



Final

National Fuel Gas Distribution Corporation, New York Division, Conservation Incentive Program: Evaluation, Measurement, and Verification Plan

Prepared for
National Fuel Gas Distribution Corporation

Prepared by
The Cadmus Group, Inc. / Energy Services
720 SW Washington Street, Suite 400
Portland, OR 97205
503-228-2992

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Prepared by:
Hossein Haeri, Ph.D.
Elizabeth Daykin
Kate Bushman
The Cadmus Group, Inc.

Corporate Headquarters:
57 Water Street
Watertown, MA 02472
Tel: 617.673.7000
Fax: 617.673.7001

An Employee-Owned Company
www.cadmusgroup.com

720 SW Washington St.
Suite 400
Portland, OR 97205
Tel: 503.228.2992
Fax: 503.228.3696

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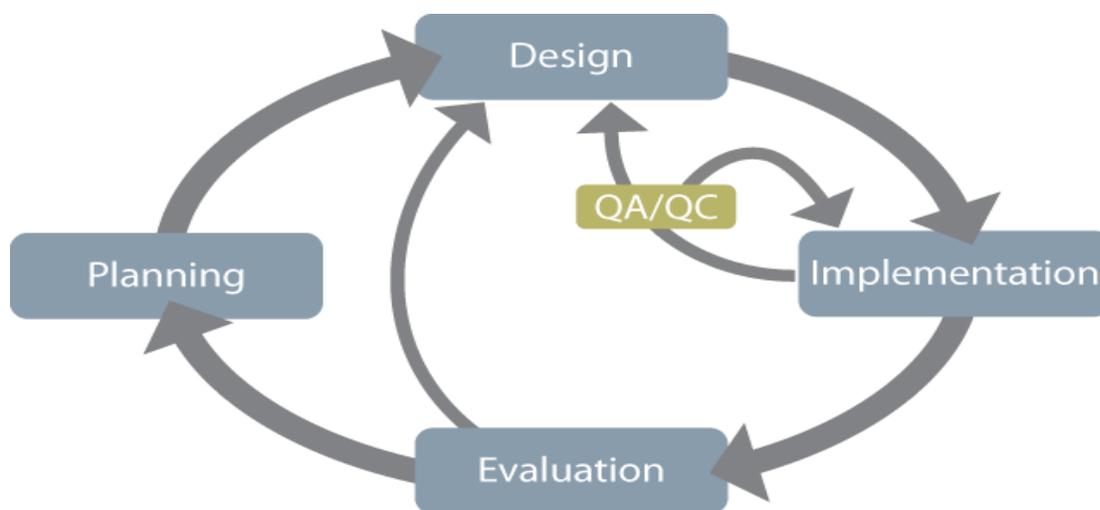
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1. Introduction

This plan for monitoring and evaluating the performance of National Fuel Gas Distribution Corporation's (Distribution) Conservation Incentive Program (CIP) has been developed using a continuous improvement process as a foundation. As illustrated in Figure 1, continuous improvement is an ongoing process seeking to ensure the CIP, as a whole, and its components cost-effectively achieve savings. This requires building an efficient delivery infrastructure, incorporating effective mechanisms for:

1. Monitoring progress.
2. Providing timely feedback.
3. Quickly taking corrective actions, when necessary.

Figure 1. Continuous Improvement Process



This evaluation plan describes the continuous improvement process components, including specific evaluation objectives and approaches tailored to each CIP component. Distribution has created this evaluation plan in accordance with guidelines issued in *Evaluation Plan Guidance for EEPS (Energy Efficiency Portfolio Standard) Program Administrators*, which was issued August 7, 2008, pursuant to the June 23, 2008, Order in Case 07-M-0548, *Order Establishing Energy Efficiency Portfolio Standard and Approving Programs*.

To review and assist with evaluations, Distribution has engaged the services of Cadmus Group, Inc. (Cadmus), a consulting firm.

Prioritization of Activities

Distribution will work with staff of the Public Service Commission and Cadmus to ensure that evaluations are transparent, replicable, reliable, economical, and matched in rigor and resources to the importance of the component in CIP. Evaluation activities will be prioritized based on discussions with Staff to ensure that evaluation funds are used to address the areas of highest uncertainties. The prioritization of evaluation activities will take place during the annual

stakeholder meeting scheduled in the spring and continue, as needed, through conversations with PSC staff.

Distribution will work closely with PSC staff to determine the priority of, and process for, all evaluation activities, including tasks undertaken by Cadmus and evaluation activities to be taken with other program administrators on a statewide basis. Distribution will work with PSC staff to establish a list of evaluation projects for the upcoming year (Annual Project Priority List).

Cadmus will be responsible for providing impartial review of Distribution's impact assessments and cost-effectiveness analyses. To ensure the accuracy and validity of the results, to the extent established in the Annual Project Priority List, Cadmus may selectively conduct independent analyses to replicate the results. To the extent established in the Annual Project Priority List, Cadmus will also be responsible for conducting the process evaluation and estimating net to gross, among other tasks.

2. Program Description

Four program components comprise the CIP:

- Low-Income Usage Reduction Program (LIURP)
- Residential Rebates
- Nonresidential Rebates
- Outreach and Education

This section describes the CIP as a whole; subsequent sections describe each component in greater detail.

Program Objectives

Program objectives include:

- Providing customers with opportunities to reduce their energy costs and increase the energy-efficiency of their homes.
- Encouraging customers to install high-efficiency space heating, water, cooking, and process heating equipment.
- Supporting use of high-efficiency and ENERGY STAR[®]-rated equipment.
- Encouraging and supporting market transformation for high-efficiency appliances and equipment.
- Promoting cost-effective energy efficiency to encourage economic development in the region.
- Assisting low-income customers to reduce their energy use and energy expenses.
- Achieving energy savings.

As of September 31, 2010, the CIP achieved the following program participation levels:

- 1,620 jobs completed for the Low-Income Usage Reduction Program (LIURP).
- 48,731 measures installed and rebated for residential customers.
- 924 rebates issued for nonresidential customers, including 40 custom projects.

At a minimum, this plan applies to program years one through three (PY1–PY3)¹ Distribution intends to follow this plan for future CIP evaluation efforts, as appropriate.

Program Management

Given that Distribution is a gas only utility, its energy efficiency program is smaller than those of combination gas and electric utilities and statewide program administrators, Therefore, there is

¹ December 1, 2007, through November 30, 2010.

no need for Distribution to create a separate, energy-efficiency department within the company. Instead, four distinct groups within Distribution's organization are responsible for CIP. Separation of these different groups maintains distinctions between those responsible for program implementation or administration and those responsible for evaluation, measurement, and verification.

These divisions intend to provide participating customers with the best service possible. For example, the LIURP program manager is responsible for enrolling customers in low-income rates to maintain a consistent information source, specific to low-income customers. Nonresidential and residential rebates are administered through Energy Services to utilize account representatives' knowledge and customer relationships. The Corporate Communications Department implements Outreach and Education to maintain consistency with (and gain efficiencies from) other marketing and communication efforts.

Finally, the Rates and Regulatory Affairs Department performs measurement and verification, including cost-effectiveness and billing analyses. Though communication maintained across groups seeks to establish efficiencies and transparency, respond quickly to trade ally and customer feedback, and respond to regulatory concerns, none of the departments reports to the other. Rather, each department reports to a different vice president, eliminating potential reporting conflicts. Benefits this structure offers include efficient use of existing resources, and consistency between energy efficiency and associated services.

