national fuel

July 15, 2015

Honorable Kathleen H. Burgess
Secretary
New York State Department of Public Service
Three Empire State Plaza, 19th Floor
Albany, NY 12223

Re: Case 15-M-0252 – In the Matter of Utility Energy Efficiency Programs

Case 07-M-0548 – Proceeding on Motion of the Commission Regarding an Energy Efficiency Portfolio Standard

Case 07-G-0141 – Proceeding on Motion of the Commission as to the Rates, Charges, Rules, and Regulations of National Fuel Gas Distribution Corporation for Gas Service – Conservation Incentive Program

Dear Secretary Burgess,

Pursuant to the New York State Public Service Commission's Order Authorizing Utility-Administered Gas Energy Efficiency Portfolios for Implementation Beginning January 1, 2016, issued and effective June 19, 2015, attached please find National Fuel Gas Distribution Corporation's Energy Efficiency Transition Implementation Plan ("ETIP").

Any questions you may have regarding the attached can be directed to the undersigned at (716) 857-7440 or at crahene@natfuel.com.

Respectfully submitted,

Evan M. Crahen
Regulatory Analyst
Rates and Regulatory Affairs

Attachments

NEW YORK STATE
PUBLIC SERVICE COMMISSION

Case 15-M-0252 – In the Matter of Utility Energy Efficiency Programs

Case 07-M-0548 – Proceeding on Motion of the Commission Regarding an Energy Efficiency Portfolio Standard

Case 07-G-0141 – Proceeding on Motion of the Commission as to the Rates, Charges, Rules and Regulations of National Fuel Gas Distribution Corporation for Gas Service – Conservation Incentive Program

NATIONAL FUEL GAS DISTRIBUTION CORPORATION
CONSERVATION INCENTIVE PROGRAM
ENERGY EFFICIENCY TRANSITION IMPLEMENTATION PLAN

I. Introduction

On February 26, 2015, the Public Service Commission ("Commission") issued an Order Adopting Regulatory Policy Framework and Implementation Plan in the Reforming the Energy Vision Proceeding ("REV" or "REV Proceeding").[1] Included in the Track 1 Order was the Commission's affirmation that: 1) energy efficiency remains among the most cost effective ways to reduce emissions, and 2) utilities should continue their natural gas energy efficiency efforts.[2] Also included in the Track 1 Order were requirements that Department of Public Service Staff ("Staff"), in consultation with the Energy Efficiency Working Group ("E^2 Working Group"), develop and file a guidance document specifying the content of energy efficiency transition implementation plan ("ETIP") submissions by May 1, 2015, and that utilities[3] develop and file

[1] Case 14-M-0101 – Order Adopting Regulatory Policy Framework and Implementation Plan, issued and effective February 26, 2015 ("Track 1 Order").
[2] Case 14-M-0101 – Track 1 Order, at 26, 79, and Appendix C. National Fuel Gas Distribution Corporation ("Distribution" or the "Company") supports the referenced Commission affirmation.
[3] Although the Track 1 Order, at 4, is clear that the Commission is adopting a policy framework for a reformed retail electric industry, and not the natural gas industry, the Company understands the term "utilities" in this instance to be

an ETIP by July 15, 2015. On May 1, 2015, Staff filed Guidance Document CE-02, ETIP Guidance ("ETIP Guidance").[4] In response to the Track 1 Order, the Commission's Order Authorizing Utility-Administered Gas Energy Efficiency Portfolios for Implementation Beginning January 1, 2016 ("2015 Gas Energy Efficiency Order" or "2015 GEE Order") and Staff's ETIP Guidance, Distribution hereby submits its ETIP to continue natural gas energy efficiency programming beyond December 31, 2015.

II. Procedural Background

On September 20, 2007, the Commission issued its Order Adopting Conservation Incentive Program ("2007 CIP Order").[5] The Conservation Incentive Program ("CIP") preceded the energy efficiency programs established for other natural gas utilities in New York State, as initially established in the Energy Efficiency Portfolio Standard ("EEPS") proceeding.

On October 19, 2009, the Commission issued its Order Approving the Continuation of National Fuel Gas Distribution Corporation's Conservation Incentive Program with Modifications ("2009 CIP Order").[6]

On November 22, 2010, the Commission issued its Order Approving the Continuation of National Fuel Gas Distribution Corporation's Conservation Incentive Program with Modifications ("2010 CIP Order").[7]

On October 25, 2011, the Commission issued its Order Authorizing Efficiency Programs, Revising Incentive Mechanism, and Establishing a Surcharge schedule, which incorporated CIP

---

inclusive of natural gas only utilities such as Distribution. This understanding was confirmed by the Commission in its 2015 Gas Energy Efficiency Order.

[4] Case 15-M-0252 – Guidance Document CE-02, ETIP Guidance, filed on May 1, 2015.

[5] Case 07-G-0141 – Order Adopting Conservation Incentive Program, issued and effective September 20, 2007.

[6] Case 07-G-0141 – Order Approving the Continuation of National Fuel Gas Distribution Corporation's Conservation Incentive Program with Modifications, issued and effective October 19, 2009.

[7] Case 07-G-0141 – Order Approving the Continuation of National Fuel Gas Distribution Corporation's Conservation Incentive Program with Modifications, issued and effective November 22, 2010.

within the EEPS portfolio of statewide energy efficiency programming and authorized the continuation of CIP ("2011 EEPS Order").[8]

On February 19, 2013, the Commission issued its Order Approving in Part and Denying in Part National Fuel Gas Distribution Corporation's Petition to Modify Certain Energy Efficiency (EEPS) Programs ("2012 EEPS Order"), which authorized the Company to reallocate budgets and savings targets between its Residential Rebate Program and its Low Income Usage Reduction Program ("LIURP"), while denying the Company's request to reallocate budgets from its small Non-Residential Rebate Program ("NRCIP") to Distribution's Area Development Program ("ADP").[9]

On December 18, 2013, Distribution filed a petition with the Commission for CIP program modifications, updating budgets and savings targets for the Company's NRCIP ("2013 Petition"). As of the date of this filing, Distribution's 2013 Petition remains outstanding. This ETIP filing will incorporate, and also update, the budgetary and savings modifications previously sought by Distribution in the 2013 Petition, for the next round of programming.

On June 19, 2015, the Commission issued the 2015 Gas Energy Efficiency Order, which directed Distribution and other New York State utilities to implement gas energy efficiency programs beginning January 1, 2016. In addition, the 2015 Gas Energy Efficiency Order authorized budgets and targets, in total by utility, for 2016.

III. CIP Overview and High-Level Portfolio Description

CIP includes the following programs: (1) Residential Rebate Program, (2) NRCIP, and (3) LIURP. In addition, each of the programs is supported with Outreach and Education

[8] Case 07-M-0548 – Order Authorizing Efficiency Programs, Revising Incentive Mechanism, and Establishing a Surcharge Schedule; issued and effective October 25, 2011.
[9] Case 07-M-0548 – Order Approving in Part and Denying in Part National Fuel Gas Distribution Corporation's Petition to Modify Certain Energy Efficiency (EEPS) Programs, issued and effective February 19, 2013.

("O&E") and Evaluation, Measurement, and Verification ("EM&V") programming. Exhibit 1 below summarizes budgets previously authorized in each of the Commission's Orders, and for calendar years 2016 through 2018, the budget now requested by the Company.

Exhibit 1 - Approved CIP Budgets

	2007 CIP Order		2009 CIP	2010 CIP	2011 EEPS	2012 EEPS	2015 ETIP
	(two year approval)		Order	Order	Order	Order	Proposed
Program Year	2008	2009	2010	2011	2012 - 2015	2012 - 2015	2016 - 2018
LIURP	$2,940,000	$2,940,000	$2,940,000	$3,040,000	$3,559,295	$4,618,591	$5,490,000
Residential Rebate Program	$3,400,000	$3,400,000	$3,400,000	$3,500,000	$3,559,295	$2,500,001	$2,650,000
NRCIP	$1,520,000	$1,520,000	$1,520,000	$1,520,000	$1,515,810	$1,515,808	$650,000
O&E	$2,940,000	$2,940,000	$1,940,000	$1,500,000	$903,600	$903,600	$950,000
EM&V	$0	$0	$490,000	$480,000	$502,000	$502,000	$300,000
Total	$10,800,000	$10,800,000	$10,290,000	$10,040,000	$10,040,000	$10,040,000	$10,040,000

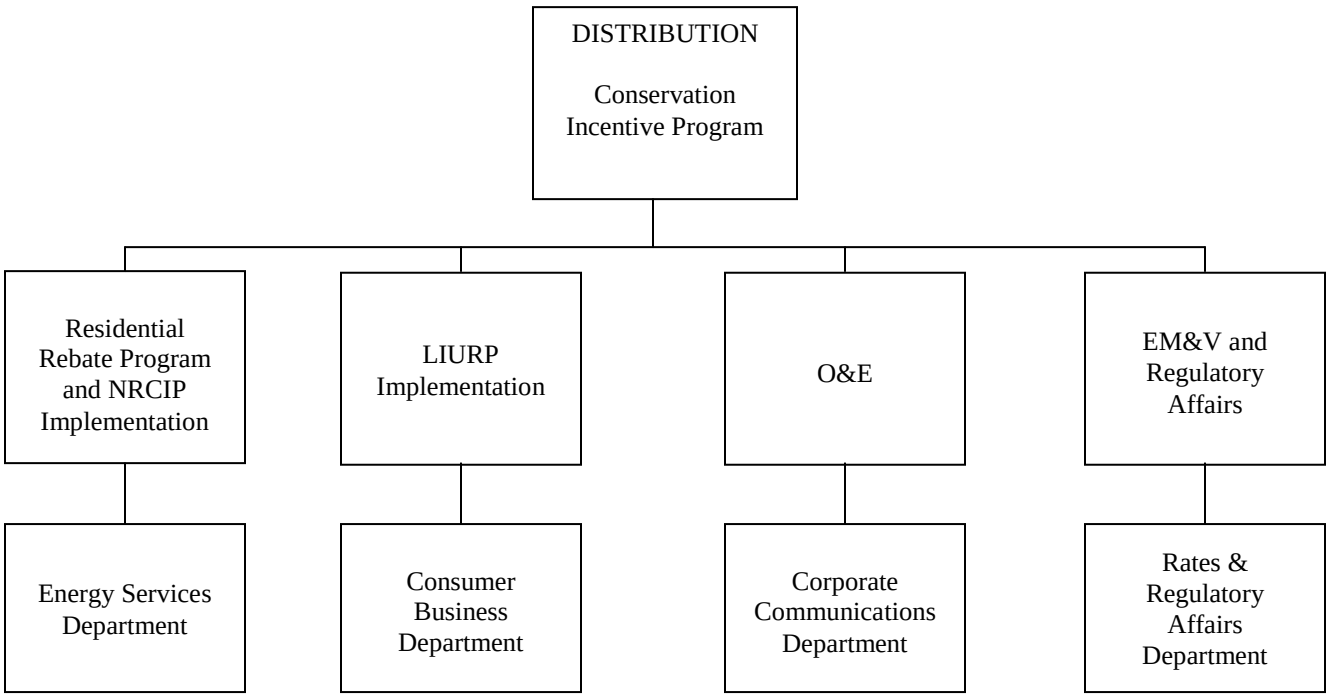
The 2015 Gas Energy Efficiency Order specified total budgets by utility and also provided each utility the flexibility to propose, in an ETIP, how the total budget would be assigned to programs within the utility's energy efficiency portfolio. In contrast, the 2012 EEPS Order further identified total program budgets for Distribution's CIP by allocating O&E and EM&V to the three programs as summarized in Exhibit 2 below. In the 2012 EEPS Order, the Commission increased the LIURP budget by approximately $1.1 million, reduced the Residential Rebate Program budget by approximately $1.1 million, and essentially held the NRCIP budget flat at the level initially established for that program in the 2007 CIP Order.

Exhibit 2 - Approved CIP Budget - 2012 EEPS Order

	Program Budget	E M & V	O & E	Total
LIURP	$4,618,591	$258,936	$301,200	$5,178,727
Residential Rebate Program	$2,500,001	$147,432	$301,200	$2,948,633
NRCIP	$1,515,808	$95,632	$301,200	$1,912,640
Total	$8,634,400	$502,000	$903,600	$10,040,000

Distribution has integrated its energy efficiency program functions into existing departments of the Company and into normal utility operations. Distribution has not created a separate energy efficiency department, but instead has included energy efficiency functions in existing departments best prepared to provide services. As such, the labor, benefits and employee expenses for those employees that work on CIP are already incorporated into the operating expenses of the utility and are not funded through the Company's CIP Cost Recovery Mechanism. This was established during the inception of CIP in 2007 and has already been effective for eight program years. It should also be noted that the employees who work on CIP only work on the program on a limited, part-time basis. Each employee working on CIP has regular work assignments and other job responsibilities within their respective departments throughout the Company. A summary of Company departments involved with CIP is provided in Exhibit 3 below.

