

# **NYSERDA New York Energy \$mart<sup>SM</sup> Products Program**

## **DRAFT Evaluation, Measurement and Verification Plan**

August 18, 2009

### **I. Introduction**

The detailed evaluation plan presented in this document builds upon prior evaluation activities conducted for the **New York Energy \$mart<sup>SM</sup> Products (NYESP) Program**. In developing this evaluation plan, NYSERDA has incorporated feedback provided by the Department of Public Service (DPS) and the EEPS Evaluation Advisory Group (EAG), and has worked closely with its team of independent evaluation contractors to select the most appropriate evaluation approaches based on the current design of the program. This plan was developed to conform to the DPS evaluation guidelines released on August 7th, 2008 and to provide the highest level of rigor possible within the available resources.

As the NYESP Program works to meet its current SBC program goals, NYSERDA and its evaluation contractors will closely monitor aspects of that process such as participation levels, achievement of near-term goals, and other programmatic issues in order to adapt this plan, as needed, to provide the most relevant and useful evaluation. For example, adjustments may be made to sample sizes or research issues if assumptions about the program do not develop as initially anticipated. As such, NYSERDA views this plan as a flexible, living document that will be updated, as necessary, with appropriate notice to DPS and other interested parties.

This evaluation plan was designed to constitute a comprehensive approach to assessing the entire NYESP Program supported by SBC funding.

### **II. Summary of Goals, Cost and Schedule for Evaluation Activities**

The overarching goals of NYSERDA's **New York Energy \$mart<sup>SM</sup> Program** evaluation efforts are to: (1) conduct credible and transparent evaluations, and (2) provide NYSERDA program staff and managers, the New York State Public Service Commission (PSC), Department of Public Service (DPS) staff, and other stakeholders with timely and unbiased information regarding program implementation. Specifically, the goals for the NYESP Program evaluation are to:

- (1) Establish defensible estimates of product sales and corresponding energy savings that can be attributed to the NYESP Program;
- (2) Develop a comprehensive understanding of product markets, including the market for consumer electronics;
- (3) Track changes in markets over time with a specific focus on market indicators that are likely to be impacted by the NYESP Program (*e.g.*, increased ENERGY STAR sales and market share);
- (4) Assess and document the effectiveness of program activities and tactics to achieve program goals and objectives, particularly for consumer electronics products; and

(5) Identify barriers to program participation for retailers and manufacturers, and assess retailer and manufacturer perceptions of end user barriers to adopting targeted products, such as consumer electronics products.

The **New York Energy Smart<sup>SM</sup>** Products Program budget for January 1, 2009 through December 31, 2011 consists of approximately \$12.0 million in SBC funding.<sup>1</sup> The proposed evaluation budget is \$926,000 which equates to nearly 8% of program funding.<sup>2</sup> As described later in this Plan, given the complexity in assessing ENERGY STAR sales and market share in New York compared to non-program areas, as well as the relatively low budget of the program itself, the proposed evaluation budget is greater than 5%. This increased evaluation budget will allow for a more rigorous analysis such that impacts attributable NYESP Program can be quantified. Annual budgets for each evaluation component are shown in Table 1.

**Table 1. NYESP Program Evaluation Schedule and Budget**

Evaluation Element	Estimated Budget and Completion						% of Total Evaluation Budget
	2009	2010	2011	2012	2013	Total	
Market Characterization & Assessment Evaluation	\$350,000a	\$73,000b	\$53,000	\$380,000a	-	\$856,000	92%
Process Evaluation	-	\$70,000c	-	-	-	\$70,000	8%
<b>Total</b>	<b>\$350,000</b>	<b>\$143,000</b>	<b>\$53,000</b>	<b>\$380,000</b>	<b>-</b>	<b>\$926,000</b>	<b>100%</b>

a. Primary data collection costs represent approximately 40% of the total proposed Market Characterization & Assessment evaluation budget. In addition, approximately \$100,000 of the budget in 2009 and 2012 are allocated to primary data collection in non-program comparison areas (Houston and Washington, D.C as a comparison for New York City and Ohio as a comparison for the rest of New York State). Should the comparison area selections change, the budget will be adjusted accordingly.

b. Includes funding to support the 2010 Consortium for Energy Efficiency National ENERGY STAR survey, and a New York oversample. Historically, NYSERDA has supported this study and conducted an oversample every other year. The last time NYSERDA participated was in 2008.

c. The process evaluation budget includes \$20,000 for data collection in 2010.

### III. New York Energy Smart<sup>SM</sup> Products Program Description and Goals

The **New York Energy Smart<sup>SM</sup>** Market Support Program provides support services to NYSERDA's building performance and low-income programs by increasing the availability of energy-efficient

<sup>1</sup> The overarching **New York Energy Smart<sup>SM</sup>** Market Support Program (of which **New York Energy Smart<sup>SM</sup>** Products is a component) budget for January 1, 2009 through December 31, 2011 is approximately \$28.6 million in SBC funding. It is anticipated that funding for the **New York Energy Smart<sup>SM</sup>** Products Program will represent less than half of this overarching amount.