As mentioned above, Distribution has engaged the services of Cadmus to review and assist with evaluation, including evaluating the extent CIP administrative and evaluation efforts remain separate. A future quarterly report will provide a more detailed review of this organizational structure.

Program Theory and Logic Model

A program logic model identifies relationships between program activities and expected results. Logic models, designed to explicitly establish underlying program theories, prove to be useful tools for implementers and evaluators. Specifically, logic models can help achieve the following:

- Generate a shared understanding of a program's goals and objectives.
- Expand understanding of barriers to program success.
- Identify program resources, activities, outputs, and outcomes.
- Define appropriate program performance metrics to help measure success.
- Document causality between program activities and expected outcomes.
- Identify issues, addressed in evaluation and program activities, that may need improvement.

The residential and nonresidential rebates' program theory can be summarized as follows:

By providing a rebate for high-efficiency/ENERGY STAR[®]-rated equipment, the program will increase market saturation and acceptance of high-efficiency equipment. Customers will learn of the energy benefits, and achieve energy savings by installing

qualifying equipment. Increased market penetration of high-efficiency/ENERGY STAR[®]-rated equipment will further increase sales, achieving additional energy savings.

The LIURP program theory can be summarized as follows:

Assisting low-income households, lacking the resources to invest in energy-efficient equipment to reduce household energy use, energy bills, and energy burdens. This assistance aids households to stabilize bill payments and provide more comfortable and energy-efficient homes.

To the extent established in the Annual Project Priority List, Cadmus will proceed with developing a CIP logic model or, possibly, a model for each CIP component. Logic model elements include:

- **Program inputs**, including: target customers; Distribution staff support; contract service provider support; trade ally support; efficient equipment; energy audits and other technical equipment necessary for program implementation; computer systems; energy education materials; and applications, forms, and any other paperwork used in implementation activities.
- **Program Activities**
 - For rebate programs, primary program activities include: management and strategic direction; trade allies' support; marketing; rebate form submission; eligibility verification; education; equipment installation by customers or contractors; and rebate processing and payment.
 - For LIURP, program activities include: qualifying participants' eligibility; conducting energy audits and measuring eligibility assessments; installing energy-efficient measures; energy education; and referrals to other organizations.
- **Outputs produced by program activities.**
 - For rebate programs, outputs include: numbers of marketing materials distributed; numbers of customers submitting rebate forms; numbers of eligible customers verified; numbers of measures installed; and numbers and amounts of rebates paid.
 - For LIURP, program outputs include: all immediate results from program activities, such as participant enrollment, income qualification of participants, audits completed, repairs completed, energy saving measures installed, and numbers of customers served.

Resulting outcomes include:

- **Short-term** (one year) rebate program outcomes include: increased program awareness; increased customer and trade ally awareness of energy-efficient equipment; and increased installations of energy-efficient equipment. Installed, rebated equipment leads to immediate energy savings. Program effectiveness is confirmed through EM&V and quality assurance and quality control (QA/QC).

- **Short-term** (one year) outcomes for LIURP include: establishing participant eligibility for individual measures; improving safety and health in participants' homes; increasing energy-efficiency of equipment in participant homes; and increasing participant knowledge.
- **Intermediate outcomes** (two to three years) include: reduced annual energy consumption; and lowered gas bills for program participants. For LIURP customers, client energy usage stability will improve, resulting in better energy conservation and bill-paying behaviors.
- **Long-term outcomes** (four to seven years) include: Distribution meeting long-term energy consumption reduction goals, as established by the Commission through the EEPS proceeding, and improving low-income customer energy usage and payment behavior stability.

The program logic models will also help establish measurement and verification priorities by identifying program parameters with the highest uncertainty. The models will also help guide the process evaluation research of actual program implementation as compared to design intent. The information necessary for process evaluations will be obtained through in-depth interviews with Distribution's program staff, program implementers, trade allies where relevant, various market partners and stakeholders and surveys of participants and non-participants.

3. Key Research Objectives and Evaluation Activities

Three key elements comprise the evaluation:

- QA/QC;
- A process evaluation; and
- An impact evaluation.

This section describes key research objectives of each element, and summarizes evaluation activities required to support them.

Quality Assurance and Quality Control

QA/QC objectives are designed to ensure project management and oversight services remain effective and efficient, and programs achieve cost-effective energy savings. Employed at various stages of program design and implementation, QA/QC measures will maintain the highest industry standards for operational efficiency, effectiveness, and customer satisfaction. Table 1 lists possible key performance indicators (KPIs) and measurement metrics for this program.

Table 1. Process Elements, KPIs, and Metrics

Program/Portfolio Process Elements	Key Performance Indicator(s)	Performance Measurement Metric(s)
Program Processes	Process efficiency and quality	Processing time, number of callbacks and failures, time-to-completion
Costs	Expenditures	Cost component, average cost, maximum, minimum, cost-to-budget ratios, etc.
Data and Documentation	Completeness, accuracy, consistency of all data collection forms and databases	Missing ratios and error ratios. Collection and accuracy of open variables that support savings calculations
Savings	Mcf	Absolute savings, savings-goal variance, freeridership, spillover, snapback
Customer Satisfaction	Satisfaction rating	Satisfaction scores, number and severity of complaints
Reports	Accuracy, consistency	Standardization, errors

QA/QC objectives overlap with process and impact evaluation objectives in several areas; therefore, both objectives will share the same data, analysis, and reporting methods. For example, QA/QC and process evaluations both seek to improve efficiency of program implementation processes and service delivery infrastructures; and QA/QC and impact evaluation both seek to improve accuracy of reported energy and demand savings.

The QA/QC process will consist of the following activities:

- **Reviewing and assessing implementation processes**, which involves an ongoing review of program-specific and portfolio-level business processes used in program implementation. Customer participation information from the Energy Federation Incorporated (EFI) and the New York State Energy Research and Development Authority

(NYSERDA) databases are routinely checked against the company's customer information systems to verify customer eligibility for the program, assess accuracy of entered data, and confirm installed equipment is eligible for the program. This QA/QC activity will continue in program year four.

- **Verify measure installation and assess satisfaction** by making follow-up calls to participating customers. A sample of participants will be contacted for a telephone survey, which will verify installation, assess satisfaction with services rendered, and identify areas for program improvements.
- **Verifying measure data** by conducting site visits for a sample of sites, which will be visited to verify measures were installed and to check the accuracy of reported independent variables determining energy usage and savings. For example, site visits may verify variables such as: building and space types; operating and occupancy schedules; sizes and types of equipment; and other open variables.
- **Tracking program activities and costs** through Distribution's tracking databases or accounting systems. A sample of participant data will be reviewed to assess the accuracy of entered data, calculation methods, and calculated results.

Details regarding sample sizes, confidence intervals, and precision for each component are provided in Sections 4 through 7.

Process Evaluation

The process evaluation, seeking to assess program processes and provide recommendations for improved program operations, will address both CIP overall and each component separately. This will allow evaluation of overarching portfolio issues and issues unique to each component, delivery method, and sector. CIP's main process issues are: process efficiency, delivery infrastructure, and customer response (including adoption of measures). Specific process issues to be examined by Cadmus include the following:

- **The program's effectiveness in generating awareness and disseminating information:**
 - How did customers and trade allies become aware of the program?
 - What was the program's role in customers' decisions to purchase energy-efficient measures?
 - Did the program reach the targeted segment?
 - Which outreach channels proved most effective for residential customers, nonresidential customers, or low-income customers?
- **The program's effectiveness in encouraging customers to install program measures:**
 - Which measures did customers install and why?
 - How did they choose measures installed?

