



**Energy Efficiency Plan  
Plan Year 1  
(6/1/2011-5/31/2012)**

**Evaluation Report:  
Peoples Gas and North Shore Gas  
C&I Custom Rebate Program**

**FINAL**

**Presented to  
Peoples Gas and North Shore Gas**

May 16, 2013

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**Table of Contents**

- E. Executive Summary ..... 1**
  - E.1 Evaluation Objectives ..... 1
  - E.2 Evaluation Methods..... 1
  - E.3 Key Impact Findings and Recommendations ..... 1
  - E.4 Key Process Findings and Recommendations ..... 3
- 1. Introduction to the Program..... 6**
  - 1.1 Program Description ..... 6
  - 1.2 Evaluation Questions ..... 7
    - 1.2.1 Impact Questions ..... 7
    - 1.2.2 Process Questions ..... 7
- 2. Evaluation Methods..... 9**
  - 2.1 Primary Data Collection..... 9
  - 2.2 Additional Research ..... 10
  - 2.3 Impact Evaluation Methods ..... 10
    - 2.3.1 Gross Program Savings ..... 11
    - 2.3.2 Net Program Savings..... 13
- 3. Evaluations Results ..... 14**
  - 3.1 Impact Evaluation Results ..... 14
    - 3.1.1 Verification and Due Diligence Procedure Review ..... 14
    - 3.1.2 Tracking System Review ..... 16
    - 3.1.3 Gross Program Impact Parameter Estimates ..... 17
    - 3.1.4 Gross Program Impact Results..... 17
    - 3.1.5 Net Program Impact Parameter Estimates ..... 19
    - 3.1.6 Net Program Impact Results ..... 20
  - 3.2 Process Evaluation Results ..... 21
    - 3.2.1 Participant Survey Results..... 21
    - 3.2.2 Trade Ally Survey Results ..... 24
- 4. Findings and Recommendations ..... 28**
  - 4.1 Key Impact Findings and Recommendations ..... 28
  - 4.2 Key Process Findings and Recommendations ..... 29
- 5. Appendix ..... 31**

5.1	Glossary [Left blank - There will be one glossary added for Illinois]	31
5.2	Detailed impact results	31
5.2.1	Detailed NTG Calculations	35
5.3	TRM Recommendations	40
5.4	Sampling Details	40
	Gross Impact M&V Sample	40
	CATI Telephone Survey	41
5.5	Detailed process results	42
5.6	Detailed methodology	42
5.6.1	Gross Program Savings Onsite Verification	43
5.6.2	Selection of IPMVP Approach	43
5.7	VDDTSR Memo-Final version	46
5.8	Franklin Energy Services Memorandum in Response to VDDTSR (C&I Custom Rebate excerpt)	58
5.9	Data Collection Instruments	61
5.9.1	Participant Survey	61
5.9.2	Trade Ally Survey	93

## List of Figures and Tables

### Figures:

Figure 3-1. Method of Initial Introduction to Program .....	22
Figure 3-2. Primary Benefit of Program Participation.....	23

### Tables:

Table E-1. GPY1 Natural Gas Savings Estimates .....	2
Table 1-1. C&I Custom Rebates Program GPY1 Savings Goals and Budgets.....	7
Table 2-1. C&I Custom Rebate Program Evaluation Data Collection Research Methodologies.	10
Table 2-2. Profile of GPY1 Gross Impact Sample by Strata .....	12
Table 2-3. Profile of the Gross Impact M&V On-Site Sample by Strata .....	12
Table 3-1. GPY1 Gross Program Impact Parameter Estimates.....	17
Table 3-2. Gross Impact Realization Rate Results for the Custom Sample .....	18
Table 3-3. Gross Therms Realization Rates and Relative Precision at 90% Confidence Level ....	18
Table 3-4. Gross Parameter and Savings Estimates at the Program Level by Strata .....	19
Table 3-5. Gross Parameter and Savings Estimates at the Program Level .....	19
Table 3-6. GPY1 Research Findings Net Impact Parameter Estimates .....	19
Table 3-7. Profile of GPY1 Participants Interviewed for Net Impact Estimates .....	20
Table 3-8. GPY1 Program Gross and Net Energy Savings Estimates.....	20
Table 3-9. NTG Ratio and Relative Precision at 90% Confidence Level .....	20
Table 3-10. GPY1 Program Net Energy Savings Vs. Planned Net Savings .....	21
Table 5-1. GPY1 C&I Custom Program Participation and Savings vs. Program Goals.....	31
Table 5-2. GPY1 Custom Program Participation and Savings by Measure.....	32
Table 5-3. Gross Impact Realization Rates for the Custom Sample by M&V Approach and Strata.....	33
Table 5-4. Gross Impact Realization Rate Results for the Selected Custom Sample – by Project and Strata .....	34
Table 5-5. Net-to-Gross Scoring Algorithm for the GPY1 Custom Program .....	38
Table 5-6. Profile of GPY1 Net Impact Sample.....	39
Table 5-7. GPY1 Program Gross and Net Energy Savings Estimates.....	39
Table 5-8. NTG Ratio and Relative Precision at 90% Confidence Level .....	39
Table 5-9. Profile of GPY1 Gross Impact Sample by Strata .....	41
Table 5-10. Profile of the Gross Impact M&V On-Site Sample by Strata .....	41

## E. Executive Summary

### E.1 Evaluation Objectives

The C&I Custom Rebate Program (C&I Custom Program) provides C&I customers within Peoples Gas and North Shore Gas (“IntegrYS”, “PG/NSG” or “the Companies”) service territory rebate incentives for the installation of natural gas-related energy efficiency improvements that are not specified for a prescriptive rebate under the C&I Prescriptive Rebate Program.

