

**System Benefits Charge
EmPower New YorkSM Program
Logic Model Report**

Final Report

Prepared for

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

Prepared by

GDS Associates, Inc.

NYSERDA

December 2010

NOTICE

This report was prepared by GDS Associates in the course of performing work contracted for and sponsored by the New York State Energy Research and Development Authority (NYSERDA) (hereafter The "Sponsor".) 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 BENEFITS CHARGE
EMPOWER NEW YORKSM
PROGRAM LOGIC MODEL REPORT
(FINAL – November 11, 2009)
Revised December 20, 2010¹

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 EmPower New YorkSM (EmPower) Program. This logic model addresses NYSERDA's ongoing activities as funded by the System Benefits Charge. This includes ongoing activities under the **New York Energy SmartSM** program as well as expanded activities occurring as a result of recently added Energy Efficiency Portfolio Standard funding.

This document provides:

- 1) A table showing a list of documents relating to NYSERDA's EmPower Program 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 as a "Fast Track" program 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.

¹This Empower Program logic model report represents electric energy efficiency funding approved pursuant to Case 07-M-0548 Proceeding on Motion of the Commission Regarding an Energy Efficiency Portfolio Standard, *Order Establishing Energy Efficiency Portfolio Standard and Approving Programs* (June 23, 2008), and subsequently approved by DPS Staff on March 13, 2009; the addition of natural gas efficiency funding approved pursuant to *Order Approving Certain Large Industrial Customer Energy Efficiency Programs with Modifications and Rejecting Others*, (August 24, 2009); and additional natural gas efficiency funding approved pursuant to *Order Approving Three New Energy Efficiency Portfolio Standard (EEPS) Programs and Enhancing Funding and Making Other Modifications for Other EEPS Programs*, (June 24, 2010).

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
Abt SRBI, Inc. and Research into Action, Inc. 2008 Energy Conservation, Efficiency, and Demand Response. NYSERDA Over-Sample. March 2009
Central Hudson Gas & Electric: http://www.savingscentral.com/residential.html
Con Edison: http://www.coned.com/energyefficiency/default.asp
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
EmPower New York SM Appliance Vendor Agreement. July 1, 2009 to June 30, 2010.
EmPower New York SM Energy Service Contractor Agreement, July 1, 2009 to June 30, 2011.
EmPower New York SM Performance Metrics for Period Ending July 31, 2006 (from NYSERDA)
EmPower New York SM Procedures and Guidelines Manual. (Updated June 2009)
EmPower New York Program “Impact Assessment for the Natural Gas Efficiency Program” Request for Proposal No. 1285 (March 2009)
EmPower New York SM Program Implementer Request for Proposal No. 1013 (July 2006)
EmPower New York SM Website: http://www.nyserda.ny.gov/Page-Sections/Residential/Programs/Low-Income-Assistance/EmPower-Overview.aspx
GDS Associates, <i>NYSERDA EmPower New YorkSM Program Logic Model Report</i> , FINAL 11-13-06
National Fuel Gas Company: http://www.nationalfuelforthought.com/
New York State Electric & Gas; http://www.nyseg.com/UsageAndSafety/usingenergywisely/eeps/default.html
NYSERDA, <i>New York Energy \$martSM Program Evaluation and Status Report</i> , First Quarter May 2009
NYSERDA, <i>New York Energy \$martSM Program Evaluation and Status Report</i> , March 31, 2009
Optimal Energy, <i>Achievable Electric Energy Efficiency in New York State DRAFT</i> , November 2008
Optimal Energy, <i>Natural Gas Energy Efficiency Resource Development Potential in New York</i> , October 31, 2006
Program Information communicated by EmPower New York SM program staff during meeting conducted July 23, 2009
Proposed Plan for New York Energy \$mart SM Programs 2006 – 2011 (March 2006)
Quality Control/Quality Assurance Tasks for EmPower New York SM (from NYSERDA, July 2006)
Research Into Action, Inc., <i>Process Evaluation EmPower New York Program Final Report</i> , March 2009
Rochester Gas & Electric: http://www.rge.com/UsageAndSafety/usingenergywisely/eeps/default.html
System Benefits Charge Supplemental Revision for New York Energy \$martSM Programs. (2008-2011). As amended August 22, 2008 and revised March 12, 2009

Section 2: **CONTEXT AND PROGRAM DESCRIPTION**

2.1 Program Description

EmPower is an energy efficiency program administered by the New York State Energy Research and Development Authority (NYSERDA). The goal of this program is to help low-income households reduce energy use and costs. The program focuses on cost-effective Electric Reduction (ER) measures such as lighting and refrigerator replacements. Cost-effective Home Performance (HP) measures such as insulation and air sealing are implemented in situations where gas or other funding is available to provide services. Energy related health and safety measures are also addressed as appropriate. On-site energy use education provides households with additional strategies for managing their energy costs, and energy education workshops are available in locations across the state. EmPower serves both homeowners and tenants in buildings with up to 100 units. Honeywell International is under contract to NYSERDA to provide program implementation support. Conservation Service Group (CSG) is under contract to provide quality assurance services.

Households expected to benefit from more comprehensive treatments receive an energy audit and in-home energy education, and additional electric reduction measures (e.g., ENERGY STAR® lights and refrigerators) or home performance measures as appropriate. These households are “full participants”. Customers referred to the program that are not receiving comprehensive services receive a package of information with educational materials, three compact fluorescent lights (CFLs), a water temperature thermometer and a nightlight. These households are called “partial participants”. There is no cost to the customer for these services and equipment. In rental situations, measures that directly benefit the eligible tenant (such as lights and refrigerators) are available without a landlord contribution. Additional measures, such as insulation and other building shell improvements generally require a 25% landlord contribution. Open to the general public and all program participants are free workshops on energy use and financial management offered by the Cornell Cooperative Extension of Tompkins County and HeartShare of New York. There are 400 energy-use management workshops and 200 financial management workshops planned for 2009. Program audit and installation services are provided through a network of nearly 100 weatherization agencies and private energy services contractors, all of whom are accredited by the Building Performance Institute (BPI).