- What measures were installed for low-income customers?
 - What measures did contractors install and why?
 - How did they choose the measures installed?
- **The program delivery channel's effectiveness:**
 - What were the avenues to low-income customers' participation?
- **Customer satisfaction with the program:**
 - How satisfied were customers and trade allies with program delivery and measure performance?
 - Did program participation improve customers' opinions of Distribution?
 - How satisfied were customers with Distribution, overall?
- **Opportunities and barriers:**
 - What issues required resolution to implement the program? What issues presented implementation barriers?
 - What barriers emerged to adopting energy-efficiency measures?
 - Were incentives at levels appropriate to remove barriers?
 - Did low-income customers have enough appropriate participation avenues?
- **Possible program enhancements:**
 - What improvements did customers and trade allies recommend?

These process issues will be tailored to each CIP specific component and target market. Distribution will continue to seek feedback from PSC staff regarding this evaluation activity, and, through quarterly reporting and informal channels, will regularly update PSC staff as to program progress.

As detailed below, process evaluation data collection will be conducted through customer surveys and staff interviews. Parties involved in data collection will include: participant and nonparticipant customers, trade allies, program staff, and implementation staff.

- **Participants:** Distribution residential and commercial customers, purchasing equipment eligible for a rebate under the program, submitting a rebate application, and with applications approved for payment; and low-income customers receiving energy-efficiency measures through the LIURP program. Participants will be identified through tracking records.
- **Nonparticipants:** Distribution customers not submitting a rebate application or receiving energy-efficiency measures through CIP, but otherwise eligible to participate. These customers are self-identified through survey questions. A random sample of these customers will be contacted for nonparticipant surveys.

- **Trade allies:** Those delivering program services or are otherwise associated with the program, including: retailers, engineers, equipment suppliers, builders, architects, and installation contractors. Trade allies will be identified through customer applications and records maintained by Distribution.
- **Key Program and Implementation Staff:** Distribution program staff, NYSERDA staff involved in implementing the LIURP and Nonresidential components, and program staff at EFI, Honeywell, and CSG.

To the extent possible, Cadmus will use surveys currently fielded by and for Distribution for this process evaluation. Cadmus will do a critical review of these surveys and, if necessary, either revise those surveys or create new, distinct surveys for evaluation purposes.

The process evaluation will examine the following issues, addressing overall CIP operations:

- Portfolio theory and logic model;
- Administrative and operational structure;
- Program status and modifications; and
- Portfolio level process evaluation findings.

The process evaluation will also review, to the extent possible, items listed below for each CIP component:

- Program roles and responsibilities;
- Program implementation, including program processes, marketing, forms, and rebates; and
- Quality assurance and quality control.

Finally, the process evaluation will summarize key findings and provide recommendations. The process evaluation will be conducted concurrent with the program's fourth year and the results will be available in time to incorporate into program delivery.

Impact Evaluation

The impact evaluation will assess energy savings resulting from the program. This information will be used to:

- Inform program administrators about progress towards energy-savings goals;
- Provide key data used in cost-effectiveness analysis; and
- Report Distribution's savings, as required by the PSC.

To report total program and sector-level impacts, measure impacts will be analyzed and verified. Such analysis will:

- Provide a better understanding of targeted segments;
- Validate program and measure design assumptions and savings;
- Inform ongoing program marketing; and
- Confirm proper allocation of savings and costs to customer sectors.

The impact evaluation sampling plan will support the primary goal of reporting program findings at a 90 percent confidence level with 10 percent precision.

The International Performance Measurement and Verification Protocol (IPMVP) designates four options for evaluating various types of energy-efficiency programs.² Distribution will pursue Option A (Retrofit Isolation with Key Parameter Measurement) and Option D (Calibrated Simulation using Billing Data), as appropriate, for various measures:

- Deemed measures³ will be evaluated using Option A, by validating key parameters such as AFUE or estimating operating hours.
- Partially deemed measures will be evaluated using either Option A or Option D, which could entail end-use metering or billing analysis.
- Custom measures will be evaluated using Option D, which uses billing data to simulate energy use for the whole facility.

Ongoing monitoring of program activities will allow Distribution to quantify gross impacts and compare the program's *a priori* planning assumptions to actual program activity. The impact evaluation will provide the basis for determining actual (*ex post*) savings and net program impacts.

Ex post savings will be determined and reported differently, depending on the sector. For residential and low-income components, a verification-only analysis will be performed, and deemed savings will be applied. Two sets of deemed savings will be reported by Distribution: (1) deemed values calculated for the company's last base rate case (filed in 2007); and (2) Technical Manual savings.⁴ The company also performs a billing analysis for all program participants, using at least one year of pre- and post-consumption data. Further details about the billing analysis are provided below.

Savings estimates for nonresidential program components will be reported, based on deemed savings values provided by the company's contracted vendor, NYSERDA. The company will also perform a billing analysis to estimate savings, using at least one year of pre- and post-consumption data once that data is available. Billing analysis results, described in more detail below, will be reported as *ex post* evaluated savings.

To the extent established in the Annual Project Priority List, Cadmus will review, replicate, and critically address methodological strengths and weaknesses of all billing analyses.

² *International Performance Measurement and Verification Protocol: Concepts and Options for Determining Energy and Water Savings, Volume 1*. September 2010. Available for download at: <http://www.evo-world.org/>

³ Deemed measures are outlined in Distribution's base rate case or in the New York Standard Approach for Estimating Energy Savings from Energy Efficiency Programs for the residential, multifamily, and commercial sectors (Technical Manual).

⁴ *New York Standard Approach for Estimating Energy Savings from Energy Efficiency Programs – Residential, Multi-Family and Commercial/Industrial Measures*. October 15, 2010 (the consolidated manual), effective January 1, 2011, approved in "Order Approving Consolidation and Revision of Technical Manuals," filed on October 18, 2010 by the New York Public Service Commission.

Residential Sector Modeling

For the residential sector gas modeling, Distribution will use a fixed reference temperature, PRISM approach (PRISM-equivalent approach), with the fixed heating reference temperature (τ) at 65 degrees. Aggregated customer groups will be established based on each of the installed measures or groups of measures. For example, an aggregate group is established for customers receiving rebates solely for new furnace installations and another aggregate group is constructed for customers installing new furnaces and water heaters. For this modeling approach, aggregate level models are run for the pre and post periods. For each aggregate customer measure group, i and calendar month t ,

$$AC_{it} = \alpha_i + \beta_1 AVGHDD_{it} + \varepsilon_{it}$$

Where,

- α_i is the intercept for each participant. This represents the base load (non-heating usage) in the pre or post period.
- β_1 is the heating slope in the pre or post period.
- AC_{it} is the average volumetric (Mcf) consumption during the pre (post) program period.
- $AVGHDD_{it}$, is average daily heating degree days (base 65) pre (post) period, based on National Oceanic and Atmospheric Administration (NOAA) data as calculated at the Buffalo/Niagara airport weather station.
- ε_{it} is the error term.