The primary objective of the impact evaluation is to estimate gross and net energy savings for the Companies’ programs. These results will be used to validate program-claimed savings and to adjust estimates of savings to improve their accuracy. The primary objective of the process evaluation effort will be to help program designers and managers structure their programs to achieve cost-effective savings while maintaining high levels of customer satisfaction.

### E.2 Evaluation Methods

The key evaluation activities to assess gross and net impacts as well as program processes and customer satisfaction of the Custom Program were:

- Verification of claimed savings on a sample of participants
  - Engineering review of project-level tracking data and the algorithms used by the program to calculate energy savings for all measures and the assumptions that feed those algorithms
  - On-site measurement and verification
- In-depth interviews
  - Program implementation contractor
  - Program trade allies/program stakeholders (e.g. wholesale equipment distributors)
- Program materials review
- Participant telephone interviews via Computer Assisted Telephone Interviews (CATI)

### E.3 Key Impact Findings and Recommendations

As shown in Table E-1, evaluation of the GPY1 Custom Program found that research findings for gross energy savings were approximately 2% higher than ex-ante gross savings reported in the implementation contractor’s (IC’s) tracking system, resulting in a realization rate of 1.02 (realization rate = evaluation research findings gross / ex-ante gross from the tracking system).

Table E-1 provides the evaluation research findings net energy savings based on a calculated NTG ratio of 0.68.

**Table E-1. GPY1 Natural Gas Savings Estimates**

Category	Peoples Gas Energy Savings (Therms)	North Shore Gas Energy Savings (Therms)
Ex Ante Gross Savings	246,546	38,754
Ex Ante Net Savings	187,375	29,453
Research Findings Gross Savings	252,368	39,670
Research Findings Net Savings	171,610	26,975
Verified Net-to-Gross Ratio	0.68	

*Source: Navigant Analysis of Franklin Energy tracking database (8/27/2012 database)*

The mean research findings gross realization rate for the Custom Program was 1.02 at  $\pm 11\%$  relative precision at a 90% confidence level. A research findings net-to-gross ratio of 0.68 was estimated for the Custom Program at a relative precision of  $\pm 12\%$  at a 90% confidence level.

Comparing initial program planning net therms savings estimates with evaluation estimated net therms savings, the evaluation team determined that Peoples Gas achieved 29% of the initial planned savings for the Custom Program, and North Shore Gas achieved 20% of its planning net therms savings.

The primary impact findings and recommendations are as follows:

**Finding:** The evaluation team performed an independent verification of the program tracking database to determine whether the database included an appropriate level of inputs, outliers, and potentially missing variables. After reviewing the program tracking system, Navigant concluded that additional information is needed to support future program evaluations and possibly allow program managers to monitor key aspects of program performance at regular intervals.

**Recommendations:**

- The IC should consider updating the tracking system for the GPY2 evaluation to include the participant’s business or facility type. Findings from the impact analysis showed that almost half of the projects randomly selected from the program tracking system came from participants with multi-family facilities. Tracking and reporting the facility/business type will help the evaluation team adequately represent all facility types in future M&V activities.

- The IC should consider including additional fields in the tracking system for information on baseline selection to indicate whether the implemented measure is a replacement on burn-out (ROB) or early replacement/retrofit (RET) scenario.
- The tracking system should include measure information such as new equipment cost, installation and incremental cost, equipment age or estimated equipment remaining useful life. This information, when available, is useful for evaluating measure and program cost effectiveness.

**Finding:** During engineering desk review for projects 35757, 29467, and 35961, the evaluation team found that no calculations were provided and no savings estimates were in the project files provided to Navigant. Subsequent to the engineering desk review, Navigant worked with the IC in gaining access to project-level data (outside of the tracking system) and had the opportunity to review the project calculations and assumptions.

**Recommendation:**

- Verification of net claimed savings is greatly aided when thorough documentation of baseline and baseline conditions are provided, including:
  - a. pre-existing equipment and operation description
  - b. energy savings assumptions and methodologies,
  - c. estimated equipment remaining useful life,
  - d. standard maintenance practices and history, and
  - e. inspection results.
- While the IC is collecting this information, Navigant stresses the importance of providing sufficient project documentation to accurately portray the program's selection of baseline conditions for custom projects.
- The IC should continue to encourage all customers receiving incentives through the Custom Program to participate in the CATI survey. By doing this, the evaluation will have high numbers of responses to improve on the precision and Net-to-Gross estimation.