<sup>2</sup> This evaluation budget includes only external contractor costs. Other overarching evaluation costs, including NYSERDA's internal evaluation management and statewide study costs, are additional; however, the total evaluation costs will not exceed 5% of program funding at the portfolio level.

products, and by providing residential program outreach and market services to recruit midstream participants and build consumer demand. The four initiatives involved in this program are the **New York Energy \$mart<sup>SM</sup>** Products Program, the Program Marketing Initiative, the GetEnergySmart.org Website and Workforce Development. This Evaluation Plan focuses on the **New York Energy \$mart<sup>SM</sup>** Products Program.

The NYESP Program seeks to increase sales of residential energy-efficient appliances, lighting, power management, home electronics products and heating, ventilation and air conditioning (HVAC) equipment. This initiative works on both the supply and demand sides of the market. Its goals are: 1) to increase the supply of products through partnerships with retailers, manufacturers and distributors and 2) to create demand for high-efficiency and ENERGY STAR products through increased consumer awareness and understanding of the ENERGY STAR label.

Table 2 displays program goals from the SBC III Operating Plan.<sup>3</sup> These goals apply to the five year funding period from July 1, 2006 to June 30, 2011. In addition to the non-energy goals listed in Table 2, the Program is expected to produce annual energy savings of 200 GWh (between 10.5% - 12.5% of the total portfolio annual electricity savings) by the end of the five year funding period. Prior evaluations, using similar methods to those proposed in this plan, have estimated that between July 1, 2006 and March 31, 2009 the Products Program has achieved nearly 119 GWh of electricity savings, equally split between upstate and the Con Edison service territory.

**Table 2. New York Energy \$mart<sup>SM</sup> Products Program Goals**

Activity	Five-Year Goal
New manufacturing partners enrolled	20
New retail partners (independent) enrolled	100
New retail partners (big box, mass merchandisers) enrolled	6
ENERGY STAR market share increase on targeted products (on average, across products)	25%

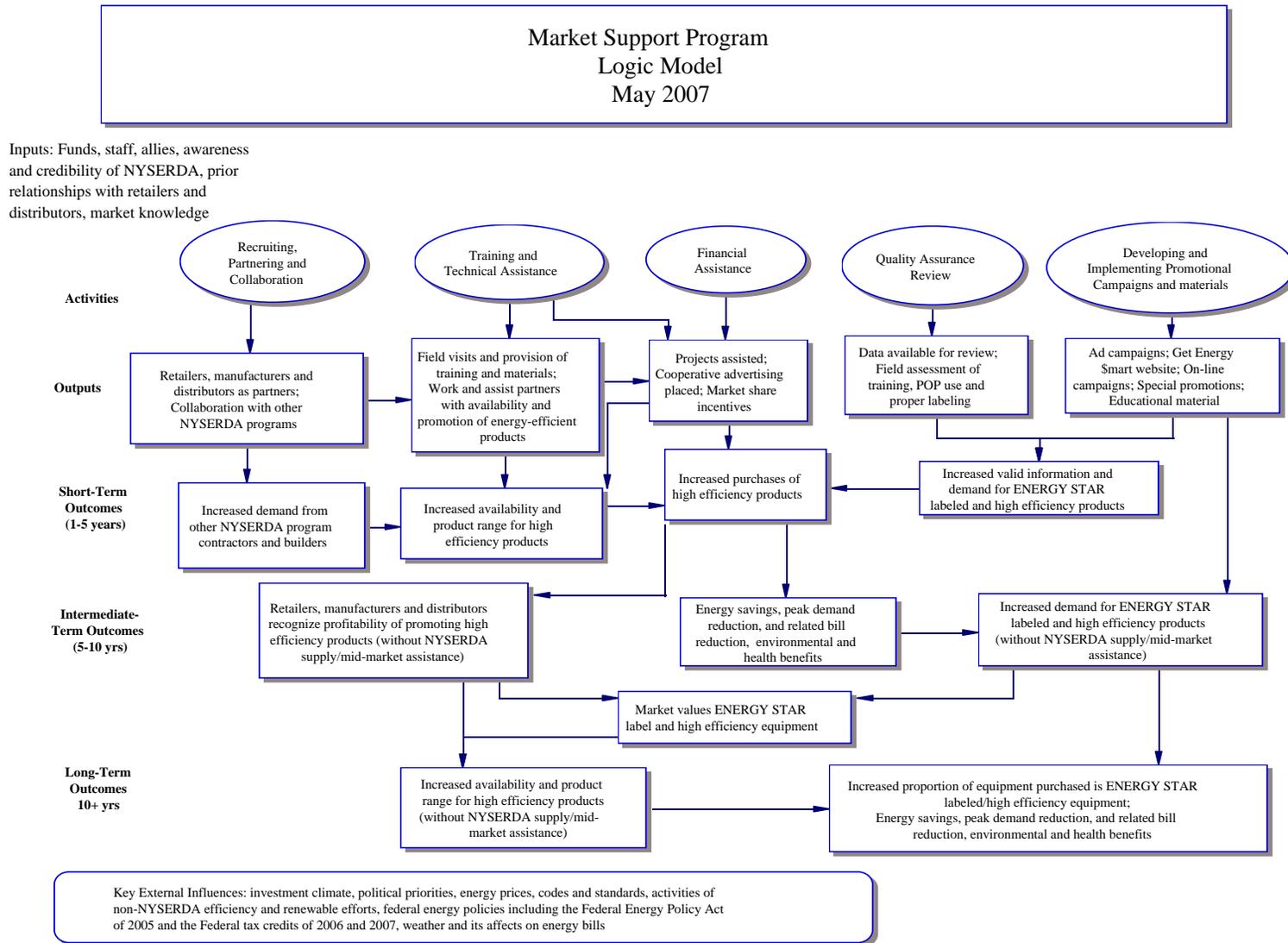
#### **IV. Logic Model/Theory**

Figure 1 presents the most recent logic model for this program. As program evaluation efforts begin, a first step in the process will be to review the latest logic model and make updates to the model as applicable.

