

# NEW YORK STATE PROCESS EVALUATION PROTOCOLS

*A Supplement to the New York State  
Evaluation Guidelines Updated 2012*

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## **Section I: Introduction/Overview**

New York State has established some of the most ambitious energy efficiency goals in the nation through the development of its Energy Efficiency Portfolio Standard (EEPS) as part of Case 07-M-0598. The order included several provisions to provide for “*comprehensive and rigorous evaluation of EEPS programs including increasing from 2 percent to 5 percent the portion of the program budgets dedicated to evaluation and establishing a statewide Evaluation Advisory Group (EAG) to advise the Commission and Department of Public Service staff (Staff) on evaluation related issues.*” Moreover, the Commission requested that all EEPS program proposals include “*a detailed plan for evaluation of each program, including details on the scope and the method of measurement and verification activities*” (NYS Evaluation Guidelines Update 2011).

The overall goal of this project is to develop a set of common process evaluations protocols that will meet the strategic objectives of New York State (NYS) energy efficiency programs at both the program and portfolio level. The purpose of these protocols was to provide supplemental advice and guidance specifically for process evaluations that will be conducted on behalf of the New York Program Administrators. As such, these protocols were designed to look beyond the traditional process evaluation frameworks to establish an integrated approach help New York State meet its long-term energy objectives.

The first step was to review the process evaluation “best practices” with a specific focus on those approaches and methodologies that are best suited to the precise needs of the Energy Efficiency Portfolio Standard (EEPS) and System Benefits Charge (SBC) programs in New York.

Process evaluations play an important role in the overall context of a program evaluation. As stated in the California Protocols (TecMarket Works 2006), the primary purpose of process evaluation is to develop actionable recommendations for program design or operational changes that can be expected to cost-effectively improve program delivery by addressing the issues, conditions or problems being investigated. The primary deliverable of all process

evaluations is a process evaluation report that presents the study findings and the associated recommendations for program changes (TecMarket Works 2006).

However, process evaluations are unique in that they provide both strategic and tactical insight. As Peters (2007) observed, *“Evaluation is the one part of the overall strategic process – where members are involved in collaborative, communicative, and reflective evaluation processes, organizational learning will occur.”*

The goal of these protocols is to provide New York State program administrators, implementers, evaluators, and critical stakeholders with the guidance they need to plan, direct, conduct and interpret findings from process evaluations conducted at both the program and portfolio levels. Most importantly, these protocols will ensure that the key stakeholders are able to integrate the findings from process evaluations into actionable recommendations for the various programs and the statewide portfolio that will lead to achieving New York’s 15 X 15 savings goal. We will recommend approaches to process evaluations that will help the New York program portfolio achieve the most cost effective energy savings possible

Process evaluations conducted in New York State (NYS) should also address the individual program’s role within a portfolio of programs and how it is integrated into state energy policy so that both program and portfolio can secure cost effective energy efficiency resources

Therefore, a key objective of these process evaluation protocols will be “to facilitate joint evaluations among program administrators, thereby lowering costs to individual program administrators, minimizing the evaluation’s impact on key trade allies and stakeholders while helping to meet project objectives.”

This document is divided into two sections:

- Section I – Provides an overview of process evaluation terms, methods, and approaches
- Section II – Contains the process evaluation protocols for NYS programs

### **Process Evaluation Overview**

The American Evaluation Association defines evaluation as “*assessing the strengths and weaknesses of programs, policies, personnel, products and organizations to improve their effectiveness.*”

A process evaluation is defined as: *A systematic assessment of an energy efficiency program for the purposes of (1) documenting program operations at the time of the examination, and (2) identifying and recommending improvements that can be made to the program to increase the program’s efficiency or effectiveness for acquiring energy resources while maintaining high levels of participant satisfaction* (TecMarket Works 2004).

Process evaluations are effective management tools that focus on improving both the design and delivery of energy efficiency programs. They are most commonly used to document program operations for new programs or those in a pilot or test mode. Process evaluations are also effective at diagnosing problems in programs that are under performing or experiencing operational challenges. Since process evaluations most often examine program or portfolio operations, they can identify ways to make program or portfolio enhancements and improvements that reduce costs, expedite delivery, improve satisfaction, and fine-tune objectives. These evaluations can also be used to assess the effectiveness of various incentive structures and examine program operations, they can identify ways to make program enhancements and improvements that reduce overall program costs, expedite program delivery, improve customer satisfaction, and fine-tune program objectives. These evaluations can also be used to assess the effectiveness of various incentive programs and rebated technologies.

Process evaluations can also provide feedback on ways to streamline and enhance data collection strategies for program operations (NAPEE 2007).

Process evaluations are driven by the ways in which the end results will be used (NYSERDA 2004). The goal of a process evaluation is to review how program activities and customers interact and to recommend ways to improve program processes to increase effectiveness (NYSERDA 2004; NAPEE 2006).

### ***Key Researchable Issues***

Process evaluations explore a variety of researchable issues as a way to determine overall effectiveness. The following types of researchable issues are examples of those issues that should be addressed when conducting process evaluations in NYS:

- Determine if the program is meeting its potential to contribute energy supply resources to NY customers
- Determine if the program is filling a key gap in the energy supply structure
- Determine if the program is filling state supply objectives and meeting energy efficiency supply opportunities
- Identify future service gaps that can be filled by energy efficiency programs, products and services in NY
- Documenting overall awareness as well as awareness of the program and measures
- Verifying installations of measures through customer surveys
- Assessing customer satisfaction with the program
- Measuring spillover and persistence
- Determining if the program has led to lasting changes in customer behavior regarding energy efficiency actions, searching for energy efficient information, or influencing customer decision-making
- Identifying areas for program improvement
- Program delivery

- Marketing and customer acquisition activities
- The program's role within the portfolio and its overall interactions with other programs
- Documenting overall awareness as well as awareness of the program and measures
- Verifying participation/installation of measures through customer surveys
- Determining the significance of the program's contribution to the New York portfolio

This list is intended to serve as a guideline for the types of information or issues that should be addressed in a process evaluation. However, the specific issues will be determined by the nature of the program, its place in the overall energy efficiency supply policy program portfolio, current operational status, and specific program needs. Specific research issues are explored using a variety of process evaluation tasks and methodologies, which are discussed next.

***Process Evaluation Tasks and Methodologies***

In order to investigate the researchable issues associated with energy efficiency programs or portfolios, process evaluations involve a wide range of activities. These activities include, but are not limited to, the following: (TecMarket Works 2006)

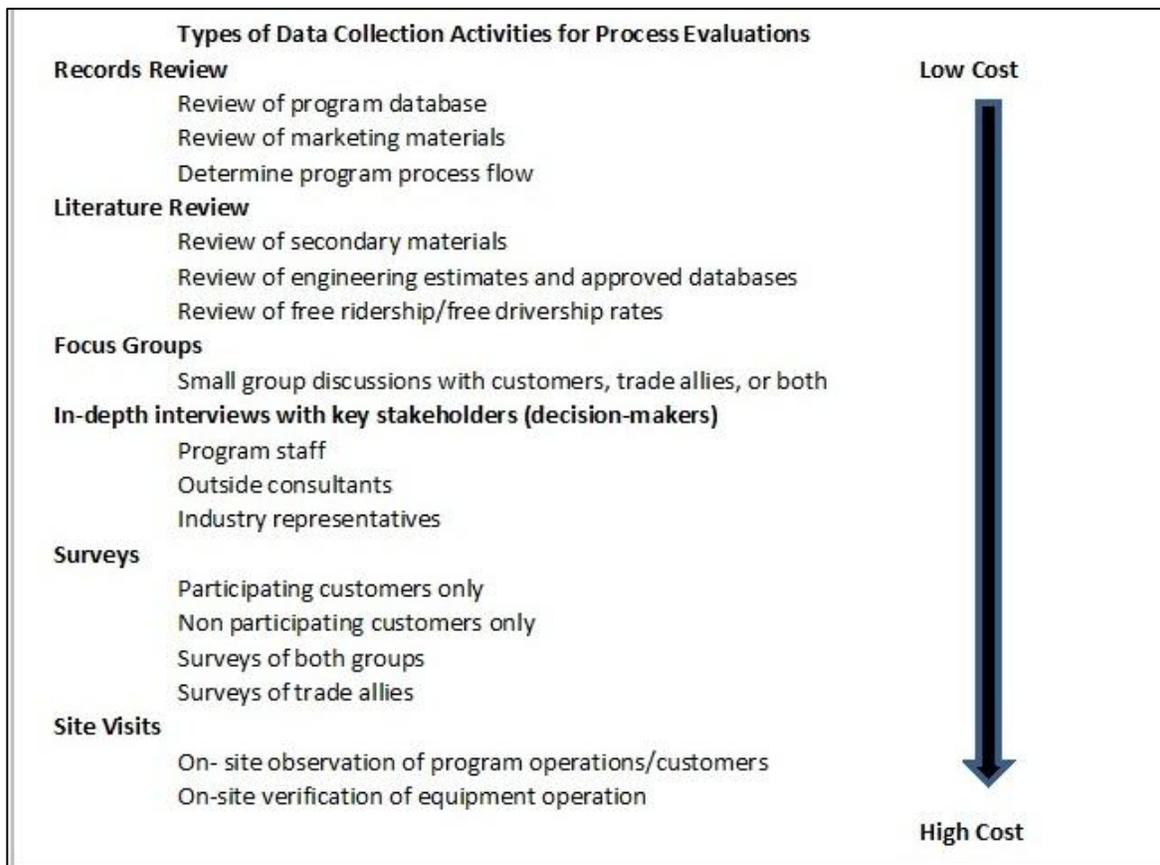
- a. Review of Program Materials and Databases
- b. Review of Program Procedures and Interrelationships (Reynolds et al 2007)
- c. Staff/Third-Party Program Implementer Interviews
- d. Key Stakeholder Interviews
- e. Trade Ally Interviews/Surveys
- f. Customer Feedback: Surveys/Focus Groups
- g. Direct Observations/Site Visits

Section II of the NYS Process Evaluation Protocols provides guidance for executing these specific process evaluation tactics.

### ***Process Evaluation Budgets***

Program evaluations typically range from three to five percent of ***overall program budgets***. However, most of these costs are associated with impact evaluations. Smaller utilities face even more intense budget constraints. It is important to remember that while program evaluation budgets may be based on a percentage of the overall energy efficiency spending, the specific cost of conducting a process evaluation will vary depending upon the types of information required and the challenges associated with acquiring this information. Thus it is important to allow sufficient lead-time to ensure that enough funding is available to conduct at least one process evaluation during the program cycle. This will require scoping, planning and developing priorities for portfolio and program evaluation needs to ensure that the process evaluations are designed to meet overall state objectives and goals. The first step in conducting effective process evaluations is to prioritize the types of data collection activities that would be conducted, based on the program administrator's specific needs and objectives (Reynolds et al 2007).

Figure 1 summarizes the relationship between cost and level of effort for the various process evaluation activities. For example, it is much cheaper to rely on information from secondary sources than it is to gather the data through primary collection methods such as surveys. It is also less expensive to conduct a few in-depth, open-ended surveys with a few respondents, compared to a large-scale survey of many respondents across multiple jurisdictions. The driving factor in determining the costs of surveys is the length of the survey and the number of required surveys based on the desired level of precision and confidence. For NYS that is currently 90/10. The most expensive component of data collection is to gather detailed information on-site (Reynolds et al 2007). However, the total costs of moving to a multi-stakeholder planning process should be considered as well.



(Source: Reynolds, Johnson & Cullen 2008)

**Figure 1: Types of Data Collection Activities for Process Evaluations**

It is important to note that not every process evaluation will require a complete set of data collection activities across all evaluation objectives. Rather, the evaluation plan specifies the data collection strategies that will be used in each phase of the program evaluation as well as the anticipated budget expenditures for each data collection activity.

## **The Importance of Independence**

Independent and objective third parties must conduct process evaluations. Therefore, the organization selected to conduct any EM&V activities should be independent of the organizations involved in the program design, management, and implementation efforts. The evaluations should be conducted at an “arms-length distance,” such that the evaluation professionals have no financial stake in the program or program components being evaluated beyond the contracted evaluation efforts.