#### ***E.4 Key Process Findings and Recommendations***

The primary process findings and recommendations are as follows:

**Finding:** When asked what the best of way of reaching potential program participants with information about energy efficiency opportunities like the Commercial and Industrial Rebate programs, the most cited method was e-mail (half of the respondents suggesting it as a method) followed by account manager outreach (mentioned by 38% of respondents).

**Recommendation:**

- Navigant suggests continuing and increasing distribution of program information via e-mail to prior customers and trade allies.

**Finding:** Half of the survey respondents (four of eight respondents) reported that they were first made aware of the program by their contractor or by a trade ally. An additional 25% reported that they learned of the program through a Franklin Energy representative.

**Recommendation:**

- Navigant recommends continuing outreach activities by Trade Allies and Energy Representatives, as these methods seem to be an effective means of relaying program information and recruiting program participants

**Finding:** Almost two-thirds (63%) of the survey respondents reported that they themselves filled out the program application. Of those, all reported that the application clearly explained the program requirements and how to participate. When asked to rate the application process on a scale from zero to ten, where zero is “very difficult” and ten is “very easy”, the average score was 9, and all the respondents gave the application process an eight or above. None of the survey respondents recalled placing phone calls to the Program Call Center.

**Recommendation:**

- Navigant found the high ratings regarding the application process to be a notable accomplishment. As noted in the impact findings, additional documentation should be requested from the participants.

**Finding:** When asked if they plan to participate in the program in the future, nearly all of the participants responded in the affirmative, with the exception of one who stated that his further participation depends on the needs of his facility. When asked if they had any suggestions for improving the program, the most common suggestion was to increase the measures that are included in the program. Also mentioned by several respondents was increasing the amount of publicity the program receives.

**Recommendation:**

- Navigant recommends that the IC conduct a follow-up process with the customers that indicate that they are interested in future participation. In particular, working with past-participants to identify new opportunities for energy efficiency improvements is likely to be worth the effort.
- In regards to increasing publicity, Navigant recommends utilizing e-mail correspondence as a means of communicating program information to current and potential customers in an efficient manner.

**Finding:** Of the five trade allies interviewed, one indicated that the level of marketing material was appropriate, while three contractors indicated that it was insubstantial and more was needed. When probed further, two trade allies provided significant responses, illustrating that the marketing material should be targeted more strategically.

**Recommendations:**

- Increasing the amount of energy saving case studies as a direct result of the program;
- Addressing safety concerns that the program indirectly achieves, but are not necessarily widely known;
- Streamline and make PDF documents readily accessible online, in relation to the rebate process and providing additional examples through case studies that highlight efficient measures other customers installed through the program; and
- Consider promoting rebate costs that are imbedded in customer bills.

## 1. Introduction to the Program

### 1.1 Program Description

The C&I Custom Rebates Program (C&I Custom Program) provides C&I customers within Peoples Gas and North Shore Gas service territory with rebate incentives for the installation of natural gas-related energy improvements that are not specified for a prescriptive rebate under the C&I Prescriptive Rebate Program. The Custom Program is targeted to active customers of North Shore Gas or Peoples Gas (“the Companies” or “Integrysts”). In general these customers are served under rates S.C. No. 2 and S.C. No. 3 (North Shore Gas) and S.C. No. 4 (Peoples Gas). The program is available to existing and new construction markets.

The Custom Program provides a mechanism for a range of customers in various market sectors to install a wide variety of natural gas savings technologies. Typical market sectors for this program may include larger customers in light and heavy manufacturing, steel and metal working, plastics compounding and processing, hospitals, food processing, hotels, commercial laundry and other process heating intensive businesses. Large centrally-heated multifamily buildings and office buildings are also target sectors for this program.

Eligible projects receive calculated incentives aimed at improving the financial viability of the energy efficiency improvements. Custom rebates are individually determined and analyzed using the Companies’ benefit-cost model to ensure that they pass the TRC test. Any measure that is pre-qualified (assessed for cost-effectiveness prior to being installed) must produce a TRC test result of at least 1.0 or better. To enable as many customers as possible to participate in any one year, the program caps each customer’s initial maximum rebate at \$100,000 per custom project per year and \$250,000 per customer per program year. The program may waive the maximum rebate limitation based on projects in the program’s queue.

It is the intent of the Companies and ComEd to cooperate in offering this program, for example, by exchanging project leads. In some cases prospective projects may have both natural gas and electricity benefits. In such cases, joint offerings will be made to the customer to address both natural gas and electricity savings. The initial program implementation period is three years, commencing with GPY1.<sup>1</sup> Net energy savings goals for GPY1 are 136,800 therms for North Shore Gas (30 projects) and 592,800 therms for Peoples Gas (130 projects). The original plan net Therms savings goals and budgets for the GPY1 C&I Custom Rebate Program are presented in Table 1-1.