Logic modeling activities will occur early in the evaluation process after completion and approval of the Detailed Evaluation Plan. NYSERDA’s evaluation contractors convene logic model “workshops” with program staff to discuss program inputs, activities, outputs, outcomes, external influences and other elements that need to be documented in the logic model. The evaluation contractors then document these discussions in a brief program theory/logic report, which includes a logic model diagram for the program. NYSERDA will invite DPS Staff to participate in logic model workshops and review draft program theory/logic reports.

<sup>3</sup> System Benefits Charge, Proposed Plan for New York Energy \$mart<sup>SM</sup> Programs (2006-2011), As amended March 2, 2006.

**Figure 1. Market Support Logic Model**



## V. Market Characterization & Assessment Plan

This section presents the Market Characterization and Assessment (MCA) evaluation plan for the NYESP Program.

### *Research Objectives*

The primary goals of the MCA evaluation effort are: (1) to develop a comprehensive understanding of current and emerging markets (*e.g.*, market structure and market actors); (2) to provide baseline and background information required by NYSERDA to define and deliver programs to target markets; (3) to track changes in markets over time with a specific focus on market indicators that are likely to be impacted by program offerings; and (4) to estimate the number of ENERGY STAR product sales that can be attributed to the program.<sup>4</sup>

The proposed MCA evaluation plan was structured to accommodate these overarching research goals with a specific focus placed on the market and context within which the NYESP Program operates. The plan was designed to ensure consistency with and build upon prior NYSERDA program evaluation activities to ensure that current and subsequent evaluation results could be used to assess progress towards meeting the PSC's public policy goals and NYSERDA's institutional goals. In addition, the evaluation results can be used by NYSERDA program staff and managers to adjust program implementation as needed to ensure maximum market interest and participation in program offerings.

### *Activities*

Estimating the impacts due to market transformation programs is an inherently difficult task, particularly for the NYESP Program, which does not offer direct incentives to end-use customers. In fact, the program may be invisible to end-use customers, in that many customers may not even be aware that the program exists. In order to estimate impacts from the NYESP Program, the MCA Team will conduct primary research on four appliance types (refrigerators, clothes washers, room air conditioners, and dishwashers) as well as ENERGY STAR fixtures.<sup>5,6</sup> The research will utilize a market-based approach to estimating program energy and demand savings and will be conducted using the following five-step process:

#### Step 1: Estimate ENERGY STAR Market Share

The MCA Team will utilize three data sources to estimate market share for ENERGY STAR products in the **New York Energy Smart<sup>SM</sup>** region:

- **EPA National Partner Sales Data, Collected by D&R International.** D&R collects sales data from National ENERGY STAR Partners, combines all partner data (removing retailer names), and publishes the data on the Internet in publicly-available data sets. These data are rich in detail, providing ENERGY STAR market share for four appliance

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<sup>4</sup> While the proposed MCA evaluation activities include some impact evaluation components, MCA evaluation activities will not assess gross savings (*e.g.*, metering or billing analysis will not be conducted to estimate typical savings per unit).

<sup>5</sup> These products were selected because they typically have the highest expected savings of all ENERGY STAR products.

However, if the analysis of claimed savings shows that other products (including home electronic measures) are more heavily promoted and/or have higher expected savings, the MCA Team can select alternative products as part of the research.

<sup>6</sup> Impacts associated with compact fluorescent lightbulbs (CFLs) will be assessed as part of the NYSERDA Statewide Residential Point-of-Sale Lighting (CFL Expansion) Program evaluation.

types (refrigerators, clothes washers, dishwashers, and room ACs) by state, region, and quarter.<sup>7</sup>

- **NYSERDA Partner Sales Data, Collected by Lockheed Martin.** Lockheed Martin, NYSERDA's NYESP Program implementation contractor, collects monthly sales data from the NYESP Program retail partners. The reporting of sales data with the number of ENERGY STAR and non-ENERGY STAR units sold by month is required to remain a partner in the program. Data are collected for all relevant products, including appliances and lighting. To allow the National Partner data to be combined with the NYSERDA Partner data without the risk of overlap, Lockheed Martin will send a list of participating retailers to D&R, allowing D&R to remove any retailers that provided sales data to both NYSERDA and the National ENERGY STAR Program.
- **Residential End-Use Customer Survey.** As part of a residential end-use customer survey, the MCA Team will target at least 200 respondents per product who have purchased a new refrigerator, clothes washer, dishwasher, room AC, or light fixture in the past 12 months.<sup>8</sup> Respondents will be asked to provide detailed information about (1) where purchases were made and (2) the energy efficiency of the product.<sup>9</sup> In order to validate the self-reported purchases of ENERGY STAR products and assess actual efficiency (*e.g.*, CEE Tier level), respondents will also be asked to provide the make and model number of refrigerators, dishwashers, room air conditioners, and clothes washers. The survey will also address other program progress indicators, such as awareness of ENERGY STAR. The sample for the survey will be based on random-digit dialing, stratified for proportional representation by utility service territory. An additional sample of 100 non-purchasers will also be asked the progress indicator questions. Respondents will also be asked a battery of questions regarding home electronic equipment, including saturation and usage patterns of equipment.