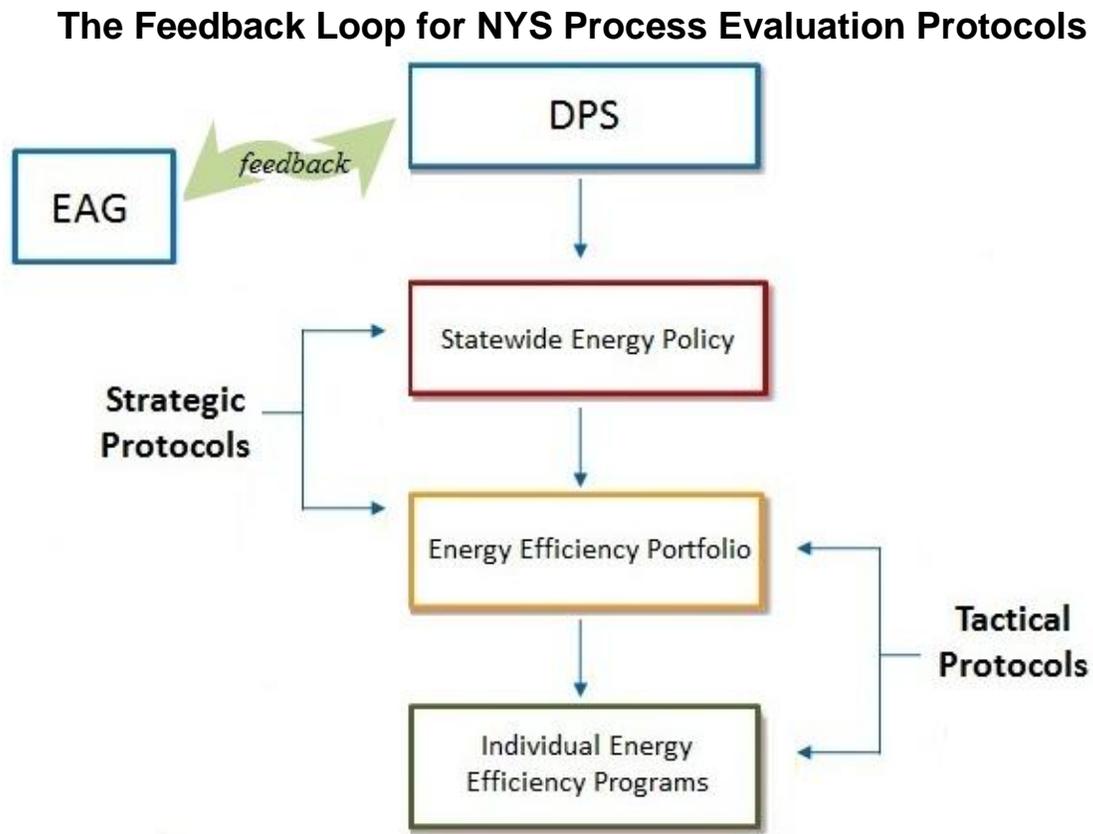
## **Section II: NYS Process Evaluation Protocols**

The Process Evaluation Protocols were formulated based on the key findings from the NYS Process Evaluation Literature Review, specifically the key findings and recommendations and with discussions with the EAG and DPS and the DPS evaluation advisory team. They were designed to provide ongoing feedback for improvements in individual program operations as well provide direction regarding future program design. The protocols examine process evaluation activities in two ways:

- *Strategic* – which focuses on gathering information to provide guidance and direction about future plans including setting or refining policy goals and objectives. Strategic protocols are focused on the overall “big picture” and are designed to ensure that the key findings from the process evaluations are synthesized and analyzed within the context of the broad policy objectives and overall goals of the EEPS program portfolio.
- *Tactical*-which focuses on the specific process evaluation activities at the program level. These protocols focus on coordinating research activities and identifying key findings that can lead to program improvements and changes. Ideally, these key findings will be identified as “best practices” that can be further integrated into the overall program portfolio.

In both cases though, the process evaluation findings are designed to provide both feedback and guidance to the individual program administrators, third-party implementers, key decision-makers, and ultimately inform the policy leaders who set the overall goals and objectives for EEPS programs in New York State. The interactions between policy makers and program evaluators are illustrated in Figure 2.

These protocols are intended to provide supplement the NYS Evaluation Guidelines by providing additional guidance and direction for conducting process evaluations. They are also designed to encourage coordination among the program administrators, where possible, to ensure that process evaluations are conducted in a cost-effective manner.



**Figure 2: The Feedback Loop for NYS Process Evaluation Protocols**

The protocols are organized by Protocol Type, Customer Segment, and Program Type. Each process evaluation protocol also includes a list of “Keywords” which will identify all protocols appropriate to each program type or customer segment. To aid the reader, a glossary of common process evaluation terms is included in Appendix A and the bibliography provides links to additional evaluation resources. Table 1 displays this organizational structure.

**Table 1: Organizational Structure of Protocols**

<b>Protocol Scope</b>	<b>Applicable Protocols</b>
Strategic	Protocols A-E
Tactical	Protocols F-N
Special Topics	Protocols O-P
<b>Customer Segment</b>	<b>Protocols A-E; M, O</b>
Residential	Protocol H, H.2; H.3; H.4: H.5;I, J, L
Multi-family	Protocol H, H.2; H.3; H.4: H.5;I, J, L
Small C&I	Protocol H, H.2; H.3; H.4: H.5;I, J, L
Large C&I	Protocol H-G; I; J; L
Institutional	Protocol H.6.; I, J, K.2; L
Low Income	Protocol G, H, J; K.1
<b>Program Type</b>	<b>Protocols A-E; M, O</b>
Appliance Recycling	Protocol G, H, J, K.1
Direct Install	Protocol G, H, J, K.1
Education/Outreach	Protocol H, I, J, K
Equipment Replacement	Protocol G, H, J, K.1; K.2
Home Performance	Protocol G, H: I, J, K.1
Financing and upstream incentives	Protocol G, H, I, J; K.1;K.2;
Online Audits	Protocol G, H; K.1
Technical Assistance/Engineering Studies/Audits	Protocol H, I, J; L
Pilot Programs	Protocol G, H, I, J, K.1; K.2; L

The first set of protocols are defined as “strategic” because they are intended to identify the ways in which a set of process evaluations should work together to provide guidance regarding an entire portfolio of energy efficiency programs and to statewide policy makers. These protocols provide guidance as to how to structure a particular evaluation, whether it is at the portfolio or program level, the decision-making process used to determine if a process evaluation is necessary, and the recommended timing for process evaluations.

The tactical protocols provide guidance and direction regarding the appropriate use of the most common types of tools in the “process evaluation toolbox.” All process evaluations, regardless of the target market or program delivery method, will use a mix of these process evaluation methodologies.

The following figure illustrates this structure; but note that some protocols will apply to both program and portfolio evaluations, such as Protocol M: Reporting Requirements. Moreover, if a portfolio process evaluation is not planned, then the individual process evaluations should address all issues covered in both the strategic and tactical protocols. Figure 3 illustrates the overall structure of the NYS Process Evaluation Protocols. It is also important to note that the Program Administrators and their evaluation contractors should review **all the Process Evaluation Protocols** to ensure they are addressing the specific needs for each program.

## Section II-A Strategic Protocols

- PROTOCOL A: Regulatory Guidance, Coordination and Feedback- State Wide
- PROTOCOL B: Process Evaluation Structure and Decision-Making
- PROTOCOL C: Process Evaluation Planning
- PROTOCOL D: Assessing the Program's Place in the Portfolio
- PROTOCOL E: Program Coordination

## Section II-B Tactical Protocols

- PROTOCOL F: Evaluation Work Plan
- PROTOCOL G: Program Document Review
- PROTOCOL H: Program Tracking
- PROTOCOL I: Assessing Program Flow/Program Inter- Relationships
- PROTOCOL J: Staff/Third Party Program Implementation Interviews
- PROTOCOL K: Trade Ally/Vendor Interviews
- PROTOCOL L: Customer Surveys
- PROTOCOL M: On-Site Visits/Direct Observations
- PROTOCOL N: Reporting

## Section II-C Special Topics in Process Evaluation

- PROTOCOL O: Pilot Program Evaluations
- PROTOCOL P: Satisfaction

## *NYS Process Evaluation Protocol Structure*

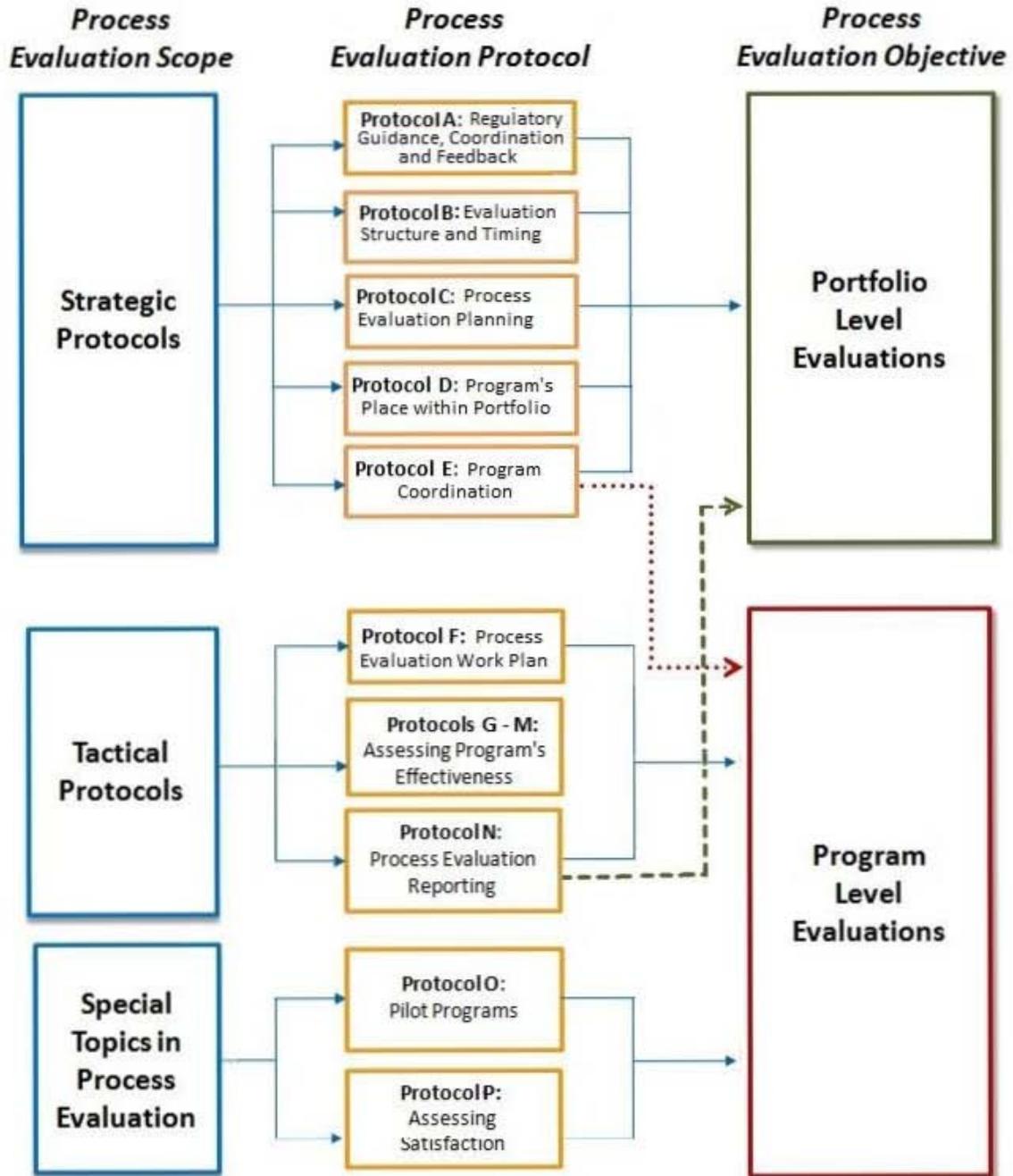


Figure 3: NYS Process Evaluation Protocol Structure

However, these protocols do not address the entire range of issues facing the current EM&V community nor include other types of special market research studies that may be required for program design and planning. Specifically, these protocols will not address the following EM&V topics:

- Baseline Studies
- Program Logic Models
- Market Transformation Studies
- Documenting Market Effects
- Determining Behavioral Effects

## **Section II-A: Strategic Process Evaluation Protocols**

The first set of protocols are defined as “strategic” because they are intended to identify the ways in which a set of process evaluations should work together to provide guidance regarding an entire portfolio of energy efficiency programs. These protocols provide guidance as to how to structure a particular evaluation, whether it is at the portfolio or program level, the decision-making process used to determine if a process evaluation is necessary, and the recommended timing for process evaluations.

At the portfolio level process evaluations, all process evaluations should provide some regulatory guidance (Protocol A). It is also important to assess each program’s individual place within the energy efficiency portfolio or program offering (Protocol D) and coordinate process evaluations to avoid respondent fatigue or over sampling (Protocol E).

## **PROTOCOL A: Regulatory Guidance, Coordination and Feedback**

**Protocol Scope:** This protocol provides guidance to Regulatory and Commission Staff on the role of process evaluations in overall program assessments and the effects that regulatory policies have on program and portfolio operations.