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<sup>1</sup> Program year designations are as follows: GPY1 begins June 1, 2011 and ends May 31, 2012; GPY2 begins June 1, 2012 and ends May 31, 2013; GPY3 begins June 1, 2013 and ends May 31, 2014.

**Table 1-1. C&I Custom Rebates Program GPY1 Savings Goals and Budgets**

Program	Incentives Budget	Program Participation Goal	Target Gross Therms Savings	Target Net Therms Savings
Peoples Gas	\$585,000	130	780,000	592,800
North Shore Gas	\$135,000	30	180,000	136,800

*Source: Integrys EE Plan Compliance Filing (June 2011)*

## 1.2 Evaluation Questions

The evaluation sought to answer the following key researchable questions.

### 1.2.1 Impact Questions

1. What are the gross impacts from this program?
2. What are the net impacts from this program?
3. Did the program meet its energy saving goals?

### 1.2.2 Process Questions

#### Marketing and Participation

1. Are the program marketing plan and program promotional materials aligned with program benefits? Do they clearly communicate program benefits?
2. How did customers become aware of the program? What are key barriers to participation for eligible customers? What marketing strategies could be implemented to address these barriers?
3. Has the program effectively recruited trade ally partners to promote the program to customers? Is the program effectively leveraging its trade ally network and/or other industry associations to promote the program to customers?

#### Program Characteristics and Barriers

1. What areas could the program improve to create a more effective program for customers and program partners and help increase the energy impacts?
2. Does the application/enrollment process present any barriers to program participation?
3. Are customers, trade allies and program partners satisfied with the aspects of program implementation in which they have been involved?

4. Is the program effectively collaborating with ComEd and other programs, such as the Integrys C&I Prescriptive and Small Business Energy Savings programs?

#### Administration and Delivery

1. What challenges have occurred in initial program implementation and how were they handled?
2. Has the program implementation contractor's field delivery been consistent with program design?
3. Are the program administrative and delivery processes effective for smoothly providing incentives to customers?
  - a. Program tracking and information management systems
  - b. Internal and external program communications
  - c. Program delivery organization and staffing
  - d. Skill levels needed to implement the program
4. Is the program effectively coordinating customer contact and reporting with ComEd for electric measures?
5. What are the verification procedures for the program? Have they been implemented in a manner consistent with design? Do they present a barrier to participation or perceived undue burden on customers?

## 2. Evaluation Methods

This section describes the analytic methods and data collection activities implemented as part of the GPY1 impact and process evaluation of the Custom Program, including the data sources and sample designs used as a base for the data collection activities.

### 2.1 *Primary Data Collection*

The key evaluation activities to estimate the evaluation research findings gross energy savings of the Custom Program were:

- Conducted a participant telephone survey on an attempted census of the Custom Program population;
- Conducted an engineering review of the tracking database entries and telephone responses for CATI respondents; and
- Implemented a stratified random sampling design to select 20 projects from the population of Custom project applications, and collected the project application documents from the IC to conduct on-site visits and M&V activities for 10 projects and engineering file reviews-only on 10 projects.

The process analysis was conducted following completion of the telephone surveys of program participants. Free ridership was calculated using an algorithm approach based on survey self-report data. The Net-to-Gross Ratio (NTGR) was calculated from research findings for GPY1. Navigant completed telephone interviews with fifteen Custom project contacts from GPY1 to support net impact research.

These activities are summarized in Table 2-1 below.

**Table 2-1. C&I Custom Rebate Program Evaluation Data Collection Research Methodologies**

Collection Method	Subject Data	Quantity	Gross Impact	Net Impact	Process
In-Depth Interviews	Implementation Contractor	1			X
In-Depth Interviews	Participating Trade Allies	5			X
Engineering Review	On-site Data Collection	10	X		
Engineering Review	Desk File Review	10	X		
Telephone Survey	Participating Customers	15		X	X

## 2.2 *Additional Research*

To support the impact and process evaluation efforts, the evaluation team conducted verification and due diligence of the Custom Program through the review of project files and the program tracking system. We reviewed the methodology and assumptions used by program applications to estimate custom energy savings. Detailed findings and recommendations to improve the program operations and tracking database are documented in Section 3. The full due diligence and verification memo can be found in Appendix 5.7

## 2.3 *Impact Evaluation Methods*

This section describes the analytic methods implemented as part of the GPY1 impact evaluation of the C&I Custom Program. The key evaluation activities to assess gross and net impacts of the Custom Program were:

- Conducted an engineering review of project files and energy savings estimates on a sample of 20 projects (18 from Peoples Gas and two from North Shore Gas) selected randomly from the population of 32 projects (29 from Peoples Gas and three from North Shore Gas) to support gross impact evaluation;
- Conducted on-site visits and M&V activities on a sample of 10 Custom projects, selected as a subset from the 20 projects in the file review sample. The onsite verification sought to develop independent ex-post gross estimates of energy savings, and to update, refine or replace the calculation procedures that were submitted as part of the final application submittal;
- Presented draft impact report findings to the IC for review and discussion; and