Exhibit 3: Distribution Departments Responsible for CIP Management



The Company believes that as respects its operations, the integration of energy efficiency within existing departments: (1) is the best and most economical way to deliver a consistent energy efficiency program to customers, and (2) provides the ability to directly incorporate the impact of energy efficiency achievements into normal operations and planning efforts of the Company. Further, by integrating energy efficiency within existing departments, a consistent and thorough energy efficiency message and a comprehensive suite of programs (inclusive of energy efficiency offerings and other non-energy efficiency program offerings) can be effectively provided to customers.

IV. REV Proceeding Interrelation

According to the Track 1 Order in the REV Proceeding, the Commission has adopted a policy framework for a reformed retail electric industry.[10] In Distribution's REV Proceeding comments, Distribution noted among other things: (1) that the natural gas and electric industries in New York can be radically different businesses, and (2) to the extent that regulatory concepts and policy changes arising out of the REV Proceeding are applied to wholesale natural gas utilities, the results could be counterproductive to natural gas customers.[11]

While the vast majority of REV Proceeding content is only applicable to the electric industry, Distribution's energy efficiency portfolio and certain non-energy efficiency projects and programs, can reasonably be seen as advancing REV Proceeding policy objectives, where it makes sense for natural gas customers. Below is a list of changes made within Distribution's energy efficiency portfolio, transitioning from EEPS to the 2016 through 2018 program years. These changes are described in greater detail throughout Distribution's ETIP.

[10] Case 14-M-0101 – Order Adopting Regulatory Policy Framework and Implementation Plan, issued and effective February 26, 2015, at 4.
[11] Case 14-M-0101 – Initial Comments of National Fuel Gas Distribution Corporation on Department of Public Service Staff's August 22, 2014 Straw Proposal on Track 1 Issues, filed on September 22, 2014, at 2.

- Wireless fidelity ("Wi-Fi") thermostats, a REV-like measure that would provide benefits to natural gas customers, have been added as an available measure in every program within CIP.
- Distribution has added a carbon dioxide emission reduction goal to every program within CIP. This action directly supports REV Proceeding policy and aligns the Company's programming with statewide energy objectives as described in the 2015 New York State Energy Plan.[12] Specifically, Distribution's adoption of an emission reduction goal directly supports New York State's goal of achieving a 40% reduction in greenhouse gas emissions from 1990 levels, by 2030.
- The Company has continued its strong commitment to low income customers by increasing low income program funding to 55% of the total CIP energy efficiency portfolio. Distribution believes that long-term statewide energy and emissions goals can be achieved as long as programs and activities delivered by the utilities and the New York State Energy Research and Development Authority ("NYSERDA") are complimentary and not redundant in nature. Distribution's low income market transformation program[13] reduces energy efficiency barriers for low income customers and continues an eight year successful collaboration with NYSERDA. This collaborative effort has minimized duplicative services and customer confusion, and has achieved greater energy efficiency penetration levels. Distribution has developed new elements within its low income program that will: (1) augment existing health and safety protocols, (2) help prevent emergency situations for customers, especially during the winter heating

[12] 2015 New York State Energy Plan, at http://energyplan.ny.gov/.
[13] This program is referred to as the Low Income Usage reduction Program or LIURP throughout Distribution's ETIP.

season, and (3) eliminate a barrier to customer program participation while simultaneously achieving a deeper penetration of energy savings.

In addition, non-energy efficiency projects and programs that could reasonably be seen as advancing REV Proceeding policy objectives include:

- Distribution has been involved in three microgrid projects, all of which are active participants in NYSERDA's New York Prize Program ("NY Prize"):
    1) Buffalo Niagara Medical Campus ("BNMC") - Distribution has issued a letter of support for the project, to be submitted with BNMC's application. This project was selected to receive an award of $100,000 to fund a feasibility study as part of NY Prize. Distribution is an active participant in energizeBNMC and the Company is funding a thermal load study, as part of Distribution's Research and Development Program, a non-energy efficiency program, to assess the feasibility of a natural gas combined heat and power ("CHP") technology application.
    2) Village of Westfield – Distribution has issued a letter of support for the project, to be submitted with the Village of Westfield's application. This project was selected to receive an award of $100,000 to fund a feasibility study as part of NY Prize.
    3) Village of Arcade – Distribution has issued a letter of support for the project, to be submitted with the Village of Arcade's application. This project was selected to receive an award of $100,000 to fund a feasibility study as part of NY Prize.

At this time, it would be premature to speculate with respect to these projects: (1) if the existing natural gas distribution system has sufficient supply or if upgrades are needed, (2) potential ratepayer impacts, and (3) if additional peak day capacity is needed to satisfy an increased natural gas load, since all three microgrid projects have not yet completed technical feasibility studies.

- Network Enhancement Program (formally referred to as "Gas Expansion Program" or "GEP") – On June 4, 2015, Distribution provided Staff with an update on its network enhancement initiatives, target customer segments and tools, including the Wilson pilot program, the Richmond pilot program, non-heating customers, skips, non-customer clusters near mains, utilizing the Company's Geographic Information System ("GIS") to identify candidates for network enhancement projects, and plans for potential franchise expansion.
- Distributed Generation ("DG") Program – Under the DG Program, Distribution utilizes shareholder funds to help customers buydown the cost of installing DG equipment, which in turn lowers customer payback periods. Customers sign performance contracts with the Company and may be required to provide security. Funding for customer buydowns is recovered through incremental transportation revenues. This program was reauthorized by the Commission to operate through March 31, 2018.
- NGV Program – Under the NGV Program, Distribution utilizes shareholder funds to help customers buydown the cost of installing NGV refueling stations, procuring NGV-related equipment, and/or procuring NGV vehicles, which in turn lowers customer payback periods. Customers sign performance contracts with the Company and may be required to provide security. Funding for customer buydowns is recovered through incremental

transportation revenues. This program was reauthorized by the Commission to operate through March 31, 2018. In addition, on June 4, 2015, Distribution provided Staff with an update on the Company's plan to issue a Request for Proposals ("RFP") for a management company to operate the Mineral Springs Natural Gas Vehicle ("NGV") station.

- Prime-WNY Program – Under the Prime-WNY Program, Distribution utilizes shareholder funds to incent large commercial and industrial customers to install incremental natural gas fired equipment at their existing facilities (e.g., system improvements, associated piping, and/or customer equipment). Customers sign performance contracts with the Company and may be required to provide security. Funding for customer buydowns is recovered through incremental transportation revenues. This program was authorized by the Commission to operate through March 31, 2018.

V. Residential Rebate Program Description

Program Design

The Residential Rebate Program is an equipment replacement program, modeled after a Vermont Gas Systems program, which was cited by the American Council for an Energy-Efficient Economy ("ACEEE"), as one of the nation's exemplary natural gas energy efficiency programs. Distribution's program offers equipment replacement rebate incentives for single-family and multi-family residential dwellings, to encourage them to install high efficiency space heating and water heating appliances. These types of appliances are by far the largest two users of natural gas in residential buildings, and are therefore most likely to show the largest savings to customers when they upgrade their appliances. Distribution sets minimum efficiency levels for

each appliance type based on federal Energy Star and New York State Energy Smart guidelines. The goal of the Residential Rebate Program is to encourage the installation of high efficiency appliances or equipment by customers.

Program Delivery Method

All measures must be installed using a licensed contractor or a contractor that can supply a federal tax identification number, a certificate of insurance, or a business certificate. All measures must be purchased as new and installed prior to submitting a completed rebate application and other necessary required documentation. Proof of purchase for furnaces, boilers, water heaters and thermostats must include the following information:

1) Paid invoice or receipt(s) indicating the retailer/contractor name, business address, and phone number. The paid invoice should contain an itemized description of each product including:
    a. Manufacturer, and complete model number of equipment replaced and installed;
    b. Efficiency rating for furnaces or boilers ("AFUE");
    c. Efficiency rating for tank and tankless water heaters ("Energy Factor" or "EF"); and
    d. Product installation date.
2) A copy of the retailer/contractor federal tax identification number, certificate of insurance, or business certificate.

Distribution's rebate processor serves as the primary contact for customer inquiries and/or requests for information. A call center and toll-free telephone number is maintained so that customers can contact the rebate processor directly. Many of the customer interactions are

handled directly by the rebate processor, but contact is made in the event that an issue arises which requires Distribution's direction, judgment, or interpretation of Residential Rebate Program policies and procedures. This communication is completed through e-mails and telephone calls, and occurs on an ad-hoc basis, as needed, which can be as often as a daily basis. Customers that have submitted a rebate application and the necessary paperwork, and have questions about their submittal or rebate status, can call 1-877-285-7824. In the event that customers have a question, problem or request, they can contact Distribution's Customer Response Center ("CRC"). In the Buffalo area, that phone number is 716-686-6123 and in all other areas that phone number is 1-800-365-3234.

In 2014, an online services web portal was launched for customers and the Company, with two key components to this service:

- Customer E-mail Status Alerts: Customers who supply e-mail addresses on their Residential Rebate Program application form will receive status updates via e-mail as their application moves through processing. Customers will receive confirmation that: (1) the application has been received, (2) the application is under review, (3) the application has been processed, and (4) the rebate check has been approved and mailed. E-mails to customers also include a link to a status webpage, so that customers can see the details of their application (e.g., measures applied for, rebate amount, etc.) at any time.
- Client Portal for Dashboards and Reporting: Company personnel can get immediate access to program data and customer participation levels. The portal includes a suite of standardized graphs, as well as the functionality to create custom reports and graphs for program administration and reporting purposes. The portal also provides visibility of

pending applications so that Distribution can assess its program queuing, processing speed, and effectiveness.

Target Market and Eligibility

The target market for the Residential Rebate Program is all residential customers within Distribution's New York service territory. All residential customers are eligible to participate in the Residential Rebate Program. Rebates are available for existing single-family dwellings, multi-family dwellings, condominiums and mobile dwellings. New construction is not eligible for this program. Measures to be included in the Residential Rebate Program are outlined below in Exhibit 4.

Exhibit 4: Residential Rebate Summary		
	Required Minimum Efficiency	Rebate Amount
Space Heating		
Hot Air Furnace	90% AFUE	$325
Hot Air Furnace with ECM	90% AFUE	$400
Hot Water Boiler	90% AFUE	$700
Steam Boiler	82% AFUE	$200
Water Heating		
Storage Tank Water Heater	0.67 EF	$75
Tankless Water Heater	0.82 EF	$375
Indirect Water Heater	N/A	$275
Controls		
Programmable Thermostat	N/A	$25
Wi-Fi Thermostat	N/A	$75

In addition to the equipment outlined above, Distribution may elect to provide customers that have participated in CIP with low cost measures, utilizing competitive procurement

processes. The provision of these measures would occur within the Residential Rebate Program in accordance with the Commission's June 20, 2011 Order, and any applicable installation requirements specified in the New York Standard Approach for Estimating Energy Savings from Energy Efficiency Programs ("New York Technical Manual" or "NYTM").[14] Distribution believes that customers previously participating in CIP would be the most likely to install new, low-cost energy saving measures, as these customers have already demonstrated their interest in energy conservation through past practice.

Quality Assurance ("QA") / Quality Control ("QC")

Distribution has put in place a comprehensive QA/QC plan. This plan is implemented primarily by the rebate processor through several mechanisms to assure that rebates are only given out to qualified customers. Distribution's current rebate processor administers energy efficiency programs for utilities nationwide and has been in the energy industry since 1982. The rebate processor screens all applications against a Distribution database to ensure that the applicant is a customer and that eligibility requirements have been met. The rebate processor also reviews appliance specification sheets and compares equipment make/model data against an appliance database to ensure that equipment installed is meeting required energy efficiency levels. Contractor invoices are also reviewed to ensure that equipment was installed by a licensed contractor. Any flaws found in the application are turned back to the customer for additional information or clarification, and then are either approved or rejected based on additional data provided.