**Customer Segments:** All

**Program Types:** All

**Approach:** This protocol focuses on identifying the kinds of policy, administrative, or regulatory structures that are needed to maximize savings impacts from this program and from the portfolio impacted by energy efficiency programs. It also provides feedback regarding the effect of current state policies, regulatory requirements and abilities of program administrators to meet specific program goals and objectives.

**Keywords:** “portfolio-level evaluations; regulatory role; regulatory guidance; process evaluation planning; coordination across multiple energy organizations or providers.”

**Protocol A: Regulatory Guidance, Coordination and Feedback**

1. EEPS programs should be designed in close consultation with regulatory staff to ensure the planned programs will meet specific regulatory goals or objectives.
2. Regulatory Staff should review the Process Evaluation Plans annually (or as they are updated or modified) and are encouraged to provide recommendations, input or guidance regarding the key researchable issues and research objectives.
3. Process evaluations should include research questions focusing on the effects of specific policies on program operations.
  - This topic should be explored in the in-depth interviews with PA (Program Administrator) staff and third party implementers, to identify what barriers may exist to achieving specific policy objectives or goals.
4. Regulatory Staff should be encouraged to participate in process evaluation activities, as feasible.
  - Staff should be invited to attend project kick-off meetings.
  - Staff should receive project updates on a periodic basis as a way to monitor the progress of process evaluations and ensure that key regulatory objectives or issues are addressed.
  - Staff should review interim process evaluation reports, especially draft reports and be encouraged to provide feedback
  - Staff should attend any formal presentations or briefings regarding the final outcomes, conclusions, and recommendations from the research activities
5. The regulatory staff approves the evaluation plans. The staff also has the option to review and approve key evaluation documents such as work plans, surveys, sample designs and similar documents.
6. Regulatory staff should review the key findings and recommendations from the process evaluation activities at the portfolio level as they consider new approaches or contemplate program design changes to the EEPS program portfolio or enhancements to current program policies or directives.

## **PROTOCOL B: Process Evaluation Structure and Timing**

**Protocol Scope:** This protocol provides guidance on how to best structure process evaluations at the state, portfolio, program, service, and market sector level. Process evaluations need to be structured to meet the specific goals and objectives at a particular point in time. The New York State Process Evaluation Decision-Map has been developed to help guide policy makers through the decision-making process regarding the scope and timing of conducting process evaluations.

**Customer Segments:** All

**Program Types:** All

**Approach:** The process evaluation decision-maker should determine if a process evaluation is needed based on any of the criteria described in Protocol B.1 and B.2, which summarize the two major criteria for determining if a process evaluation is necessary. The first criterion is to determine if it is time for a process evaluation; the second criterion is to determine if there is a need for a process evaluation. Figures 1 and 2 illustrate this decision-making process.

**Keywords:** “timing; portfolio level evaluations; process evaluation structure; diagnostic process evaluations; under-performing programs; programs not meeting targets”

<b>Protocol B.1: Determining Appropriate Timing to Conduct a Process Evaluation</b>
1. <b>New and Innovative Components:</b> If the program has new or innovative components that have not been evaluated previously, then a process evaluation needs to be included in the overall evaluation plan for assessing their level of success in the current program and their applicability for use in other programs.
2. <b>No Previous Process Evaluation:</b> If the program has not had a comprehensive process evaluation during the previous funding cycle, then the Program Administrator should consider including a process evaluation in the evaluation plan
3. <b>New Vendor or Contractor:</b> If the program is a continuing or ongoing program, but is now being implemented, by a different vendor than in the previous program cycle, then the administrator should consider including a process evaluation in the evaluation plan to determine if the new vendor is effectively implementing the program.
4. <b>State Policy Concerns:</b> Was this program developed as a response to specific policy goals or objectives that now needs to be reviewed or examined?
If any of these criteria are met, it is time to conduct a process evaluation. If none of these criteria are met, then the evaluation decision-maker should proceed to Step 2 in the Process Evaluation Decision Map

<b>Protocol B.2: Determining Appropriate Conditions to Conduct a Process Evaluation</b>
Process evaluations may also be needed to diagnose areas where the program is not performing as expected. These conditions may include the following:
1. <b>Impact Problems:</b> Are program impacts lower or slower than expected?
2. <b>Informational/Educational Objectives:</b> Are the educational or informational goals not meeting program goals?
3. <b>Participation Problems:</b> Are the participation rates lower or slower than expected?
4. <b>Operational Challenges:</b> Are the program's operational or management structure slow to get up and running or not meeting program administrative needs?
5. <b>Cost-Effectiveness:</b> Is the program's cost-effectiveness less than expected?
6. <b>Negative Feedback:</b> Do participants report problems with the program or low rates of satisfaction?
7. <b>Unusual Practices:</b> Do the program administrators suspect fraud or malfeasance?
8. <b>Market Effects:</b> Is the program not producing the intended market effects?
9. <b>Policy Assessment:</b> Is this program failing to meet an identified service gap or customer segment specially addressed in energy policy objectives?
If any of the criteria is met, a process evaluation is needed to identify ways to address and correct these operational issues. If none of these criteria is met in either Step 1 or Step 2, then a process evaluation is not needed at this time. Re-evaluate the need for a process evaluation at the end of the program year.

(Source: Modified from the CA Evaluators' Protocols TecMarket Works 2006)

## IS IT TIME FOR A PROCESS EVALUATION?

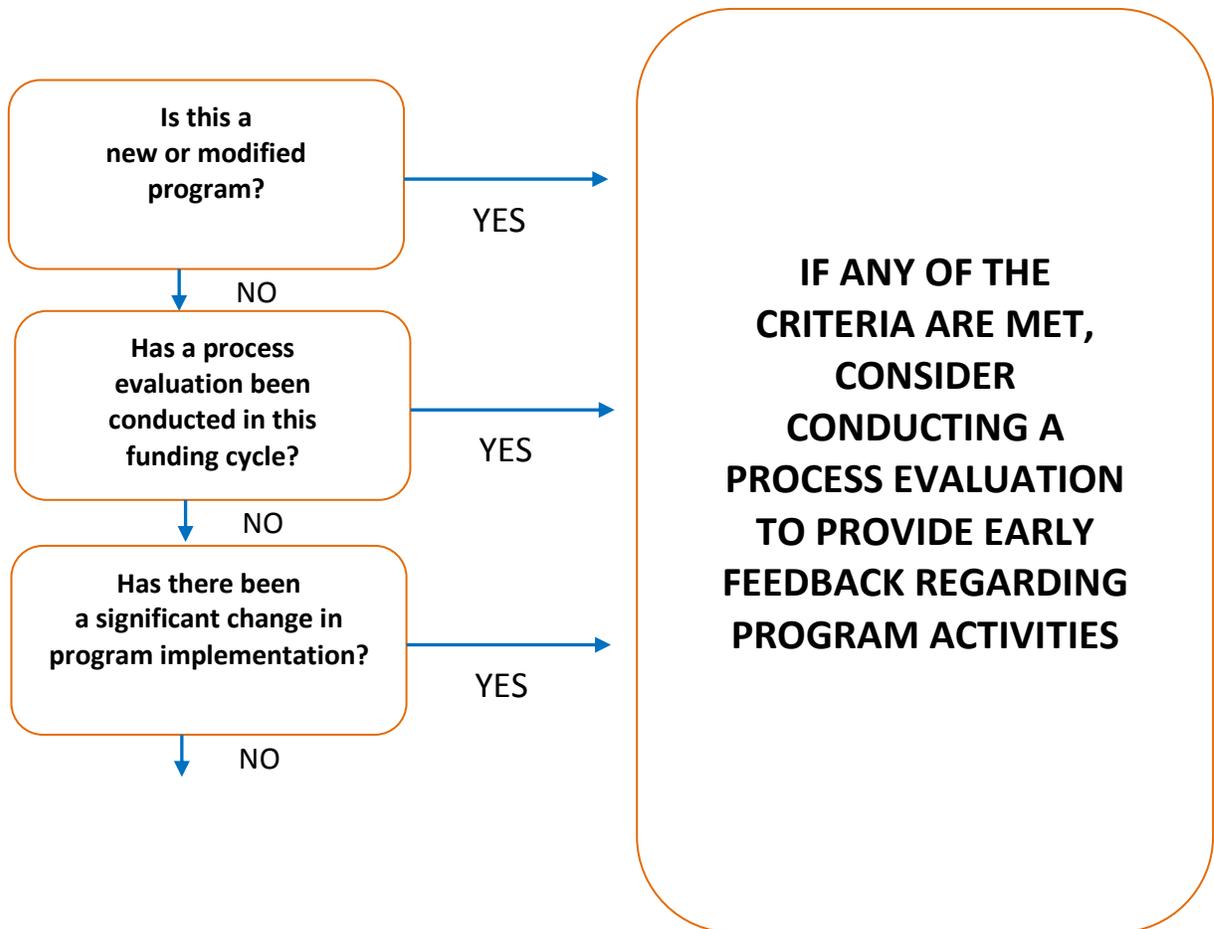


Figure 4: Determining Timing for a Process Evaluation

## IS THE PROGRAM/PORTFOLIO WORKING AS EXPECTED?

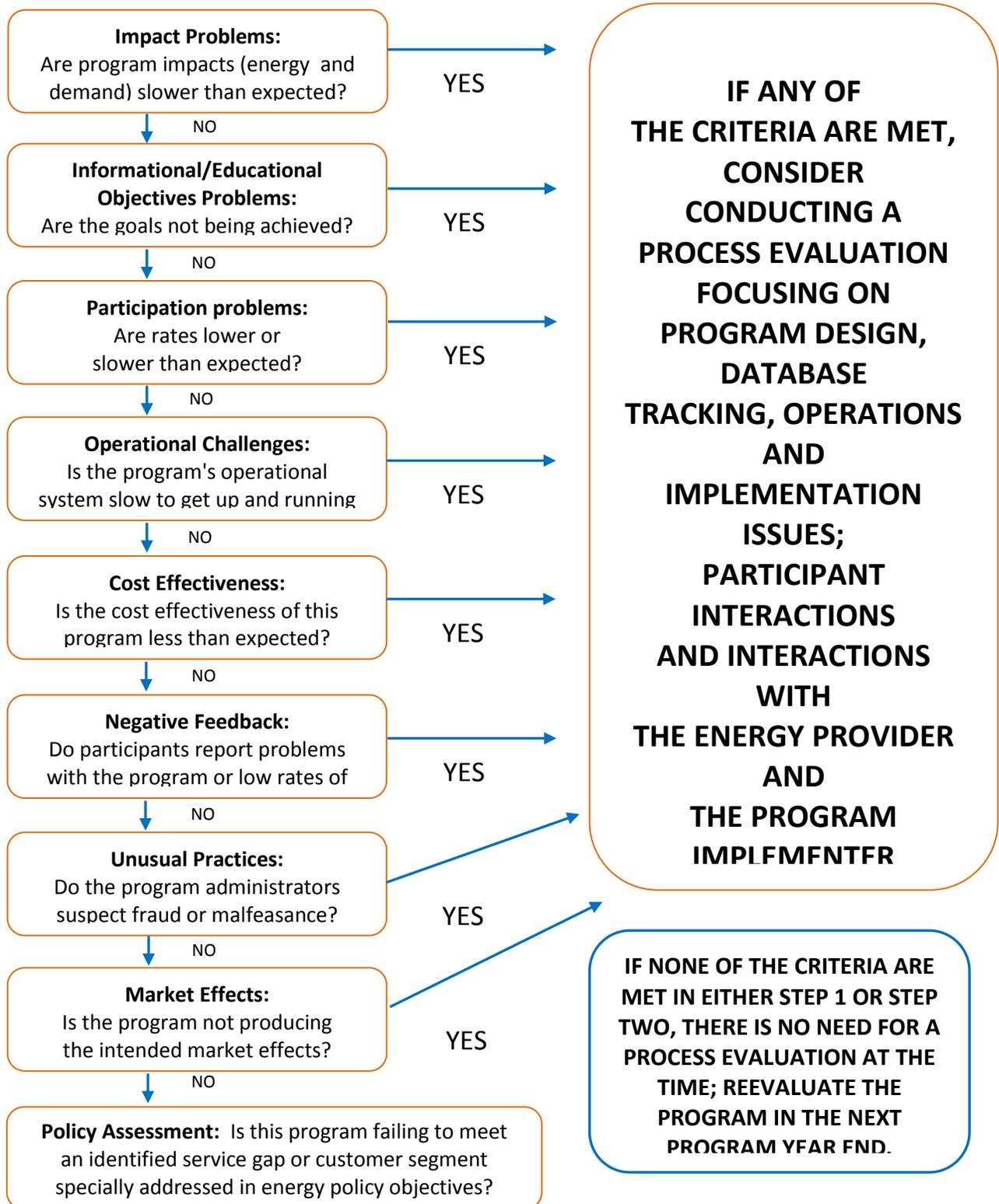


Figure 5: Determining Need to Conduct a Process Evaluation  
New York State Process Evaluation Protocols

## **PROTOCOL C. Process Evaluation Planning**

**Protocol Scope:** This protocol provides guidance on the key issues that should be addressed in process evaluations. It is especially important to focus on the aspects of program operations to address any deficiencies identified in the Process Evaluation Decision Map, Figure 3.