From the model above, weather normalized annual consumption (NAC) for each month of the pre or post period can be computed as follows:

$$NAC_i = \alpha_i + \beta_1 * NHDD_i + \varepsilon_{it}$$

Where, for each aggregated customer group i ,

- α_i is the base load for each participant (or nonparticipant). This represents the average base load (non-heating usage) from the model.
- β_1 is the heating slope in the pre or post period from the model.
- NAC_i is the pre(post) period normalized volumetric (Mcf) consumption.
- $LRHDD_i$, is the long run normalized heating degree days (base 65) based on NOAA data as calculated at the Buffalo/Niagara airport weather station..
- ε_{it} is the error term.

The gross savings can then be calculated as the difference between average pre and post NCs. Average savings per installed customer measure will be determined by dividing aggregated group savings by number of participants in the aggregation group.

Nonresidential Sector Modeling

Distribution will attempt to use PRISM-equivalent models in the commercial sector. While the small non-residential customers that qualify for Distribution's CIP exhibit similar heat sensitive characteristics as the residential group of customers, some small non-residential customers applications may be installed by non-heat sensitive customers (for example, high efficiency cooking applications at a restaurant). For those commercial applications, Distribution may use fixed-effects, pooled panel models, grouping together participants and nonparticipants, and accounting for overall weather differences in pre and post usage.

Using volumetric Mcf consumption as the dependent variable, and weather and a pre/post indicator as independent variables, the fixed-effects, pooled panel model involves estimating a regression model that has the following specification:

$$AC_{it} = \alpha_i + \beta_1 AVGHDD_{it} + \beta_2 POST_{it} + \varepsilon_{it}$$

Where, for each customer i and calendar month t ,

- α_i is a unique intercept for each participant (or nonparticipant), derived by estimating the relationship using the ANCOVA (fixed-effects) procedure.
- AC_{it} is the average volumetric (Mcf) consumption during the pre and post periods.
- $AVGHDD_{it}$ is average daily heating degree days (base 65), based on building location.
- $POST_t$ is an indicator variable representing the savings—the change in usage from pre to post period is (1 in the post period, and 0 in the pre period).
- ε_{it} is the error term.

Gross savings will then be calculated as the difference between pre and post volumetric (Mcf) consumption.

Depending on the participation level in non-heating sensitive applications, this analysis may provide valuable insights into the program's operation and overall economic performance, and will yield descriptive statistics on the frequency of installations for specific measures and packages, while providing estimates that can be compared to deemed savings for assessing possible discrepancies.

To the extent established in the Annual Project Priority List, Cadmus will assist Distribution in specifying the model, and will review analysis results.

Additional Measure Level Savings

After obtaining energy consumption (NAC or AC) for the aggregated groups as described above, additional quantification of measure level savings may be attempted using two different annual model types: a SAE (statistically adjusted engineering) measure approach; and a CSA (conditional savings analysis) measure approach. Generally, results from the two methods will be compared to check for consistency in savings results.

SAE Approach. An SAE approach proves ideal for reliable deemed savings values and a variety of measure installations (i.e., customers install a variety of combined measures, and not all

customers install the same measures). The SAE model proposed for the impact evaluation will take the following general form:

$$POSTNAC_i = \alpha + \beta_1 PRENAC_i + \beta_j MEASURESAVINGS_{ij} + \varepsilon_{ij}$$

Where, for each customer i and measure category j

- α is the intercept from the model.
- $POSTNAC_i$ is the annual post period normalized annual consumption (NAC) from the PRISM-equivalent models.
- $PRENAC_i$ is the annual pre period normalized annual consumption (NAC) from the PRISM-like models.
- $MEASURESAVINGS_{ij}$ is an array of total annual deemed therm savings for customer i installing measure j.
- β_1 is the average ratio of pre to post consumption.
- β_j is the realization rate for each measure entered into the models. For example, a beta of -0.9 indicates a 90 percent realization rate for the respective measure; thus, the measure realizes 90 percent of the deemed value.
- ε_{ij} is the error term.

CSA Approach. If deemed savings prove unreliable, a CSA approach will be more appropriate. The main difference between the two approaches is a CSA approach uses dummy variables for measure installations. The measure-level CSA model proposed for the impact evaluation will take the following general form:

$$POSTNAC_i = \alpha_i + \beta_1 PRENAC_i + \beta_j MEASUREINDICATOR_{ij} + \varepsilon_{ij}$$

Where, for each customer i and measure category j,

- α is the intercept from the model.
- $POSTNAC_i$ is annual post period normalized annual consumption (NAC) from the PRISM-equivalent models.
- $PRENAC_i$ is annual pre period normalized annual consumption (NAC) from the PRISM-equivalent models.
- $MEASUREINDICATOR_{ij}$ is an array of dummy variables, using 1 if measure j is installed for customer i, and 0 for nonparticipants.
- β_1 is the average daily consumption per heating degree day. This controls for differences in weather between the pre and post heating degree days.
- β_j is the average daily savings for each measure entered into the models.

The measure-level betas from the model above can be divided by the measure-level savings to obtain measure-level realization rates, which can be compared with results from the SAE approach.

Peak Gas Savings

Consistent with the Technical Manual, peak gas savings will be calculated as the number of therms saved during a day in which the average temperature is minus 9 degrees Fahrenheit, starting at 10:00 a.m.

Realization Rates

Distribution will not develop realization rates for the CIP as a whole. A realization rate is the ratio of evaluated savings (adjusted gross savings) to reported savings (gross savings) for the sample of projects reviewed. As billing analyses will be performed for the census of participants, actual program savings will be determined, which renders development of realization rates unnecessary.

Cost-Effectiveness Modeling

For cost-effectiveness analysis, Distribution will continue to report results of three tests:

- Total Resource Cost Test (TRC);
- Western New York TRC (TRC-WNY), which includes regional economy benefits using IMPLAN estimates; and
- Societal Cost Test (SCT), which includes impacts on the regional economy, and a \$15 benefit per avoided ton of CO₂.

Distribution will report an additional scenario for each test, including freeridership, spillover, and snapback adjustments. Sections 4 through 7 provide additional detail regarding reported savings and cost-effectiveness scenarios for each CIP component. All cost-effectiveness analyses performed by Distribution will be reviewed and replicated by Cadmus, to the extent established in the Annual Project Priority List. Cadmus will critically address any strengths and weaknesses of the analyses.

Data Collection Methods

The impact evaluation primarily will rely on: consumption data; data collected via the rebate application forms and other data stored in Distribution's tracking database; survey data; and data acquired during on-site visits.

Data from the Tracking Database

Tracking data and other required data included with the rebate application forms for sites selected for the QA/QC review, participant surveys, on-site visits, and metering will be reviewed, to the extent possible.

Surveys

Currently, two surveys are fielded for CIP:

1. CIP Campaign Study (Campaign Survey). This survey of 400, randomly selected residential customers is fielded twice annually to gauge customer awareness of Education and Outreach efforts and program offerings.

2. CIP Rebate Program Customer Survey (Rebate Participant Survey). This survey is fielded on a quarterly basis to Residential Rebate program participants.

Survey questions currently focus on freeridership, snapback, and customer satisfaction. Survey results are used to estimate net-to-gross (NTG) adjustments, and to modify CIP, if necessary, to better serve customers. For a robust NTG analysis, to the extent established in the Annual Project Priority List, Cadmus will review and, if necessary, revise the current battery of questions related to freeridership and snapback, and develop a battery of questions related to spillover. Cadmus and Distribution will then determine whether to field these questions as part of the existing surveys, or to field new surveys focused solely on NTG. Gross and net savings will be reported by Distribution and reflected in cost-effectiveness scenarios in quarterly and annual reports.