The rebate processor also coordinates the process of conducting two additional QC aspects of the program. First, they work with a third party vendor to conduct random monthly

[14] Case 07-M-0548 – Order Approving Modifications to the Energy Efficiency Portfolio Standard (EEPS) Program to Streamline and Increase Flexibility in Administration, issued and effective June 20, 2011.

on-site inspections of equipment installations to verify that the equipment receiving a rebate was actually installed by the customer.[15] Second, the rebate processor conducts telephone surveys to random samples of customers to gain their insight on program awareness, the purchase decision, the rebate's impact on the purchase decision, and overall customer satisfaction with the rebate application process.

Program Budget

The overall Residential Rebate Program budget, by category, is shown below in Exhibit 5. Distribution expects greater customer participation and program expenditures during the winter heating season, as opposed to the summer months. In addition, there is usually a lag in getting program results early in the program year (first month or two), as a measure needs to be installed, paperwork and supporting documentation needs to be assembled, reviewed and processed, and a rebate payment needs to be provided to the customer.

Exhibit 5: Residential Rebate Program Budgets			
	2016	2017	2018
ANNUAL			
Incentives and Services	$2,500,000	$2,500,000	$2,500,000
Program Implementation	$150,000	$150,000	$150,000
TOTAL ANNUAL	$2,650,000	$2,650,000	$2,650,000
CUMULATIVE			
Customer Incentives	$2,500,000	$5,000,000	$7,500,000
Program Administration	$150,000	$300,000	$450,000
TOTAL CUMULATIVE	$2,650,000	$5,300,000	$7,950,000

With respect to encumbrances, it is not uncommon that rebate applications and necessary supporting documentation is submitted after the conclusion of a program year, especially for installs that were completed during the fourth quarter of the current program year. The vast majority of these submittals are typically completed in the first six months of the subsequent

[15] Up to 5% of all rebate projects are selected for a random on-site inspection.

program year. After the six month period ends, Distribution will not preclude customers from submitting paperwork and participating in the program. However, the majority of these customers would be required to complete an on-site inspection in order to receive a rebate. This QA practice verifies that the equipment was actually installed and minimizes the potential for fraudulent rebate claims to be submitted.

Program Participation and Savings Derivation

Exhibit 6 provides a derivation of anticipated program participation levels and gross program savings, assuming the full program budget is expended. This derivation analysis is based on measured rebate amounts, gross per unit savings calculations, and the engineering algorithms presented in Version 3 of the NYTM.[16] The assumed measure mix within the Residential Rebate Program is based on actual program activity from its 2007 inception through the end of calendar year 2014, scaled to the program budget outlined above. With respect to Wi-Fi thermostats, a new REV-related measure, no historical data is currently available. In addition, this measure is not currently listed as a standalone measure in the NYTM. For the purposes of this derivation analysis, Distribution is making a facilitating assumption that 75% of all thermostats will prospectively be installed as traditional programmable thermostats and 25% of all thermostats will prospectively be installed as Wi-Fi thermostats. For the purpose of valuing energy savings of Wi-Fi thermostats, Distribution will utilize the programmable thermostat engineering algorithm in the NYTM.

[16] New York State Public Service Commission website, New York Technical Manual at: http://www3.dps.ny.gov/W/PSCWeb.nsf/ca7cd46b41e6d01f052568800545955/06f2fee55575bd8a852576e4006f9af7/$FILE/TRM%20Version%203%20-%20June%201,%202015.pdf.

Exhibit 6: Residential Rebate Program - Participation and Savings Derivation - 2016 Through 2018					
Measure	**Number of Participants**	**Per Unit Rebate ($)**	**Total Rebates ($)**	**Gross Per Unit Savings (Dth)**	**Gross Total Savings (Dth)**
Space Heating					
Hot Air Furnace	3,944.86	$325	$1,282,080	14.2892	56,369.03
Hot Air Furnace with ECM	1,807.90	$400	$723,161	14.2892	25,833.53
Hot Water Boiler	254.29	$700	$178,002	11.0751	2,816.28
Steam Boiler	20.85	$200	$4,169	2.8380	59.16
Water Heating					
Storage Tank Water Heater	898.66	$75	$67,400	3.4283	3,080.90
Tankless Water Heater	220.51	$375	$82,693	8.3298	1,836.85
Indirect Water Heater	76.02	$275	$20,907	7.0523	536.15
Controls					
Programmable Thermostat	4,247.65	$25	$106,191	6.4141	27,244.82
Wi-Fi Thermostat	471.96	$75	$35,397	6.4141	3,027.20
Total Incentives and Services	**11,942.72**		**$2,500,000**		**120,803.93**

Performance Targets and Anticipated Changes

The primary performance target for this program is gross total savings and the secondary performance target for this program is carbon dioxide emission reductions, as outlined below in Exhibit 7. Distribution's gross savings target is based on the derivation analysis described above, as well as the latest engineering algorithms from the currently effective NYTM. With respect to greenhouse gas emissions, Distribution will utilize the United States Environmental Protection Agency's ("EPA") Greenhouse Gas Equivalencies Calculator.[17]

Exhibit 7: Residential Rebate Program - Primary and Secondary Performance Targets - 2016 Through 2018		
Program Year	**Primary Metric**	**Secondary Metric**
	Gross Total Savings (Dth)	**Carbon Dioxide Emission Reductions (Metric Tons)**
2016	120,803.93	6,405
2017	120,803.93	6,405
2018	120,803.93	6,405

[17] EPA website, Greenhouse Gas Equivalencies Calculator at: http://www.epa.gov/cleanenergy/energy-resources/calculator.html#results.

Distribution's ETIP does not currently assume any changes to the Residential Rebate Program for 2017 and 2018, above and beyond the program as described herein. If changes are to be proposed prospectively for 2017, 2018, or future program years, those changes would be incorporated into future ETIP filings completed by Distribution, in accordance with the annual energy efficiency program cycle outlined in Guidance Document CE-01, filed by Staff.[18]

Benefit Cost Analysis

Exhibit 8 and Exhibit 9 summarize the expected benefits, costs, and benefit/cost ratios for the Residential Rebate program as of July 2015.

Exhibit 8: Summary of Benefits and Costs

Residential Rebate Program - Total Resource Cost ("TRC") Test

Program Year	TRC Benefit / Cost	Total NPV Benefits	Total NPV Costs
2016	1.79	$11,986,752	$6,696,775
2017	1.79	$11,986,752	$6,696,775
2018	1.79	$11,986,752	$6,696,775
2016-2018	1.79	$35,960,256	$20,090,325

Exhibit 9: Summary of Benefits and Costs

Residential Rebate Program - TRC Test With Carbon Adder

Program Year	TRC Benefit / Cost	Total NPV Benefits	Total NPV Costs
2016	1.95	$13,038,590	$6,696,775
2017	1.95	$13,038,590	$6,696,775
2018	1.95	$13,038,590	$6,696,775
2016-2018	1.95	$39,115,770	$20,090,325

[18] Case 15-M-0252 – Guidance Document CE-01, Utility Energy Efficiency Program Cycle, filed on May 1, 2015.

VI. NRCIP Description

Program Design

NRCIP is a space, water and process heating equipment replacement program that offers fixed and customized rebate incentives to small, non-residential customers using less than 12,000 Mcf of natural gas per year. NRCIP was modeled after a Vermont Gas Systems program that was cited by the ACEEE as an exemplary natural gas energy efficiency program. The goal of NRCIP is to provide cost effective incentives to small non-residential customers utilizing natural gas efficiently in their business operations.

Fixed rebates on pre-qualified equipment are available to customers and are designed to be quick and easy, utilizing a straightforward application process. For fixed rebates, Distribution sets minimum efficiency levels for each appliance type based on federal Energy Star and New York State Energy Smart guidelines.

Customized rebates are also available to customers on a case-by-case basis, at a level of $15 per Mcf multiplied by an estimate of natural gas energy savings to be achieved from the completion of a project. These rebates are available for energy efficient: furnaces, boilers, water heaters, process heating equipment, steam/hot water distribution piping insulation, boiler control systems, flue gas economizers, thermostats and heat recovery systems. All energy efficiency projects resulting in natural gas savings will be considered for a customized rebate.[19] Technical engineering analyses are performed in order to validate and confirm energy savings.

NYSERDA previously performed day-to-day project management and administration of NRCIP, in conjunction with their Existing Facilities Program, based on contractual agreements executed with Distribution. However, the Company has received informal communication from

[19] Distribution maintains a "per project rebate cap" for fixed and customized projects. The cap is currently $30,000 for fixed rebates and $60,000 for customized rebates. The Company is recommending the removal of the "per project rebate cap" beginning in 2016.

NYSERDA that they no longer wish to perform day-to-day project management and administration services for Distribution's NRCIP. As a result, the Company is currently involved in a competitive procurement process to solicit a new Implementation Contractor. Distribution plans to complete the RFP process and necessary contractual requirements as soon as possible, with a goal of starting the new Implementation Contractor by January 1, 2016. The Company will continue to work with NYSERDA through the end of calendar year 2015 program year, through any required EEPS reporting requirements to close out the current round of programming, and on an as-needed basis in order ensure a smooth transition between contractors.

Program Delivery Method

Procedures for customer enrollment include:

- Upon receipt of a completed application (includes application and technical engineering study) the Implementation Contractor will:
    - Review the application for completeness and eligibility.
    - Ensure all necessary supporting documentation has been submitted.
    - Review the engineering study for technical merit.
    - Log the application into a Project Tracking Database.
    - Contact the customer and/or contractor to conduct a pre-installation site visit to verify existing conditions.[20]
    - Summarize the proposed natural gas project and provide a recommendation of potential energy savings and an appropriate financial incentive.

[20] This procedure is only applicable for customized rebates.

- Once an application is approved:
    - The customer will be notified by the Implementation Contractor that they are eligible to receive funding. This notification is in writing, unless requested otherwise by the customer.
    - The Implementation Contractor will maintain contact with the customer to confirm that the project is expected to move forward and to check the status of the project during its execution.
    - The Project Tracking Database will be updated to reflect the funding expectation and customer communications.
- Once the customer completes the project:
    - The Implementation Contractor will conduct a post-installation site-inspection to verify that the project has been completed and that the same equipment specified in the application was installed. This includes a verification of the efficiency levels submitted on the application and the efficiency levels of equipment installed.[21]
    - Based on the site-inspection, the Implementation Contractor will either: (1) sign off on the energy savings achieved and financial incentives to be awarded, or (2) document changes to energy savings achieved and financial incentives to be awarded.[22]
    - The customer will be notified of the results of the on-site inspection, the energy savings actually achieved by the project, and the final financial incentive. This notification is in writing, unless requested otherwise by

[21] This procedure is only applicable for customized rebates.
[22] This procedure is only applicable for customized rebates.

the customer. Accompanying this notification is a financial incentive payment to the customer. If the customer requested a non-writing notification, the financial incentive payment is mailed out on its own.[23]

- The Project Tracking Database will be updated to reflect the completion of construction, completion of the on-site inspection, customer communications, final energy savings achieved, final financial incentive dollar amount, and payment information.

The Implementation Contractor serves as the primary point of contact for any customer inquiries and/or requests for information. Customers can contact the Implementation Contractor via phone, e-mail, or in writing. Many of the customer inquiries are handled directly by the Implementation Contractor, but they also work closely with Distribution if there is an issue which requires the Company's direction, judgment or interpretation of NRCIP policies and procedures. This communication is done mainly through e-mails and occasional phone calls, and usually occurs on a weekly basis. Communication also occurs on an ad hoc basis, as needed, outside of the typical weekly communication. Customers can also call 1-800-365-3234 to learn more about the basics of NRCIP.

Distribution typically holds training sessions with trade allies involved in NRCIP, which consists primarily of heating and cooling contractors, mechanical contractors and energy services companies ("ESCOs"). The Company will continue to hold training sessions in the future. These training sessions have largely been focused on educating trade allies on the availability of fixed and customized rebates, the differences between the two types of rebates, a detailed review of program application forms and procedures, and the provision of contact information for both

[23] This procedure is only applicable for customized rebates.

the Implementation Contractor and Distribution. The training sessions also provide an opportunity to receive feedback on the program from trade allies. In addition, trade allies have the opportunity to ask any questions they may have.

Since April 2013, Distribution employed the services of a third party NRCIP Outreach Coordinator to assist small commercial customers seeking information and to provide assistance in navigating through program requirements. The Company sees value in continuing the outreach work that was previously performed, since the efforts had a positive impact on program results achieved. This will be addressed as part of the competitive procurement process and RFP described above.