**Customer Segments:** All

**Program Types:** All

**Approach:** The process evaluation plan should use the following outline to identify the key researchable issues that must be addressed in the process evaluation. This outline applies to process evaluations conducted at the program, portfolio, and state level.

**Keywords:** “process evaluation planning; EM&V plan process evaluation timing; portfolio level process evaluations; process evaluation structure; process evaluation components; process evaluation scope”

While Protocol C.1 provides a general outline of the key elements that should be included in a process evaluation plan, Protocol C.2 provides more detailed information regarding the key areas for investigation that need to be addressed in a process evaluation. Protocol C.2 also identifies those areas that are most applicable to new programs or pilot programs, those areas that should be investigated when the program is experiencing specific operational issues or challenges, and those topic areas that should be covered in all process evaluations.

<b>Protocol C.1 : Recommended Elements of a Process Evaluation Plan</b>	
1.	<b>Introduction:</b> Description of the program or portfolio under investigation; specific characteristics of the energy organization providing the program including current marketing, educational or outreach activities and delivery channels.
2.	<b>Process Evaluation Methodology:</b> Process evaluation objectives, researchable issues, and a description of how specific evaluation tactics will address the key researchable issues
3.	<b>Timeline:</b> Summarized by key tasks identifying the length of the process evaluation and key dates for completion of major milestones
4.	<b>Budget:</b> Costs of conducting the process evaluation by specific tasks and deliverables.

(Source: Modified and Expanded from the California Evaluators' Protocols - TecMarket Works 2006; NYS Evaluation Guidelines 2011).

<b>Protocol C.2 Recommended Areas of Investigation in a Process Evaluation</b>	
<b>Policy Considerations</b>	<b>Additional Guidance</b>
<ul style="list-style-type: none"> <li>Review of the state policies that led to the development of the energy efficiency portfolio and program</li> <li>Review of state regulatory documents including filings and testimony</li> </ul>	This section provides an opportunity to fully understand the overall program portfolio in the context of overall regulatory policies and goals and therefore can provide guidance for investigating the effectiveness of these policies in the process evaluation.
<b>Program Design</b>	<b>Additional Guidance</b>
<ul style="list-style-type: none"> <li>Program design characteristics and program design process</li> <li>The program mission, vision and goals and goal setting process</li> <li>Assessment or development of program and market operations theories</li> <li>Use of new or best practices</li> </ul>	This area is especially important to address in first-year evaluations and evaluations of pilot programs.
<b>Program Administration</b>	<b>Additional Guidance</b>
<ul style="list-style-type: none"> <li>The program management process</li> <li>Program staffing allocation and requirements</li> <li>Management and staff skill and training needs</li> <li>Program tracking information and information support systems</li> <li>Reporting and the relationship between effective tracking and management, including operational and financial management</li> </ul>	This area should be covered in all process evaluations, but it is especially important to address in those evaluations where operational or administrative deficiencies exist.
<b>Program Implementation and Delivery</b>	<b>Additional Guidance</b>
<ul style="list-style-type: none"> <li>Description and assessment of the program implementation and delivery process,</li> <li>Quality control methods and operational issues</li> <li>Program management and management's operational practices</li> <li>Program delivery systems, components and implementation practices</li> <li>Program targeting, marketing, and outreach efforts</li> </ul>	<p>This is critical to gathering the information necessary to assess the program's operational flow</p> <p>This is an area that should be addressed if the program is not meeting its participation goals or if the program is under-performing.</p> <p>The process evaluator should request copies of all marketing and outreach materials and include an assessment as part of the document review task</p>

(Modified and expanded from the CA Evaluators' Protocols-TecMarket Works 2006).

**PROTOCOL D: The Program’s Place within the Energy Efficiency Portfolio:**

**Protocol Scope:** This protocol focuses on ensuring that each program is also evaluated within the larger context of the overall energy efficiency program portfolio, which is often overlooked in most process evaluations (Gonzales et al 2003).

**Customer Segments:** All

**Program Types:** All

**Approach:** The process evaluator should review this protocol to ensure that these issues are incorporated in the overall process evaluations planned at either the portfolio or program level. The findings regarding the program’s place in the overall portfolio should be reported in the portfolio level evaluation report.

**Keywords:** “portfolio level evaluations; process evaluation planning; coordination; process evaluation reporting”

<b>Protocol D: The Program’s Place within the Energy Efficiency Portfolio</b>
At least once in every funding cycle, the process evaluation results should be compared for all programs within the energy efficiency portfolio to the extent possible.
1. This analysis should include addressing the following researchable issues: <ul style="list-style-type: none"><li>a. Does the program fit within New York’s energy efficiency state policy goals and objectives for energy efficiency? program goals?</li><li>b. Is the program structured to best contribute to the success of the portfolio within its market segment?</li><li>c. How is the program meeting its market potential?</li><li>d. Is it designed to meet some unfilled gap or service need as part of a larger policy goal?</li><li>e. Are there gaps in program services at the market level (residential / nonresidential)?<ul style="list-style-type: none"><li>o Are there overlaps in program offerings that may be causing duplication of efforts or customer confusion?</li></ul></li></ul>
The key findings and recommendations from this portfolio level analysis should be reported at least once in every funding cycle.

## **PROTOCOL E: Program Coordination**

**Protocol Scope:** This protocol focuses on identifying ways to effectively plan process evaluations, leverage resources, and report findings in a consistent manner across the entire NYS energy efficiency program portfolio.

**Customer Segments:** All

**Program Types:** All

**Approach:** The process evaluator should review this protocol to ensure that process evaluations activities, such as surveys or onsite visits, are coordinated to avoid respondent fatigue and minimize overall costs.

**Keywords:** “program coordination; portfolio-level evaluations; evaluations across multiple energy providers or program administrators; cost-effective process evaluations: avoiding respondent fatigue; process evaluation budgets”

<b>Protocol E: Program Coordination</b>
1. The timing, focus, and duration of process evaluations should be reported to the Evaluation Advisory Group (EAG).
2. Where possible, process evaluation activities should be combined. Coordinated program or portfolio process evaluations should be considered when: <ul style="list-style-type: none"><li>• Multiple programs are targeting similar or identical customer markets</li><li>• Similar or identical measures are being targeted by multiple programs (e.g., residential lighting; small C&amp;I lighting)</li><li>• There are a limited number of trade allies serving the same areas (e.g., HVAC installers serve both residential and small C&amp;I markets) or limited populations of other actors targeted for surveys</li><li>• There are limited evaluation budgets</li></ul>
3. If regional or statewide collaboration is not possible, then the process evaluation survey instruments should be designed to capture information as consistently as possible to facilitate program and portfolio reporting.

## **Section II-B: Tactical Protocols**

The intent of these tactical protocols is to provide guidance and direction regarding the appropriate use of the most common types of tools in the “process evaluation toolbox.” All process evaluations, regardless of the target market or program delivery method will use a mix of these process evaluation methodologies. Where appropriate, the methods best suited to particular types of programs are identified in the process evaluation protocol.

### **PROTOCOL F: Process Evaluation Work Plan**

**Protocol Scope:** This protocol provides on developing a specific work plan to guide an individual process evaluation. The Process Evaluation Plan, described in Protocol C.1 is intended to be a high-level guidance and planning document. The Process Evaluation Work Plan provides a more detailed description of the key researchable issues, the sampling frame and methodologies, a project schedule and proposed budget.

**Customer Segments:** All

**Program Types:** All

**Approach:** The process evaluation work plan should be developed after the project kick off meeting to ensure that the research issues are clearly understood and well defined.

**Keywords:** “process evaluation planning, individual process evaluation”

<b>Protocol F : Recommended Elements of a Process Evaluation Work Plan</b>	
1.	<b>Introduction:</b> The work plan begins a summary of the program, the process evaluation objectives, and an outline of the specific process evaluation approach that will be used.
2.	<b>Program Description:</b> Description of program objectives, target market, summary of program delivery, key metrics, and the program’s place within the overall energy efficiency portfolio.
3.	<p><b>Process Evaluation Approach and Methodology:</b></p> <ul style="list-style-type: none"> <li>• Detailed description of the specific research objectives such as assess program participation rates, identify program barriers, assess customer satisfaction, and identify recommendations for improvement</li> <li>• Identification of key tasks</li> <li>• Detailed sampling plan including proposed sampling methodology and data collection approach for program/third party staff, key stakeholders, trade allies/vendors, and customers. The sampling methodology should be clearly explained with specific targets of completed surveys or interviews clearly described in the EM&amp;V Plan. The sampling plans should conform to the current NYS EAG Guidelines for confidence and precision.</li> <li>• Description of the survey instruments that will be developed</li> <li>• Timing for data analysis <ul style="list-style-type: none"> <li>○ Proposed form for the reporting of research results</li> </ul> </li> <li>• <b>Timeline for Deliverables</b> <ul style="list-style-type: none"> <li>○ Summary of key milestones</li> <li>○ Description of key deliverables</li> <li>○ Staff assigned to complete project</li> </ul> </li> </ul>
4.	<p><b>Budget</b></p> <ul style="list-style-type: none"> <li>• If not already determined</li> <li>• Should include budget items for each key task</li> </ul>

(Source: Modified and expanded from NYSERDA Draft Work Plans 2011)

**PROTOCOL G: Program Document Review**

**Protocol Scope:** This protocol provides guidance on the types of program information that should be reviewed during a process evaluation.

**Customer Segments:** All

**Program Types:** All

**Approach:** The process evaluation should include a review of all relevant program materials.

**Keywords:** “program records; document review”

Protocol G. Program Document Review	
Scope of Program Document Review	Additional Guidance
<ul style="list-style-type: none"> <li>• Current program records and documents</li> </ul>	<p>The program evaluator should request copies of all relevant program materials in a formal data request at the beginning of a process evaluation.</p>
<ul style="list-style-type: none"> <li>• Relevant Commission orders or filings related to program design and objectives</li> </ul>	
<ul style="list-style-type: none"> <li>• Educational and outreach materials</li> </ul>	
<ul style="list-style-type: none"> <li>• Rebate forms/application materials</li> </ul>	
<ul style="list-style-type: none"> <li>• Program operational manuals and process flow diagrams</li> </ul>	
<ul style="list-style-type: none"> <li>• Website materials</li> </ul>	
<ul style="list-style-type: none"> <li>• Sales data</li> </ul>	<p>This information is critical for buy-down programs.</p>
<ul style="list-style-type: none"> <li>• Retailer store locations</li> </ul>	<p>This information is critical for retailer buy-down programs.</p>
<ul style="list-style-type: none"> <li>• Trade ally contact information</li> </ul>	<p>This is critical for equipment replacement programs for residential, multifamily, and C&amp;I programs.</p>
<ul style="list-style-type: none"> <li>• Program implementer contracts and quality control/quality assurance procedures, and data tracking requirements</li> </ul>	<p>This is critical to determine if the current program practices and procedures are sufficient for documenting program activities.</p>
<ul style="list-style-type: none"> <li>• Program invoices to the extent possible or payment stream summaries</li> </ul>	<p>This is critical for programs using technical assistance, engineering studies, audits, retailer buy-down programs; equipment financing programs.</p>

## **PROTOCOL H: Program Tracking**

**Protocol Scope:** Protocol H protocol provides guidance to develop an effective DSM program tracking, evaluation and project database. This list is not meant to be inclusive, but rather includes the minimum types of information that should be tracked for all energy efficiency programs.

**Customer Segments:** All

**Program Types:** All

**Approach:** The process evaluation should include a review of the program’s database to determine accuracy and identify areas for program improvement.

**Keywords:** “program costs; program operations; tracking”

<b>Protocol H.1: Program Operations Tracking</b>	
<b>Recommended Fields</b>	<b>Additional Guidance</b>
<b>Administrative and Management Costs</b> <ul style="list-style-type: none"><li>• Overall program budgets</li><li>• Program costs to date</li><li>• Incentive Costs</li><li>• Other types of Costs</li><li>• Marketing/Outreach Costs</li><li>• Evaluation Costs</li></ul>	This information related directly to program expenses. This information may be tracked in a separate worksheet from measure costs; however the totals should be reported out annually.
<b>Marketing and Outreach Activities</b> <ul style="list-style-type: none"><li>• Advertising and marketing spending levels</li><li>• Media schedules</li><li>• Summary of number of community events/outreach activities</li><li>• Other media activities - estimated impressions via mailings, television/radio, print ads</li></ul>	The program implementers should be able to provide separate documentation regarding the type, number, and estimated impressions made for each marketing or outreach activity.