2.1.1 Program Enhancements for Fast Track

The EmPower Program is one of five “Fast Track” programs receiving enhanced funding through the Energy Efficiency Portfolio Standard (EEPS). In order to meet the Fast Track energy savings goals the EmPower Program enhancements include: increasing coordination with interested parties, expanding the pool of qualified contractors, and working closely with the DPS Staff to improve customer referral and customer information reporting. EEPS Projected goals are as follows:

- 22,539 households served
- Average annual savings of 1,306 kWh per household

In addition to the program enhancements and associated goals above, NYSERDA recently received funding for gas through EEPS based on EmPower’s successful completion of gas programs in the National Fuel, National Grid, and Con Edison gas service territories. Currently, approximately 20% of program completions include home performance measures. Through additional funding provided by

these utilities, NYSEDA's EmPower Program is expanding the energy efficiency services being provided to low-income customers to include:²

- Improving insulation
- Heating system upgrades
- Air sealing
- Conversions from electric to gas clothes dryers and water heaters
- Cost-effective electric reduction measures are also included

For the period through June 2009:³

- National Fuel provided \$5.8 million for efficiency services to an estimated 1,436 natural gas customers
- National Grid provided \$6.1 million for EmPower to provide home performance measures to an estimated additional 2,535 natural gas customers

Con Edison provided \$2.5 million to deliver gas efficiency measures to an estimated 833 Con Edison natural gas customers in coordination with Weatherization Agencies.

2.1.2 Program Budget

EmPower receives funding from a variety of sources, including:

- **System Benefits Charge (SBC):** serves customers of all SBC-participating electric utilities: Central Hudson, Con Edison, New York State Electricity and Gas (NYSEG), National Grid, Orange and Rockland, and Rochester Gas and Electric. Provides for both ER and HP work.
- **Energy Efficiency Portfolio Standard (EEPS):** serves customers of all SBC-participating electric utilities. Provides funds for ER work statewide.
- **Natural Gas Efficiency Programs⁴:** Central Hudson, Con Edison, and National Grid provide funding for HP services for customers of these SBC-participating electric utilities. Additionally, participants in the National Fuel Gas Conservation Incentive Program (CIS) are served through EmPower with funding from that utility.
- **Settlement Funds:** On occasion, EmPower receives settlement funds from the State of New York to provide energy efficiency services. Currently the Heating Oil Efficiency Pilot provides funding for HP services in homes heated with oil.

² <http://www.nyserda.ny.gov/Page-Sections/Residential/Programs/Low-Income-Assistance/EmPower-Overview.aspx> website for EmPower New YorkSM

³ System Benefits Charge Supplemental Revision for **New York Energy \$martSM** Programs 2008-2011 (As amended August 22, 2008 and revised March 12, 2009) Section 5 – Fast Track Programs for Low-Income

⁴ Effective in 2010 Central Hudson, Con Edison, and National Grid no longer fund HP services for customers in SBC territories.

- **Regional Greenhouse Gas Initiative (RGGI)** (pending)⁵: This funding provides for HP measures for oil- and propane- heated homes throughout New York State.

SBC III funding is expected to be fully committed, ahead of schedule, by the end of 2010. As shown in Table 2, the projected budget for both Fast Track (EEPS) funding and SBC III is projected to be \$95,262,684 for 2008-2011.⁶ The estimated outreach and marketing budget which will include contractor recruitment efforts will be approximately \$34,909 for 2010-2011.

Table 2. Projected Budget for EmPower Program (Thousands of Dollars) (2008-2011)

Funding Component	2008 (1/4yr)	2009	2010	2011	Total
EEPS Electric	N/A	\$6,902	\$10,140	\$9,738	\$26,780
EEPS Gas	N/A	N/A	\$2,931	\$6,801	\$9,732
SBC (Electric and Gas) III	\$38,673	\$12,305	\$4,845	\$2,927	\$58,750
Total	\$38,673	\$19,207	\$17,916	\$19,466	\$95,262

Note: May not total due to rounding

Sources: System Benefits Charge Supplemental Revision for **New York Energy SmartSM** Programs. (2008-2011). As amended August 22, 2008 and revised March 12, 2009. Section 5 – Fast Track Programs for Low-Income. *Supplemental Revision to SBC Operating Plan*, (September 16, 2010).

The program started in July 2004 to supply energy efficiency measures and education to participants in the National Grid and NYSEG low-income energy efficiency programs. Under SBC III, the program has been expanded to the rest of the state, and has assumed the activities of the Weatherization Network Initiative (WNI). The current program serves eligible customers from the following utilities: Central Hudson Gas & Electric, Con Edison, NYSEG, National Grid, Orange and Rockland, and Rochester Gas and Electric. The current expanded EmPower program also targets multifamily buildings with up to 100 housing units.

EmPower builds upon the infrastructure of other public programs that reduce energy use and costs for low-income households in the State. In particular, the program coordinates with the delivery of federal weatherization services delivered through New York State Division of Housing and Community Renewal (DHCR). EmPower works closely with WAP agencies and accepts referrals from them. The program also works with Offices for the Aging, Departments of Social Services and other community-based organizations (CBOs) to refer low-income households.

2.2 Market Assessment

The portfolio of **New York Energy SmartSM** residential (including low-income) energy efficiency programs influence decisions regarding energy used by homeowners, renters, and participants in the residential energy products, services and new construction markets. As with all of NYSERDA's

⁵ RGGI funds were approved and became available for these measures in 2010.

⁶ System Benefits Charge Supplemental to SBC Operating Plan. As amended August 31, 2010. Section 5 –Programs for Low-Income.

residential programs, EmPower and other programs that are offered to low income customers help to reduce households' energy burden⁷ by improving the efficiency of energy use and providing energy management and aggregated energy procurement services (*i.e.*, discounted home heating oil for HEAP customers). These programs also work with the multifamily building industry to improve the efficient use of electricity, petroleum, and natural gas.⁸

At this time there has been no Market Characterization, Market Assessment and Causality Evaluation (MCAC) effort initiated for the EmPower Program. Therefore, only limited market assessment information is available for presentation in this report. Instead, the data in this section comes from the following sources: Optimal Energy's assessment of technical potential savings in New York for 2009-2015, the **New York Energy \$martSM** Program Evaluation and Status Final Report March 2009, and the 2008 Energy Conservation, Efficiency, and Demand Response Report also dated March 2009.

2.2.1 Description of Baseline Condition

Buildings Already Served

Through June 2009, 28,553 households have been served with SBC III funds, 91% of the original target of 31,500 from July 1, 2006 through June 30, 2011.⁹ An additional 19,778 households have been served with various other funding for the same period. The total 48,331 households served represents 65% of the program's 2011 targeted goal of 74,131.

