable issues have been identified and are noted below. Some of these have been investigated and continue to be investigated through NYSERDA evaluation activities.

- How aware are targeted market actors of the program opportunity? How effective are the marketing and outreach materials (are they reaching the targeted audiences and resulting in increased applications)?
- How effective are the updated incentives (are they resulting in more designs being completed and measures being installed)?
- How do participants hear of the program?
- What leads participants to decide to participate in the program?
- How are the results of design assistance or other technical review actually incorporated into projects?
- Does design assistance result in more comprehensive projects than would have happened in the absence of the program?
- Does design assistance result in substantive changes to the project?
- How does design assistance change the way A/E firms conduct analyses for buildings they design outside of the program?
- What barriers remain to program participation?
- What are the barriers or reasons why energy efficiency and green features are not incorporated into nonparticipating buildings?
- To what extent do owners influence participation? Trade allies? Code changes?
- What is the role of green building or LEED® certification in the decision to participate?
- Is the program working for both large and small buildings (less than 20,000 sq. ft.)? Are the tools available for small buildings analysis being used? What percent of buildings participating are small and large?
- Does the design assistance result in a whole building approach?
- Is the program being promoted early enough in the planning process?
- Have participants been able to replicate the designs or techniques used to increase the efficiency of projects included in the program for other new construction projects or renovations in which they have been involved?
- Has the standard practice of participating A&E firms and Technical Assistance Providers changed because of the program? If so, what differences in standard practices can be noted between participants and non-participants?
- Are participants seeing the energy savings and energy cost reductions that they expect? Is the energy savings per project increasing over time?
- Are participating designers and building owners communicating results to nonparticipants and, to what extent are such communications having on getting nonparticipants to identify and pursue projects?

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- Are measures promoted by the program periodically reviewed and updated?
- Is increased awareness among participating and non-participating design firms and owners resulting in increased demand for energy efficiency projects and accelerated adoption of energy efficiency design strategies and highly efficient equipment?
- To what extent is accelerated adoption and cumulative program experiences informing specific enhancements to New York State energy code and increased willingness of the building community to accept code changes?

Research addressing these questions will help to validate the reasonableness of the associated theories and will help inform NYSERDA program staff of progress and potential areas for program enhancement and refinement.

Section 7: APPENDIX A – PROGRAM SPILLOVER CONSIDERATIONS

This logic model report primarily focuses on the energy savings that result directly from program activities (i.e., as a result of program incentives). However, NYSERDA staff is also interested in understanding the spillover energy savings that occur due to the program’s indirect market effects. Table 15 provides definitions of the three main types of spillover energy savings.

Table 15. Types of Program Spillover

Term	Definition
Non-participant Spillover	Energy savings experienced or reported by non-participants that are judged to have been caused or induced by program influences such as through non-participant’s conversations with participants or by their doing business with implementation contractors.
Participant Inside Spillover	Energy savings above and beyond reported program savings that arise from additional (non-incentivized) efficiency measures installed by a participant at a participating project site
Participant Outside Spillover	Energy savings from measures designed or installed by participating design firms at building sites that are not receiving any assistance or rebates from the program

The scope and timing of these potential market effects and spillover energy savings are wide ranging. A relatively straightforward example of near-term spillover occurs when new projects, without receiving an NCP incentive, replicate the energy efficiency measures used in a past NCP-supported project. This replication could be by either a past program participant or a non-participant owner or design firm.

On the other hand, spillover can also arise from longer-term market effects, like those stemming from the program’s role in increasing awareness of energy efficiency’s benefits among both participating and non-participating design firms. For example, as awareness of those benefits increases at those firms, so might their subsequent willingness to support more rigorous energy codes for new buildings. Those more rigorous energy codes will, in turn, contribute to future energy savings that can be partly attributed to the program’s influence on awareness. Difficulties arise, however, in trying to quantify the energy savings attributable to the program in the context of other factors that may have also influenced awareness of energy efficiency benefits or the adoption of a more stringent code.

Based on the number and complexity of these potential pathways to program spillover, this logic model report does not attempt to list all possible spillover-related outcomes. It is anticipated that future NCP evaluation activities will seek to better understand the most likely pathways to these types of indirect energy savings so that future iterations of the program logic model can better account for those outcomes and their associated indicators.

Some of the potential program market effects that could lead to spillover energy savings that were considered to be most likely by this report’s contributors include the following:

- Influential building designs that are funded in part by NYSERDA are publicly recognized (i.e., with an industry award) and as a result have design features copied or incorporated into standard practice by other market actors.
- The success of projects that participate in the NCP is spread by word of mouth between design firms, who subsequently incorporate energy efficient designs into future projects.

- Building equipment vendors choose to eliminate less efficient designs or add higher efficiency products in order to better compete in a market where design firms wish for their projects to qualify for NCP incentives.
- Prices for energy efficient products and systems go up or down as a result of increased demand or supply for such products, in part due to program incentives for higher efficiency design.
- New tools developed in the NCP are used to model building energy use or to evaluate cost effectiveness tradeoffs in building design.
- Participating design firms use their successful experience with an NCP-supported building as part of their marketing efforts.
- Building owners or project financiers begin to specify the levels of efficiency required by the NCP as part of their minimum specifications for future project bids.