## **Protocol H.2: Program Participant Tracking Fields**

**Protocol Scope:** Protocol H2 protocol provides guidance regarding the key data elements that should be tracked, for mass-market programs to enhance the overall effectiveness of process evaluations. This protocol supplements the required tracking fields described in the NYS Evaluation Guidelines (2011).

**Customer Segments:** Residential, Multi-family, Low Income, Small C&I

**Program Types:** Appliance Recycling, Equipment Installation, Direct Install, Home Performance, Financing, Rebate Programs, Residential Pilot Programs, Small C&I Pilot Programs

**Approach:** The process evaluation should include a thorough review of the program's database.

**Keywords:** "program costs, program operations; tracking"

<b>Protocol H.2: Program Participant Tracking Fields</b>	
<b>Recommended Data Fields</b>	<b>Additional Guidance</b>
<p><b>Participating Customer Information</b></p> <ul style="list-style-type: none"> <li>• Unique customer identifier, such as account number</li> <li>• Customer contact information – name, mailing address, telephone number</li> <li>• Date/s of major customer milestone/s such as rebate application date, approval date, rebate processing date, etc.</li> </ul>	<p>Information used to readily identify customers for follow-up contact</p>
<p><b>Measure Specific Information</b></p> <ul style="list-style-type: none"> <li>• Measure Group (Equipment Type)</li> <li>• Equipment Fuel/Energy Source</li> <li>• Equipment size</li> <li>• Equipment quantity</li> <li>• Efficiency level</li> <li>• Estimated savings as identified in the TRM</li> <li>• Estimated incremental measure cost, if applicable</li> <li>• Equipment Useful Life</li> <li>• Measure Name - Text Description</li> <li>• * Measure Code- Numerical Code</li> <li>• Serial Number (where applicable)</li> <li>• Reported age of equipment replaced (if available)</li> <li>• Reported location of equipment replaced (if available)</li> <li>• Reported measure type of equipment replaced (if available)</li> </ul>	<p>Information which documents the details of the equipment installed and equipment replaced under the program</p> <p><b>* Measure Codes:</b> All data should be captured in numeric format to facilitate data tracking and analysis. Therefore, a data legend should identify each measure type and contractor type. This data legend should also be clearly labeled in the program database’s supporting materials.</p>
<p><b>Vendor Specific Information</b></p> <ul style="list-style-type: none"> <li>• Name and Contact Information for Contractor</li> <li>• Contractor Type</li> <li>• Date of Installation</li> <li>• Cost of the installed equipment (if available)</li> <li>• Efficiency level of the installed equipment</li> </ul>	<p>To be collected when the measure is installed by a third-party vendor. This information can be determined from the supporting documentation provided to qualify for the program incentive.</p>
<p><b>Program Tracking Information</b></p> <ul style="list-style-type: none"> <li>• Date of the initial program contact/rebate information</li> <li>• Date of rebate/incentive paid</li> <li>• Incentive amount paid to date</li> <li>• Incentive amounts remaining</li> <li>• Application Status (i.e., number of applications approved, pending or denied)</li> <li>• Reason and Reason code for application denial</li> </ul>	<p>Information to determine program cost effectiveness and timing for rebate applications and processing</p>

### **Protocol H.3: Additional Database Tracking Recommendations**

**Protocol Scope:** This protocol provides additional guidance for evaluations targeting specific customer segments or delivery methods to enhance the overall effectiveness of process evaluations. This protocol supplements the required tracking fields described in the NYS Evaluation Guidelines (2011).

**Customer Segments:** Residential, Multifamily, Low Income, Small C&I

**Program Types:** Appliance Recycling, Direct Install, Equipment Replacement, And Home Performance.

**Approach:** Protocol H.3 provides additional guidance for ways to report program data for mass-market programs targeting the residential, commercial and industrial markets. The data should include a numeric code as well as a text description to facilitate database analysis of program operations.

**Keywords:** “program tracking; residential; small C&I”

<b>Protocol H.3: Recommended Measure Tracking</b>		
<b>Example Measure Category</b>	<b>Example Measure Code</b>	<b>Additional Guidance</b>
Air Source Heat Pump	1	The eligible measures in each program should be identified both in a text description and a numeric measure code.  These codes should be consistent across programs offered within the same portfolio.
Room Air Conditioner	2	
Central Air Conditioner	3	
Natural Gas Furnace	4	
Storage Water Heater (Gas)	5	
Tankless Water Heater (Gas)	6	
Storage Water Heater (Electric)	7	
Heat Pump Water Heater	8	
Attic Insulation	9	
Wall Insulation	10	

Similarly, the contractor type could also be identified by a category and a numeric code to facilitate analysis and tracking. Ideally, the program database and tracking system would be linked to the utility’s or energy provider’s current Customer Information System so that it can be updated regularly to verify eligibility.

<b>Protocol H.4: Recommended Trade Ally/Contractor Tracking</b>		
<b>Example Trade Ally Type</b>	<b>Example Trade Ally Code</b>	<b>Additional Guidance</b>
Architect/Architecture Firm	11	The types of contractors participating in the program should also be identified by a numerical code to facilitate analysis of program participation rates. These codes should be consistent across programs in the same portfolio.
Engineer/Engineering Firm	22	
Plumber	33	
HVAC Vendor	44	
Insulation Installer	55	
Home Builder (Production)	66	
Home Builder (Custom)	67	
Lighting Vendor	70	
Motors Vendor	80	
Specialty	90	

**Protocol H.5: Additional Database Fields for Residential Programs**

**Protocol Scope:** This protocol provides recommendations on ways to coordinate database tracking to facilitate analysis for residential programs and are designed to supplement the information required in the NYS Evaluation Guidelines (2011).

**Customer Segments:** Residential, Low Income, Multi-family

**Program Types:** Appliance Recycling, Rebate, Direct Install Programs

**Approach:** Protocol H.5 provides additional guidance regarding the data that must be collected in residential mass-market programs.

**Keywords:** “program tracking; residential, equipment replacement; appliance recycling; direct install programs”

<b>Protocol H.5: Additional Recommended Database Fields for Residential Programs</b>	
<b>Data to be Tracked</b>	<b>Additional Guidance</b>
<b>Premise Characteristics</b> <ul style="list-style-type: none"> <li>• Housing Type</li> <li>• Home Ownership</li> <li>• Number of Occupants</li> <li>• Estimated/Actual Square Footage</li> </ul>	This type of information should be captured on the rebate application forms or when the equipment is installed in the customers' residence.
<b>Measure Characteristics</b> <ul style="list-style-type: none"> <li>• Efficiency level of equipment removed (retrofit only)</li> <li>• Model level for equipment removed (retrofit only)</li> </ul>	This information is commonly captured by the contractor or recorded from the invoice and could be tracked in the program database.
<b>Quality Control/Inspection Data</b> <ul style="list-style-type: none"> <li>• Permission to access utility records</li> <li>• Dates/types and results of quality control inspections conducted by implementation staff</li> </ul>	This information should be tracked to provide an estimate of the percentage of jobs that receive some type of quality control/quality inspection if appropriate

### **Protocol H.6: Additional Database Fields for Commercial & Industrial Programs**

**Protocol Scope:** This protocol provides recommendations on ways to coordinate database tracking to facilitate analysis for C&I programs to enhance the overall effectiveness of process evaluations. This protocol supplements the required tracking fields described in the NYS Evaluation Guidelines (2011).

**Customer Segments:** C&I, Institutional, Multi-family

**Program Types:** Rebate and Direct Install Programs

**Approach:** Protocol H.6 provides additional guidance regarding the data that must be collected in C&I programs targeting mass market.

**Keywords:** “program tracking; C&I, rebate programs; equipment replacement; direct install programs”

<b>Protocol H.6: Recommended Additional Database Fields for C&amp;I Programs</b>	
<b>Data to be Tracked</b>	<b>Description</b>
<b>Premise Characteristics</b> <ul style="list-style-type: none"> <li>• Building Type</li> <li>• Building Ownership</li> <li>• Number of Occupants</li> <li>• Operating Hours</li> <li>• Estimated/Actual Square Footage</li> </ul>	<p>This information could be collected on rebate application forms completed program participants.</p>
<b>Measure Characteristics</b> <ul style="list-style-type: none"> <li>• Efficiency level of equipment removed (retrofit only)</li> <li>• Model level for equipment removed (retrofit only)</li> </ul>	<p>This information is commonly captured by the contractor or recorded from the invoice and could be tracked in the program database.</p>
<b>Quality Control/Inspection Data</b> <ul style="list-style-type: none"> <li>• Permission to access utility records</li> <li>• Dates/types and results of quality control inspections conducted by implementation staff</li> </ul>	<p>This information should be tracked to provide an estimate of the percentage of jobs that receive some type of quality control/quality inspection if appropriate</p>

## **PROTOCOL I: Assessing Program Flow/Program Inter-Relationships**

**Protocol Scope:** This protocol provides direction on how to document and evaluate the effectiveness of program operations using a program flow chart

**Customer Segments:** Residential, Multi-family, Low Income, Institutional, C&I,

**Program Types:** Appliance Recycling, Direct Install, Equipment Replacement, Home Performance, Financing, Rebate, Custom, Technical Assistance/Audit Programs, Pilot Programs

**Approach:** The process evaluator should review the current program flow materials developed by the program implementer and compare it to the *actual program outcomes*. The resulting flow diagram will be based on findings from the staff and program implementer interviews including a map of the overall database operations and interfaces. The process evaluation should focus on identifying where program “disconnects” or gaps may be. In addition, it should examine the overall flow of program operations to identify possible areas for program improvement or streamlining- especially regarding the integration of information from the application forms.

**Keywords:** “assessing program operations; program flow; rebate application process; customer interactions”

<b>Protocol I. Assessing Program Flow</b>	
<b>Scope of Program Flow</b>	<b>Additional Guidance</b>
<ul style="list-style-type: none"> <li>Document the ways in which customers interact with the program</li> </ul>	<p>These program interactions will vary depending on customer segment and program type; however, it is important to document program flow activities for most programs, except those only dealing with customer outreach and education.</p>
<ul style="list-style-type: none"> <li>Document the “life of the rebate”</li> </ul>	<p>For application driven programs, such as rebate and recycling program, the program evaluator should include questions regarding rebate application processing in interviews with the program implementation staff, trade allies, and program participants. The deliverable should be a flow chart identifying where program gaps may exist.</p>
<ul style="list-style-type: none"> <li>Identify ways in which the program is promoted to customers</li> </ul>	
<ul style="list-style-type: none"> <li>Review the program application forms</li> </ul>	
<ul style="list-style-type: none"> <li>Develop Program Flow Diagram with program “disconnects” highlighted</li> </ul>	
<ul style="list-style-type: none"> <li>If there appears to be a longer than expected time lag between Technical Assistance Studies and measure installation, then a program flow diagram should be developed to identify where “program disconnects” exist in the decision-making process.</li> </ul>	<p>The program flow should be addressed in Custom and Technical Assistance/Audit programs if there seems to be operational lags or difficulties in converting audits to installations.</p>