Market Share

Through June 2009, EmPower has delivered energy efficiency services to more than 48,000 low income customers, representing over 45 percent of the total low income customers served by New York Energy \$mart programs. EmPower also represents over 50 percent of the electricity savings and nearly 20 percent of the fuel savings for all the low income programs while accounting for 25 percent of the funds spent.¹⁰ The federally funded Weatherization Assistance Program administered by the NYS Division of Housing and Community Renewal also serves households with incomes below 60 percent of state median. Its recent funding history demonstrates its large market presence:¹¹

SFY 2007: \$54.6 million, assisted 12,208 units

SFY 2008: \$67.3 million, will assist 13,600

SFY 2009: \$98.7 million, will assist 15,000 units

ARRA: \$292.5 million over 2 years implementation period, will assist 45,000 units

Attitudes and Behaviors

Research into Action, Inc. and Abt SRBI, Ict. conducted a multi-client Energy Conservation, Efficiency, and Demand Response Study in 2008 to provide insight into the attitudes and behaviors of residential customers (including low income customers) with respect to energy conservation and efficiency. For the proprietary NYSEDA question, the study found, sixty-seven percent (67%) of NYSEDA respondents say they are giving more consideration to energy efficiency than two years ago, while 31 % are giving about the same consideration to energy efficiency. Only 1% of the respondents said they were giving less consideration to energy efficiency. When asked about their motivations for giving more attention to

⁷ Energy burden is the percentage of household income used to pay for energy.

⁸ **New York Energy \$martSM** Program Evaluation and Status Report March 31, 2009.

⁹ New York Energy \$martSM Program Evaluation and Status Report First Quarter May 2009 .Section 4.7 EmPower New York

¹⁰ New York Energy \$martSM Program Evaluation and Status Report pgs 4-5, 4-7 and 2-9

¹¹ DHCR presentation, April 2009

energy efficiency, respondents most commonly mentioned the desire to save money on their energy bills and the rising costs of energy, followed by environmental concerns, while 88% of NYSERDA respondents agreed that saving energy in their homes saves money, compared with 96% of U.S. customers.¹²

In terms of energy efficient products the Abt SRBI and Research into Action study found that, seventy-three percent (73%) of NYSERDA respondents said that the ENERGY STAR logo is “very” or “somewhat important” in making an appliance or electronics purchase decision (significantly above the level of 60% nationally). When searching for energy-efficient appliances or accessories, NYSERDA respondents most commonly go to a home improvement store (28%, compared with 30% in the national survey) and twenty-six (26%) go to an appliance store, a statistically-significant difference from 16% in the national survey.¹³

NYSERDA’s March 2009 Program Evaluation and Status Report noted that most EmPower program workshop attendees (and participants receiving weatherization services that also included in-home education) took at least one energy saving action after attending the workshop. About 84% of the respondents say they installed energy-efficiency lighting, 42% mentioned turning down their thermostats, 33% added caulking or weather-stripping, 23% turned down their hot water temperature, and 22% installed inside plastic storm windows.

2.2.2 Expected Savings and Statewide Technical Potential

According to an Optimal Energy assessment of technical potential savings in New York for 2009-2015, the achievable potential for energy savings from New York’s low-income sector grows from 19 GWh in 2009 to 93 GWh in 2011, to 351 GWh by 2015. As Shown in Table 3 below, based on savings goals expected through the SBC and EEPS elements of NYSERDA’s EmPower program, by the end of 2011, approximately 42% of the then achievable electric potential and 22% of the then achievable natural gas potential will have been met through completed EmPower projects.¹⁴

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

	2009	2010	2011	2012	2013	2014	2015
Achievable Potential Total Residential Low-Income (GWh)	19	51	93	145	208	278	351
EEPS (GWh)	6.0	12.0	11.5				
SBC III (GWh)	8.4	.5	.3				
Cumulative Total EmPower (GWh)	14.4	26.9	38.7				
Residential Low-Income (1000 MMBtu)	456	608	760	760	760	760	760
EEPS (MMBtu)	0	23.0	62.0				
SBC (MMBtu)	38.2	28.2	18.2				
Cumulative Total EmPower (1000 MMBtu)	38.2	89.4	169.6				

¹² Abt SRBI, Inc. and Research into Action, Inc. 2008 Energy Conservation, Efficiency, and Demand Response. NYSERDA Over-Sample. March 2009.

¹³ Abt SRBI, Inc. and Research into Action, Inc. 2008 Energy Conservation, Efficiency, and Demand Response. NYSERDA Over-Sample. March 2009.

¹⁴ Optimal Energy, Achievable Electric Energy Efficiency in New York State DRAFT November 2008. SBC and EEPS updated figures from the Supplemental Revision to the SBC Operating Plan (August 31, 2010)

	2009	2010	2011	2012	2013	2014	2015
MMBtu)							
Percentage of Achievable Potential (GWh) by 2011:	-	-	42%				
Percentage of Achievable Potential (MMBtu) by 2011:	-	-	22%				
Sources: Optimal Energy, <i>Achievable Electric Energy Efficiency in New York State DRAFT</i> , November 2008, Optimal Energy, <i>Natural Gas Energy Efficiency Resource Development Potential in New York</i> , October 31, 2006, and SBC and EEPS updated figures from the <i>Supplemental Revision to the SBC Operating Plan (August 31, 2010)</i>							

2.3 Other Relevant NYSERDA and New York Area Programs

In addition to NYSERDA’s EmPower program, there are a number of other potentially relevant programs being implemented in New York that are listed below. These programs are included as External Influences in Section 3.5 of this report and are identified in the program logic diagram as factors with the potential to impact (i.e., either help or hinder) achievement of NYSERDA’s EmPower program goals. Many of these programs coordinate with NYSERDA by referring eligible participants directly to the EmPower program.

2.3.1 NYSERDA Programs

Assisted Home Performance Grants¹⁵

The Assisted Home Performance Program provides grants to low-income home owners for up to 50% of the cost for energy efficient improvements. The household income eligibility cut-off is set at 80% of the State Median Income or 80% of the Area Median Income (by county), whichever is greater. Single-family homeowners that meet the income eligibility guidelines generally qualify for grants of up to \$5,000. An income-qualified owner that occupies a unit in a 2-4 unit building can receive a subsidy of up to \$5,000 for the whole building without any income verification required for the tenants. A higher subsidy, up to a total of \$10,000 per building, may be available if tenants also are income eligible. This program potentially duplicates efforts of the EmPower program targeting low-income customers interested in energy efficient improvements.