Target Market and Eligibility

The target market for NRCIP is small, non-residential customers within Distribution's New York service territory that utilize less than 12,000 Mcf of natural gas per year. All installations must be completed by a licensed contractor. Customers applying to participate in the program and the contractor that performs the installation must be able to supply one of the following: the contractor's federal tax identification number, a Certificate of Insurance, or a Business Certificate showing the contractor's name and address. This information must be provided in order for an application to be considered complete. Building retrofits are eligible for NRCIP, but new construction is not eligible. Measures to be included in NRCIP include:

Exhibit 10: NRCIP Summary

Measure	Required Minimum Efficiency	Equipment Size (MBtu/h) or (feet)	Rebate Amount
Space Heating			
Hot Air Furnace	90% AFUE	≤ 300	$3.00/MBtu/h
Hot Air Furnace	92% AFUE	≤ 300	$4.00/MBtu/h
Hot Air Furnace	95% AFUE	≤ 300	$5.00/MBtu/h
Hot Water Boiler	Energy Star-Rated or 85% AFUE	≤ 300	$600

Hot Water Boiler	85% E_t	301 – 500	$750
Hot Water Boiler	85% E_t	501 – 1,000	$1,500
Hot Water Boiler	85% E_t	1,001 - 1,700	$2,500
Hot Water Boiler	85% E_t	> 1,700	$3,000
Hot Water Boiler	90% AFUE	≤ 300	$1,000
Hot Water Boiler	90% E_t	301 - 500	$1,500
Hot Water Boiler	90% E_t	501 - 1,000	$2,500
Hot Water Boiler	90% E_t	1,001 - 1,700	$3,500
Hot Water Boiler	90% E_t	> 1,700	$4,500
Steam Boiler	82% AFUE	≤ 300	$2.00/MBtu/h
Steam Boiler	79% E_t	301 - 2,500	$1.00/MBtu/h
Steam Boiler	80% E_t	> 2,500	$1.00/MBtu/h
Unit Heater	≥ 90% AFUE or E_t		$2.00/MBtu/h
Infrared Heater	N/A		$2.50/MBtu/h
Vent Damper	N/A		$1.00/MBtu/h
Pipe Insulation	R-Value > 4		$3.00/foot
Duct Insulation	R-Value > 6		$0.50/foot
Demand Control Ventilation	N/A		$200/sensor
Water Heating			
Storage Tank Water Heater	0.67 EF		$125
Tankless Water Heater	0.82 EF		$450
Storage Tank Insulation	R-Value > 9		$1.00/sq.ft.
New Circulation Controls	N/A		$500/unit
Cooking Equipment			
Fryer	Energy Star-Rated		$750
Broiler	Cooking Efficiency ≥ 30%		$500
Convection Oven	Energy Star-Rated		$500
Combination Oven	Food Service Technology Center-Rated		$750
Steamer	Energy Star-Rated		$750
Griddle	Energy Star-Rated	≤ 2 feet wide	$350
Griddle	Energy Star-Rated	3 feet wide	$525
Griddle	Energy Star-Rated	4 feet wide	$700
Griddle	Energy Star-Rated	5 feet wide	$875
Griddle	Energy Star-Rated	≥ 6 feet wide	$1,050
Controls			
Programmable Thermostat	N/A		$25
Wi-Fi Thermostat	N/A		$75

With respect to Wi-Fi thermostats, a new REV-related measure, no historical data is currently available. In addition, this measure is not currently listed as a standalone measure in the NYTM. For the purpose of valuing energy savings of both Wi-Fi and programmable thermostats, Distribution will utilize the programmable thermostat engineering algorithm in the NYTM.

QA/QC

Distribution has put in place a comprehensive QA/QC plan. This plan is implemented primarily by the Implementation Contractor through several mechanisms to assure that customers meeting eligibility criteria are the only customers participating in the program. For fixed rebates, the Implementation Contractor completes a robust application review process, as described above. The review process will include Distribution on an as needed basis when direction, judgment, or interpretation of NRCIP policies and procedures is necessary. The Implementation Contractor is equipped with technical engineering expertise in order to accurately determine if a job meets required energy efficiency levels. Contractor paperwork is also reviewed by the Implementation Contractor to ensure that installations are completed by licensed contractors. Any flaws found in the application or supporting paperwork are turned back to the customer for additional information or clarification, and then are either approved or rejected based on the data provided. The Implementation Contractor also completes random, on-site inspections of approximately 5% of the fixed rebate population to confirm that the equipment stated on the application was actually installed. This is done to help ensure that no fraudulent applications are processed. Distribution also reserves the right to request that specific fixed rebate jobs undergo an on-site inspection upon job completion.

For customized rebates, the Implementation Contractor performs a detailed review of the application and any engineering analysis submitted. First, the Implementation Contractor visits the customer's jobsite to confirm the existing equipment on hand and existing energy usage. The customer's estimated energy savings and estimated financial incentive for the proposed job is analyzed by the Implementation Contractor to ensure that both numbers are correct and reasonable. During a post-installation site inspection, the Implementation Contractor confirms that makes and models meet required energy efficiency levels and that the equipment specified on the application form was actually installed. Any flaws or missing information found in the application or engineering analysis are turned back to the customer for additional information or clarification, and then are either approved or rejected based on the data provided.

The Implementation Contractor will monitor program progress and expenditure levels to ensure that program objectives are met within approved budgets. Distribution and the Implementation Contractor will conduct telephone calls and hold meetings to ensure that contractors understand and are following program procedures. Contractor feedback will also be sought during these telephone calls and meetings, as well as during training sessions. The Implementation Contractor will conduct periodic reviews of the Project Tracking Database to ensure the accuracy of data entry. At Distribution's request, the Implementation Contractor shall permit Company personnel to monitor and participate in administrative tasks.

Distribution employees meet via teleconference on a bi-weekly or on an as-needed basis with the Implementation Contractor. The goal of these meetings is to maintain an open dialog and to discuss program achievements. During each meeting, the Implementation Contractor provides an update on the status of the application pipeline, jobs in process, outreach activities, and any feedback received on NRCIP.

Program Budget

The overall NRCIP budget, by category, is shown below in Exhibit 11. Typically there is no seasonality or unusual patterns of customer participation during a program year. The vast majority of projects within NRCIP (greater than 95%) are fixed rebate projects. Customized rebates usually take longer to complete due to a detailed review of the engineering analyses submitted and the necessary completion of pre/post jobsite visits.

Exhibit 11: NRCIP Budgets			
	2016	2017	2018
ANNUAL			
Incentives and Services	$598,000	$598,000	$598,000
Program Implementation	$52,000	$52,000	$52,000
TOTAL ANNUAL	$650,000	$650,000	$650,000
CUMULATIVE			
Customer Incentives	$598,000	$1,196,000	$1,794,000
Program Administration	$52,000	$104,000	$156,000
TOTAL CUMULATIVE	$650,000	$1,300,000	$1,950,000

NRCIP does not typically have encumbrances at the end of a program year, as the majority of jobs tend to be fixed rebates, and jobs are managed to be completed on-time during the current program year. There is usually a lag in getting final results at the immediate conclusion of a program year, as final payments are being processed, and financial information is dependent on Distribution's books and records being closed. Final program year numbers are typically completed within the first three months of the subsequent program year.

Program Participation and Savings Derivation

Exhibit 12 provides a derivation of anticipated program participation levels and gross program savings, assuming the full program budget is expended. This derivation analysis is based on savings calculations included in NYSERDA's reports to Distribution. The savings calculations for NRCIP are consistent with NYSERDA's statewide Existing Facilities program

and are based on algorithms utilized in NYSERDA's savings databases, which is directly informed by the currently effective NYTM. The average cost per job is based on actual program activity from 2007 (NRCIP's inception) through the end of calendar year 2014, scaled to the program budget outlined above. The average savings per job is based on actual program activity from calendar year 2014, which Distribution believes most accurately reflects current market conditions and the impact of the outreach and education efforts completed by the NRCIP Outreach Coordinator.

Exhibit 12: NRCIP - Participation and Savings Derivation - 2016 Through 2018					
Job Type	**Number of Participants**	**Average Cost Per Job ($)**	**Total Cost ($)**	**Gross Per Unit Savings (Dth)**	**Gross Total Savings (Dth)**
NRCIP Incentives and Services	473.33	$1,263.40	$598,000	365.3067	172,909.14
Total Incentives and Services	**473.33**		**$598,000**		**172,909.14**

Performance Targets and Anticipated Changes

The primary performance target for this program is gross total savings and the secondary performance target for this program is carbon dioxide emission reductions, as outlined below in Exhibit 13. Distribution's gross savings target is based on the derivation analysis described above, NYSERDA's savings database calculations and reports previously submitted to Distribution, and historical NRCIP results achieved since the program's inception. With respect to greenhouse gas emissions, Distribution will utilize the EPA's Greenhouse Gas Equivalencies Calculator.[24]

[24] EPA website, Greenhouse Gas Equivalencies Calculator at: http://www.epa.gov/cleanenergy/energy-resources/calculator.html#results.

Exhibit 13: NRCIP - Primary and Secondary Performance Targets - 2016 Through 2018		
Program Year	**Primary Metric**	**Secondary Metric**
	Gross Total Savings (Dth)	**Carbon Dioxide Emission Reductions (Metric Tons)**
2016	172,909.36	9,168
2017	172,909.36	9,168
2018	172,909.36	9,168

Distribution's ETIP does not currently assume any changes to NRCIP for 2017 and 2018, above and beyond the program as described herein. If changes are to be proposed prospectively for 2017, 2018, or future program years, those changes would be incorporated into future ETIP filings completed by Distribution, in accordance with the annual energy efficiency program cycle outlined in Guidance Document CE-01, filed by Staff.[25]

Benefit Cost Analysis

Exhibit 14 and Exhibit 15 summarize the expected benefits, costs, and benefit/cost ratios for NRCIP as of July 2015.

Exhibit 14: Summary of Benefits and Costs NRCIP -TRC Test			
Program Year	TRC Benefit / Cost	Total NPV Benefits	Total NPV Costs
2016	1.71	$20,874,551	$12,175,948
2017	1.71	$20,874,551	$12,175,948
2018	1.71	$20,874,551	$12,175,948
2016-2018	1.71	$62,623,653	$36,527,844

[25] Case 15-M-0252 – Guidance Document CE-01, Utility Energy Efficiency Program Cycle, filed on May 1, 2015.

Exhibit 15: Summary of Benefits and Costs NRCIP - TRC Test With Carbon Adder			
Program Year	TRC Benefit / Cost	Total NPV Benefits	Total NPV Costs
2016	1.86	$22,706,293	$12,175,948
2017	1.86	$22,706,293	$12,175,948
2018	1.86	$22,706,293	$12,175,948
2016-2018	1.86	$68,118,879	$36,527,844

VII. LIURP Description

Program Design

LIURP is a weatherization program designed specifically for low income customers. Participants receive a heating system check, an energy audit, weatherization measures, an infiltration reduction, natural gas usage reduction measures and consumer education. The program design is consistent with, and is being administered as part of NYSERDA's EmPower New York ("EmPower") program. Contractors follow procedures and guidelines developed for the EmPower program. Households receiving gas efficiency services paid for by Distribution will also be evaluated by NYSERDA for electric reduction measures. The main goal of LIURP is to conserve energy, reduce residential energy bills, and improve the health, safety, and comfort levels for participating households. A secondary goal includes reducing the incidence and risk of delinquencies and the costs associated with uncollectible accounts, late payment collections, and termination of service expenses.

Program Delivery Method

Procedures for customer enrollment include:

- Distribution generates referrals from:

- The Company's Low Income Customer Affordability Assistance Program ("LICAAP")
- Home Energy Assistance Program ("HEAP") status/consumption reports
- Customer Assistance Centers / Company CRC locations / social service agencies / other

- Distribution screens for:
  - 12-month consumption history (ideally, 180-200+ Mcf of usage per year)
- NYSERDA Program Implementer screens for eligibility:
  - NYSERDA's Program Implementer sends a cover letter from Distribution, with a LIURP/EmPower application included, to each potential participant. A second cover letter and application will be sent if the first is not returned within a reasonable time frame.
  - Upon receipt of a completed application, NYSERDA's Program Implementer will examine the potential for natural gas energy efficiency services funded through Distribution, as well as the eligibility for electric reduction services, which are available to low-income electricity customers of National Grid and New York State Electric & Gas Corporation.
    - If the customer is a tenant, NYSERDA's Program Implementer will send a letter (on Distribution letterhead) to the landlord outlining program requirements and soliciting landlord participation/consent. Upon receipt of a satisfactory landlord authorization, the customer may then be accepted for energy services, if all eligibility requirements are met.
- If a customer is not eligible, NYSERDA's Program Implementer will:

- Send a “no further services” letter to the customer (printed on Distribution letterhead).
- Inform the referring office/social service agency the reason(s) why a customer is not eligible, if the referral was from Distribution or an outside agency.