- Completed computer assisted telephone interviews (CATI) with fifteen Custom projects to support the net impact analysis.<sup>2</sup>

### 2.3.1 Gross Program Savings

The objective of this aspect of the impact evaluation was to verify the accuracy of the claimed GPY1 ex-ante gross energy savings estimates in the Custom Program tracking database submitted to the evaluation team on August 27, 2012. The savings reported in the tracking database were evaluated using the following key steps:

- a. Engineering review at the measure-level for a sample of 20 project files.
- b. Prepare a detailed, site-specific impact evaluation report for each sampled site and the desk file reviewed projects.
- c. Carry out a quality control review of the ex-post impact estimates and the associated draft site reports and implement any necessary revisions.

Additional information regarding gross impact methodology can be found in Appendix 5.6, including baseline assessment, data collection and quality control methods.

#### *Gross Impact M&V Sample*

For GPY1 research findings gross impact evaluation, sampling was conducted on paid projects in the August 27, 2012 database. A statistically significant sample based on 90/20 confidence/precision level for program-level savings was drawn for the gross savings verification.<sup>3</sup> Table 2-2 provides a profile of the gross impact verification sample for the Custom Program in comparison with the Custom Program population. All projects in the population strata 1 and 2 were selected in the sample, and half of the population in stratum 3 was selected in the sample.

The overall sample of 20 projects account for 240,593 therms of ex ante gross savings (84% of gross savings impact claim from program population). Of the 20 samples selected, 18 were from Peoples Gas territory, accounting for 85% of the total sample ex ante gross therms. The two projects from North Shore Gas account for 15% of the total sample ex ante gross therms. Details of the sampling approach are provided in Appendix 5.4.

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<sup>2</sup> We targeted a 90/10 level of confidence and relative precision for the combined population of Peoples Gas and North Shore Gas participants.

<sup>3</sup> Each program year, the confidence and precision of the *ex post* estimates will be better than a target of 90/20, respectively, with a three-year overall confidence and precision target of 90/10. If fewer but larger projects participate than estimated in evaluation planning, smaller sample sizes can achieve 90/10 results in a given year.

**Table 2-2. Profile of GPY1 Gross Impact Sample by Strata**

Population Summary				Sample		
Sampling Strata	Number of Project (N)	Ex Ante Claimed Gross Savings, Therms	Therms Weights	n	Ex Ante Therms	Sampled Therms % of Population
1	3	94,444	0.331	3	94,444	100%
2	5	88,527	0.310	5	88,527	100%
3	24	102,330	0.359	12	57,622	56%
<b>TOTAL</b>	<b>32</b>	<b>285,301</b>	<b>1.000</b>	<b>20</b>	<b>240,593</b>	<b>84%</b>

Source: Navigant analysis of Franklin Energy tracking database 8-27-2012 extract.

Table 2-3 provides a profile of the 10 sites randomly selected from the impact sample for on-site M&V. This comprised of 9 projects from Peoples Gas and one project from North Shore Gas.

**Table 2-3. Profile of the Gross Impact M&V On-Site Sample by Strata**

On-Site Sample				
Sampling Strata	Number of Sites	Measure Types	Ex Ante Gross Savings (Therms)	Sampled Therms % of Population
1	3	HVAC, Other	94,444	100%
2	3	HVAC/Other, Boiler/Burner Temperature Controls	54,821	62%
3	4	HVAC/Other, Boiler/Burner Temperature Controls, Boiler Replacement, Steam Trap Repairs, Pipe/DHW Insulation	17,288	17%
<b>TOTAL</b>	<b>10</b>		<b>166,552</b>	<b>58%</b>

Source: Navigant analysis of Franklin Energy tracking database 8-27-2012 extract.

**Research Findings Gross Savings and Realization Rates:**

Research findings gross savings impacts were determined for the Custom Program based on detailed engineering review and M&V for the 20 selected sample projects. The research findings gross realization rate (which is the ratio of the research findings gross savings to reported tracking savings) was estimated for the sample, by sampling stratum, and applied to the population of reported tracking savings from Peoples Gas and North Shore Gas. The result is the research findings gross savings estimate for the Custom Program.

A stratified ratio estimation technique was used to estimate evaluation verified gross energy savings for the Custom Program. The stratified ratio estimation technique follows the steps outlined in the California Evaluation Framework<sup>4</sup>. These steps are matched to the stratified random sampling method that was used to create the sample for the program. The standard error was used to estimate the error bound around the estimate of research findings gross therms realization rate, and the relative precision at 90% level of confidence was determined.

### 2.3.2 Net Program Savings

The net-to-gross analysis was conducted following completion of the telephone survey of program participants and trade allies. Free ridership was calculated using an algorithm approach based on survey self-report data. The analysis relied on interview results from participating customers supported by trade ally data. The existence of participant spillover was examined using survey self-report data. The detailed methodology is provided in Appendix 5.2.