All NTG questions and proposed analysis methods will be submitted to Commission staff for review prior to fielding surveys, ensuring the survey and analysis meet industry standards and Commission requirements.

Field Data

Distribution will conduct on-site reviews for sampled nonresidential projects. All measures will be reviewed to confirm or correct measures recorded in the tracking database have been installed and are operating as intended. For deemed measures, nameplate information, required to look up or calculate savings as laid out in the Technical Manual, will be verified. Partially-deemed measures will require verification of additional information. These data can vary, for example, from verifying areas of building space to spot-metered or short-term monitored data collection. Gross energy savings may be adjusted, depending on on-site visit results.

Billing Data

The billing analyses conducted as part of the impact evaluation will require the following data:

1. Customer data:
 - Customer name, address, phone number, and account number.
 - Measures rebated for each participant.
 - Estimates of energy savings for each measure.
2. Customer billing data:
 - One year of pre-program consumption histories by billing cycle, including meter read dates, amounts billed and received, and transaction dates.
 - One year of post-program consumption histories by billing cycle, including meter read dates, and amounts billed and received, along with transaction dates.
3. Weather data:
 - Daily temperatures and heating and cooling degree days (HDD, CDD).

Evaluation Activities

Table 2 lists primary data collection, analysis, and reporting activities for this evaluation. The table also shows how these activities support QA/QC, the process evaluation, and the impact evaluation.

Table 2. Summary of Evaluation Activities

Activity	QA/QC	Process	Impact	Cost Effect.	Details
Participant Surveys	√	√	√	√	Participant surveys will support both the process and impact evaluations. Surveys will be completed during each program year.
Nonparticipant Surveys		√			Nonparticipant surveys will provide a comparison group, and will be used, for example, to assess marketing strategies and barriers to program participation. Surveys will be completed with residential and nonresidential customers.
Management and Implementation Staff Interviews	√	√			Interviews will help gather insights into program design and delivery.
Stakeholder Meetings		√			Structured meetings with participating trade allies will help gather insights into freerider and spillover quantifications, program participation barriers and difficulties, and experiences with the program. These will be conducted with participating contractors each program year.
Program Database Review	√		√	√	The review ensures appropriate data are being collected to inform the evaluation.
Secondary Research			√	√	Results of recent appliance and equipment rebate evaluations are reviewed (ongoing).
M&V Site Visits			√	√	Site visits to verify measure installation and operation will be conducted with a sample of commercial projects each year.
Billing Analysis	√		√	√	Per unit and program gross savings will be determined utilizing customer billing data.

Distribution, through consultation with its M&V consultant, will develop a list of potential evaluation activities for the plan year. Proposed activities will be reviewed with interested parties, particularly Commission staff, at the annual stakeholder meeting.

Data Requirements (Evaluability Assessment)

Detailed data on measure installations and consumption histories from Distribution's customer information system serves as the primary data elements for evaluating this program. To the extent established in the Annual Project Priority List, Cadmus will review rebate forms and provide Distribution with detailed spreadsheets regarding data elements required to evaluate the energy savings for each measure rebated under the program.

Common data elements required to evaluate energy savings may include the following:

- Participant contact information;
- Measure name;
- Measure type;
- *Ex ante* energy savings by measure;
- Measure life, installed cost, incremental cost;
- Number of measures installed;
- Building and space type (nonresidential);
- Rebate amount;
- Monthly consumption histories;
- Existing conditions and equipment, including, for example: AFUE, duct location, and building type, as appropriate; and
- Hours of operation (nonresidential).

4. Low-Income Usage Reduction Program Evaluation

Low-Income Usage Reduction Program Description

Through the LIURP, low-income customers meeting eligibility requirements are provided with: energy education; an energy audit, including a blower-door test; and installation of appropriate conservation measures in their homes. Measures commonly installed through the LIURP include: wall and ceiling insulation; air sealing; thermostat setbacks; low-flow showerheads; pipe wrapping; and heating system repair or replacement.

To qualify for participation, a customer must be: HEAP eligible; have an active heating account for one year; and have annual consumption of 132 Mcf or higher. Participants in the Low-Income Customer Affordability Assistance Program (LICAAP) are given priority for LIURP participation.

Quality Assurance and Quality Control

QA/QC procedures include:

- **Assessing implementation processes** by reviewing participation data as received from NYSERDA.
- **Tracking program activities and costs** through NYSERDA, and through Distribution's tracking databases and/or accounting systems. A sample of participant data will be reviewed to assess accuracy of data entered, calculation methods, and calculated results.
- **Making follow-up calls to participating customers** to assess their satisfaction with rendered services, and verify rebated measures have been installed. A sample of participants will be contacted for a telephone survey to verify installation, assess satisfaction, and identify program improvement areas.
- **Site visits** will be conducted to verify measure installation in participant residences.

Process Evaluation Methodology

The process evaluation will examine whether the program operates efficiently and effectively. Interviews with program and implementation staff, program participants, and trade allies will be the process evaluation's main data source. Survey data relevant to the process evaluation, such as customer satisfaction, will be collected in conjunction with the QA/QC program participant surveys. By assessing customer satisfaction, conducting trade ally interviews, and investigating impediments to participation, the process evaluation will inform Distribution about program-related market issues and recommend how to address those issues to better serve customers.

Impact Evaluation Methodology

Determination of Gross Savings

For deemed measures, Distribution will perform a verification-only analysis, and deemed savings will be applied. Two sets of deemed savings will be reported for the LIURP: values calculated for the company's last base rate case (filed in 2007), and values cited in the Technical Manual.

Distribution will additionally conduct a billing analysis for the census of program participants. To the extent established in the Annual Project Priority List, Cadmus will review the analysis, and replicate the results to ensure accuracy and consistency with procedures outlined in this plan. Savings determined through billing analysis will be reported as *ex post* evaluated savings.

NTG Ratio

This low-income weatherization program has no freeridership; measures are installed at no cost to income-eligible customers.

Cost-Effectiveness Analysis

LIURP's cost-effectiveness will be evaluated using: the project's full cost as the incremental measure cost; and a weighted average measure life, based on the mix of installed measures. Cost-effectiveness may be calculated at multiple stages during the implementation process.

Distribution will report TRC, TRC-WNY, and SCT tests for deemed saving scenarios as well as evaluated *ex post* savings in each program year's quarterly and annual reports. To the extent established in the Annual Project Priority List, Cadmus will review and replicate Distribution's cost-effectiveness analysis for annual reports to ensure PSC requirements are met.

Sample Sizes

Table 3 outlines sample sizes associated with evaluation activities outlined for this program, and corresponding confidence and precision levels.

Table 3. Sample Sizes for LIURP Evaluation Activities

	Confidence	Precision	Sample Size
Records Review	90%	10%	68
Surveys (Process and Impact)	90%	10%	68 ⁵
Site Visits	85%	15%	23

⁵ Surveys and site visits are conducted by NYSERDA and their subcontractor Conservation Services Group, Inc. (CSG) as part of the LIURP contract with Distribution. To the extent established in the Annual Project Priority List, Cadmus will verify a subsample of site visits performed by NYSERDA and CSG.