- If a customer is eligible, NYSERDA’s Program Implementer will:
  - Assign the customer to a participating contractor. Assignments will be made on the basis of current job backlogs, contractor availabilities and past program performance.
  - Send a letter to the customer, on Distribution letterhead, informing them of their acceptance and providing contact information for the assigned contractor.
  - Enter relevant customer data into the EmPower database, including county designations and other information/data fields required by Distribution.
  - Enter a weatherization-approved status.
- Once work is in progress:
  - Distribution has access to the EmPower database, including screens/reports to identify, among other things: (1) placed jobs that have yet to be picked up by contractors, and (2) the status of any placed jobs.
  - Distribution has the ability to retrieve customer weatherization service records and can obtain an electronic report of jobs with information required by Distribution, such as first name, last name, address, city, state, postal code, installation contractor, home phone number, account number, meter number, mailing address, city, state, zip, and the date a job was sent to a contractor.

- NYSERDA's Program Implementer administers customer interactions/document procurements (letters sent to Distribution's customers on Distribution letterhead), including:
    - Customer Acceptance Letter
    - Audit Forms
    - Landlord/Tenant Agreements
    - Distribution LIURP Eligibility Affidavit/Information Waiver
    - Distribution Work Proposal Agreement
    - Customer Agreement
    - Distribution Safety Check List
    - Certificate of Completion

- Contractor Duties:
    - Within two weeks of receiving a job, the contractor calls customers to set up an initial appointment.
    - The contractor goes to the customer's property and performs a comprehensive home assessment, including:
        - Heating system inspection and combustion efficiency test;
        - Blower door test for air leakage, where feasible;
        - Inspection and measurement for insulation;
        - Health and safety checks, such as ambient carbon monoxide ("CO") testing and gas leak checks;
        - Energy education for customers;
        - An instrumented audit that is documented on EmPower forms;

        - A discussion of a potential work scope with an appropriate household member; and
        - An assessment to determine if a household is eligible for electric measures, such as compact fluorescent light bulbs or electric appliances.
    - If furnace problems are identified, a contractor follows the appropriate emergency and referral procedures, as outlined in Section 5 of the EmPower Guidelines and Procedures Manual.
    - If issues or problems are identified which preclude the successful installation of measures, such as severe structural damage or serious code violations related to the work, the contractor will notify NYSERDA's Program Implementer and further work will be cancelled until the conditions are corrected.
    - NYSERDA's Program Implementer will send a letter (on Distribution letterhead) to customers explaining why work was cancelled, while also offering a timeline for work to be resumed if the conditions are corrected.
    - The contractor develops work scopes and proceeds with work, according to EmPower Guidelines and the Procedures Manual.
    - If a customer does not respond to contractor calls, letters, or refuses to communicate with the contractor, then NYSERDA's Program Implementer is advised. Contractors may still be reimbursed for services rendered such as customer education, etc., despite the weatherization job not being fully executed as designed.
    - Once a job is completed, the contactor sends all completed forms and an invoice to NYSERDA's Program Implementer for payment processing.

- Jobs are to be completed within 60 days from the date of the initial referral.

- Invoice processing:
  - Invoices that are submitted must follow Invoicing Requirements listed on Section 15.3 of the EmPower Guidelines and Procedures Manual.
  - The Program Implementer reviews all forms and verifies invoices for accuracy. A standard invoice is used for all contractors.
  - If any discrepancies are found with an invoice, NYSERDA's Program Implementer contacts the contractor directly to resolve the issue.
  - If any forms are not returned or are incomplete, NYSERDA's Program Implementer contacts the contractor directly to resolve the issue.
  - The Program Implementer provides the third-party QA Contractor with information in order to complete QA inspections.
  - If the invoice is submitted correctly, NYSERDA's Program Implementer recommends an approval of the invoice, and then enters final approved costs into NYSERDA's energy savings and costing database ("CRIS"), locking information in place.
  - NYSERDA approves and processes contractor and vendor invoices, arranges payments, and resolves payment issues.
- NYSERDA tracks program expenditures and maintains all payment records. Accounts payable forms and all invoices are maintained for six years.
- Job completion processing:
  - NYSERDA's Program Implementer maintains a file of the following household data:

- Customer application;
- Energy usage;
- Audit forms and work scope documentation;
- Certificate of Completion; and
- Required permissions.

All customer inquiries and questions are directed to Distribution's Customer Response Center, by calling 1-800-365-3234.

Target Market and Eligibility

The target market for LIURP is all low income residential customers within Distribution's New York service territory. A preferred application status is given to participants in Distribution's LICAAP. Customers meeting all of the following criteria will be eligible to participate in LIURP:

- HEAP eligible;
- Account is active and the customer has occupied the residence for at least one year;
- High consumption – the minimum annual usage must be at least 110 Mcf per year, assuming normal weather;
- Must be an owner or tenant of the residence; and
- Must be a single-family dwelling or a two unit residence if each unit has its own meter.

It should be noted that referrals are made on the basis of consumption, meaning the highest users of natural gas are referred for weatherization services first once the eligibility criteria is met. In addition, if a two unit residence is being considered, both customers individually need to meet the program eligibility requirements.

LIURP participants receive a heating system check, an energy audit, weatherization measures, an infiltration reduction, natural gas usage reduction measures and an energy education.

QA/QC

Distribution has put in place a comprehensive QA/QC plan. The plan functions on a standalone basis, but also is highly integrated into program design, as described above. Standalone QA/QC practices include:

- LIURP and NYSERDA's EmPower program both require contractors to obtain a Building Performance Institute ("BPI") certification. NYSERDA coordinates regional BPI contractor training once per year. NYSERDA also conducts periodic teleconferences with contractors, both scheduled and on an as-needed basis.
- NYSERDA's QA Contractor will perform independent, third-party QA field inspections on approximately 20% of completed jobs. The QA Contractor will also conduct QA interviews via telephone on an additional 15% of completed jobs. QA activities will be finalized within one month of work completion.
- Distribution reserves the right to communicate with NYSERDA or NYSERDA's QA Contractor and request that specific jobs undergo QA assessments upon job completion.
- NYSERDA will reassess and enhance program procedures on an ongoing basis, ensuring that practices are consistent with standards of the BPI and that best practices are followed by contactors participating in EmPower. Forms, guidelines, software and other materials will be modified as needed. NYSERDA program staff will consult with counsel and the contract management group to ensure that the program is implemented correctly.

- NYSERDA and Distribution will monitor program progress and expenditure levels to ensure that program objectives are met within budget allocations. NYSERDA will conduct weekly meetings with the Program Implementer, and maintain daily contact as needed, to ensure that the program is progressing as required.
- NYSERDA will conduct monthly meetings with the QA Contractor, and maintain daily contact as needed, to ensure that QA procedures are being followed in accordance with the contract, and that QA issues are being resolved.
- NYSERDA and the Program Implementer will meet with contractors on a regular basis, both on-site and by teleconference, to ensure that contractors understand and are following program procedures, while also obtaining feedback regarding the program.
- NYSERDA will conduct periodic reviews of the EmpCalc savings database to verify the accuracy of data entry.
- NYSERDA will develop and process incentives for contractors who participate in the program and become BPI accredited. These incentives will consist of a 75% reimbursement of BPI contractor fees for training, accreditation and QA.
- NYSERDA will collaborate with the Weatherization Assistance Program to ensure consistency between programs and to maximize opportunities for collaboration, thereby allowing for enhanced work scopes.
- At Distribution's request, NYSERDA shall permit Company personnel to monitor and participate in administrative tasks.

Program Budget

The overall LIURP budget, by category, is shown below in Exhibit 16. Distribution expects very few job completions and program expenditures during the first quarter of the

calendar year, as Distribution and NYSERDA are jointly focusing on: (1) contracting efforts, (2) payment processing and reporting requirements to close out the previous program year, and (3) customer referrals and enrollment activities to build a robust pipeline of customer jobs for the current year.

Exhibit 16: LIURP Budgets			
	2016	2017	2018
ANNUAL			
Traditional LIURP Incentives and Services	$4,729,100	$4,729,100	$4,729,100
Furnace Replacement Incentives and Services	$250,000	$250,000	$250,000
Program Implementation	$510,900	$510,900	$510,900
TOTAL ANNUAL	$5,490,000	$5,490,000	$5,490,000
CUMULATIVE			
Traditional LIURP Incentives and Services	$4,729,100	$9,458,200	$14,187,300
Furnace Replacement Incentives and Services	$250,000	$500,000	$750,000
Program Implementation	$510,900	$1,021,800	$1,532,700
TOTAL CUMULATIVE	$5,490,000	$10,980,000	$16,470,000

LIURP does not typically have encumbrances at the end of a program year, as all weatherization jobs for the year are coordinated to be completed on-time. There is usually a lag in getting final results at the immediate conclusion of a program year, as final contractor payments are being processed, and financial information is dependent on books and records being closed for both NYSERDA and Distribution. Final program year numbers are typically completed within the first three months of the subsequent program year.

It should be noted that Distribution has earmarked $250,000 of incentives and services funding per year for a low income health and safety furnace replacement initiative, which would begin in 2016 as part of LIURP. This initiative is modeled after the HEAP Heating Equipment Repair and Replacement Program, which historically exhausts funding during the middle of the HEAP season. To the extent that HEAP eligible customers contact Distribution directly about

old and inefficient heating equipment, malfunctioning heating equipment, or potential safety concerns, especially during the winter heating season, the Company would be able to have an HVAC contractor immediately install a high efficiency furnace and programmable thermostat at no cost to the customer. This furnace replacement initiative: (1) augments existing limited health and safety protocols currently in place as part of LIURP and EmPower, (2) supports the primary goal of LIURP, (3) helps prevent emergency situations for customers due to an underfunded portion of HEAP programming or a general lack of available options, and (4) produces energy savings by replacing legacy heating equipment with high efficiency heating equipment that low income customers may not otherwise be able to afford.

Program Participation and Savings Derivation

Exhibit 17 provides a derivation of anticipated program participation levels and gross program savings, assuming the full program budget is expended. This derivation analysis is based on savings calculations included in NYSERDA's reports to Distribution. The savings calculations for LIURP are consistent with NYSERDA's statewide EmPower program, and are based on algorithms utilized in NYSERDA's EmpCalc savings database, which is directly informed by the currently effective NYTM. For traditional LIURP measures, the average cost per job is based on actual program activity from 2007 (program inception) through the end of calendar year 2014, scaled to the program budget outlined above and inclusive of recommendations from a joint impact evaluation study recently completed with NYSERDA.[26] For the furnace replacement initiative, the average cost per job is based on results achieved from a competitive procurement process.

[26] Case 07-G-0141 – NYSERDA EmPower Program and National Fuel Gas Distribution Corporation's Low Income Usage Reduction Program Impact Evaluation Final Report, filed by Distribution on June 15, 2015.

With respect to Wi-Fi thermostats, a new REV-related measure, no historical data is currently available. In addition, this measure is not currently listed as a standalone measure in the NYTM. For the purposes of this derivation analysis, Distribution is making a facilitating assumption that every LIURP job will prospectively include the installation of a Wi-Fi thermostat. To the extent that Wi-Fi service is not available in a residence, the customer's LIURP job will instead include the installation of a programmable thermostat. For the purpose of valuing energy savings of both Wi-Fi and programmable thermostats, Distribution will utilize the programmable thermostat engineering algorithm in the NYTM.

Exhibit 17: LIURP - Participation and Savings Derivation - 2016 Through 2018

Job Type	Number of Participants	Average Cost Per Job ($)	Total Cost ($)	Gross Per Unit Savings (Dth)	Gross Total Savings (Dth)
Traditional LIURP Incentives and Services	1,232.96	$3,835.58	$4,729,100	39.7781	49,044.63
Furnace Replacement Incentives and Services	120.72	$2,070.83	$250,000	21.4037	2,583.95
Total Incentives and Services	**1,353.68**		**$4,979,100**		**51,628.58**

Performance Targets and Anticipated Changes

The primary performance target for this program is gross total savings and the secondary performance target for this program is carbon dioxide emission reductions, as outlined below in Exhibit 18. Distribution's gross savings target is based on the derivation analysis described above, NYSERDA's EmpCalc savings database calculations, and the latest engineering algorithms from the NYTM for the furnace replacement initiative. With respect to greenhouse gas emissions, Distribution will utilize the EPA's Greenhouse Gas Equivalencies Calculator.[27]

[27] EPA website, Greenhouse Gas Equivalencies Calculator at: http://www.epa.gov/cleanenergy/energy-resources/calculator.html#results.