Multifamily Performance Program¹⁶

Multifamily projects submitted to the EmPower Program are first screened for eligibility and potential participation in NYSERDA’s **New York Energy SmartSM** Multifamily Performance Program (MPP). Under MPP, new construction of multifamily buildings and existing multifamily buildings are eligible for incentives that improve energy savings through energy efficiency or innovative energy solutions, such as renewable energy. Additional incentives are available for projects that serve or are expected to serve low-income tenants, as well as income qualified housing that meets certain sustainability guidelines. To be eligible for affordable housing incentives, the building owner must demonstrate that the property is publicly-subsidized or that at least 25% of residents receive public assistance or earn below 80% of the

¹⁵ NYSERDA website: <http://www.nyserda.ny.gov/Page-Sections/Residential/Programs/Existing-Home-Renovations/Low-Income-Eligibility.aspx> and DSIRE website, New York Incentive/Policies for Renewable & Efficiency, NYSERDA – Assisted Home Performance Grants: http://www.dsireusa.org/incentives/incentive.cfm?Incentive_Code=NY17F&re=1&ee=1

¹⁶ NYSERDA website: <http://www.nyserda.ny.gov/Program-Areas/Energy-Efficiency-and-Renewable-Programs/Multifamily-Performance-Program.aspx> and DSIRE website, New York Incentive/Policies for Renewable & Efficiency, NYSERDA – Energy Smart Multifamily Performance Program: http://www.dsireusa.org/incentives/incentive.cfm?Incentive_Code=NY36F&re=1&ee=1

State Median Income. If projects are participating in MPP, then they are not accepted into NYSERDA's EmPower Program.

2.3.2 Federally-Funded Weatherization Assistance Program

The New York State Weatherization Assistance Program is the largest residential energy conservation program in the country.¹⁷ The program receives funding from the U.S. Departments of Energy, and Health and Human Services. In 2007-08 approximately \$55 million was allocated to 64 community-based organizations that provide weatherization services. Service providers are selected through an annual State planning process. The maximum amount of assistance is limited to \$4,500 per unit. The Weatherization Program also helps reduce energy costs of affordable housing assisted by other programs administered by DHCR and HTFC. Affordable housing developers, property managers, and other housing and community development agencies are encouraged to contact their local Weatherization provider for more information.

The Weatherization Assistance Program assists New York's income-eligible families and individuals by reducing their heating and cooling costs and improving the safety of their homes through energy efficiency measures. Energy efficiency measures performed through the program include air sealing (weather stripping, caulking), wall and ceiling insulation, heating system improvements or replacement, efficiency improvements in lighting, hot water tank and pipe insulation, and refrigerator replacements with highly efficient ENERGY STAR-rated units. Both single-family and multi-family buildings are assisted. Household energy use reductions and resultant energy cost savings are significant, with an average savings in excess of 20%. Individual households apply by contacting the provider serves their area. Households with incomes at or below 60% of state median income are eligible for assistance. Program services are available to both homeowners and renters, with priority given to senior citizens, families with children and persons with disabilities.

2.3.3 Conservation Incentive Program (CIP)

- This program is only eligible to Western New York customers located in Nation Fuel service territory. Through the National Fuel CIP, funding is provided to NYSERDA's EmPower program for rebates on qualifying equipment purchased and installed by a contractor, including natural gas-fired space and water heating appliances. The program targets equipment upgrades only, and new-builds are not eligible for rebates.¹⁸

2.3.4 National Grid Energy Efficiency Program Funding

National Grid provides funding to NYSERDA for delivery of gas energy efficiency improvement products and services through NYSERDA's Home Performance with ENERGY STAR and Assisted Home Performance programs to eligible National Grid gas customers.

¹⁷ Weatherization Assistance Website: <http://www.dhcr.state.ny.us/Programs/WeatherizationAssistance/>

¹⁸ National Fuel Gas Company's "Fuel for Thought": <http://www.nationalfuelforthought.com/>

Section 3: **KEY ELEMENTS SUMMARY**

Based on a review of the aforementioned documents, following is a summary of the key elements of the EmPower Program.

3.1 Ultimate Goals:

The following program goals have been established for EmPower (from RFP #1013 and EEPS “Fast Track”-identified enhancements):

1. Provide cost-effective energy efficiency measures with a focus on electric reduction for participants in EmPower
2. Provide expanded home performance services to natural gas customers.
3. Provide enhanced energy use management and financial management workshops throughout the SBC service territories, distributed according to population and provided in locations convenient to low-income households.
4. Maintain an improved and effective referral mechanism to EmPower to target energy efficiency services to low-income customers with high energy burdens.
5. Demonstrate that low-income energy efficiency services are effective from both a demand-side perspective as well as an affordability strategy.
6. Provide efficiency services in a consistent and timely manner and ensure that services are completed in accordance with accepted standards of quality.
7. Maintain and expand a network of energy service providers that can provide quality services in a timely manner.
8. Expand coordination with complementary low-income energy programs, including the Weatherization Assistance Program and the Home Energy Assistance Program, to maximize the resources available to customers.
9. Adopt a “whole house and fuel neutral approach” as appropriate and within budgetary constraints to address affordability issues.
10. Maximize resources available to serve more customers through efficiency in program delivery and management.

In addition to the new EEPS funds, the program also has a goal of leveraging and obtaining increased funding from a variety of sources to assist more low-income households in New York.

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

Several barriers that inhibit the adoption of energy-efficient products and activities affect the low-income residential market. These barriers can be separated into three general groups: barriers affecting supply-side, mid-market and infrastructure, and demand-side (and associated end-use) market actors. Supply-side and mid-market and infrastructure barriers include conflicting NYSERDA and other utility programs described in Section 2.3, policies and business practices that deter the development and delivery of energy efficient products and services, or indicate an insufficient availability of or commitment to such energy-efficient products and services. Demand-side barriers in the low-income residential sector include insufficient financial resources, lack of awareness or understanding of education about energy efficiency options and benefits, competing programs and the low priority of energy efficiency given competing uses of funds.

Table 4 lists specific barriers related to market actors (not ordered by priority) for EmPower Items marked with an asterisk (*) denote barriers that are being directly addressed through NYSERDA's EmPower Program. Note –Table 4 is meant to be a comprehensive list of market barriers that could potentially impact achievement of key EmPower 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 EmPower market.