This program has not been evaluated before and so according to the NTG Framework,<sup>5</sup> the NTG ratio is to be applied retroactively. The program falls under the following condition from the NTG Framework: *“For existing and new programs not yet evaluated, and previously evaluated programs undergoing significant changes — either in the program design or delivery, or changes in the market itself<sup>6</sup> — NTG ratios established through evaluations would be used retroactively, but could also then be used prospectively if the program does not undergo continued significant changes.”*

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<sup>4</sup> TecMarket Works, et al., The California Evaluation Framework, Chapter 13, Sampling. June 2004

<sup>5</sup> “Proposed Framework for Counting Net Savings in Illinois.” Memorandum March 12, 2010 from Philip Mosenthal, OEI, and Susan Hedman, OAG.

<sup>6</sup> An example of a market change might be where baselines have improved significantly and the likely free riders are growing substantially because of it.

### 3. Evaluations Results

#### 3.1 *Impact Evaluation Results*

This section presents the C&I Custom Rebate Program impact evaluation results. Included in the impact evaluation results are a verification and due diligence procedure review and tracking system review. Gross and net impact parameter estimates and impact results are presented below.

##### 3.1.1 **Verification and Due Diligence Procedure Review**

Under this task, the Navigant team reviewed quality assurance/quality control (QA/QC) activities already in place to determine:

- Whether appropriate eligibility criteria were properly adhered to and applications were backed with supporting documentation;
- Whether savings were calculated correctly and project information entered in an accurate and timely manner in the program tracking system;
- If any QA/QC activities are biased (i.e., incorrect sampling that may inadvertently skew results, purposeful sampling that is not defensible.)
- Whether the data needed for program evaluation were being thoroughly captured by the program tracking system.

On May 24, 2012, Navigant presented to the IC, the key findings and recommendations from the due diligence and verification task. Below is the response from the Implementer in a memo sent to Navigant on July 18, 2012, that describes what recommendations have been addressed or receiving attention<sup>7</sup>. Additional comments or suggestions are provided by the evaluation team, where we found issues that may need additional attention. The full due diligence and verification memo is shown in Appendix 5.7.

Overall, the evaluation team found that program quality assurance and verification procedures met with national best practices and met or exceeded the expectations of the evaluation team. Key recommendations were:

- **Recommendation:** Request additional information from the customer regarding existing system conditions on program applications in order to correctly determine the baseline.  
**IC Response:** Program management will survey other efficiency program applications (as well as the “Defining the Base Case” section of our program Operations Manual) to determine which fields should be requested on the application. We will then work with

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<sup>7</sup> C&I Process Evaluation Responses - PY1.docx (response memo was received from Franklin Energy on July 18, 2012)

the marketing team to add those fields to the application to capture existing system conditions. If changes are needed in the program tracking system, program management will work with the IM team to address those changes.

- **Recommendation:** Similar to the findings in the prescriptive evaluation, Navigant feels that valuable pre- and post-inspection data is not captured in the program tracking system.

**IC Response:** Program management will work with the IM team to identify additional fields not already in the system (as suggested by Navigant) that could be added to the system for tracking pre- and post-inspection findings, such as baseline equipment, pass/fail status, equipment make and model, etc. It would be helpful if Navigant could provide more specific examples of missing data.

**Additional Evaluator Comments:** additional baseline information that can be recorded includes whether measure is a replacement on burn-out, early replacement or retrofit, age or measure useful life, etc.

- **Recommendation:** Review project 21884 for non-compliance with post-inspection requirement.

**IC Response:** All custom projects are pre- and/or post-inspected by Franklin Energy staff due to our existing relationships with Custom Program participants. Project 21884 was pre-inspected by the assigned FES Energy Engineer, on September 2, 2011 and was post-inspected on December 8, 2011 before any payment was issued to the customer.

**Additional Evaluator Comments:** Issue resolved.

- **Recommendation:** Review projects for data entry errors in the tracking system column field name "Project Type."

**IC Response:** The project type field is a new field in Bensight. Process documents will be updated to ensure that these fields are all populated and populated correctly. The project identified in the memo (35754) was reviewed and is categorized appropriately.

- **Recommendation:** Develop a larger pool of trade allies qualified in the custom process.

**IC Response:** As this program develops, more effort will be placed toward this goal. We have recently hired an additional trade ally liaison to focus solely on growing the base of qualified C&I contractors.

- **Recommendation:** Conduct inspections in a timely manner.

**IC Response:** In the Custom Program all pre and post-inspections are conducted by the assigned Franklin Energy Engineer and are conducted in a timely manner to ensure that projects are completed within the 90 day window and paid within 30 days. Greater details would need to be provided by Navigant as to specific projects where inspections were not completed in a timely manner.

- **Recommendation:** Track net and gross savings in addition to the default NTG ratio. **IC Response:** The NTGR for the Custom Program was preset at 0.76 and is used for all projects. Program management will work with the IM team to determine if adding gross savings is feasible given the existing system.