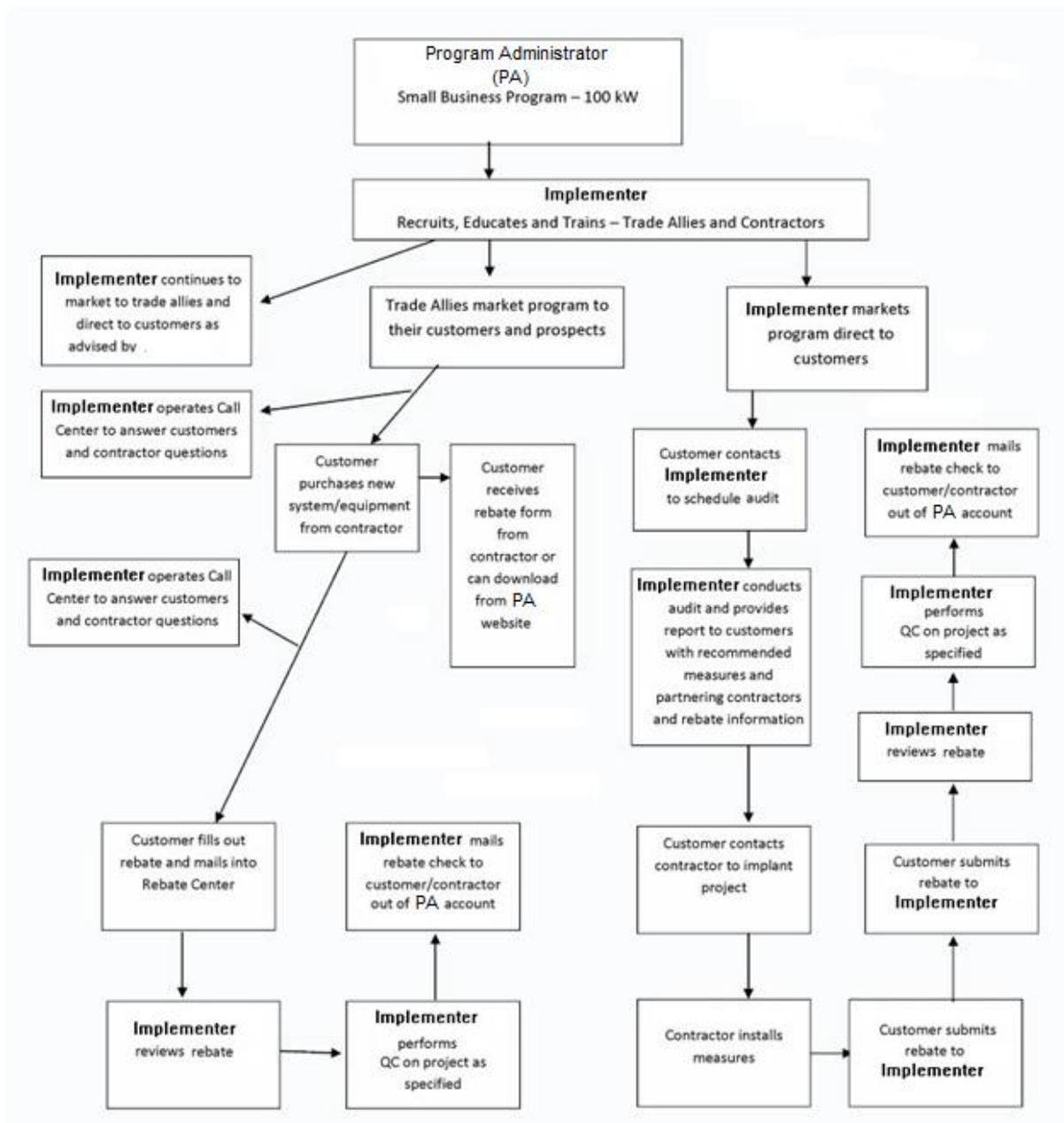


Figure 6: Example of a Program Flow Diagram

## **PROTOCOL J: Staff/Third Party Program Implementation Interviews**

**Protocol Scope:** This protocol provides guidance on the information that should be documented in interviews with program staff or implementers.

**Customer Segments:** All

**All Program Types:** All

**Approach:** Protocol J summarizes the types of information that should be addressed in the in-depth interviews conducted with both the program administrators and program implementers.

**Keywords:** “assessing program operations; program flow; staff interviews; process evaluation planning”

<b>Protocol J: Staff/Third Party Implementer Interviews</b>	
<b>In-Depth Interview Scope</b>	<b>Additional Guidance</b>
<p>1. In-depth interviews should be conducted either in person or via the telephone with all program staff involved directly in program operations. Types of staff interviewed include:</p> <ul style="list-style-type: none"> <li>• Program manager and implementation lead</li> <li>• Key staff involved in program operations, customer database tracking, marketing and outreach, and customer relations</li> </ul>	<p>The interviews may also be conducted with program personnel who were involved in the original program design, if this is the first process evaluation conducted for this program.</p>
<p>2. The estimated number of completed interviews should be clearly described based on the Process Evaluation Plan.</p>	<p>Deviations from the estimated number of completed interviews must be explained in the Process Evaluation Report.</p>
<p>3. The interview guide should be designed to be “open ended” to facilitate a discussion.</p>	<p>This is to ensure that the interview guides will be flexible enough to probe on specific issues that may arise during the staff or third party interviews.</p>
<p>4. All respondents must be assured anonymity to the legal extent possible. There will also be no direct attribution of their responses that can easily identify the respondent.</p>	<p>This is to ensure that respondents can speak candidly and honestly about program activities.</p>
<p>5. The topics addressed in these interviews should include the following:</p> <ul style="list-style-type: none"> <li>• Program Design/Goals &amp; Objectives</li> <li>• Program Results Relative to Goals</li> <li>• Data Tracking/Program Databases</li> <li>• Marketing and Outreach Activities</li> <li>• Participation Process</li> <li>• Barriers to Program Participation</li> <li>• Assessment of Program Operations</li> <li>• Customer Feedback</li> <li>• Trade Ally/Vendor Feedback</li> <li>• Areas for Program Improvement</li> </ul>	<p>The focus of these topic areas will vary according to the type of process evaluation conducted. For those process evaluations that are investigating operational deficiencies, particular attention should be paid to documenting program operations, participation process, feedback from customers and trade allies, and areas for program improvement.</p>

## **PROTOCOL K: Trade Ally/Vendor Interviews**

**Protocol Scope:** Protocol K provides guidance on the types of information that should be addressed in interviews conducted with trade allies. The type and number of interviews should be documented in the process evaluation plan.

**Customer Segments:** Residential, Multi-family, C&I, Institutional

**Program Types:** Appliance Recycling, Direct Install, Equipment Replacement, Home Performance, Financing, Residential Pilot Program, Rebate Programs, C&I Pilot Programs; Retailer Buy-Down Programs

**Approach:** Protocol K identifies the types of information that should be addressed in interviews with both participating and non-participating trade allies.

**Keywords:** “trade allies; installers; vendors; C&I programs; interviews; surveys; process evaluation planning”

<b>Protocol K: Trade Ally/Vendor Interviews</b>	
<b>Interview Scope</b>	<b>Additional Guidance</b>
Interviews should be conducted either in person or via the telephone with trade allies who sell or install the eligible equipment or services.	Depending upon the scope of the process evaluation, the interviews could be conducted with both participating and non-participating trade allies.
The estimated number of completed interviews should be clearly described based on the Process Evaluation Plan.	Deviations from the estimated number of completed interviews must be explained in the Process Evaluation Report.
The trade ally survey instrument should include a mix of “open” and close-ended questions to facilitate analysis.	The nature of the process evaluation inquiry will determine the appropriate type of survey instrument as well as the length of the interview.
All respondents must be assured anonymity to the legal extent possible. There will also be no direct attribution of their responses that can easily identify the respondent.	This is to ensure that respondents can speak candidly and honestly about program activities.
<p>The topics addressed in these interviews should include the following:</p> <ul style="list-style-type: none"> <li>• Program Awareness</li> <li>• Participation Process</li> <li>• Trade Ally/Vendor Satisfaction with Program Components</li> <li>• Barriers to Program Participation by Customers</li> <li>• Barriers to Trade Ally participation</li> <li>• Overall Effectiveness of Trade Ally Activities</li> <li>• Areas for Program Improvement</li> <li>• Trade Ally characteristics, such as type of firm, number of employees, number of jobs completed, etc.</li> </ul>	<p>The focus of these topic areas will vary according to the type of process evaluation conducted.</p> <p>Surveys to non-participating contractors will focus primarily on program awareness, barriers to program participation, and trade ally characteristics.</p>

## **PROTOCOL L: Customer Surveys**

**Protocol L:** Protocol L summarizes the types of information that should be addressed in the customer surveys that will be targeting mass-market programs.

**Customer Segments:** Residential, Multi-family, Low Income Customer Segment

**Program Types:** Appliance Recycling, Direct Install, Equipment Replacement Programs, Home Performance, Financing, Residential Pilot Programs, Education and Outreach Programs, Online Audits, Rebate Programs.

**Approach:** Protocol L.1 provides guidance on the types of information that should be captured in residential customer surveys.

**Keywords:** “residential customer surveys; participating customers; non-participating customers; process evaluation planning”

<b>Protocol L.1: Residential Customer Surveys</b>	
<b>Interview Scope</b>	<b>Additional Guidance</b>
Interviews should be conducted either in person or via the telephone with customers eligible to participate in the program.	Depending upon the scope of the process evaluation, the interviews could be conducted with both participating and non-participating customers to facilitate comparisons between groups and identify areas for program improvement.
The estimated number of completed interviews should be clearly described based on the Process Evaluation Plan.	Deviations from the estimated number of completed interviews must be explained in the Process Evaluation Report.
The customer survey instrument should include a mix of “open” and close-ended questions to facilitate analysis.	The nature of the process evaluation inquiry will determine the appropriate type of survey instrument as well as the length of the interview.
All respondents must be assured anonymity to the legal extent possible. There will also be no direct attribution of their responses that can easily identify the respondent.	This is to ensure that respondents can speak candidly and honestly about program activities.
<p>The topics addressed in these interviews should include the following:</p> <ul style="list-style-type: none"> <li>• Program Awareness</li> <li>• Participation Process</li> <li>• Customer Satisfaction with Program Components (Participants Only)</li> <li>• Measure Persistence</li> <li>• Spillover if appropriate</li> <li>• Barriers to Program Participation</li> <li>• Areas for Program Improvement</li> <li>• Customer Demographics such as housing type, square footage, number of occupants, income level, educational level and age range.</li> </ul>	<p>The focus of these topic areas will vary according to the type of process evaluation conducted.</p> <p>Surveys to non-participating customers will focus primarily on program awareness, barriers to program participation, and customer demographics.</p>

**Protocol L.2:** Protocol L summarizes the types of information that should be addressed in the customer surveys that will be targeting mass-market programs.

**Customer Segments:** Small C&I Programs, Institutional Customer Segment

**Program Types:** Equipment Replacement Programs, Financing, Small C&I Pilot Programs, Education/Outreach Programs, Energy Audits Programs”

**Approach:** Protocol L.2 provides guidance on the types of information that should be captured in surveys targeting Small C&I customers or institutional segments such as educational facilities, hospitals, or government buildings.

**Keywords:** “participating customers; non-participating customers; small C&I programs; process evaluation planning”

<b>Protocol L.2: Small Commercial &amp; Industrial and Institutional Customer Surveys</b>	
<b>Interview Scope</b>	<b>Additional Guidance</b>
Interviews should be conducted either in person or via the telephone with customers eligible to participate in the program.	Depending upon the scope of the process evaluation, the interviews could be conducted with both participating and non-participating customers to facilitate comparisons between groups and identify areas for program improvement.
The estimated number of completed interviews should be clearly described based on the Process Evaluation Plan.	Deviations from the estimated number of completed interviews must be explained in the Process Evaluation Report.
The customer survey instrument should include a mix of “open” and close-ended questions to facilitate analysis.	The nature of the process evaluation inquiry will determine the appropriate type of survey instrument as well as the length of the interview.
All respondents must be assured anonymity to the legal extent possible. There will also be no direct attribution of their responses that can easily identify the respondent.	This is to ensure that respondents can speak candidly and honestly about program activities.
<p>The topics addressed in these interviews should include the following:</p> <ul style="list-style-type: none"> <li>• Program Awareness</li> <li>• Participation Process</li> <li>• Customer Satisfaction with Program Components (Participants Only)</li> <li>• Measure Persistence</li> <li>• Spillover as appropriate</li> <li>• Barriers to Program Participation</li> <li>• Areas for Program Improvement</li> <li>• Customer Demographics such as type of business, number of employees, hours of operation, building square footage, number of years in business.</li> </ul>	<p>The focus of these topic areas will vary according to the type of process evaluation conducted.</p> <p>Surveys to non-participating customers will focus primarily on program awareness, barriers to program participation, and customer demographics.</p>

## **PROTOCOL M: On-Site Visits/Direct Observations**

**Protocol Scope:** Protocol M summarizes the types of information that should be addressed when it is necessary to conduct direct observation of program operations. These types of programs may include those that require substantial on-site interaction with the participants involving measure installations, for example, such as the installation of custom measures.

**Customer Segments:** Residential, C&I, Multi-family, Institutional, Low Income

**Program Types:** Retailer Buy-Down Programs, Customer Direct Install Programs, Give-Away Programs, Custom Measure Installations

**Protocol Approach:** On-site observations may also be included as part of “intercept” studies at retail stores, especially for residential lighting programs. Other times, the evaluator may want to verify the installation rates of self-installed measures, such as through energy efficiency kits, especially when savings estimates are heavily dependent on self-reporting by program participants (California Evaluators’ Protocols TecMarket Works 2006; Johnson Consulting 2011).