Table 4. Barriers Affecting the Low- Income Household Market (“the Problem”)

Market Area	Barriers	Market Actors
Supply Side	S1* – Higher costs for energy efficient equipment (30-40%) S2 – Insufficient product availability generally and for some emergency repairs (distribution problems, short timeframe)	Manufacturers Distributors
Market Infrastructure and Policy	M1* – Business practices and regulations that limit the use of life-cycle cost analysis for low-income properties M2* – High staff turnover at CBOs and WAP agencies M3* – Cost of training and accreditation for energy services contractors M4 – Availability of eligible contractors (not currently an issue) M5 – Lack of energy service contractors with interest or willingness to effectively deliver assistance to low-income population (not currently an issue) M6* – Contractors’ preference for specific measures M7* – Limited contractor skill sets (e.g., hard-wired lighting) M8* – Access to utility data on customer energy consumption and billings M9* - Confusion caused by overlapping WAP, NYSERDA, and utility programs	Lenders and Financial Institutions Auditors Contractors Community Based Organizations (CBOs) WAP agencies Utilities
Demand Side	D1* – Limited resources (financial and informational) of income-eligible customers to address energy efficiency in their homes D2* – Split incentives for rental units (building owners often do not pay the energy bills; tenants do but have little incentive or ability to improve the property) D3 – Inadequate security to ensure that energy efficient equipment stays in place D4* – Consumers are not aware of the value and benefits of energy efficient equipment D5* – Difficulty in quantifying and communicating value of certain measures such as air sealing and dense-pack insulation D6* – Resistance to new or innovative technologies D7 – Equipment performance uncertainties D8* – Lack of financing to make improvements to low-income properties (owners) D9* – Lack of consideration of operation and maintenance costs compared to first cost outlays when making capital investment decisions (multifamily building owners) D10* – Limited awareness by income-eligible customers of weatherization, fuel assistance, and other services related to energy use in homes D11* – Confusion caused by overlapping WAP, NYSERDA, and utility programs D12* – Confusion caused by ESCOs and alternative suppliers	Low-income households Multifamily building owners and managers Contractors

*indicates barriers that the EmPower program seeks to directly address

3.3 Targeted Market Actors:

The EmPower program provides outreach and services targeted to multiple market actors in both the supply side (and associated market infrastructure) and demand side areas. Table 5 shows a list of the specific market actor groups that are involved with the program.

Table 5. Market Actors Targeted by the EmPower Program

Supply-Side and Market Infrastructure	Demand-Side
Other NYSERDA Programs and Utilities Energy services contractors (audits and installations) Community Based Organizations (CBOs) Weatherization Assistance Program (WAP) agencies Energy education contractors Energy efficient equipment suppliers	Low-income residential customers Low-income residential property owners, including multi-family owners

3.4 Program Implementation Approach (“Activities”):

The focus of EmPower is to provide cost-effective electric reduction measures, particularly lighting and refrigerator replacements, as well as other home performance improvements such as insulation, health and safety and natural gas reduction measures. On-site and classroom energy use education is also provided to customers to help manage their energy costs.

A broad range of program activities is conducted to provide these services. Table 6 shows the major categories of program activities and their related sub-activities.

Table 6. EmPower Program Activities

Program Marketing and Coordination with Other Low-Income Programs and Utilities
<p>Website updated to inform CBOs, WAP agencies, utilities and energy customers of program</p> <p>Written selection criteria established (e.g. economic need, geographical factors, costs and benefits) to decide project prioritization</p> <p>Program outreach to CBOs, WAP agencies and utilities (meetings, referrals guidance, targeted mailings)</p> <p>Utility referral mechanisms developed to ensure resources are committed according to utility collections</p> <p>Utilities refer customers (partial or full participants) to program based on payments history</p> <p>Local Offices for the Aging and Departments of Social Services make referrals to program</p> <p>WAP agencies make referrals – some coordinate EmPower with weatherization funding (60% of EmPower audits and installations are completed by WAP agencies)</p> <p>Clean and Tune Program makes referrals</p> <p>Coordination with NYSERDA Home Performance Program conducted on case-by-case basis (e.g., eligibility criteria reviewed)</p> <p>Interaction with DHCR flood assistance efforts</p> <p>Agencies provide Honeywell with information on weatherization funds put into projects to track in CRIS database</p> <p>Households contact Honeywell directly to request Energy Services Application (phone number from website or CBOs)</p> <p>Households obtain application from program website or CBOs</p> <p>Honeywell sends utility referrals and phone callers an application</p> <p>Households return completed applications to Honeywell (some with CBO assistance)</p> <p>Utilities provide customer pre-installation energy consumption data to program (but not billing amounts)</p> <p>Honeywell selects final full participants based on energy consumption, energy savings potential and other information</p> <p>Program accepts EmpCalc, TREAT and WAP customer audits</p>
Energy Services Contractor Recruitment, Enrollment & Training
<p>NYSERDA and implementation contractor (Honeywell) make initial contact with prospective contractors</p> <p>Honeywell interviews contractors and refers contractors to NYSERDA</p> <p>NYSERDA reviews documentation supplied by contractors</p> <p>NYSERDA selects contractors and signs agreements</p> <p>Honeywell trains contractors</p> <p>Honeywell assigns work to approved and accredited contractors</p>
Customer Audits and Energy Efficiency Measures
<p>Partial participants sent 3 CFL light bulbs, water temperature thermometer, and night light</p> <p>Full participants receive energy audit and pre-approved measures (CFLs, hot water tank insulation)</p> <p>If eligible, customers may be assigned to pilot programs, such as the super-insulation or power-strip pilot currently in development.</p> <p>(After audit) Honeywell uses energy savings calculator tool to identify and prioritize additional Electric Reduction (ER) or Home Performance (HP) measures, and finalize work scopes</p> <p>Electric Reduction customers receive additional ENERGY STAR[®] light bulbs, refrigerators, freezers and hot water tanks as appropriate</p> <p>Contractors use EmPCalc, TIPS or TREAT audits to identify promising Home Performance measures and finalize work scopes with Honeywell</p> <p>Home Performance customers receive insulation, heating system repairs and replacement, air sealing, and health and safety measures as appropriate.</p> <p>Contractors provide Honeywell with services data to track in CRIS database</p>