- **Recommendation:** Encourage customers to use the program implementer’s Heating Systems Savings Calculation Worksheet.  
**IC Response:** Program management will discuss this within the company to determine if this is proprietary information or if it can be shared with parties outside of the company.
- **Recommendation:** Estimate and track measure life for installed custom measures.  
**IC Response:** Program management will work with the engineering and IM departments to determine establish best practices from other programs and how to incorporate them into this program and the tracking system.
- **Recommendation:** Additional post-installation inspection criteria be applied in the first two years of the program.  
**IC Response:** This recommendation has four parts: 1) post-inspection of the first project submitted by a TA; 2) inspect the first three installations of a measure, or those with highly uncertain savings; 3) inspect high impact measures that account for a large proportion of savings; and 4) increase initial inspection rates and reduce the rate over time if no issues are found. These are all wise recommendations and program management will review existing practices and processes to implement this recommendation.

### 3.1.2 Tracking System Review

The evaluation team performed an independent verification of the program tracking database to determine whether the database included an appropriate level of input, outliers, missing values, and potentially missing variables. The purpose of the tracking system review was to ensure that the program tracking system designed to gather data were in place to support future program evaluation and allow program managers to monitor key aspects of program performance at regular intervals. As needed, the Navigant team included recommendations for revisions in conjunction with the verification, due diligence and tracking system review.

#### Recommendations:

- a. The IC should consider updating the tracking system for PY2 evaluation, to include measure end-use or participant business type.
- b. The IC should consider including additional fields in the tracking system for information on baseline selection with regard to whether implemented measure is a replacement on burn-out or early replacement/retrofit.
- c. The tracking system should track measure cost information such as equipment cost, installation and incremental cost, equipment age or estimated equipment remaining useful life. This information is useful for evaluating measure and program cost effectiveness.

### 3.1.3 Gross Program Impact Parameter Estimates

The program parameters used for evaluating the program are summarized in Table 3-1.

**Table 3-1. GPY1 Gross Program Impact Parameter Estimates**

Parameter	Value	Deemed or Evaluated?	Source Notes
Research Findings Realization Rate on Ex-Ante Gross Savings	1.02	Evaluated	GPY1 EM&V analysis based on program tracking data, engineering review, and on-site verification
Measure Type and Eligibility	Varies	Evaluated	GPY1 EM&V analysis based on program tracking data, engineering review, and on-site M&V
Measure Participation	36	Evaluated	GPY1 EM&V analysis based on program tracking data
Project participation	32	Evaluated	GPY1 EM&V analysis based on program tracking data
M&V Sample	20	Evaluated	GPY1 EM&V analysis based on program tracking data
Research Findings Gross Savings per Measure	Custom	Evaluated	GPY1 EM&V analysis based on program tracking data, engineering review, and on-site verification

*Source: Navigant analysis*

### 3.1.4 Gross Program Impact Results

This section provides the gross impact findings based on results from the engineering file review and on-site verification activities.

The results of the sample-based research findings gross realization rate by strata are summarized in Table 3-2 for the Peoples Gas and North Shore Gas combined sample. Details of the M&V approach and the gross impact realization rates estimates by project are provided in the Appendix 5.2.

**Table 3-2. Gross Impact Realization Rate Results for the Custom Sample**

Sampling Strata	Sample-Based Ex Ante Gross Savings (Therms)	Sample-Based Research Findings Gross Savings (Therms)	Sample-Based Research Findings Gross Realization Rate <sup>8</sup>
1	94,444	95,615	1.01
2	88,527	73,543	0.83
3	57,622	69,194	1.20

Source: Navigant analysis

The relative precision at 90% level of confidence is provided in Table 3-3. The mean research findings gross realization rate for the overall sample was 1.02 at a relative precision of ±11% at 90% confidence level.

**Table 3-3. Gross Therms Realization Rates and Relative Precision at 90% Confidence Level**

Sampling Strata	Relative Precision at 90% Level of Confidence (± %)	Low	Mean	High	Standard Error
Stratum 1	0%	1.01	1.01	1.01	-
Stratum 2	0%	0.83	0.83	0.83	-
Stratum 3	25%	0.90	1.20	1.50	0.18
Overall Therms RR	11%	0.92	1.02	1.13	0.07

Source: Navigant analysis

The mean research findings sample gross realization rate was 1.02. Projects 20148, 82184, and 86303, had research findings gross realization rates of 1.85, 1.73, and 1.79 respectively. From additional documentation from the IC on projects 35757, 29467, and 35961, the evaluation team performed additional engineering desk review for these projects, and verified that these projects achieved respectively 1.41, 3.89, and 7.09 realization rates on gross therms savings. These projects were previously verified to have zero savings based upon lack of critical documentation and savings calculations to support claimed savings.

The sample strata research findings gross realization rates were applied to the population strata to achieve the program level research findings savings for the Peoples Gas and North Shore Gas Custom Program as shown in Table 3-4.