**Keywords:** “on-site visits ; self-reported installations; customer intercept surveys; give-away programs; case studies; process evaluation planning ”

<b>Protocol M: On-Site Visits/Field Observations</b>	
<b>Interview Scope</b>	<b>Additional Guidance</b>
The Process Evaluation Team should develop an on-site form specifically designed to capture the observations from these visits.	On-site visits/field visits are usually targeted to program participants.
The estimated number of completed on-site visits should be clearly described based on the Process Evaluation Plan.	Deviations from the estimated number of completed interviews must be explained in the Process Evaluation Report.
The on-site survey instrument should be designed to capture actual descriptions of respondent activities.	The nature of the process evaluation inquiry will determine the appropriate type of onsite visits required to complete the process evaluation.
Direct questions to the program participants should be identically worded as in other survey instruments to ensure content validity.	This “best practice” will allow the process evaluator to compare results across groups, thereby increasing the validity and robustness of the overall process evaluation.
All respondents must be assured anonymity to the legal extent possible. There will also be no direct attribution of their responses that can easily identify the respondent.	This is to ensure that respondents can speak candidly and honestly their experiences with the program and its measures.
<p>The topics addressed in on sites should include the following:</p> <ul style="list-style-type: none"> <li>• Program Awareness</li> <li>• Experience with the Program Participation Process</li> <li>• Customer Satisfaction with Program Components</li> <li>• Measure Persistence</li> <li>• Spillover as appropriate</li> <li>• Barriers to Program Participation</li> <li>• Areas for Program Improvement</li> <li>• Customer Demographics for C&amp;I customers such as: type of business, number of employees, hours of operation, building square footage, number of years in business.</li> <li>• Customer Demographics such as housing type, square footage, number of occupants, income level, educational level and age range.</li> </ul>	The focus of these topic areas will vary according to the type of process evaluation conducted.
<ul style="list-style-type: none"> <li>• The Process Evaluator should also document the actual direct observations, physical location or type of measure installed as part of this on site.</li> </ul>	This information should be collected to provide further validation of the actual measure installation rate or participant experience.

(Source: Expanded and Modified from California Evaluators’ Protocols TecMarket Works 2006; Johnson Consulting Group 2011).

## **PROTOCOL N: Reporting**

### **N.1: Reporting Template**

**Protocol Scope:** Protocol N. 1

Protocol N.1 provides a template that should be used to ensure that results from process evaluations are reported in a consistent way using non-technical language.

**Customer Segments:** All

**Program Types:** All

**Protocol Approach:** The process evaluator must prepare reports that meet these guidelines for NYS Process Evaluations.

**Keywords:** “process evaluation reporting; regulatory guidance; policy guidance; findings and recommendations”

### Protocol N.1: Process Evaluation Reporting Template Protocol N.1

The process evaluation reports should meet the following requirements

1. **Non-Technical Language:** Reports should be written in a non-technical manner to ensure that the reports are sufficiently geared to the “everyday reader” rather than to evaluation experts. Therefore, the process evaluation reporting protocol should include a Style Manual.
2. **Abstract:** Brief summary of the process evaluation activity, targeted market, and program type
3. **Executive Summary:** This should be a brief summary of the research objectives, key findings and recommendations
4. **Program Description:** The process evaluation report should present a detailed operational description of the program that focuses on the program components being evaluated. This description should include the types of delivery channels used, and examples of marketing/outreach materials as appropriate.
5. **Presentation of Findings:** A detailed presentation of the findings from the study is essential. The presentation should convey the conditions of the program being evaluated and should provide enough detail so that the reader can understand the findings and the implications of the findings to the overall operations of the program and its cost-effectiveness. The findings should be organized by process evaluation methodology.
6. **Program Recommendations:** Program recommendations must be clearly defined and supported. For additional guidance regarding program recommendations, please consult Protocol N.2.
7. **Appendices:** The reports should contain appendices containing the survey instruments, discussion guides, data tables, copies of program materials and other relevant documents used to determine the key findings and recommendations.

(Source: NAPEE 2007; Modified from the CA Evaluators’ Protocols, TecMarket Works 2006: NYSERDA 2011)

## N.2 Actionable Recommendations

**Protocol Scope:** Protocol N.2 provides additional guidance regarding the ways in which recommendations for program improvement should be structured.

**Customer Segments:** All

**Program Types:** All

**Protocol Approach:** The recommendations made from the process evaluations are detailed, actionable and cost-effective. They should identify a clear path for program improvement and specifically tie back to the researchable issues cited in the process evaluation plan.

**Keywords:** “process evaluation reporting; portfolio-level evaluations; regulatory guidance; policy guidance; findings and recommendations; operational changes”

<b>Protocol N.2: Actionable Recommendations</b>
1. The recommendations from the process evaluations should be realistic, appropriate to the organization’s structure, constructive, and achievable using available resources.
2. The recommendations should be linked to specific conclusions.
3. All recommendations need to be adequately supported. Each recommendation should be included in the Executive Summary and then presented in the Findings text along with the analysis conducted and the theoretical basis for making the recommendation. The Findings section should also include a description on how the recommendation is expected to help the program, including the expected effect implementing the change will have on the operations of the program.
4. The recommendations should focus on ways to increase overall program effectiveness and be linked to the researchable issues addressed in the process evaluation such as ways to improve the program design, approach, operations, marketing, or address issues related to program under-performance.
5. To the extent possible, the recommendations will provide specific steps/tasks for implementation.
6. To the extent possible, the Program Administrator will offer specific steps or tasks for implementing the recommendations.
7. The recommendations should be compared across program evaluations to identify areas for portfolio-level improvements.

(Source: Modified from the CA Evaluators’ Protocols, TecMarket Works 2006; Peters 2007; NYSERDA 2011)

### **N.3 Tracking/Follow Up for Actionable Recommendations**

**Protocol Scope:** Protocol N.3 provides additional guidance regarding the ways in which recommendations for program improvement should be tracked and monitored over time.

**Customer Segments:** All

**Program Types:** All

**Protocol Approach:** The recommendations also need to be reviewed and monitored in order to ensure they are implemented or documented in subsequent process evaluations why they were not implemented.

**Keywords:** “process evaluation reporting; portfolio-level evaluations; regulatory guidance; policy guidance; findings and recommendations; operational changes”

<b>Protocol N.3: Tracking/Follow-Up For Actionable Recommendations</b>
1. Each program and portfolio-level recommendation should be documented and tracked over time.
2. Recommendations should also identify “best practices” that may benefit other program operations at the portfolio or statewide level.
3. Each process evaluation should identify prior recommendations from previous evaluations in the document review phase and investigate their status during the process evaluations.
4. The status of each prior recommendation should be documented in the process evaluation report, indicating if they had been implemented, are in the process of being implemented, no longer feasible to be implemented, or cannot be implemented.
5. The reasons for prior recommendations not being adopted needs to be addressed in the process evaluation report.

(Source: NYSERDA 2011)

## Section II-C: Special Process Evaluation Topics

Protocols O and P address special issues that arise in process evaluations.

### **PROTOCOL O: Pilot Program Evaluations**

**Protocol Scope:** Protocol O describes the recommended procedures for conducting process evaluations of pilot programs.

**Customer Segments:** All

**Program Types:** Pilot Programs

**Protocol Approach:** The recommendations also need to be reviewed and monitored in order to ensure that they are implemented or documentation provided in subsequent process evaluations as to why they were not implemented.

**Keywords:** “process evaluation reporting; portfolio-level evaluations; regulatory guidance; policy guidance; findings and recommendations; operational changes”

<b>Protocol O: Pilot Program Evaluations</b>
1. Pilot programs should have a process evaluation conducted within the first year of program operations to provide early feedback and identify ways to correct operational issues.
2. Pilot programs should also have a process evaluation conducted at the end of the pilot program period to document success or failure and provide a complete history of pilot program activities and outcomes, and support the decision on whether to ramp up the program.
3. Process evaluators conducting evaluations of pilot programs should consult Protocol D to ensure that its place within the overall program portfolio is addressed in the first year process evaluation.

## **PROTOCOL P: Satisfaction**

**Protocol Scope:** Protocol P focuses on some ways to assess overall satisfaction from customers, trade allies and key stakeholders.

**Customer Segments:** All

**Program Types:** Appliance Recycling, Direct Install, Equipment Replacement, Rebate Programs, Financing Programs, Home Performance Programs, Technical Assistance/Engineering Studies/Pilot Programs, Custom Programs and any other programs with customer interactions.

**Protocol Approach:** Since participant satisfaction is measured in a variety of ways within individual energy organizations, this protocol provides guidance on identifying ways to assess customer satisfaction by investigating not just the direct determinants of satisfaction but also examining the underlying drivers of satisfaction as they relate to the inter-relationships among the participant, the product or service offered and the organization providing the product or service (Hall and Reed 1997).

**Keywords:** “participating customers ; non-participating customers; customer satisfaction; trade ally satisfaction; participant interaction; program experience; under-performing programs”

<b>Protocol P: Satisfaction</b>	
<b>Protocol Scope</b>	<b>Additional Guidance</b>
<ul style="list-style-type: none"> <li>Satisfaction with the Program is an important element of each process evaluation and therefore should be addressed in surveys or interviews with program participants and key stakeholders, including vendors and trade allies.</li> </ul>	<p>This topic should be explored through a series of questions to assess satisfaction with the participants' program experience.</p>
<ul style="list-style-type: none"> <li>A consistent satisfaction scale should be used in all customer surveys fielded through the portfolio-level evaluations.</li> </ul>	<p>This will ensure that satisfaction ratings can be compared among and between programs in a robust manner.</p>
<ul style="list-style-type: none"> <li>Satisfaction should be analyzed in the following ways:</li> <li>Satisfaction with the various program components (i.e., rebate application process; trade ally interactions; customer service interactions, etc.)</li> </ul>	<p>The specific components of customer satisfaction will differ across program evaluations, but the major elements of a customer experience should be addressed in the customer assessment of satisfaction with both the program and the program providers.</p>
<ul style="list-style-type: none"> <li>All respondents should report their overall satisfaction ratings with the program and the program provider.</li> </ul>	<p>This will allow for comparisons of satisfaction among program participants and non participants and facilitate analysis over time.</p>
<ul style="list-style-type: none"> <li>The customer surveys or interviews should include "open ended" questions that probe for major reasons reported by participants for "dissatisfaction" with the program, for any response under a 7 or 8 on a 10 point scale or under a 5 on a 5 point scale.</li> </ul>	<p>This will help to determine the underlying reasons for satisfaction that may not be addressed in a closed-question survey.</p>

(Source: Hall & Reed 1997; Peters 2007).

## Conclusion

The NYS Process Evaluation Protocols were designed based on the "best practices" identified in a comprehensive literature review. However, these protocols also break new ground by providing program administrators and policy makers with guidance for conducting process evaluations at both the strategic and tactical level. This dual approach—mixing both strategic guidance with tactical insight—will ensure that the program administrators, evaluators, regulators, and stakeholders have what they need to develop and implement effective programs to meet the needs of New Yorkers.

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TecMarket Works, 2006. *California Energy Efficiency Evaluation Protocols: Technical, Methodological, and Reporting Requirements for Evaluation Professionals*, Under Contract with and Directed by the CPUC's Energy Division, and with guidance from Joint Staff, April.

Zikund, W. 2000, *Business Research Methods-6<sup>th</sup> Edition*, The Dryden Press, Fort Worth, TX.

### **Additional Energy Efficiency Evaluation, Measurement and Verification Resources**

US EPA Evaluating Clean Energy Programs Website:

<http://epa.gov/statelocalclimate/state/activities/measuring-savings.html>

US EPA EM&V Webinar Website:

<http://www.emvwebinar.org/>

Consortium for Energy Efficiency EM&V Resources Website:

<http://www.cee1.org/eval/eval-res.php3>

International Energy Program Evaluation Conference EM&V Resources Website:

<http://www.iepec.org/IEPECHome.htm?programsabstracts.htm>

California Institute for Energy and Environment – report on EM&V training opportunities:

[http://uc-ciee.org/energyeff/documents/Evaluation\\_Training\\_Opportunities.pdf](http://uc-ciee.org/energyeff/documents/Evaluation_Training_Opportunities.pdf)

Federal Energy Management Program M&V website:

<http://ateam.lbl.gov/mv/>

CALifornia Measurement Advisory Council (CALMAC):

<http://www.calmac.org>

Northwest Energy Efficiency Alliance:

<http://www.nwalliance.org/research/evaluationreports.aspx>

National Action Plan database of documents:

[http://cfpub.epa.gov/ceird/index.cfm?fuseaction=napee.search\\_js](http://cfpub.epa.gov/ceird/index.cfm?fuseaction=napee.search_js)

New York Energy \$mart<sup>SM</sup> Program Evaluation:

[http://www.nyserda.org/Energy\\_Information/evaluation.asp](http://www.nyserda.org/Energy_Information/evaluation.asp)

2006 US DOE Guide for Managing General Program Evaluation Studies.

[http://www1.eere.energy.gov/ba/pba/pdfs/evl\\_mg\\_app.pdf](http://www1.eere.energy.gov/ba/pba/pdfs/evl_mg_app.pdf)

## **Evaluation Papers**

Proceedings of the IEPEC

Conference <http://www.iepec.org>

ACEEE Summer Studies

<http://www.aceee.org>

## Appendix A: Process Evaluation Glossary

This glossary is drawn from the following references:

1. 2004 California Evaluation Framework
2. 2006 DOE EERE Guide for Managing General Program Evaluation Studies
3. NYSERDA's Glossary of Terms in its Regulatory Filings
4. G. Churchill, Jr. 1986, *Marketing Research Methodological Foundations-4<sup>th</sup> Edition*, The Dryden Press, Fort Worth, TX.
5. W. Zikund, 2000, "Business Research Methods-6<sup>th</sup> Edition," The Dryden Press, Fort Worth, TX.