### Step 2: Estimate the Total Number of ENERGY STAR Units Sold

The MCA Team will use the American Home Appliance Manufacturers Association (AHAM) shipment data to estimate the total number (ENERGY STAR and non-ENERGY STAR) of refrigerators, clothes washers, dishwashers, and room air-conditioners sold annually in the **New York Energy Smart<sup>SM</sup>** region.<sup>10</sup> Multiplying the percentage of ENERGY STAR units (determined in Step 1) by this total number of units sold provides an estimate of the total number of ENERGY STAR products sold.

### Step 3: Deduct Units Credited to Other Relevant Programs

To avoid double-counting of ENERGY STAR products attributable to other NYSERDA residential programs or to utility Energy Efficiency Portfolio Standard Fast Track programs, the MCA Team will deduct any measures that received incentives through these other residential programs from the unit

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<sup>7</sup> If the annual EPA data are not available at the time of the study, the MCA Team will need to either use partial year data or rely on the results of the telephone surveys to estimate sales and market share for the National partners.

<sup>8</sup> AHAM does not track unit sales of lighting fixtures; thus, sales of ENERGY STAR lighting fixtures will be estimated using the incidence of respondents to the telephone survey and secondary data sources.

<sup>9</sup> These data will be used to update the distribution channel estimates used for multiple NYSERDA programming and evaluation activities.

<sup>10</sup> A previous evaluation of the NYESP Program found that AHAM shipments are a good approximation for equipment sales. See Summit Blue Consulting, *New York Energy Star® Products and Marketing Program Market Characterization, Market Assessment and Causality Evaluation*, Prepared for NYSERDA, May 2006.

counts credited to the NYESP Program.<sup>11</sup> The data needed to complete this task will be obtained from program-specific databases.

#### Step 4: Estimate Baseline Sales of ENERGY STAR Units

For this step, the MCA Team will initially rely on sales data provided by the ENERGY STAR National Partners to D&R International. States that do not run ENERGY STAR products programs will be selected as candidate comparison states. These states will be ranked by median income and education levels (percent of population with a bachelor's degree) in comparison to New York. A number of states will then be selected as comparison states because they rank closely to New York.<sup>12</sup> The weighted average (based on number of units sold per state) National Partner market share will then be calculated for each of the four appliances: refrigerators, clothes washers, dishwashers, and room air-conditioners, using a combination of ENERGY STAR National Partner sales data and retailer interviews. The weighted average ENERGY STAR market share for the comparison states is then assumed to be the baseline market share of ENERGY STAR products that would have occurred in New York in absence of the NYESP Program.

There are two known limitations to this approach. First, the approach does not account for other factors that may influence market share, including energy prices, climate zone, population center distribution (urban/suburban/rural), precipitation/drought, etc., all of which can be significant predictors of ENERGY STAR market share.<sup>13</sup> Second, the baseline comparison approach assumes a non-program area that is the theoretical equivalent to New York in the absence of program activity, and does not account for the possibility that the efforts in New York or other nearby states with active programs may have influenced the sales in the comparison states. While this impact cannot be accurately quantified (there is no way to “undo” the significant program activity that has occurred in New York), it means estimated baseline sales for all states—including the comparison states—may be overstated. In other words, sales outside New York—and estimated baseline sales—may have been lower in absence of the NYESP Program (*i.e.*, estimates of program impacts inside New York are likely to be conservative).

To assess the issue regarding the potential influence of the NYESP Program in the comparison states, the MCA Team will conduct interviews with national retailers and retailers in the comparison areas as discussed below. In addition, participating retailers and manufacturers will be asked about the influence of the NYESP Program on their own sales (*i.e.*, a self-reported net-to-gross value), and the results of this assessment will be compared to the results of the sales-based approach with adjustments made accordingly.

#### Step 5: Estimate Program Impacts

The total ENERGY STAR units sold in the **New York Energy \$mart<sup>SM</sup>** region, less those that are credited to other NYSERDA programs, utility sponsored programs, or considered naturally occurring adoption, represent the remaining units that can be credited to the influence of the NYESP Program.

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<sup>11</sup> Note this approach does not attempt to assess the reciprocal nature of multiple market transformation programs (*i.e.*, the NYESP Program may have led to participation in other residential programs). The MCA Team, therefore, will also explore the feasibility of conducting a statistical analysis to discern the impact of the NYESP marketing and outreach efforts from the direct incentive approach of these other programs.

<sup>12</sup> The MCA Team will attempt to use similar comparison areas as the CFL Expansion Program research (Houston and Washington, D.C. to represent New York City and Ohio to represent the rest of New York State) if these regions are not promoting ENERGY STAR products at the time the MCA evaluation activities begin..