Customer Education
<p>Partial and full participants receive printed educational materials and a video (how to save energy at home demonstration)</p> <p>Participants receive in-home energy education</p> <p>Some EmPower households attend (interactive) classroom workshops on energy use and financial management. Workshops are open to the public and are currently being enhanced per recommendations included in NYSERDA’s March 2009 Process Evaluation Report¹⁹</p>
Quality Control
<p>Honeywell helps NYSERDA to ensure that contractors maintain credentials</p> <p>Honeywell reviews post-installation work scopes and recommends invoices for NYSERDA approval</p> <p>Honeywell surveys customers by phone regarding their satisfaction with program services, including contractors’ work</p> <p>Honeywell does on-site visits to review Electric Reduction and Home Performance services</p> <p>Honeywell gives feedback to contractors and arranges remediation if needed</p> <p>Honeywell gives NYSERDA and QA Contractor performance information from surveys and on-sites</p> <p>Cornell gives the names of EmPower class attendees and workshop comments to Honeywell and NYSERDA</p> <p>NYSERDA reviews CRIS database to monitor status of individual projects and overall program</p> <p>Upon request, utilities provide customer post-installation energy consumption data to program to monitor savings</p> <p>Honeywell helps NYSERDA to refine program guidelines, database, and other program components</p>
Quality Assurance
<p>Independent third-party QA contractor evaluates the quality of work completed according to the program guidelines and procedures (Conservation Service Group)</p> <p>Conservation Service Group conducts quality assurance calls to participants to measure satisfaction</p> <p>Conservation Service Group does on-site visits to review Electric Reduction and Home Performance services</p> <p>Conservation Service Group reviews procedures followed by Honeywell and energy services contractors for correctness</p> <p>Conservation Service Group gives NYSERDA feedback regarding program design</p> <p>Conservation Service Group gives Honeywell feedback regarding contractor work quality and suggested remediation</p> <p>Conservation Service Group provides ratings on Honeywell and energy services contractors to NYSERDA</p>

3.5 Program Inputs and Potential External Influences

The ability of the EmPower Program to accomplish the outputs and outcomes likely to result in the program reaching its ultimate goals is dependent on the level and 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 program inputs and potential external influences are presented in Table 7 and Table 8.

Specific outputs and outcomes anticipated for the EmPower Program 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 9 and Table 10 immediately following the diagram (see Section 5:).

¹⁹ A Final Process Evaluation Report completed in July 2010 provides additional recommendations on how to enhance the effectiveness of these EmPower workshops. EmPower staff are currently implementing these recommendations.

Table 7. EmPower Program Inputs

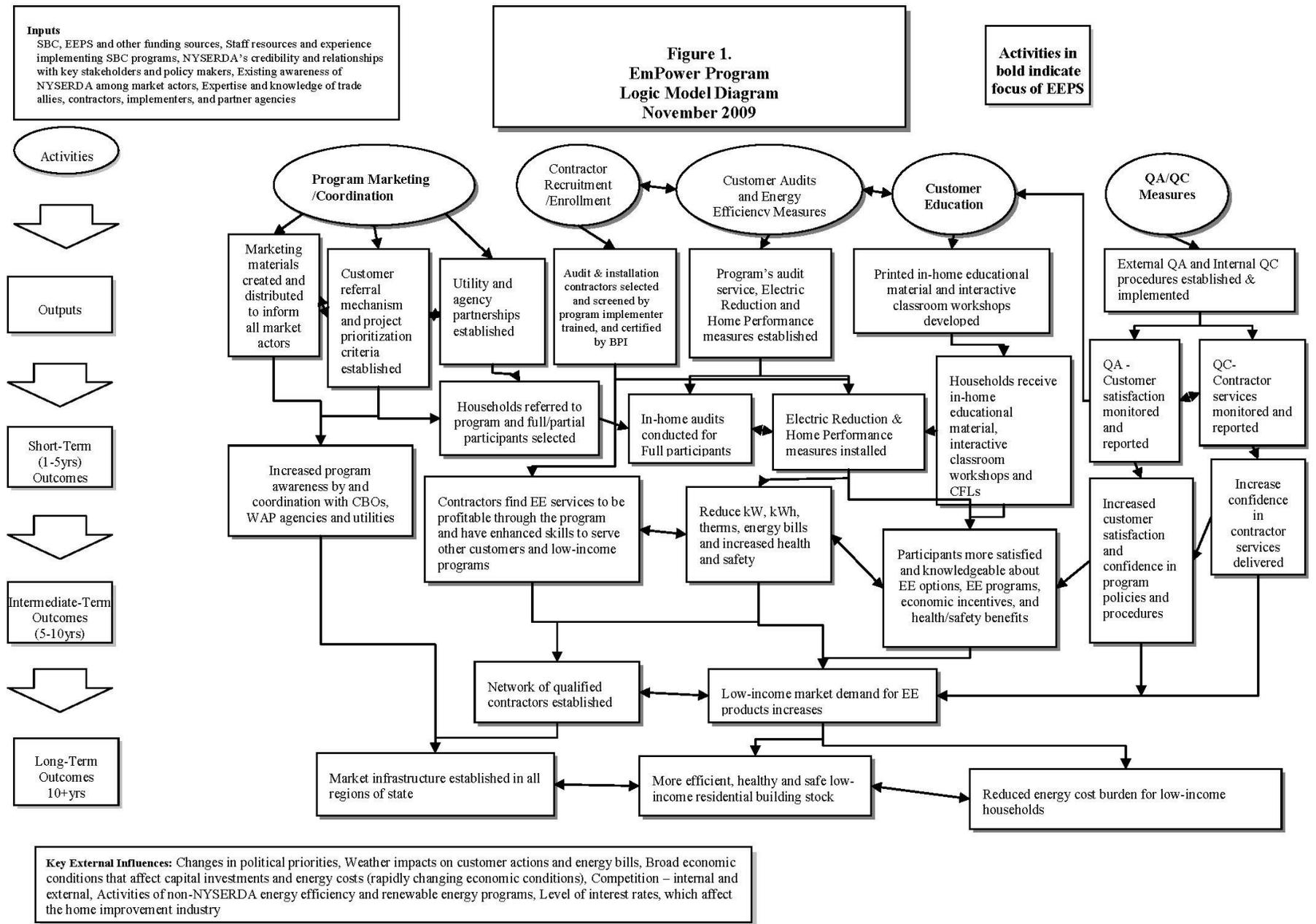
Program Inputs
<p>SBC, EEPS and other funding sources (See Table 2)</p> <p>NYSERDA staff resources and experience implementing SBC programs and funding</p> <ul style="list-style-type: none"> • NYSERDA’s credibility and relationships with key stakeholders and policy makers <p>NYSERDA staff experience coordinating with</p> <ul style="list-style-type: none"> • local, State and federal public agencies and other New York utilities • other NYSERDA programs <p>Existing awareness of NYSERDA among market actors</p> <ul style="list-style-type: none"> • See section 2.2.1 for specific awareness levels <p>Program implementer’s experience with the EmPower Program</p> <p>Expertise of installation and education contractors</p> <p>Utilities’ knowledge of the target market</p> <p>Contractor experience and feedback</p>