Exhibit 18: LIURP - Primary and Secondary Performance Targets - 2016 Through 2018		
Program Year	**Primary Metric**	**Secondary Metric**
	Gross Total Savings (Dth)	**Carbon Dioxide Emission Reductions (Metric Tons)**
2016	51,628.58	2,737
2017	51,628.58	2,737
2018	51,628.58	2,737

Distribution's ETIP does not currently assume any changes to LIURP for 2017 and 2018, above and beyond the program as described herein. If changes are to be proposed prospectively for 2017, 2018, or future program years, those changes would be incorporated into future ETIP filings completed by Distribution, in accordance with the annual energy efficiency program cycle outlined in Guidance Document CE-01, filed by Staff.[28]

Benefit Cost Analysis

Exhibit 19 and Exhibit 20 summarize the expected benefits, costs, and benefit/cost ratios for LIURP as of July 2015.

Exhibit 19: Summary of Benefits and Costs LIURP - TRC Test			
Program Year	TRC Benefit / Cost	Total NPV Benefits	Total NPV Costs
2016	1.23	$6,925,430	$5,635,000
2017	1.23	$6,925,430	$5,635,000
2018	1.23	$6,925,430	$5,635,000
2016-2018	1.23	$20,776,290	$16,905,000

[28] Case 15-M-0252 – Guidance Document CE-01, Utility Energy Efficiency Program Cycle, filed on May 1, 2015.

Exhibit 20: Summary of Benefits and Costs LIURP – TRC Test With Carbon Adder			
Program Year	TRC Benefit / Cost	Total NPV Benefits	Total NPV Costs
2016	1.34	$7,533,137	$5,635,000
2017	1.34	$7,533,137	$5,635,000
2018	1.34	$7,533,137	$5,635,000
2016-2018	1.34	$22,599,411	$16,905,000

VIII. Total Portfolio Budget and Target Summary

Exhibit 21 provides a budget summary for Distribution's full CIP portfolio. It should be noted that the Portfolio Administration category includes outreach and education for the full CIP portfolio. In addition, a description of energy efficiency administrative costs that are recovered through base rates has been provided above in the "CIP Overview and High-Level Portfolio Description" section of the Company's ETIP.

Exhibit 21: Total Gas Portfolio Budget			
	Year 1 (2016)	**Year 2 (2017)**	**Year 3 (2018)**
Commercial and Industrial Sector			
NRCIP			
Incentives and Services	$598,000	$598,000	$598,000
Program Implementation	$52,000	$52,000	$52,000
Total Program Budget	**$650,000**	**$650,000**	**$650,000**
Residential Sector			
Residential Rebate Program			
Incentives and Services	$2,500,000	$2,500,000	$2,500,000
Program Implementation	$150,000	$150,000	$150,000
Total Program Budget	**$2,650,000**	**$2,650,000**	**$2,650,000**
LIURP			
Incentives and Services	$4,979,100	$4,979,100	$4,979,100
Program Implementation	$510,900	$510,900	$510,900
Total Program Budget	**$5,490,000**	**$5,490,000**	**$5,490,000**
Total Portfolio			
Total Commercial and Industrial Sector	$650,000	$650,000	$650,000
Total Residential Sector	$8,140,000	$8,140,000	$8,140,000
Portfolio Administration	$950,000	$950,000	$950,000
Portfolio EM&V	$300,000	$300,000	$300,000
Total Gas Portfolio Budget	**$10,040,000**	**$10,040,000**	**$10,040,000**

Exhibit 22 provides a metric summary for Distribution's full CIP portfolio. Distribution has chosen carbon dioxide emission reductions, measured in metric tons, as the secondary metric for each program. This secondary metric was added: (1) based on Staff's ETIP Guidance[29], (2) to align the Company's energy efficiency portfolio with REV Proceeding outcomes, and (3) to support greenhouse gas emission goals adopted statewide in the 2015 New York State Energy

[29] Case 15-M-0252 – Guidance Document CE-02, ETIP Guidance, filed on May 1, 2015.

Plan.[30] With respect to calculating emission reductions, Distribution will utilize the EPA's Greenhouse Gas Equivalencies Calculator.[31]

Exhibit 22: Total Gas Portfolio Primary and Secondary Targets			
	Year 1 (2016)	**Year 2 (2017)**	**Year 3 (2018)**
Commercial and Industrial Sector			
NRCIP			
Dth - Primary Metric	172,909.14	172,909.14	172,909.14
Carbon Dioxide Emission Reductions (Metric Tons) - Secondary Metric	9,168	9,168	9,168
Residential Sector			
Residential Rebate Program			
Dth - Primary Metric	120,803.93	120,803.93	120,803.93
Carbon Dioxide Emission Reductions (Metric Tons) - Secondary Metric	6,405	6,405	6,405
LIURP			
Dth - Primary Metric	51,628.58	51,628.58	51,628.58
Carbon Dioxide Emission Reductions (Metric Tons) - Secondary Metric	2,737	2,737	2,737
Total Portfolio			
Dth - Primary Metric	345,341.65	345,341.65	345,341.65
Carbon Dioxide Emission Reductions (Metric Tons) - Secondary Metric	18,310	18,310	18,310

IX. Forecasted Total Portfolio Expenditures and Program Achievements

Exhibit 23 and Exhibit 24 provide a current forecast of CIP expenditures and Dth achievements, respectively, for commitment and encumbrance planning purposes.

[30] 2015 New York State Energy Plan, at http://energyplan.ny.gov/.
[31] EPA website, Greenhouse Gas Equivalencies Calculator at: http://www.epa.gov/cleanenergy/energy-resources/calculator.html#results.

Exhibit 23: Total Gas Portfolio Forecasted Expenditures - 2016 Through 2018 Program Years				
	Year 1 (2016)	**Year 2 (2017)**	**Year 3 (2018)**	**Year 4 (2019)**
CIP - 2016 Program Year	$9,377,500	$662,500		
CIP - 2017 Program Year		$9,377,500	$662,500	
CIP - 2018 Program Year			$9,377,500	$662,500
Total Portfolio	**$9,377,500**	**$10,040,000**	**$10,040,000**	**$662,500**

Exhibit 24: Total Gas Portfolio Forecasted Dth Achievements - 2016 Through 2018 Program Years				
	Year 1 (2016)	**Year 2 (2017)**	**Year 3 (2018)**	**Year 4 (2019)**
CIP - 2016 Program Year	315,140.67	30,200.98		
CIP - 2017 Program Year		315,140.67	30,200.98	
CIP - 2018 Program Year			315,140.67	30,200.98
Total Portfolio	**315,140.67**	**345,341.65**	**345,341.65**	**30,200.98**

X. Total Portfolio Funding

Distribution's cost recovery for CIP programming is achieved by utilizing the CIP Cost Recovery Mechanism, a volumetric surcharge mechanism that has been in place since the inception of CIP in 2007.[32] The Company supports surcharge mechanisms for the continuation of energy efficiency programs, as they allow for the most transparent and flexible cost recovery approach. Exhibit 25 provides Distribution's expected sources of funding for the 2016 through 2018 program years.

Exhibit 25: Total Gas Portfolio – Estimated Sources of Funds for Future Programs			
Funding Source	**Year 1 (2016)**	**Year 2 (2017)**	**Year 3 (2018)**
Unspent EEPS 1	$0	$0	$0
Unspent EEPS 2[33]	$6,000,000	$2,000,000	$0
Unspent EEPS EM&V	$0	$0	$0
CIP Cost Recovery Mechanism ("EE Tracker")	$4,040,000	$8,040,000	$10,040,000
Total Funding	**$10,040,000**	**$10,040,000**	**$10,040,000**

It should be noted that unspent EEPS 2 funding is not currently known, as the programming is still being offered, customer collections are still occurring, program expenses are

[32] In the 2015 Gas Energy Efficiency Order, the terminology "Energy Efficiency Tracker" or "EE Tracker" is utilized. The CIP Cost Recovery Mechanism is synonymous with these terms and is described in greater detail in Distribution's tariff.

[33] EEPS 2 funding shown in this line is inclusive of EEPS 2 EM&V for the purposes of this ETIP.

still occurring, and commitment and encumbrances have not yet started for EEPS 2 programming. Stated otherwise, the numbers shown above are purely an estimate at this juncture, based on current customer collections and program payment levels as of May 31, 2015. The Company plans to begin refunding unused CIP monies to customers during 2016.[34] In addition, once EEPS 2 is fully reconciled and closed by Distribution in 2016, future ETIP submissions will include an update with known levels of remaining unused funding. The unspent EEPS 2 funding shown above in Exhibit 25 will help to reduce customer surcharges during the 2016 and 2017 program years.

XI. Total Portfolio Benefit Cost Analysis

Exhibit 26 provides Distribution's TRC benefit cost analysis, excluding carbon adders.

Exhibit 26: Total Gas Portfolio - Total Resource Cost Test			
	Year 1 (2016)	**Year 2 (2017)**	**Year 3 (2018)**
Commercial and Industrial Sector			
NRCIP			
NPV Benefits	$20,874,551	$20,874,551	$20,874,551
NPV Costs	$12,175,948	$12,175,948	$12,175,948
Benefit Cost Ratio	**1.71**	**1.71**	**1.71**
Residential Sector			
Residential Rebate Program			
NPV Benefits	$11,986,752	$11,986,752	$11,986,752
NPV Costs	$6,696,775	$6,696,775	$6,696,775
Benefit Cost Ratio	**1.79**	**1.79**	**1.79**
LIURP			
NPV Benefits	$6,925,430	$6,925,430	$6,925,430
NPV Costs	$5,635,000	$5,635,000	$5,635,000
Benefit Cost Ratio	**1.23**	**1.23**	**1.23**
Total Portfolio			
Total NPV Benefits	$39,786,733	$39,786,733	$39,786,733
Total NPV Costs	$24,507,723	$24,507,723	$24,507,723
Total Gas Portfolio Benefit Cost Ratio	**1.62**	**1.62**	**1.62**

[34] This is program funding previously authorized by the Commission for EEPS 2.

Exhibit 27 provides Distribution's TRC benefit cost analysis, including carbon adders.

Exhibit 27: Total Gas Portfolio - Total Resource Cost Test - With Carbon Adder			
	Year 1 (2016)	**Year 2 (2017)**	**Year 3 (2018)**
Commercial and Industrial Sector			
NRCIP			
NPV Benefits	$22,706,293	$22,706,293	$22,706,293
NPV Costs	$12,175,948	$12,175,948	$12,175,948
Benefit Cost Ratio	**1.86**	**1.86**	**1.86**
Residential Sector			
Residential Rebate Program			
NPV Benefits	$13,038,590	$13,038,590	$13,038,590
NPV Costs	$6,696,775	$6,696,775	$6,696,775
Benefit Cost Ratio	**1.95**	**1.95**	**1.95**
LIURP			
NPV Benefits	$7,533,137	$7,533,137	$7,533,137
NPV Costs	$5,635,000	$5,635,000	$5,635,000
Benefit Cost Ratio	**1.34**	**1.34**	**1.34**
Total Portfolio			
Total NPV Benefits	$43,278,020	$43,278,020	$43,278,020
Total NPV Costs	$24,507,723	$24,507,723	$24,507,723
Total Gas Portfolio Benefit Cost Ratio	**1.77**	**1.77**	**1.77**

XII. EM&V

Distribution and its evaluation contractor have developed a comprehensive EM&V Plan for CIP, which will be executed during the next three program years, 2016 to 2018. A copy of this EM&V Plan is provided as Appendix A to this ETIP. Exhibit 28 provides a current estimate of Distribution's EM&V activity schedule.

Exhibit 28: EM&V Activity Schedule			
EM&V Activity	**Expected Start Date**	**Expected Completion Date**	**Cycle Year Informed**
Process Evaluation (All Programs)	1/15/2016	9/1/2016	2017
LIURP Impact Evaluation Field Work	10/1/2016	3/1/2017	2018
Residential Rebate Program Impact Evaluation Field Work	4/1/2017	9/1/2017	2018
NRCIP Impact Evaluation Field Work	10/1/2017	3/1/2018	2019
Outreach and Education Impact Evaluation Field Work	4/1/2018	9/1/2018	2019
Impact Evaluation Report (All Programs)	10/1/2016	9/1/2018	2019
TRM Implementation Review and On-Going Support	On-Going	On-Going	All

Exhibit 29 provides a current estimate of Distribution's EM&V activity budgets.