<sup>13</sup> Nexus Market Research, RLW Analytics, Shel Feldman Management Consulting, and Research Into Action, “Market Progress and Evaluation Report (MPER) for the 2004 Massachusetts ENERGY STAR Appliances Program,” May 2005.

These units will be multiplied by measure-level deemed savings values (kWh and kW) to estimate total program impacts.

Should the results of this evaluation determine that the majority of program savings are attributable to a single appliance type (*e.g.*, clothes washers), future evaluation activities may be refocused to conduct more thorough analyses of that appliance type. The specifics of any revised evaluation framework (*i.e.*, methods, scope, budget, etc.) will be discussed and decided upon with the full evaluation team as well as DPS staff and other project stakeholders before being implemented.

### ***Other Data Collection and Analysis Activities***

#### Home Electronics

Because the NYESP Program is also targeting home electronic measures, the MCA Team will investigate sales and saturation levels of power management equipment (*e.g.*, smart strips), along with selected home electronic products such as high definition televisions (HDTVs), DVD players, computers, home audio equipment, and telephones.<sup>14</sup> The research will include a thorough review of secondary data sources that serve the consumer electronics industry, as well as primary data collected through the consumer appliance survey discussed previously as well as the onsite equipment saturation surveys conducted as part of the CFL Expansion Program evaluation effort. The telephone survey will explore attitudinal and behavioral questions, including:

- How much do consumers spend on home electronics in a year?
- Does energy efficiency impact home electronic purchasing decisions?
- Who is the decision-maker in most cases? What is the age range of that decision-maker?
- What are the most important reasons for picking a certain home electronic device over another?
- Are consumers aware and/or concerned about Ghost/Phantom/Vampire load?
- Will consumers purchase products that will regulate their energy usage?

The MCA Team will also leverage the onsite equipment saturation work being conducted as part of the CFL Expansion Program. For example, in addition to collecting CFL information while onsite at consumer residences, the researchers will also collect information regarding saturation, efficiency levels, power management, and bundling of home electronic equipment.

#### In-Home Site Visits

The MCA Team also proposes to conduct a sample of 140 in-home site visits to determine the efficiency levels of recently purchased room air-conditioners and lighting fixtures (70 site visits per product). Although the MCA Team proposes to collect the make and model of room air-conditioners, earlier studies have shown that self-reported estimates of ENERGY STAR product purchases can be unreliable and that it can be difficult to collect accurate make and model data for these products through telephone survey

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<sup>14</sup> A final list of home electronic measures to research will be developed based on discussions with NYSERDA program staff.

efforts. The site visits will also be used to validate the self-reported saturation of home electronic equipment.

### Market Actor Surveys

In addition, the MCA Team proposes to conduct five additional data collection and/or analysis activities, as presented below. Note that the final sampling approaches and survey mechanics for these activities will be addressed as part of a future data collection implementation plan for each activity.

- **Participating Appliance Retailer Survey.** The MCA Team will conduct telephone surveys with 70 participating appliance retailers to assess a number of progress indicators, including self-reported changes in awareness, availability, and pricing of ENERGY STAR products. The respondents will be selected through a stratified random sampling approach, with half of the respondents representing the most active retailers in the NYESP Program (in terms of total product sold), and the other half of respondents being a random sample of the remaining program participants.
- **Participating Appliance Manufacturer Survey.** The MCA Team will conduct interviews with five participating appliance manufacturers to assess a number of items, including the influence of the program on business practices, changes in the market, and perceived sustainability of program impacts. The respondents will be selected so that the largest manufacturers (in terms of total product sold) are prioritized for the interviews.
- **National Retailer and Manufacturer Interviews.** The MCA Team will conduct interviews with ten contacts from regional/national retailers and manufacturers to assess the influence of NYSERDA program efforts on sales of ENERGY STAR products in other areas of the United States. The interviews will explore retailer and manufacturer changes in awareness, availability, pricing, and marketing efforts that might have resulted from their experiences in New York. These interviews may also include buying groups.
- **Review of In-Store Retailer Data and Mystery Shopping Data.** An examination of Lockheed Martin in-store retailer data and mystery shopping results will be conducted to assess a number of tracked progress indicators, including shelf space dedicated to ENERGY STAR products, incremental prices, and retailer staff awareness/knowledge of energy-efficient products and services.

- **Retailer Surveys in Selected Comparison Areas.** Given the uncertainty regarding the ratio of ENERGY STAR sales between partner and non-partner stores in non-program areas, the MCA Team will conduct retailer surveys to collect information on pricing, shelf-stocking, sales, and other progress indicators. While the telephone surveys are based on self-reported data from store managers and staff, they do provide insight into these metrics. The MCA Team will survey a total of 150 stores per comparison area (stratified by distribution channel to represent five products, plus exploring selected home electronic equipment), for up to three comparison areas.<sup>15</sup>

### *Populations/Samples*

Table 3 below summarizes key aspects of the various data collection efforts proposed for the 2009 MCA evaluation of the NYESP Program.<sup>16</sup> The random-digit dial (RDD) survey of households in New York (less Nassau County and Suffolk County) should achieve a maximum sampling error (with a 90% confidence level) close to +/- 10% for each product category as well as for the individual utility service territories. Sampling error for the two smallest utilities (Central Hudson Gas & Electric and Orange & Rockland) may be somewhat higher, although it could be lower for indicators with proportions much lower or much higher than 50% of the sample. The telephone surveys for participating appliance retailers and manufacturers should achieve a sampling error (with a 90% confidence level) less than 10% for each product category.