Section 8: APPENDIX B – INCENTIVES UNDER PON 1601²³

Financial Incentives	Non-Con Ed Territories \$825,000 Total project incentive cap (not including bonus incentives)	Con Ed Territory-Specific \$1,575,000 Total project incentive cap (not including bonus incentives)
Pre-Qualified Measure	<ul style="list-style-type: none"> • Pre-set incentives are offered for select pre-qualified measures • Maximum \$30,000 per project 	<ul style="list-style-type: none"> • Pre-set incentives are offered for select pre-qualified measures • Maximum \$30,000 per project
Custom Measure	<ul style="list-style-type: none"> • \$0.10 per kWh saved; \$225 per summer peak kW saved • Maximum \$200,000 per project, including any pre-qualified measures • Incentive capped at 50% of incremental cost • With the exception of lighting systems, incentives are not available for measures that reduce paybacks to less than one year • Each measure must exceed designated baseline* by a minimum of 3% 	<ul style="list-style-type: none"> • \$0.10 per kWh saved; \$275 per summer peak kW saved • Maximum \$500,000 per single custom measure and \$1,000,000 per project, including any pre-qualified measures • Incentive capped at 50% of incremental cost • With the exception of lighting systems, incentives are not available for measures that reduce paybacks to less than one year • Each measure must exceed designated baseline* by a minimum of 3%
Whole Building Design	<ul style="list-style-type: none"> • Maximum \$750,000 per project with a single measure cap of \$200,000 • Incentive capped at 60% of incremental cost (75% for LEED® or NY-CHPS certified buildings) • With the exception of lighting systems, incentives are not available for measures that reduce paybacks to less than one year • Whole Building Design must exceed designated baseline* by a minimum of 3% 	<ul style="list-style-type: none"> • Maximum \$1,500,000 per project with a single measure cap of \$500,000 • Incentive capped at 60% of incremental cost (75% for LEED® or NY-CHPS certified buildings) • With the exception of lighting systems, incentives are not available for measures that reduce paybacks to less than one year • Whole Building Design must exceed designated baseline* by a minimum of 3%

²³ NYSERDA Program Opportunity Notice (PON) 1601 New Construction Financial Incentives. Effective January 4, 2012.

Financial Incentives	Non-Con Ed Territories \$825,000 Total project incentive cap (not including bonus incentives)	Con Ed Territory-Specific \$1,575,000 Total project incentive cap (not including bonus incentives)
<p>Whole Building Designs above designated baseline*</p> <p>1. Designs 3% to 9% above designated baseline* →</p> <p>2. Designs 9.1% to 16% above designated baseline* →</p> <p> Designs 16.1% to 23% above designated baseline* →</p> <p>3. Designs 23.1% to 30% above designated baseline* →</p> <p>4. Designs 30.1% or more above designated baseline* →</p>	<p>1. 11¢/kWh saved; \$230/summer peak kW saved</p> <p>2. 12¢/kWh saved; \$240/summer peak kW saved</p> <p>3. 13¢/kWh saved; \$250/summer peak kW saved</p> <p>4. 14¢/kWh saved; \$260/summer peak kW saved</p> <p>5. 16¢/kWh saved; \$280/summer peak kW saved</p>	<p>1. 11¢/kWh saved; \$300/summer peak kW saved</p> <p>2. 12¢/kWh saved; \$310/summer peak kW saved</p> <p>3. 13¢/kWh saved; \$320/summer peak kW saved</p> <p>4. 14¢/kWh saved; \$330/summer peak kW saved</p> <p>5. 16¢/kWh saved; \$350/summer peak kW saved</p>
<p>Green Building Option (LEED® or NY-CHPS certification) (Incentives through the Whole Building Design approach apply, as well as the following additional incentives)</p>	<ul style="list-style-type: none"> • Incentive increased by 10% for LEED® projects with at least 3 EAc-1 points, or NY-CHPS projects with at least 2 Energy 3.1.3 points • Maximum incentive increase is \$50,000 • Incentive cap increased to 75% of incremental cost 	<ul style="list-style-type: none"> • Incentive increased by 10% for LEED® projects with at least 3 EAc-1 points, or NY-CHPS projects with at least 2 Energy 3.1.3 points • Maximum incentive increase is \$50,000 • Incentive cap increased to 75% of incremental cost
<p>Bonus Incentives</p>	<p>Non-Con Ed Territories</p>	<p>Con Ed Territory Specific</p>
<p>Applicant LEED® Incentives Incentive is available to offset soft costs for certification for LEED® projects with at least 3 EAc-1 points.</p> <p>1. Project is less than 50,000 square feet</p> <p>2. Project is equal to or larger than 50,000 square feet</p>	<p>1. \$5,000</p> <p>2. \$10,000</p>	<p>1. \$5,000</p> <p>2. \$10,000</p>

*Designated baseline is ASHRAE/IESNA 90.1-2007

Section 9: APPENDIX C – INCENTIVE ADJUSTMENTS FROM PON 1501 TO PON 1601

NCP Approved Incentives Adjustments under Current PON 1601

Effective January 4, 2012 through December 31, 2015

PON 1601 Financial Incentive Changes from PON 1501 (Revision 1)

Item	Non-Con Ed		Con Ed (If different from Non-Con Ed)	
	New PON 1601	Previous PON 1501	New PON 1601	Previous PON 1501
Natural Gas Savings	Not offered	\$1.03/Therm Maximum \$200K	Not offered	\$1.03/Therm Maximum \$200K
Geothermal heat pump	Not offered	\$400/ton Maximum \$200K	Not offered	\$400/ton Maximum \$400K
Energy storage/electric to non-electric cooling	Not offered	\$300/kW	Not offered	\$300/kW
Super-efficient chiller full load	Not offered	\$1,000/kW	Not offered	\$1,000/kW
Super-efficient chiller net part load value (NPLV)	Not offered	\$275/kW	Not offered	\$275/kW
Peak load reduction	Not offered	\$50/kW	Not offered	\$100/kW