**Allies:** Service providers involved in projects that are funded through the energy efficiency program

**Attribution:** The assertion that a program is responsible for observed or measured effects. (Used interchangeably with causality).

**Baseline:** Conditions, including energy consumption and related emissions, which would have occurred without implementation of the subject project or program. Baseline conditions are sometimes referred to as "business-as-usual" conditions. Baselines are defined as either project-specific baselines or performance standard baselines.

**Baseline period:** The period of time selected as representative of facility operations before the energy-efficiency activity takes place.

**Bias:** The extent to which a measurement or a sampling or analytic method systematically underestimates or overestimates a value.

**Case study:** The collection and presentation of detailed information about a particular unit.

**Census:** A complete canvass of a population.

**Chi-square Goodness of Fit Test:** A statistical test to determine whether some observed pattern of frequencies corresponds to an expected pattern. This type of test is often used in process evaluations.

**Close-Ended Question:** A question in which respondents are limited to selecting a response from a set of pre-determined choices.

**Comparison group:** A group of consumers who did not participate in the evaluated program during the program year and who share as many characteristics as possible with the participant group.

**Confidence:** An indication of how close a value is to the true value of the quantity in question. Confidence is the likelihood that the evaluation has captured the true impacts of the program within a certain range of values (i.e., precision).

**Confidence Interval:** A percentage or decimal value that tells how confident a researcher can be about being correct. It states the long-run percentage of the time that a confidence interval will include the true population mean.

**Cost-effectiveness:** An indicator of the relative performance or economic attractiveness of any energy-efficiency investment or practice. The present value of the estimated benefits produced by an energy-efficiency program is compared to the estimated total costs to determine if the proposed investment or measure is desirable from a variety of perspectives (e.g., whether the estimated benefits exceed the estimated costs from a societal perspective).

**Convenience Sampling:** The sampling procedure used to obtain those units or people most conveniently available.

**Cross Tabulation:** A data analysis technique that organizes the data by groups, categories, or classes, thus facilitating comparisons; a joint frequency distribution of observations on two or more sets of variables.

**Customer Survey:** Customer polling to identify their level of satisfaction with an existing product, and to discover their express and hidden needs and expectations for new or proposed product(s)

**Depth Interviews:** Also known as In-depth interviews; a relatively unstructured, extensive interview used in the primary stages of the research process.

**Energy Efficiency:** The use of less energy to provide the same or an improved level of service to the energy consumer in an economically efficient way; or using less energy to perform the same function. “Energy conservation” is a term that has also been used, but it has the connotation of doing without a service in order to save energy rather than using less energy to perform the same function.

**Energy Efficiency Measure:** Installation of equipment, subsystems or systems, or modification of equipment, subsystems, systems, or operations on the customer side of the meter, for the purpose of reducing energy and/or demand (and, hence, energy and/or demand costs) at a comparable level of service.

**Energy Services Company (ESCO):** Load serving entities, retail load aggregators, providers of comprehensive energy services, and formal groups of such entities that provide various services for customers in New York such as: matching buyers and sellers of electric power, tailoring physical and financial instruments to suit customers’ needs, and developing, installing, and financing projects that are designed to reduce customers’ energy and maintenance costs. These firms may include Architectural and Engineering firms (A&E), contractors, and manufacturers.

**Error:** Deviation of measurements from the true value.

**Evaluation:** The performance of studies and activities aimed at determining the effects of a program; any of a wide range of assessment activities associated with understanding or documenting program performance, assessing program or program-related markets and market operations; any of a wide range of evaluative efforts including assessing program-induced changes in energy efficiency markets, levels of demand or energy savings, and program cost-effectiveness.

**Frequency Distribution:** A data analysis technique that organizes the data set by summarizing the number of times a particular value of a variable occurs.

**Frequency Table:** A simple tabulation that indicates the frequency with which respondents gave a particular answer.

**Focus Group:** Personal interviews conducted among a small number of individuals simultaneously; the interview relies more on the group discussion than on a series of directed questions to generate data.

**Free driver:** A non-participant who has adopted a particular efficiency measure or practice as a result of the evaluated program.

**Free rider:** A program participant who would have implemented the program measure or practice in the absence of the program. Free riders can be total, partial, or deferred.

**Incentives:** Monetary and non-monetary awards offered to encourage consumers to buy energy-efficient equipment and to participate in programs designed to reduce customers' energy use.

**Interval Scale:** Measurement in which the assigned numbers legitimately allow the comparison of the size of the differences among and between members.

**Itemized Rating Scale:** Scale distinguished by the fact that individuals must indicate their ratings of an attribute or object by selecting one from among a limited number of categories that best describes that their position on the attribute or object.

**Likert Scale:** A measure of attitudes ranging from very positive to very negative, designed to allow respondents to indicate how strongly they agree or disagree with carefully constructed statements relating to an attitudinal object.

**Literature Review:** A search of statistics, trade journal articles, other articles, magazines, newspapers, and books for data or insight into the problem at hand.

**Market Actor:** Persons, organizations, and groups that influence (*e.g.*, by buying, selling, providing services, providing information, distributing, transporting, manufacturing, consuming) the decision chain for energy-efficient and renewable products, services, technologies, and program endeavors. Types of market actors include:

- **Upstream or supply-side:** Market actors such as manufacturers, developers, and research and development organizations that provide the energy-efficient and renewable products, services, and technologies.
- **Mid-stream or market infrastructure:** Market actors who purchase energy-efficient and renewable products, services, and technologies from upstream actors and who sell them downstream to customers. Retailers, distributors, wholesalers, contractors, installers, energy services companies, designers, governmental units, building owners, commodity providers, aggregators, and architects and engineers are examples of mid-stream market actors.
- **Downstream:** Market actors who purchase and use energy-efficient and renewable products, services, and technologies. Downstream market actors include residential homeowners, small business customers, and power plant owners and operators.

**Market Barrier:** Conditions and concepts that prevent and inhibit market adoption of energy efficient technologies, products, and services and inhibit implementation of energy efficient behaviors. Market barriers to the adoption of high efficiency and renewable measures can include: lack of awareness, knowledge, and information about technologies, products, and services; lack of availability of products and services; perceived and actual difficulty financing the higher incremental cost often associated with energy efficient and renewable products and services; and perceived risk associated with implementation of energy efficient and renewable products and services.

**Market Development:** See, Market transformation.

**Market Effects:** Changes in the structure of markets and in the behavior of participants in markets that reflect increased adoption of energy-efficient products, services, and practices.

**Market Infrastructure:** See, Market actors: Mid-stream or market infrastructure.

**Market Sector:** A group whose members display common activities and shared values. Examples include the residential buildings sector, the commercial buildings sector, and the small business sector.

**Market Transformation:** Market states in which desired activities and behaviors have become standard practices due to the reduction in market barriers resulting from market interventions. Market transformation is apparent when market effects endure after interventions have been withdrawn, reduced, and changed. Market transformation programs are designed to induce lasting structural and behavioral changes in markets. (Used interchangeably with market development.)

**Market Effects Evaluation:** An evaluation of the change in the structure or functioning of a market, or the behavior of participants in a market, that results from one or more program efforts. Typically, the resultant market or behavior change leads to an increase in the adoption of energy-efficient products, services, or practices.

**Market Transformation:** A reduction in market barriers resulting from a market intervention, as evidenced by a set of market effects, that lasts after the intervention has been withdrawn, reduced, or changed.

**Mean:** A measure of central tendency; the arithmetic average.

**Median:** A measure of central tendency that is the midpoint; the value below which half the values in a sample fall.

**Mode:** A measure of central tendency; the value that occurs most often.

**Non-Participant:** Any consumer who was eligible but did not participate in the subject efficiency program, in a given program year. Each evaluation plan should provide a definition of a non-participant as it applies to a specific evaluation.

**Non-Energy Impacts (NEI):** Difficult-to-measure effects that can nevertheless be monetized and included as a percentage of energy savings. NEIs include perceived improvements in comfort, safety, and productivity.

**On-Site Interview:** A face-to-face interview done at the customer or trade ally location.

**Open-Ended Question:** Question characterized by the condition that the respondents are free to reply in their own words rather than being limited to choosing from a set of alternatives.

**Opinion leader:** Persons and organizations viewed by members of professions as demonstrating good professional practice.

**Participant:** A consumer that received a service offered through the subject efficiency program, in a given program year. The term “service” is used in this definition to suggest that the service can be a wide variety of services, including financial rebates, technical assistance, product installations, training, energy-efficiency information or other services, items, or conditions. Each evaluation plan should define “participant” as it applies to the specific evaluation.

**Participant:** Individuals and entities that receive services and incentives through the **New York Energy Smart<sup>SM</sup> Program**.

**Payback:** The ratio expressed in years of the estimated annual savings of new measures to estimated costs. Payback can be used to determine whether measures are cost effective.

**Persistence study:** A study to assess changes in program impacts over time (including retention and degradation).

**Portfolio:** The term used for the totality of individual programs comprising a program administrator's complete offering of programs.

**Portfolio level:** Evaluation activities that address the program as a whole and the business and institutional, low income, residential, and research and development program areas.

**Population -** A group of individuals or items that share one or more characteristics from which data can be gathered and analyzed.

**Potential studies:** Studies conducted to assess market baselines and savings potentials for different technologies and customer markets. Potential is typically defined in terms of technical potential, market potential, and economic potential.

**Precision:** The indication of the closeness of agreement among repeated measurements of the same physical quantity.

**Probability Sample:** A sample in which each population element has a known, nonzero chance of being included in the sample.

**Process evaluation:** A systematic assessment of an energy-efficiency program for the purposes of documenting program operations at the time of the examination, and identifying and recommending improvements to increase the program's efficiency or effectiveness for acquiring energy resources while maintaining high levels of participant satisfaction.

**Program:** A group of projects, with similar characteristics and installed in similar applications. Examples could include a utility program to install energy-efficient lighting in commercial buildings, a developer's program to build a subdivision of homes that have photovoltaic systems, or a state residential energy-efficiency code program.

**Program theory:** The assumptions underlying programs; descriptions of how programs fit within their market context. Program theory defines how programs are expected to work and identifies intended outcomes.

**Project:** An activity or course of action involving one or multiple energy-efficiency measures, at a single facility or site.

**Questionnaire:** A carefully constructed survey instrument in which a series of questions asked to individuals to obtain statistically useful information about a given topic.

**Quota Sample:** Non-probability sample is chosen in such a way that the proportion of a sample elements possessing a certain characteristic is approximately the same as the proportion of the elements with the characteristic in the population.

**Range:** The distance between the smallest and largest values of a frequency distribution.

**Rebound effect:** A change in energy-using behavior that yields an increased level of service and occurs as a result of taking an energy-efficiency action.

**Reliability:** Refers to the likelihood that the observations can be replicated.

**Reporting period:** The time following implementation of an energy efficiency activity during which savings are to be determined.

**Representative Sample:** A sample that has approximately the same distribution of characteristics as the population from which it was drawn.

**Sample:** The selection of a subset of elements from a larger group of objects.

**Sampling Frame:** The list of sampling units from which a sample will be drawn; the list could consist of geographic areas, institutions, individuals or other units.

**Secondary Data:** Statistics that are not gathered for the immediate study but for some other purpose. These are consulted in a literature review.

**Simple Random Sampling:** A sampling procedure that assures each element in the population has an equal chance of being included in the sample.

**Spillover:** Reductions in energy consumption and/or demand caused by the presence of the energy-efficiency program, beyond the program-related gross savings of the participants. There can be participant and/or non-participant spillover.

**Stratified Sampling:** A probability sampling procedure in which subsamples are drawn from samples within different strata that are more or less equal on some characteristic.