Exhibit 29: EM&V Activity Budget			
EM&V Activity	**Year 1 (2016)**	**Year 2 (2017)**	**Year 3 (2018)**
Process Evaluation (All Programs)	$165,000		
LIURP Impact Evaluation Field Work		$90,000	
Residential Rebate Program Impact Evaluation Field Work		$90,000	
NRCIP Impact Evaluation Field Work			$135,000
Outreach and Education Impact Evaluation Field Work			$45,000
Impact Evaluation Report (All Programs)		$20,000	$20,000
TRM Implementation Review and On-Going Support	$135,000	$100,000	$100,000
Total EM&V Budget	**$300,000**	**$300,000**	**$300,000**

XIII. Conclusion

Distribution respectfully requests that all CIP budgets and targets be authorized by the Commission, as described above in this ETIP and as outlined in the Company's Budget and Metrics Plan companion filing.

Respectfully submitted,

/s/ Evan M. Crahen

Evan M. Crahen
Regulatory Analyst II
Rates and Regulatory Affairs
National Fuel Gas Distribution Corporation
(716) 857-7440
CrahenE@natfuel.com

/s/ Randy C. Rucinski

Randy C. Rucinski
Assistant General Counsel
Rates and Regulatory Affairs
National Fuel Gas Distribution Corporation
(716) 857-7237
RucinskiR@natfuel.com

Dated: July 15, 2015

National Fuel Gas Distribution Corporation, New York Division, Conservation Incentive Program: Evaluation, Measurement, and Verification Plan for 2016 – 2018

July 15, 2015

National Fuel Gas Distribution Corporation
6363 Main Street
Williamsville, NY 14221

The Cadmus Group, Inc.
An Employee-Owned Company • www.cadmusgroup.com

This page left blank.

CADMUS

Prepared by:
Hossein Haeri, Ph.D.
Kate Bushman
Sarah Delp

Cadmus

This page left blank.

CADMUS

Table of Contents

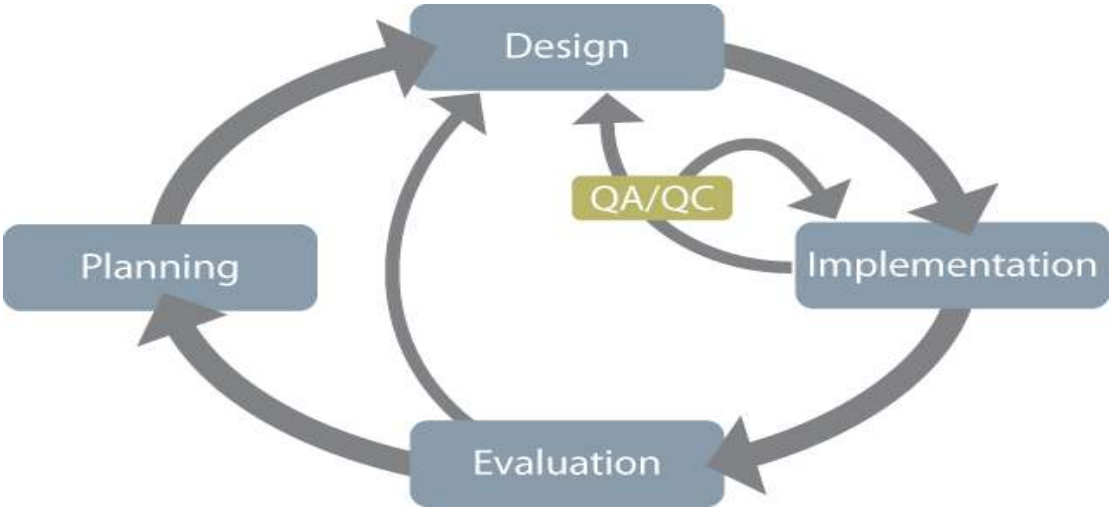
CADMUS

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 CIP, as a whole, and its components continue to cost-effectively achieve savings for participating customers. 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 steps that Distribution will take in the continuous improvement process, including specific evaluation objectives and approaches tailored to each CIP component. Distribution has created this evaluation plan in accordance with guidelines issued in the *New York Evaluation Plan Guidance for EEPS (Energy Efficiency Portfolio Standard) Program Administrators*, which was issued in August 2008 pursuant to the June 23, 2008 Order in Case 07-M-0548, *Order Establishing Energy Efficiency Portfolio Standard and Approving Programs*. It should be noted that this guidance was updated in August 2013. Furthermore, Distribution has tailored its evaluation objectives and approaches to align with the February 26, 2015 Order in Case 14-M-0101, *Order Adopting Regulatory Policy Framework and Implementation Plan,* which directed utilities to design EM&V activities "to yield timely information that shall be incorporated into the annual iterations of utility programs, resource manuals and guidance."

To review and assist with evaluations and on-going measurement and verification ("M&V") work, Distribution has engaged the services of The Cadmus Group, Inc. (Cadmus), a consulting firm.

Prioritization of Activities

Distribution will work with Department of Public Service Staff and Cadmus to ensure that evaluations are transparent, replicable, reliable and economical. Evaluation activities will be prioritized jointly by Distribution and Cadmus to ensure that evaluation funds are optimized. The prioritization of evaluation activities will take place during the spring of each calendar year.

Distribution will 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. Cadmus will be responsible for providing an impartial review of Distribution's programs, process and impact assessments, cost-effectiveness analyses, and implementation of engineering algorithms to estimate savings achieved. To ensure the accuracy and validity of the results, Cadmus may selectively conduct independent analyses to replicate the results. Cadmus will also be responsible for conducting a formal process evaluation, estimating net to gross impacts, and conducting targeted data collection and analysis, among other tasks.

CADMUS

Program Description

Four program components comprise CIP:

- Low-Income Usage Reduction Program ("LIURP")
- Residential Rebate Program
- Non-Residential Rebate Program ("NRCIP")
- Outreach and Education ("O&E")

This section describes 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 heating, cooking, and process heating equipment.
- Supporting the 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 December 31, 2014, CIP achieved the following program participation levels:

- 6,250 jobs completed for low income customers.
- 100,928 measures installed and rebated for residential customers.
- 1,460 rebates issued for small non-residential customers.

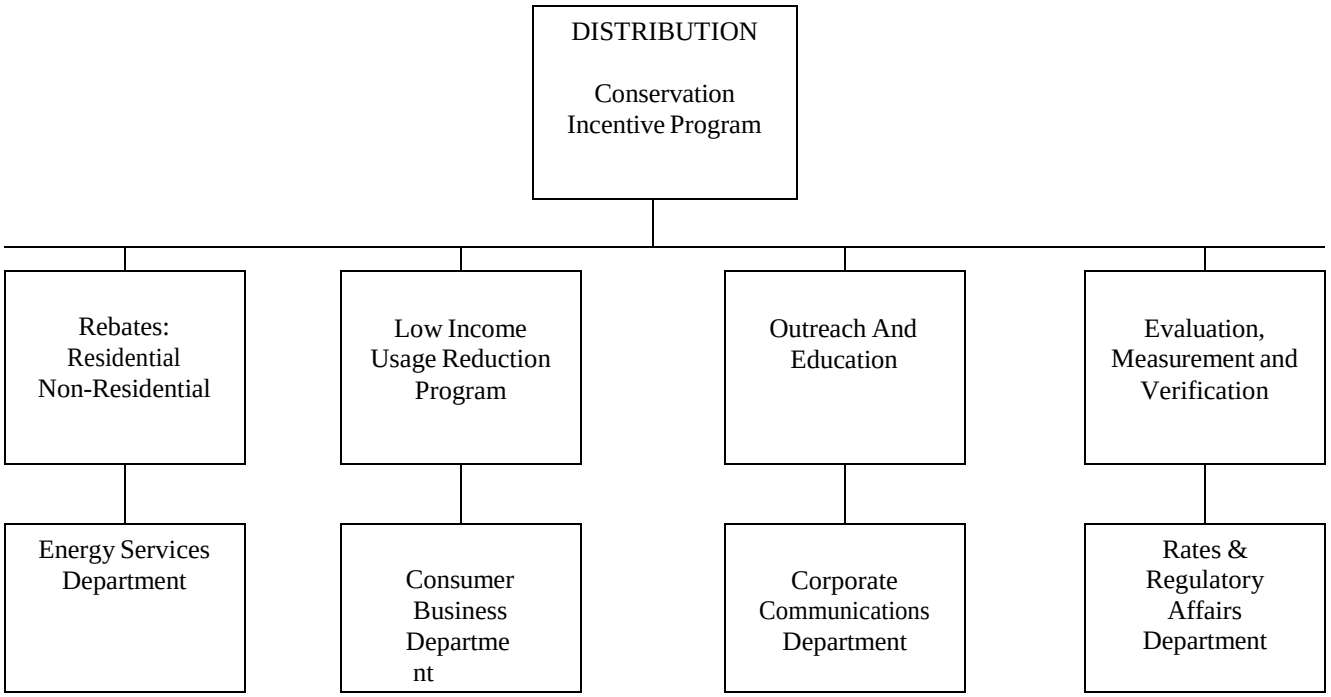
At a minimum, this plan applies to program activity in 2016 through 2018. Distribution intends to follow this plan for future CIP evaluation efforts, making slight modifications to the plan as needed.

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 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.

Here's a graphic of it you could insert here, if desired. Feel free to make it your own and look good:



CADMUS

Key Research Objectives and Evaluation Activities

Three key elements comprise the evaluation plan:

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

This section describes key research objectives of each element, and summarizes the 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	Dth	Absolute savings, savings-goal variance, freeridership, spillover, snapback
Customer Satisfaction	Satisfaction rating	Satisfaction scores, number and type 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 program tracking databases 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 2016, and will incorporate any future implementation contractors.
- **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 program tracking databases and/or PeopleSoft system. 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 the program sections.

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 of CIP, program delivery method, and sector. The process evaluation's main areas of focus are: process efficiency, delivery infrastructure, and customer response (including adoption of measures). Specific process topics 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, non-residential 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 the measures installed?
- **Measures 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 the program support market transformation and if so, how?
- **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 this evaluation activity, and, through reporting requirements and informal discussion, will regularly update Department of Public Service Staff as to program progress.

As detailed below, process evaluation data collection will be conducted through customer surveys and interviews with personnel that work on CIP. Parties involved in data collection will include: participant and nonparticipant customers, trade allies, implementation contractors, and Distribution personnel.

- **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 program tracking database 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. These customers can be identified by querying Distribution's customer information system or billing system.

- **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 Contractors and Implementation Staff**: Distribution personnel, NYSERDA staff involved in implementing LIURP, and program staff at all implementation contractors, including EFI, Honeywell, etc.

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 make recommendations to revise those surveys or create new, distinct surveys for evaluation purposes.

The process evaluation will examine the following topics, 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 begin concurrent with the 2016 calendar year. A process evaluation report will be targeted for a September 15th completion (either 2016 or 2017, based on the work plan developed) allowing for the incorporation of recommendations and lessons learned into the next round of program delivery. Process evaluation activities will highlight changes made, or new features implemented into CIP, since the last process evaluation was completed in 2011. Such an approach provides for an efficient use of evaluation funding.

Impact Evaluation

The impact evaluation will assess energy savings resulting from the program. Cadmus will perform *ad hoc* targeted studies during each program year to yield timely information that will allow Distribution to

incorporate findings into the next program year. The research activities outlined in this plan will initiate in 2016 and continue in subsequent program years.

This information will be used to:

- Refine energy savings calculations;
- Inform updates to the New York Technical Manual or Distribution's implementation from the New York Technical Manual;
- Inform program administrators about progress towards energy-savings goals;
- Provide key data used in cost-effectiveness analysis; and
- Report Distribution's program results, 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 International Performance Measurement and Verification Protocol (IPMVP) designates four options for evaluating various types of energy-efficiency programs.[1] 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 measures[2] 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.

[1] *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/

[2] Deemed measures are outlined in the New York Standard Approach for Estimating Energy Savings from Energy Efficiency Programs for the residential, multifamily, and commercial sectors (Technical Manual).

Ex post savings will be determined and reported differently, depending on the program and sector. For residential and low-income, a verification-only analysis will be performed, and deemed savings will be applied. For the Residential Rebate Program, Distribution will report savings in compliance with the New York Standard Approach for Estimating Energy Savings from Energy Efficiency Programs (Technical Manual). For LIURP, Distribution will report savings based on reports received from NYSERDA, utilizing NYSERDA's modeling tool, EmPCalc, to estimate savings. Cadmus will review, replicate, and critically address methodological strengths and weaknesses of all billing analyses, and will conduct independent billing analysis where appropriate. Detailed methods for billing analyses will be outlined in work plans to be developed by Cadmus with guidance and approval from Distribution. Furthermore, Cadmus will perform engineering reviews of savings calculations and Distribution's application of Technical Manual algorithms, including any updates to the Technical Manual. On an *ad hoc* basis, typically when changes are made to the Technical Manual, Cadmus will provide formal memos verifying Distribution's implementation compliance with the currently effective Technical Manual.