5. Residential Rebate Program Evaluation

Residential Rebate Program Description

The CIP's residential component is an equipment replacement program offering equipment replacement incentives for single-family and multifamily dwellings that install qualifying high-efficiency space heating and water heating appliances. Distribution set minimum efficiency levels for each appliance type, based on federal ENERGY STAR[®] and New York State Energy Smart guidelines.

The program provides financial incentives as prescriptive rebates on a per-unit basis to customers installing qualifying equipment and technologies. Rebates, set as a fixed amount per device, are paid to customers who: meet eligibility requirements; install an eligible measure; complete a rebate application; and submit documentation of equipment installation.

Table 4 shows Distribution's list of: eligible equipment, eligible efficiency ratings, and incentive levels.

Table 4. Eligible Equipment Measures (Residential Sector)

Measure	Eligibility Rating	PY3 Incentive	PY4 Incentive
High-Efficiency Furnace	Minimum AFUE 90%	\$300	\$250
High-Efficiency Furnace with ECM	Minimum AFUE 90%	\$400	\$350
High-Efficiency Hot Water Boiler	Minimum AFUE 85%	\$400	\$350
High-Efficiency Steam Boiler	Minimum AFUE 81%	\$200	\$200
Programmable Thermostat		\$25	\$25
Indirect Water Heater		\$300	\$300

Quality Assurance and Quality Control

The Residential Rebate component's QA/QC process consists of the following activities:

- **Assessing implementation processes** by reviewing a statistically valid sample of rebate forms. Forms will be checked against EFI's database to assess accuracy of data entered. The review will also confirm installed equipment was eligible for the program.
- **Tracking program activities and costs** through EFI's and Distribution's tracking databases and/or accounting systems. A statistically valid sample of participant data will be reviewed to assess: accuracy of data entered, calculation methods, and calculated results.
- **Making follow-up calls to participating customers** to assess their satisfaction with rendered services, and verify rebated measures were installed. A statistically valid sample of participants will be contacted through a telephone survey to verify installation, assess satisfaction, and identify areas for program improvement.
- **Verifying measure data** by conducting site visits for a representative sample of residential projects. A sample of sites will be visited to check measures were installed.

Process Evaluation Methodology

The process evaluation will examine whether the program operates efficiently and effectively. Interviews with program and implementation staff, program participants, nonparticipants, and trade allies will serve as the process evaluation's main data source. Survey data relevant to the process evaluation, such as customer satisfaction, will be collected in conjunction with the QA/QC program participant surveys. Questions will be designed to assess whether the program effectively encouraged customers to purchase efficient equipment and appliances. Participant survey questions will also assess participants' satisfaction levels, participants' program experiences, and reasons for participation. Nonparticipant surveys will be conducted to provide an assessment of awareness and interest in the program, and reasons for not participating. By assessing customer satisfaction, conducting trade allies, and investigating impediments to participation, the process evaluation will inform Distribution about program-related market issues and recommend how to address those issues to better serve customers.

Impact Evaluation Methodology

Determination of Gross Savings

For deemed measures, Distribution will perform a verification-only analysis, and deemed savings will be applied. Two sets of deemed savings will be reported: values calculated for the company's last base rate case; and values cited in the Technical Manual.

Additionally, Distribution will conduct a billing analysis to determine savings attributable to the program. To the extent established in the Annual Project Priority List, Cadmus will review and replicate the analysis to ensure it complies with specifications outlined in this plan. Savings calculated from the billing analysis will be reported as *ex post* evaluated savings.

Net-to-Gross Ratio

Distribution currently includes freeridership and snapback questions in its current residential surveys. To the extent established in the Annual Project Priority List, Cadmus will review and, if necessary, revise these questions, and develop a battery of spillover questions. The updated NTG battery either will be incorporated into existing surveys or will be fielded as separate surveys. Distribution will use data collected from participant surveys to determine the program's impact on participants' decisions to install efficient technologies. To the extent established in the Annual Project Priority List, Cadmus will perform the analysis to determine a NTG ratio; the percentage of gross savings that should be attributed to the program can then be estimated, resulting in net savings. Distribution will report both program net and gross savings, and report cost-effectiveness for both savings sets.

Distribution will submit NTG questions to Commission staff for review prior to fielding surveys. Distribution and Cadmus will also consult with Commission staff regarding NTG analysis to ensure it meets industry standards.

Cost-Effectiveness Analysis

Table 5 lists assumptions for incremental costs and measure life to be used in the cost-effectiveness tests. The incremental cost is based on the difference between an energy-efficient

measure's cost and the baseline measure. The incremental cost does not include rebates customers may receive from other programs.

Table 5. Incremental Cost and Measure Life Assumptions (Residential Rebate)

Measure	Measure Life	Incremental Cost
High-Efficiency Furnace	17	\$1,000
High-Efficiency Furnace with ECM	17	\$2,000
High-Efficiency Hot Water Boiler	17	\$2,000
High-Efficiency Steam Boiler	17	\$900
Programmable Thermostat	17	\$50
Indirect Water Heater	14	\$1,400

Cost-effectiveness may be calculated at multiple stages in the implementation process. Program-level cost-effectiveness will be reported in each program year's quarterly and annual reports. To the extent established in the Annual Project Priority List, Cadmus will review cost-effectiveness analysis performed by National Fuel, replicating results for annual, final evaluation results. Distribution will report TRC, TRC-WNY, and SCT tests for gross and net savings for all savings scenarios, including results of the billing analysis (*ex post* evaluated savings).

Sample Sizes

The table below outlines sample sizes associated with evaluation activities outlined for this program, and the corresponding confidence and precision levels.

Table 6. Sample Sizes for Residential Rebate Evaluation Activities

	Confidence	Precision	Sample Size
Records Review	90%	10%	68 ⁶
Surveys (Process & Impact)	90%	10%	68 ⁷
Site Visits	90%	10%	68 ⁸

⁶ Records review is conducted by CSG as part of Distribution's contract with EFI.

⁷ The Rebate Participant survey is fielded by EFI.

⁸ Site visits are conducted by CSG as part of Distribution's contract with EFI. To the extent established in the Annual Project Priority List, Cadmus will verify a subsample of site visits performed by NYSERDA and CSG.

6. Nonresidential Rebate Program Evaluation

Nonresidential Prescriptive Rebate Program Description

The nonresidential prescriptive rebate component serves the small, nonresidential market, and offers fixed rebates to customers installing qualifying equipment, including: space heating, water heating, and cooking equipment. Distribution set minimum efficiency levels for eligible equipment, based on federal ENERGY STAR[®] and New York State Energy Smart guidelines.

As with the residential rebate component, this program component provides financial incentives as prescriptive rebates on a per-unit basis to customers installing qualifying equipment and technologies. Rebates are set at a fixed amount per device, paid to customers:

- Meeting eligibility requirements;
- Installing an eligible measure;
- Completing a rebate application; and
- Submitting documentation of equipment installation.

The program also offers performance-based rebates to customers on a case-by-case basis. For this custom rebate, an energy analysis is conducted to estimate savings from additional qualifying equipment, including: pipe insulation, control system upgrades, and flue gas economizers.

Custom incentive amounts have been offered as the lesser of \$40 per Mcf saved, or 50 percent of the incremental equipment cost, with a cap of \$25,000. In response to trade ally and participant confusion regarding calculating incentives and incremental costs, Distribution will offer the lesser of \$15 per Mcf or \$25,000 in program year four.

Table 7 shows Distribution's list of eligible equipment, eligible efficiency ratings, and incentive levels.