Current estimates regarding sample sizes, expected sampling precision, and anticipated survey fielding dates are summarized in Table 3. These estimates will be finalized prior to undertaking the planned evaluation and once the MCA Team more thoroughly analyzes program data.

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<sup>15</sup> The MCA Team will attempt to use similar comparison areas as the CFL Expansion Program research (Houston and Washington, D.C. to represent New York City and Ohio to represent the rest of New York State) if these regions are not promoting ENERGY STAR products at the time the MCA evaluation activities begin.

<sup>16</sup> Similar estimates were used to develop budget estimates for the proposed 2012 comprehensive MCA evaluation. Final metrics, including corresponding budget estimates, will be developed prior to launching the 2012 evaluation.

**Table 3. NYESP Program 2009 MCA Evaluation Specifics**

Target Group	Estimated Population Size	Estimated Sample Size	Expected Sampling Precision	Survey Administration By	Expected Start of Fielding
Residential End-use Customers (RDD)	~6.0 million households <sup>1</sup>	1,100a	Varies by utility territory	Survey Contractor	Fall 2009
Participating Appliance Retailers (Telephone)	358b	70	90/10	Survey Contractor	Fall 2009
Participating Appliance Manufacturers (Telephone)	5c	5	Census	MCA Team	Fall 2009
National Retailer and Manufacturer Interviews (Telephone)	10	10	NA <sup>2</sup>	MCA Team	Fall 2009
Retailers in Comparison Areas	NA	450	NA	Survey Contractor and MCA Team	Fall 2009

<sup>1</sup> US Census 2000 – note that households in Nassau and Suffolk counties have been excluded from this estimate.  
a The MCA Team will target at least 200 respondents per product who have purchased a new refrigerator, clothes washer, dishwasher, RAC, light fixture or home electronics product in the past 12 months, plus a sample of 100 non-purchasers. The sample will be stratified for proportional representation by utility territory.  
b According to program records provided by Lockheed Martin (Retailer Resource Map, October 2008), 358 participating retailers sell at least one of the four appliances planned to researched in the study.  
c According to program records provided by Lockheed Martin (Partner Data File, October 2008), five appliance manufacturers are currently participating in the NYESP Program.  
<sup>2</sup> Will be a sample of contacts at key national retailers, manufacturers, and possibly buying groups that operate both in New York and other areas of the U.S.

**Data Collection**

The various data collection efforts are expected to begin in late summer 2009 and will be fielded concurrently by NYSERDA’s Data Collection Contractor Team and the MCA Team. The MCA Team will also make use of participating retailer data currently collected by Lockheed Martin as part of ongoing program implementation activities to augment data collected during the telephone survey efforts. The multiple data collection efforts conducted by different implementation and evaluation contractors will enable triangulation of results based upon responses received from all relevant market actors. This multi-faceted approach is deemed prudent given the challenges associated with estimating impacts from pure market transformation programs such as the NYESP Program.

The evaluation cycle will proceed as follows: comprehensive MCA evaluations including primary data collection efforts will occur in 2009 and 2012 – this is reflected in the higher evaluation budgets shown for those two years. In 2010 and 2011, the MCA Team will update analyses conducted as part of the NYESP Program evaluation framework with annually updated data provided by NYSERDA and its implementation contractors, D&R, and AHAM. These updates will make use of the results generated by the most recent prior primary data collection efforts (*i.e.*, 2009 primary data collection results will inform the 2010 and 2011 update efforts, updated using trends from other secondary data sources, such as the

EPA National Retailer Partner Sales data) and no new primary data collection efforts are anticipated for these years.<sup>17</sup>

In addition, in 2010, the MCA Team will analyze results from the Consortium for Energy Efficiency (CEE) annual survey of households across the nation to examine trends in the awareness and purchase of ENERGY STAR products. NYSERDA elects to fund an over sample within the New York Energy \$mart<sup>SM</sup> service area on a biannual basis, which provides an opportunity to collect time series data for the NYSERDA area and draw comparisons to the national results on key indicators such as recognition and understanding of the ENERGY STAR label, purchase of ENERGY STAR products, loyalty to ENERGY STAR, and information sources for consumers to learn about ENERGY STAR.

The MCA Team will coordinate with NYSERDA’s other evaluation contractors to the extent possible to fully leverage other planned data collection efforts (for example, the RDD survey effort will be used to identify a non-participating homeowner sample for the HPwES Program). Doing so will achieve economies of scale in terms of minimizing data collection costs, ensuring consistency of approach and question wording to facilitate comparison of results across evaluation efforts, and minimizing the burden placed on different respondent groups.

The proposed MCA evaluation schedule and budget for the NYESP Program are shown in Table 4. These initial budget estimates will be finalized prior to undertaking the planned evaluation and once the MCA Team more thoroughly analyzes program data. Again, it is important to note that future evaluation activities may be revised should the results of the current evaluation determine that the majority of program savings are attributable to a single appliance type (e.g., clothes washers), future evaluation activities may be refocused to conduct more thorough analyses of that appliance type. The specifics of any revised evaluation framework (i.e., methods, scope, budget, etc.) will be discussed and decided upon with the full evaluation team as well as DPS staff and other project stakeholders before being implemented.