Table 8. EmPower Program Potential External Influences

External Influences and Other Factors
<p>Changes in political priorities</p> <ul style="list-style-type: none"> • Federal energy policies including energy related tax credits, the American Recovery and Reinvestment Act, etc. • Federal low-income housing programs structure and legislated processes • Federal funding for WAP and HEAP programs • Perceptions of energy and global climate change issues • Codes and standards <p>Weather impacts on customer actions and energy bills</p> <p>Broad economic conditions that affect capital investments and energy costs (rapidly changing economic conditions)</p> <ul style="list-style-type: none"> • Energy prices and regulations (changes in fuel and energy prices) • Perception of the value and status of the national ENERGY STAR® homes and products program • Activities of public and institutional purchases and projects • Diversity of the low-income housing stock across state regions <p>Competition – internal and external</p> <ul style="list-style-type: none"> • Internal – End-use customer competing priorities (e.g., medical, transportation, education, child care, etc) • External – Broader market and demand for provision and supply of EE services • Costs and performance of newer, more efficient technologies <p>Activities of non-NYSERDA energy efficiency and renewable energy programs</p> <ul style="list-style-type: none"> • See section 2.3 for details on specific programs • Personnel in other coordinating agencies (DHCR, CBOs, utilities, Offices of Aging, Dept. of Social Services) • Partners in special projects, such as the Martin Luther King Park Energy Challenge • Level of interest rates, which affect the home improvement industry

Section 4: PROGRAM LOGIC MODEL DIAGRAM

The following page (Figure 1) contains the EmPower Program logic model diagram showing the linkages between activities, outputs and outcomes, and identifying inputs and potential external influences. The diagram presents the key features of the updated SBC III program, including EEPS fast track enhancements (denoted in bold font). The logic diagram presented here is at a slightly higher level than the tables in this report, aggregating some of the outcomes in order to provide an easier-to-read logic model. (Evaluation research should use the more detailed tables, in addition to the diagram, when desiring to examine the anticipated linkages and performance through the various outcomes.)



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 can be counted, often by reviewing program records. Some of the activities listed in Table 6 are also outputs of prior activities.

Outcomes are distinguished from outputs by their less direct (and often harder to quantify) result from specific program activities. Outcomes represent anticipated impacts associated with NYSERDA’s 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.

In the short-term, the EmPower Program strives to reduce participant low-income household energy consumption through gas and electric energy reduction measures and home performance measures, and thereby reduce household energy expenditures. The program also aims to promote household health and safety, particularly in emergency situations. The program’s longer-term goal (*i.e.*, desired outcome) is to induce lasting changes in the low-income market by improving energy efficiency behaviors more broadly.

The following tables list outputs (Table 9) and outcomes (Table 10) and associated measurement indicators. For each indicator, a proposed data source or collection approach is presented. Where appropriate, the need for baseline data is also noted. Items in this table should be prioritized and subsequently considered as potential areas for investigation as part of a formal program evaluation plan. Also, it will be important to assess effectiveness of those indicators associated with recent EEPS program enhancements, relative to previous (non-enhanced) efforts to determine any relative gains.

Table 9. EmPower Outputs, Associated Indicators and Potential Data Sources

Outputs (<1 year)	Indicators	Data Sources and Potential Collection Approaches
Informational materials for all market actors (utilities, CBOs, WAP agencies, end-users) created and distributed	Number and nature of informational materials distributed Number of meetings with agencies Number for website hits	Program tracking data Website Market surveys
Utility and CBO, WAP agency partnerships established Note: Improved partnerships and coordination is a specific focus of EEPS funding enhancements for EmPower	Number and type of agency and utility partnerships established	Program tracking data Program staff interviews Utility and agency surveys

<p>Household referrals mechanism and project prioritization criteria established</p> <p>Note: Improved utility and agency referral mechanisms and project prioritization criteria are a specific focus of EEPS funding enhancements for EmPower</p>	<p>Number and percent of customer self-referrals by region</p> <p>Number and percent of utility referrals by region</p> <p>Number and percent of CBO and WAP agency referrals by region</p> <p>Number of applications</p>	<p>Program tracking data</p> <p>Surveys</p>
<p>Full and partial participants referred and selected</p>	<p>Number of participants selected for comprehensive audit, education, ER and HP services</p>	<p>Program tracking data</p>
<p>Data transfers with utilities established</p>	<p>Number of customer billing data received by program</p>	<p>Program tracking data</p> <p>Program staff interviews</p>
<p>Energy services contractors selected, trained and accredited</p>	<p>Number of contractor applications</p> <p>Number and types of trained and BPI-accredited contactors by region</p>	<p>Program tracking data</p> <p>Program staff interviews</p> <p>Agency surveys</p> <p>QA Data</p>
<p>Audit services and energy efficiency (Electric Reduction and Home Performance) measures available</p>	<p>Program guidelines developed</p> <p>Contractor audit and install services defined</p> <p>EE measures selected</p>	<p>Program tracking data</p> <p>Program staff interviews</p>
<p>Printed educational materials and services available (in-home educational material and interactive classroom workshops)</p> <p>Note: Program marketing is a specific focus of EEPS funding enhancements for EmPower</p>	<p>Number and type of print materials developed</p> <p>In-home education content defined</p> <p>Classroom education contractor selected and curriculum approved</p> <p>Number of improved, interactive workshops conducted</p>	<p>Program tracking data</p> <p>Program staff interviews</p> <p>Agency surveys</p> <p>Workshop attendance and surveys</p>
<p>External QA & Internal QC procedures established & implemented</p> <p>Note: QA and QC procedures are a specific focus of EEPS funding enhancements for EmPower</p>	<p>Descriptions of QA and QC protocols</p> <p>Agreements with QA and QC contractors</p>	<p>Program tracking data</p> <p>Program staff interviews</p>