Table 7. Eligible Equipment Measures (Commercial Sector)

Measure	Size	Eligibility Rating	Incentive
High-Efficiency Furnace	≤ 300 kBtu/h	Minimum AFUE 90%	\$500
High-Efficiency Hot Water Boiler	≤ 300 kBtu/h	Minimum AFUE 85%	\$600
High-Efficiency Hot Water Boiler	≤ 300 kBtu/h	Minimum AFUE 90%	\$1,000
High-Efficiency Steam Boiler	≤ 300 kBtu/h	Minimum AFUE 81%	\$600
High-Efficiency Hot Water Boiler	300 < kBtu/h ≤ 500	Minimum AFUE 85%	\$750
	500 < kBtu/h ≤ 1000		\$1,500
	> 1000 kBtu/h		\$2,500
High-Efficiency Hot Water Boiler	300 < kBtu/h ≤ 500	Minimum AFUE 90%	\$1,500
	500 < kBtu/h ≤ 1000		\$2,500
	> 1000 kBtu/h		\$3,500
High-Efficiency Steam Boiler	> 300 kBtu/h	Minimum Thermal Efficiency of 81%	\$2.00/kBtu/h
Storage Tank Water Heater		Minimum Energy Factor of 0.61	\$150
Tankless Water Heater		Minimum Energy Factor of 0.78	\$350
Low-intensity Infrared Unit Heaters			\$500
Programmable Thermostat		Must meet or exceed ENERGY STAR [®] requirements	\$25

Measure	Size	Eligibility Rating	Incentive
High Efficiency Unit Heater	≤ 300 kBtu/h	Minimum Thermal Efficiency of 90% ^s	\$1,000
Fryer		ENERGY STAR [®] -rated	\$750
Broiler		Minimum cooking efficiency of 30%	\$500

Quality Assurance and Quality Control

The Nonresidential Rebate component's QA/QC process will consist of the following activities:

- **Assessing implementation processes** by reviewing a statistically valid sample of rebate forms. The sample of forms will be checked against the implementer's database to assess accuracy of data entered. The review will also confirm equipment installed was eligible for the program.
- **Making follow-up calls to participating customers** to assess their satisfaction with rendered services and verify rebated measures were installed. A statistically valid sample of participants will be contacted through a telephone survey to verify installation, assess satisfaction, and identify areas for program improvements.
- **Verifying measure data** by conducting site visits for a representative sample of commercial projects. A sample of sites will be visited to check measures were installed, and to check the accuracy of reported independent variables determining energy usage and savings, such as: building and space types; operating and occupancy schedules; size and type of equipment; and/or other open variables.

Process Evaluation Methodology

Participant surveys will be administered to commercial customers during site visits. Additional commercial surveys will be conducted by phone. Interviews with program and implementation staff, program participants, nonparticipants, and trade allies will serve as the process evaluation's main data sources. Survey data relevant to the process evaluation, such as customer satisfaction, will be collected in conjunction with program participant surveys. Participant survey questions will assess participants' satisfaction levels, experiences with the program, and reasons for participation. Nonparticipant surveys will be conducted to assess awareness and interest in the program and reasons for not participating. By assessing customer satisfaction, conducting trade allies, and investigating impediments to participation, the process evaluation will inform Distribution about program-related market issues and recommend how to address those issues to better serve customers.

Impact Evaluation Methodology

Distribution will use IPMVP-adherent M&V methods to validate energy (Mcf) savings for completed projects. Program impacts will be calculated by performing a billing analysis on the census of program participants. Distribution, in conjunction with NYSERDA, will conduct site visits for a sample of completed projects, as the site visit is a primary source for data needed to calculate measure performance and savings. Data will be collected for each measure in a sampled project.

Determination of Gross Savings

Custom measures, not included in the Technical Manual, may require unique M&V protocols. They may also require pre-installation inspections to determine baseline conditions. Distribution, in conjunction with NYSERDA, will verify measure, project, and program impacts using the following steps:

1. Draw a sample of participants.
2. Conduct engineering reviews.
3. Conduct on-site reviews.
4. Conduct billing analysis.

For the billing analysis, to the extent established in the Annual Project Priority List, Cadmus will work with Distribution in an advisory capacity to develop the research design and specify the appropriate impact model. Cadmus will then review the billing data to ensure it meets quality assurance standards. Once Distribution completes the analysis, Cadmus will review and replicate the analysis as well as critically address any methodological issues.

Net-to-Gross Ratio

Distribution will use the Technical Manual's assumption of a 0.90 NTG ratio until a more specific NTG ratio can be estimated for nonresidential customers. Field surveys for nonresidential customers will be fielded in PY4 to assess their reasons for installing efficient technologies, with the survey including a battery of NTG questions. Distribution will use data collected from participant surveys to determine the program's impact on participants' decisions to install efficient technologies. Analysis will be performed to determine a NTG ratio estimating the percentage of the gross savings to be attributed to the program, resulting in net savings. Distribution will report net and gross savings for this program, and will conduct the cost effectiveness analysis for both sets of savings.

Distribution will submit NTG questions to Commission staff for review prior to fielding surveys. Distribution and Cadmus will also consult with Commission staff regarding the NTG analysis to ensure it meets industry standards.

Cost-Effectiveness Analysis

For customers installing residential-sized equipment, Distribution will use the incremental costs specified in Table 5. For larger equipment, Distribution will calculate incremental costs using information provided by NYSERDA. For customized nonresidential incentives, cost-effectiveness will be evaluated, based on project-level estimates of incremental cost and measure life. The incremental cost will represent the difference between the total cost of installed energy-efficient measures and the total cost of baseline measures, and will not include rebates customers may receive from other programs. A 17-year measure life will be assumed for the overall persistence of commercial measures.

As cost-effectiveness can be calculated at multiple stages in the implementation process, program-level cost-effectiveness will be reported in each program year's quarterly and annual reports. Each report will include TRC, TRC-WNY, and SCT tests for all savings scenarios, including savings resulting from billing analyses (*ex post* evaluated savings).

Sample Sizes

Table 8 outlines sample sizes associated with evaluation activities outlined for this program and corresponding confidence and precision levels.

Table 8. Sample Sizes for Nonresidential Rebate Evaluation Activities⁹

	Confidence	Precision	Sample Size
Records Review	90%	10%	68
Surveys (Process & Impact)	90%	10%	68
Site Visits	85%	15%	23

⁹ All nonresidential records review, surveys, and site visits will be done in coordination with NYSERDA. If site visits are performed by NYSERDA or a subcontractor, To the extent established in the Annual Project Priority List, Cadmus will verify a subsample of those site visits.

7. Outreach and Education Program Evaluation

Outreach and Education Program Description

The communication initiative seeks to stimulate strong participation in the CIP rebate and low-income programs by conveying benefits and affordability of employing energy-efficiency measures in homes and businesses in western New York. The program, launched in fall 2007, uses strategies such as paid advertising, mass media, and community engagement. Community outreach events include giveaways of energy-saving kits, containing simple weatherization and water-heating measures. Distribution also has developed an energy-savings card promotion, with participating vendors offering discounts on energy-saving products and services. The broad-based education effort has included specific conservation initiatives for school classroom programs, community outreach at popular area events, and partnering with community group education forums and leadership meetings.