**Table 4. NYESP Program MCA and Impact Evaluation Schedule and Budget**

Evaluation Element	Estimated Budget and Completion					
	2009	2010	2011	2012	2013	Total
Market Characterization & Assessment and Impact Evaluation	\$350,000	\$73,000a	\$53,000	\$380,000	--	\$856,000a

a Includes funding to support the 2010 Consortium for Energy Efficiency National ENERGY STAR survey, and a New York oversample. Historically, NYSERDA has supported this study and conducted an oversample every other year. The last time NYSERDA participated was in 2008.

b Primary data collection costs represent approximately 40% of the total proposed Market Characterization & Assessment evaluation budget. In addition, approximately \$100,000 of the budget in 2009 and 2012 are allocated to primary data collection in non-program comparison areas (Houston and Washington, D.C as a comparison for New York City and Ohio as a comparison for the rest of New York State). Should the comparison area selections change, the budget will be adjusted accordingly.

<sup>17</sup> Data collection efforts proposed by the Process Evaluation Team in 2010 will be coordinated with the MCA Team. In addition, as noted above, if the annual EPA data are not available at the time of the study, the MCA Team will need to either use partial year data or rely on the results of the telephone surveys to estimate sales and market share for the national partners.

## **VI. Impact Evaluation Plan**

This program relies heavily on market-level data (*e.g.*, retailer reported sales, estimated product shipments) to estimate impacts related to this program; thus, the MCA Team will be responsible for estimating savings associated with this program using the strategies described above in the MCA section of this Evaluation Plan. A separate impact study is not planned for this program.

## **VII. Process Evaluation Plan**

The **New York Energy \$mart<sup>SM</sup>** Products Program is beginning to target home electronics measures; the Process Evaluation Team will conduct process evaluation activities as these efforts in the home electronics market expand in order to assess early program effectiveness in this area.<sup>18</sup> The process evaluation activities are anticipated to begin in 2010 and will explore retailer, manufacturer and end-user experiences with the program and their recommendations for improving the program.

### ***Research Objectives***

The research objectives for the process evaluation of the NYESP Program are noted below. Due to the early stage of program development, conclusive details for the research objectives cannot be determined at this time. In order for the process evaluation to provide the greatest value, other relevant or necessary objectives and details may be added, or the objectives listed below may change somewhat, as the timing of this research draws nearer.

1. Identify barriers to program participation for retailers and manufacturers
  - a. What concerns do manufacturers have about the program as developed by NYSERDA?
  - b. What are the additional opportunities to influence manufacturers?
  - c. What concerns do retailers and distributors have about the program as developed by NYSERDA?
  - d. What are the additional opportunities to influence retailers and distributors?
2. Identify barriers to end-user adoption of program target products
  - a. Are end users aware and knowledgeable of the high efficiency options for ES Products?
  - b. Do end users perceive high efficiency ES Products as readily available?
  - c. Do end users have to make any extra effort to purchase high efficiency ES Products?
3. Document program activities and progress and assess the effectiveness of program tactics in achieving the goals and objectives of the program
  - a. How is the program influencing manufacturers?
  - b. How is the program influencing retailers and distributors?

### ***Activities***

Interviews will be conducted with program staff, program implementation contractor staff, participating retailers and manufacturers. Since the program strategy has not employed end user incentives in the past, mystery shoppers or other means will be used to identify and interview end-users purchasing targeted products.

### ***Populations/Samples***

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<sup>18</sup> The process evaluations described in this section will be conducted in close coordination with the MCA Team.

The Process Evaluation Team will identify manufacturers and retailers with product available in the New York State area. One likely source of manufacturer information is those participating in ENERGY STAR efforts to increase product standards as these people are typically versed in the issues their company faces addressing energy efficiency requirements. Retailers that have agreed to participate in the NYESP Program will be included in the sample for both phone interviews and mystery shopping visits.

**Data Collection**

The Process Evaluation Team will conduct telephone interviews with manufacturer and retail distributor contacts. The interviews will last about 30 minutes. The mystery shopping visits will be approximately four hours for each visit and will be conducted on weekends to maximize contact with and observation of shoppers and to complete at least 50 interviews.

Table 5 presents the timeline for these planned data collection activities.

**Table 5. NYESP Program Process Evaluation Survey Specifics**

Target Group	Estimated Population Size	Estimated Sample Size	Expected Sampling Precision	Survey Administration By	Expected Start of Fielding
NYSERDA and Program Implementation Contractor Staff	5	5	NA	Process Team	April 2010
Manufacturers	15	15	NA	Process Team	May 2010
Retailers	60	20	NA	Process Team	June 2010
Shoppers	>1,000	50	NA	Survey Team	July 2010

The Process Evaluation Team will coordinate with the MCA Team as interviews with retailers and manufacturers are also included in their efforts.

**Schedule and Budget**

Table 6 displays the process evaluation schedule and budget allocation by year.