Cost-Effectiveness Modeling

For cost-effectiveness analysis, Distribution will report results of the Total Resource Cost Test (TRC). The TRC for each component must exceed 1.0 in order to pass screening, as outlined in Department of Public Service Staff's guidance document titled ETIP Guidance, issued on May 1, 2015, and filed at Case No. 15-M-0252, *In the Matter of Utility Energy Efficiency Programs*. As part of the on-going Reforming the Energy Vision proceeding, a new benefit-cost analysis (BCA) framework is under consideration by the New York State Public Service Commission. Until a new BCA framework is adopted and ordered, Distribution will continue to calculate and report a TRC calculation.

The program sections 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. 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 program tracking database or customer information system; survey data; and data acquired during on-site visits.

Data from the Program 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 Outreach and Education Campaign Survey (Campaign Survey).** This survey of randomly selected residential customers is fielded on an on-going, as needed basis to gauge customer awareness of Outreach and Education efforts and program offerings.
2. **CIP Rebate Program Customer Survey (Rebate Participant Survey).** This survey is fielded on an on-going monthly 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 program design, if necessary, to better serve customers.

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 program tracking database have been installed and are operating as intended. For deemed measures, nameplate information, required to look up or calculate savings, will be verified. Partially-deemed measures will require verification of additional information. These data elements 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:
   a. Customer name, address, phone number, and account number.
   b. Measures rebated for each participant.
   c. Estimates of energy savings for each measure.
2. Customer billing data:
   a. One year of pre-program consumption histories by billing cycle, including meter read dates, amounts billed and received, and transaction dates.
   b. One year of post-program consumption histories by billing cycle, including meter read dates, and amounts billed and received, along with transaction dates.
   c. Additional years of post-program consumption histories by billing cycle will be assessed if the data is available for the customers selected in the sample.
3. Weather data:
   a. 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 work. 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.
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.
Program Database Review	√		√	√	The review ensures appropriate data are being collected to inform the evaluation.
Technical Manual Engineering Review			√	√	Ongoing review of savings calculations to verify compliance with current Technical Manual algorithms and modeling software employed in CIP programs.
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.

Data Requirements (Evaluability Assessment)

Detailed data on measure installations and consumption histories from Distribution's program tracking database and/or customer information system serves as the primary data elements for evaluating this program. 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, among others:

- Participant contact information;
- Measure name;
- Measure type;
- *Ex ante* energy savings by measure;
- Measure life, installed cost, incremental cost;

- Number of measures installed;
- Rebate amount;
- Monthly consumption histories;
- Existing conditions and equipment, as available and reliable, including, for example: AFUE, duct location, and building type, as appropriate.

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; thermostats; hot water heater setbacks and equipment improvements; low-flow showerheads and aerators; heating system repair or replacement; pipe wrapping; and a consumer energy education program.

To qualify for participation, a customer must: have an income less than or equal to 60% of the New York State median income (HEAP eligible); have an active heating account with National Fuel for at least one year prior to weatherization services being employed; and have high consumption (referrals are made starting with 180 – 200+ Mcf per year, and currently the minimum referral is set at 112 Mcf). 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 reporting, and through Distribution's program 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 implementation contractors, Distribution personnel, 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 and barriers to participation, the process evaluation will inform Distribution about program-related market issues and recommend how to address those issues to better serve customers.

CADMUS

Impact Evaluation Methodology

Determination of Gross Savings

For deemed measures, a verification-only analysis will be performed. Deemed savings are reported for LIURP based on reports received from NYSERDA. NYSERDA's EmpCalc modeling tool estimates deemed savings for this program.

Cadmus will work with Distribution to conduct a billing analysis for the census of program participants, 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. Cadmus will also include questions in the surveys fielded during the process evaluation to identify usage anomalies in the analysis and reduce the uncertainty around the findings of the billing analysis.

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 the program's TRC annually, consistent with Department of Public Service Staff guidance.

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
Site Visits	90%	10%	68

Residential Rebate Program Evaluation

Residential Rebate Program Description

The Residential Rebate Program is an equipment replacement program offering equipment replacement incentives for single-family and multifamily dwellings that install qualifying energy efficient space heating and water heating appliances. Distribution sets minimum efficiency levels for each appliance type, based on federal ENERGY STAR® and New York State Energy Smart guidelines.

The program provides financial incentives for prescriptive rebates on a per-unit basis to customers installing qualifying equipment. Rebates, set as a fixed dollar amount per measure, 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 Rebate Program)

Measure	Eligibility Rating	2014 Incentive	2015 Incentive
Space Heating			
High-Efficiency Furnace	Minimum AFUE 90%	$300	$300
High-Efficiency Furnace with ECM	Minimum AFUE 90%	$400	$400
High-Efficiency Hot Water Boiler	Minimum AFUE 85%	$400	$400
High-Efficiency Steam Boiler	Minimum AFUE 81%	$200	$200
Programmable Thermostat		$25	$25
Water Heating*			
Storage Tank Water Heater	0.67 EF	N/A	$75
Tankless Water Heater	0.82 EF	N/A	$350
Indirect Water Heater		$300	$300

*Effective 1/1/2015, Storage Tank Water Heater and Tankless Water Heater incentives were reinstated in this program.

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 program 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. Information from Distribution's QA/QC contractor may also be utilized by Cadmus.

Process Evaluation Methodology

The process evaluation will examine whether the program operates efficiently and effectively. Interviews with program contractors, Distribution personnel, program participants, nonparticipants, and trade allies will serve as the process evaluation's main data source. Survey data relevant to the process evaluation 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 ally interviews, and investigating impediments and barriers 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, a verification-only analysis will be performed, and deemed savings will be applied. Deemed savings for this program is based on Distribution's Technical Manual implementation.

Additionally, a billing analysis will be conducted to determine savings attributable to the program. Cadmus will ensure it complies with specifications outlined in this plan. To reduce uncertainty around the billing analysis findings, Cadmus will include process evaluation questions in surveys with billing analysis participants to identify anomalies for selected high impact measures (such as furnaces and water heaters). Savings calculated from the billing analysis will be reported as *ex post* evaluated savings.

Cadmus may also conduct a limited review of incremental measure costs. This research will include telephone interviews with contractors to determine current estimates of incremental measure costs that are specific to Distribution's service territory. Measures to be prioritized in this research include

Furnace, Furnace with ECM, Hot Water Boiler, Steam Boiler, Storage Tank Water Heater, and Tankless Water Heater.

Net-to-Gross Ratio

Distribution will use data collected from participant surveys to determine the program's impact on participants' decisions to install energy efficient measures. Cadmus will perform the analysis to determine a NTG ratio.

Cost-Effectiveness Analysis

Cost-effectiveness may be calculated at multiple stages in the implementation process. Program-level cost-effectiveness will be reported annually, consistent with Department of Public Service Staff guidance.

Sample Sizes

Table 5 outlines sample sizes associated with evaluation activities outlined for this program, and the corresponding confidence and precision levels.

Table 5. Sample Sizes for Residential Rebate Evaluation Activities

	Confidence	Precision	Sample Size
Records Review	90%	10%	68
Surveys (Process & Impact)	90%	10%	68[3]
Site Visits	90%	10%	68

[3] The Rebate Participant survey is fielded by EFI.

CADMUS

Nonresidential Rebate Program Evaluation

Nonresidential Prescriptive Rebate Program Description

The nonresidential prescriptive rebate component serves the small, nonresidential market (less than 12,000 Mcf per year), and offers fixed rebates to customers installing qualifying equipment, including: space heating, water heating, and cooking equipment. Distribution sets minimum efficiency levels for eligible equipment, based on federal ENERGY STAR® and New York State Energy Smart guidelines.

As with the Residential Rebate Program, this program provides financial incentives as prescriptive rebates on a per-unit basis to customers installing qualifying equipment and measures. Rebates are set at a fixed amount per measure, paid to customers:

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

The program also offers custom, performance-based rebates to customers on a case-by-case basis. For this custom rebate, an energy analysis is conducted to estimate energy savings from the energy efficient equipment to be installed by the customer.

Custom incentive amounts are offered as $15 per Mcf saved.

Quality Assurance and Quality Control

The Nonresidential Rebate Program'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 program tracking 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 contractors, Distribution personnel, program participants, nonparticipants, and trade allies will serve as the process evaluation's main data sources. Survey data relevant to the process evaluation 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.

For targeted high impact measures, Cadmus will perform site visits. These site visits will provide third-party verification of program implementation processes, and data collected through the site visits will inform the process evaluation as well as serving to verify measure installation. Cadmus will seek to accomplish three primary tasks through these QA/QC visits:

- Verify the implementation status of measures for which customers received incentives. This requires verifying that the energy-efficiency measures have been installed correctly and that they function properly. Cadmus will also verify the operational characteristics of the installed equipment, such as temperature setpoints and operating hours.
- Collect physical data, such as boiler capacities or operational temperatures, and analyze the energy savings realized from the installed improvements and measures.
- Interview facility personnel to obtain additional information regarding the installed systems, thus supplementing data from other sources.

Impact Evaluation Methodology

Distribution will use IPMVP-adherent M&V methods to validate energy savings for completed projects. Program impacts will be calculated by performing a billing analysis on the census of program participants. Site visits for a sample of completed projects will be completed, 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

Measure, project, and program impacts will be verified 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, Cadmus will work with Distribution 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, with a focus on the highest impact measures, such as hot water and steam boilers.

Cadmus may also conduct follow-up surveys with billing analysis participants to help identify anomalies discovered during the billing analysis process.

Custom measures, not included in the Technical Manual, may require unique M&V protocols, such as verification site visits and documentation reviews. Cadmus will review documentation for selected custom sites such as program applications, program forms, program tracking database information, available audit reports, and savings calculations. Cadmus will review the program documentation for the following information:

- ***Equipment replaced:*** descriptions, schematics, performance data, and other supporting information.
- ***New equipment installed:*** descriptions, schematics, performance data, and other supporting information.
- ***Savings calculation methodology:*** the methodology used, specifications of assumptions, sources for these specifications, and the correctness of calculations.

Net-to-Gross Ratio

Field surveys for nonresidential customers will be initiated in 2016 to assess 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. Cost-Effectiveness Analysis

For small non-residential customers installing residential-sized equipment, Distribution will use residential incremental costs. For larger equipment, Distribution will calculate incremental costs using information provided by the implementation contractor. 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. If necessary, 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 annually, consistent with Department of Public Service Staff guidance.

Sample Sizes

Table 6 outlines sample sizes associated with evaluation activities outlined for this program and corresponding confidence and precision levels.

Table 6. Sample Sizes for Nonresidential Rebate Program Evaluation Activities[4]

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

[4] All nonresidential records review, surveys, and site visits will be done in coordination with the Nonresidential implementation contractor.

CADMUS

Outreach and Education Program Evaluation

Outreach and Education Program Description

The communication initiative seeks to stimulate strong participation in 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 partnerships in community group education forums and leadership meetings.

Process Evaluation Methodology

A random digit dial survey of Distribution customers is conducted on an on-going, as needed basis to assess customer familiarity and satisfaction with the Outreach and Education campaign. Distribution will continue to field surveys with teachers participating in the NEED program to determine satisfaction and engagement with curriculum. Distribution will also continue to conduct surveys of customers that received outreach and education kits as part of CIP. Cadmus will conduct a records review to assess data tracking and implementation processes for outreach and education efforts.

Impact Evaluation Methodology

Distribution and Cadmus will develop a comprehensive approach for measuring the effectiveness of various outreach and education initiatives. 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). For measure verification purposes, Cadmus will conduct surveys with energy-savings kit recipients.

Sample Sizes

Table 7 outlines the sample sizes associated with evaluation activities outlined for this program, and corresponding confidence and precision levels.

Table 7. Sample Sizes for Outreach and Education Activities

	Confidence	Precision	Sample Size
Records Review	NA	NA	NA
Surveys (Process & Impact)	90%	10%	400 – Campaign Survey[5]
Site Visits	NA	NA	NA

[5] The Campaign Survey is fielded by Eric Mower & Associates. As noted, additional surveys are being considered for the impact evaluation, depending on the sample size of the most recent survey effort.