Process Evaluation Methodology

A random digit dial survey of 400 Distribution customers is conducted semiannually to assess customer familiarity and satisfaction with the Outreach and Education campaign and will continue in PY4. Distribution is also developing approaches for determining satisfaction with specific Outreach and Education initiatives, such as NEED Energy Detectives, and will present more information about these evaluation methods at its annual stakeholder meeting in early 2011. Distribution will also seek input from Commission staff regarding these proposed process evaluation activities.

Impact Evaluation Methodology

To the extent established in the Annual Project Priority List, Distribution and Cadmus will develop a comprehensive approach for measuring the effectiveness of various outreach and education initiatives, which will be presented at the annual stakeholder meeting. Methods currently under development primarily rely on participant surveys, and will enable Distribution to estimate savings resulting from measure installation (e.g., hot-water-saving devices distributed in energy-saving kits) and behavioral modifications (e.g., changes to heating and water usage the NEED program brings about in schools). All proposed impact evaluation activities will be reviewed with Commission staff.

Sample Sizes

Table 9 outlines the sample sizes associated with evaluation activities outlined for this program, and corresponding confidence and precision levels.

Table 9. Sample Sizes for Outreach and Education Activities

	Confidence	Precision	Sample Size
Records Review	NA	NA	NA
Surveys (Process & Impact)	90%	10%	400 – Campaign Survey ¹⁰
Site Visits	NA	NA	NA

¹⁰ The Campaign Survey is fielded by Eric Morrow & Associates. As noted, additional surveys are being considered for the impact evaluation.

8. Deliverables, Timeline, and Budget

Distribution will continue to field the Campaign Survey semiannually and the Rebate Participant Survey quarterly. Eric Morrow & Associates fields the Campaign Survey, and analyzes and reports results, and EFI fields the Rebate Participant Survey.

Distribution will continue to file monthly, quarterly, and annual reports with the PSC. Residential rebates and LIURP participation will be updated in each monthly report, while commercial reporting will be updated quarterly. Distribution will continue to report evaluation results as part of the Program Quarterly Report. The reporting dates for PY4 are outlined in Table 10.

Table 10. Timeline and Deliverables

Activity	Date
Deliverable: Monthly Scorecard	January 15, 2011
Deliverable: Monthly Scorecard	February 15, 2011
Deliverable: Program Quarterly Report	February 15, 2011
Deliverable: Monthly Scorecard	March 15, 2011
Deliverable: Monthly Scorecard	April 15, 2011
Annual Stakeholder Meeting	Spring 2011 – date to be determined
File Proposals for Upcoming Program Year	June 2011 – date to be determined
Deliverable: Monthly Scorecard	May 15, 2011
Deliverable: Program Quarterly Report	May 15, 2011
Deliverable: Monthly Scorecard	June 15, 2011
Deliverable: Monthly Scorecard	July 15, 2011
Deliverable: Monthly Scorecard	August 15, 2011
Deliverable: Program Quarterly Report	August 15, 2011
Deliverable: Monthly Scorecard	September 15, 2011
Deliverable: Monthly Scorecard	October 15, 2011
Deliverable: Monthly Scorecard	November 15, 2011
Deliverable: Program Quarterly Report	November 15, 2011
Deliverable: Monthly Scorecard	December 15, 2011

The reporting process will incorporate program administrators keeping them apprised of CIP progress. Because billing and cost-effectiveness analyses will be performed quarterly, rather than annually, these quarterly reports serve as an early alert system if shifts in the program have occurred or are required to maintain a successful program. The monthly review of implementer data (NYSERDA and EFI) has also served as a method for alerting program administrators to potential data or enrollment issues. Distribution staff has worked closely with NYSERDA and EFI to improve reporting time, enrollment processes, and contractor issues.

In the Commission's Order approving year three of Distribution's CIPs programs,¹¹ the Commission established: an annual evaluation budget equal to 5 percent of program costs; and an annual evaluation budget of \$490,000 for program year three. At the annual stakeholder

¹¹ National Fuel Gas Distribution Corporation, Order Approving the Continuation of National Fuel Gas Distribution Corporation's Conservation Incentive Program with Modifications. Filed November 22, 2010, by the New York Public Service Commission.

meeting, held in Albany on April 23, 2010, the company developed the following M&V priorities:

1. Hire an outside consultant to assist in developing company M&V efforts.
2. Participate in statewide evaluation studies, where cost-effective.
3. Implement deemed savings from Technical Manual, as determined by the Commission.
4. Continue analysis of pre/post savings (including a review of the PRISM model for load normalization).

Distribution contracted with Cadmus to review and assist in evaluation efforts, and the company will continue to address the evaluation priorities outlined above, reporting progress and presenting plans for future evaluation efforts at the next annual stakeholder meeting. Program evaluation results will continue to be reported in quarterly and annual reports, and at annual stakeholder meetings. These activities will occur in to the extent established in the Annual Project Priority List.

Table 11 and Table 12, below, outline the program budgets for CIP in PY3 and PY4. The M&V budget allocated to the programs is based on the ratio of individual program costs to total costs. Actual expenditures may vary based on program needs. For example, LIURP and Commercial rebates are managed by NYSERDA and are designed based on existing NYSERDA programs. To the extent that NYSERDA evaluation analysis for these existing programs can be utilized actual M&V costs may differ from stated allocation. In the spring of 2011, Distribution will hold a stakeholder meeting with PSC staff, NYSERDA, and other parties involved in its base rate proceeding to discuss potential changes in CIP. Distribution will also include a discussion of planned evaluation activities at this meeting. Prior to that meeting, Distribution will meet with PSC staff to review a list of potential evaluation projects for the upcoming year.

Table 11. CIP Budget October 19, 2009 Order

Component	LIURP	Residential Rebates	Commercial Rebates	Outreach & Education	Total
Program Budget	\$2,940,000	\$3,400,000	\$1,520,000	\$1,940,000	\$9,800,000
Evaluation Budget	\$147,000	\$170,000	\$76,000	\$97,000	\$490,000
Total	\$3,087,000	\$3,570,000	\$1,596,000	\$2,037,000	\$10,290,000

Table 12. CIP Budget November 22, 2010 Order

Component	LIURP	Residential Rebates	Commercial Rebates	Outreach & Education	Total
Program Budget	\$2,888,000	\$3,325,000	\$1,444,000	\$1,425,000	\$9,538,000
Evaluation Budget	\$152,000	\$175,000	\$76,000	\$75,000	\$502,000
Total	\$3,040,000	\$3,500,000	\$1,520,000	\$1,500,000	\$10,040,000

Table 13, below, outlines estimated costs for evaluating program years one through three during PY4.¹² These activities will be performed by National Fuel and its contractors to the extent established in the Annual Project Priority List.

Table 13. Evaluation Budget for PY4

Evaluation Task	FTE (Internal & External)	Estimated Cost
Process Evaluation	0.20	\$60,000
Billing Analysis	0.15	\$22,500
Cost-Effectiveness	0.05	\$7,500
Impact Evaluation of Outreach & Education	0.25	\$75,000
Net-to-gross analysis	0.15	\$45,000
Evaluability Assessment	0.05	\$15,000
Management Review	0.05	\$15,000
EM&V Plan	0.10	\$30,000
Surveys	0.20	\$45,000
Site Visits	0.30	\$85,500
Total	1.50	\$400,500

In addition to the activities outlined in Table 13, Distribution may participate in statewide studies such as the baseline study currently being discussed by the Evaluation Advisory Committee.

¹² The budget requirements of potential statewide studies are excluded from this estimate since cost estimates for specific statewide studies are not available at this time.