Table 10. EmPower Outcomes, Associated Indicators and Potential Data Sources

Outcomes	Indicators	Data Sources and Potential Collection Approaches
Short-Term (1-3 years)		
Increased program awareness by CBOs, WAP agencies, Offices of the Aging and utilities	Percent change in agency and utility awareness of program	Baseline assessment of participant and non-participant awareness and surveys to measure change over time
Increased program coordination with CBOs, WAP agencies, Offices of the Aging, and utilities	Coordination procedures firmly established and less confusion among program, agency staff	Interviews with program and agencies staff Program tracking data
In-home audits conducted for Full participants	Number of audits completed by region and household type	Program tracking data Participant surveys
Electric Reduction and Home Performance measures installed	Number and type of energy efficiency measures installed	Program tracking data Participant surveys
Participants receive print, in-home, and interactive classroom workshop education and CFLs	Participants receive print and in-home education Number of participants attend energy efficiency classes Number and type of CFLs distributed	Program tracking data Participant surveys Class attendance records
Participants have reduced energy use and bills and increased health safety	kW, kWh and therm savings Number of health and safety measures installed	Billing analysis Participant surveys Engineering analysis and energy modeling
External QA- Customer satisfaction and quality of implementation contractor delivering services monitored and reported	On-site visits to assess ER and HP services completed Number of customer satisfaction surveys conducted Number of contractor surveys conducted	Program tracking data Program staff interviews
Internal QC- Contractor services (quality of ER and HP installations) monitored and reported	On-site visits to assess ER and HP services completed Number of participant phone surveys completed Number of contractor surveys conducted	Program tracking data Program staff interviews
Targeted contractor and contractor staff selected and trained (Contractor expansion or termination justification)	Number of contractor staff selected and trained Contractor program records and duration of participation	Program tracking data Program staff interviews Contractor surveys Training workshop attendance records and surveys

Increased customer satisfaction and confidence in policies and procedures being followed, contractor services being delivered, and program metrics are accurate	Increased in confidence in the program	Staff interviews
Feedback to education and energy services contractors	Record of communications with contractors Number of installation remediations performed	Program tracking data Contractor surveys and interviews
Intermediate-Term (3-5 years) Outcomes		
Participants more satisfied and knowledgeable about EE options, EE programs, economic incentives, and health and safety benefits	Percent change in participant knowledge	Surveys of participants and non-participants
Contractors find EE services to be profitable through program and have enhanced skills to serve other customers & low-income programs	Percent change in the amount of profitable business conducted by product and service providers	Survey of contractors
Low income market demand for EE products increases	Increase in demand for EE products by low-income customers over time	Surveys of participants Contractor and vendor interviews
Network of qualified contractors established	Number and types of contractors in program Contractor length of service with program	Program tracking data Interviews with program staff
Long-Term Outcomes (5+ years)		
Reduced energy cost for low-income households	kW, kWh and therm savings Low-income share of monthly income used on energy has decreased	Billing analysis Participant and non-participant surveys
More efficient, healthy and safe low-income residential building stock	Number and share of low-income buildings with energy efficient equipment installed Percent reduced energy consumed per unit Higher use of energy efficient technologies and practices for new low-income construction	Building owners survey (in and out of EmPower Program) Billing analysis Building energy use compared with baseline or building codes
Market infrastructure established in all regions of the state	Number and types of CBOs working with program by region Number of WAP agencies working with program by region Number of utilities working with program by region Number and type of energy services contractors working with program by region Number of classroom energy education available by region	Program tracking data Interviews with program staff
Energy, Economic and Environmental Benefits Obtained for New York State in a Sustainable manner		

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

Based on this assessment of the EmPower Program, a number of potential researchable issues have been identified and are noted below.

1. Has awareness and knowledge of the EmPower Program changed among the utilities, CBO's, WAP agencies, and energy services contractors?
2. How well does the program operate with other regional and national low-income program efforts?
3. How effective are the marketing materials?
4. Are the services provided by trained auditors and installation contractors leading to increased installation of energy efficiency measures in low-income households?
5. Is the training provided to energy services contractors effective?
6. Are the most appropriate households being selected for full participation in the program?
7. Are the realized energy savings and bill reductions from the installed energy efficiency measures consistent with initial expectations?
8. Is the program resulting in notable energy cost reductions for low-income households? Is it increasing their ability to meet other priority spending needs?
9. Is participation in the program by low-income residents and building owners increasing their knowledge about energy saving behaviors and measures?
10. How many and what percentage of full participants receive important health and safety services?
11. Are energy services contractors and equipment suppliers finding the provision of energy efficient equipment and services to be profitable through the program? Is their support for and promotion of energy efficiency products and services increasing over time?
12. Is the low-income residential market large enough to sustain energy services contractors in the long run?
13. For low-income building owners and households, how important is energy efficiency relative to other factors influencing financial decisions?
14. To what extent are external influences impacting program accomplishments?
15. Is the utility referral mechanism working? Are other referral mechanisms working (including CBO, WAP, Offices for the Aging, Department of Social Services)? Are referrals to the program appropriate? Are there enough referrals? Are there other channels that could be explored for attracting participants to the program?
16. What is the nature of the relationship between NYSERDA programs, WAP, and utility programs – competition or collaboration – confusion or increased penetration?
17. Are landlords participating with the landlord contribution and to what extent?
18. Do partial participants use the information and supplies provided to them (including CFLs, a water temperature thermometer, and a nightlight)? Do they install additional measures based on the in-home education materials?

19. Is the program successfully taking into account the whole house approach? What percent of participants also went through the WAP? What percent of WAP participants in New York that are eligible also went through the EmPower program?
20. Has the standard practice of participating contractors changed because of the program? If so, what differences in standard practice can be noted between participants and non-participants?
21. What is the distribution of projects by participating contractor (are few contractors completing most of the projects or are most of the contractors completing an equal amount of projects)?
22. What percent of completed audits are converted into completed projects?
23. Do class and workshop attendees act on education received? What is the perceived value of the education?
24. Are energy, economic and environmental benefits being achieved for New York State in a sustainable manner?

Evaluation research addressing these questions will help to validate the reasonableness of the program theory and will inform NYSERDA program staff of program progress and also potential areas for program refinement.