**Table 6. NYESP Program Process Evaluation Schedule and Budget**

Evaluation Element	Estimated Budget and Completion					
	2009	2010	2011	2012	2013	Total
Process Evaluation	--	\$70,000a	--	--	--	\$70,000

aThe Process Evaluation budget includes \$20,000 for data collection in 2010.

**VIII. NYSERDA Evaluation Process**

This evaluation plan is an early, but important step in NYSERDA’s evaluation planning and implementation process. It is NYSERDA’s understanding that DPS Staff wish to be involved as a reviewer/participant in the following parts of the evaluation process: detailed evaluation plans, project kick-off meetings, workplans (including sampling, statistics and modeling issues), data collection instruments, interim results reports (as applicable), presentation of evaluation results, and draft evaluation

reports. NYSERDA will conduct evaluation planning and implementation in an open and transparent manner, and will invite DPS Staff participation in the designated aspects of the process and any others upon DPS' request.<sup>19</sup> Should DPS Staff choose to modify the level or manner of their involvement, NYSERDA should be notified about the change(s). DPS Staff should also choose when and how to involve their evaluation advisor consultant team in NYSERDA's evaluation processes, should directly provide any materials and information necessary for their advisor consultant team to fulfill this role, and should notify NYSERDA about the type and level of advisor consultant involvement.

An important goal of NYSERDA's evaluation effort is to provide early feedback to program staff to help inform and improve program implementation. NYSERDA accomplishes this goal in several ways:

1. Ongoing communications between the NYSERDA evaluation staff and evaluation contractors to identify issues that need to be brought to the attention of NYSERDA program staff, DPS Staff, and other involved parties.
2. Interim results reports may be generated, sometimes at the request of NYSERDA program staff and sometimes by initiative of NYSERDA's evaluation team and contractors, where early results are required or deemed useful prior to completion of the full evaluation effort.
3. Presentations of draft evaluation results held with NYSERDA evaluation contractors, evaluation team, program staff, and DPS Staff before evaluation reports are written provide feedback on the programs as soon as possible, and provide evaluation contractors with additional perspective and context that will be useful in reporting final recommendations.

Upon completion of final evaluation reports, the NYSERDA evaluation team will also provide support and assistance to program staff with regard to implementation of recommendations and program improvements.

## **IX. Reporting**

Final reports will align with requirements set forth in the DPS evaluation guidelines, and will include: methodology, key results, recommendations, summary and conclusions, and appendices with detailed documentation.

Upon completion of each major evaluation study effort, findings and results will be communicated by NYSERDA's evaluation contractors and evaluation staff to NYSERDA program staff. Actionable recommendations and information on program progress toward goals will be provided as input to the program design and improvement process. NYSERDA's evaluation staff will follow up regularly with

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<sup>19</sup> In order to maintain transparency, and allow for confirmation checking and follow-up analysis, evaluation data will be maintained by NYSERDA and made available to DPS on an as-needed basis. NYSERDA will continue to maintain its secure "data warehouse" which includes data files, code books, and analysis files which can be made available in electronic form to DPS upon request. In order to provide a comprehensive record of each study conducted, the data warehouse also holds copies of final evaluation reports and appendices, including blank survey instruments, although these documents will be made available to DPS and publicly upon completion of each evaluation project.

program staff on recommendations arising from the evaluation and the status of their consideration or adoption of these recommendations.

NYSERDA's evaluation staff will prepare quarterly and annual reports to the Public Service Commission, DPS and the EAG summarizing the results of all programs and from all evaluation studies occurring in the most recent quarter or year. The latest evaluated program savings, realization rates, and net-to-gross ratios will be used in compiling data for these overarching reports. Quarterly reports will be provided to the Commission within 60 days of the end of each calendar quarter. The annual report will substitute for the fourth quarterly report, summarizing program and portfolio progress throughout the calendar year. The annual report will be submitted to the Commission within 90 days of the end of the calendar year.

#### **X. Total Resource Cost Analysis**

Once per year, NYSERDA will update benefit/cost ratios (at a minimum, Total Resource Cost test) for each major program and for the entire portfolio of SBC-funded **New York Energy \$mart<sup>SM</sup>** and EEPS programs. The Total Resource Cost (TRC) test divides the present value of the benefits by the present value of program and participant costs. A benefit-cost ratio greater than 1 indicates benefits exceed NYSERDA and participant costs. The Program Administrator Cost (PAC) test divides the present value of the benefits by the present value of the Program Administrator Costs. A benefit-cost ratio greater than 1 indicates benefits exceed NYSERDA costs. For more detailed definition of benefit/cost terms and a description of NYSERDA's current benefit/cost input sources, including avoided energy, capacity and distribution costs, refer to Appendix A of NYSERDA's September 22, 2008 Energy Efficiency Portfolio Standard Program Administrator Proposal.

The latest evaluated program savings, realization rates, and net-to-gross ratios resulting from the evaluation efforts described in this plan will be used in the annual benefit/cost analysis update.

NYSERDA will conduct benefit/cost analyses for its programs in a manner consistent with other program administrators, as appropriate. NYSERDA has knowledgeable staff and tools in place to accomplish benefit/cost analyses for all of its SBC and EEPS programs. NYSERDA is prepared to make adjustments to its current practice should DPS Staff or the EAG decide that alternative methods, tools, or inputs are superior or would foster greater consistency among program administrators.