<sup>8</sup> These are sample weighted therm realization rate values rounded to 2 digits. Direct application to the ex ante gross savings (to get sample research findings gross savings) will produce rounding differences.

**Table 3-4. Gross Parameter and Savings Estimates at the Program Level by Strata**

Sampling Strata	Program Ex Ante Gross Savings (Therms)	Program Research Findings Gross Savings (Therms)	Program Research Findings Gross Realization Rate
1	94,444	95,615	1.01
2	88,527	73,543	0.83
3	102,330	122,879	1.20
<b>Total</b>	<b>285,301</b>	<b>292,037</b>	<b>1.02</b>

Source: Navigant analysis

The research findings mean gross realization rate of 1.02 was applied to the program reported ex ante gross savings for both Peoples Gas and North Shore Gas to achieve the program level research findings gross savings, as summarized in Table 3-5.

**Table 3-5. Gross Parameter and Savings Estimates at the Program Level**

Program	Ex Ante Gross Energy Savings (Therms)	Research Findings Gross Energy Savings (Therms)	Research Findings Gross Realization Rate
Peoples Gas	246,546	252,368	1.02
North Shore Gas	38,755	39,670	1.02
<b>Total</b>	<b>285,301</b>	<b>292,037</b>	<b>1.02</b>

Source: Navigant analysis

### 3.1.5 Net Program Impact Parameter Estimates

Table 3-6 provides the net program impact parameter estimates.

**Table 3-6. GPY1 Research Findings Net Impact Parameter Estimates**

Parameter	Value	Deemed or Evaluated?	Source Notes
Participant Interviews	15		Participant CATI responses
Free-ridership	0.32	Evaluated	GPY1 EM&V analysis based on participant CATI responses
Overall NTG Ratio	0.68	Evaluated	GPY1 EM&V analysis based on participant CATI responses

### 3.1.6 Net Program Impact Results

Table 3-7 provides an overview of the number of respondents to the participant telephone survey, in comparison to the program population. The Net-to-Gross ratio was estimated at the project level for each respondent. The net impact evaluation methodology and scoring approach can be found in the Appendix 5.2.

**Table 3-7. Profile of GPY1 Participants Interviewed for Net Impact Estimates**

Population Summary		Participants Interviewed			
Number of Project (N)	Ex Ante Gross Energy Savings	n	Ex Ante Gross Energy Savings	Participant Projects % of Population	Participant Therms % of Population
32	285,301	15	123,632	47%	43%

Source: Navigant analysis of participant telephone survey responses

The Custom Program research findings net savings were calculated by multiplying the research findings gross savings estimate by the program research findings Net-to-Gross (NTG) ratio. Table 3-8 provides the program gross savings and the net savings for Peoples Gas and North Shore Gas. The relative precision at 90% confidence level is provided in Table 3-9. Weighted Net-to-Gross ratio of 0.68 was estimated for the Custom Program at a relative precision of  $\pm 12\%$  at a 90% confidence level.

**Table 3-8. GPY1 Program Gross and Net Energy Savings Estimates**

Program	Ex Ante Gross Savings (Therms)	Program Research Findings Gross Savings (Therms)	Research Findings Gross Realization Rate	Research Findings Net Energy Savings (Therms)	Research Findings Net-to-Gross Ratio
Peoples Gas	246,546	252,368	1.02	171,610	0.68
North Shore Gas	38,755	39,670	1.02	26,975	0.68

Source: Navigant analysis

**Table 3-9. NTG Ratio and Relative Precision at 90% Confidence Level**

Project Population (N=32)	NTG Interviews (n=15)	NTG Sample (n=15)	Relative Precision ( $\pm \%$ )	Low	NTGR (Mean)	High
32	15	15	12%	0.60	0.68	0.75

Source: Navigant analysis of participant telephone survey responses

The NTGR of 0.68 (which was lower than the planning NTGR of 0.76) is partially due to one customer demonstrating full free ridership after analyzing the survey responses with a NTGR estimate of zero. A few respondents indicated low ratings for the Custom Program influence relative to other factors, and this resulted in a lower NTGR estimation of 0.28 to 0.34.

Comparing initial program planning net therms savings estimates with evaluation estimated net therms savings, the evaluation team determined that Peoples Gas achieved only 29% of the initial planned savings for the C&I Custom Rebate Program, and North Shore Gas achieved 20% of its planning net therms savings, as indicated in Table 3-10.

**Table 3-10. GPY1 Program Net Energy Savings Vs. Planned Net Savings**

Program	Evaluation Research Findings Net Therms Achieved	GPY1 Planned Net Therms	% Net Therms Achieved
Peoples Gas	171,610	592,800	29%
North Shore Gas	26,975	136,800	20%

Source: Navigant analysis

### 3.2 Process Evaluation Results

The process component of the Custom Program evaluation focused on:

- Marketing and Participation
- Program Characteristics and Barriers to Participation
- Administration and Delivery
- Program Satisfaction

The process evaluation results are organized by the process research questions that are grouped by process themes. The primary data sources for the process evaluation included the telephone survey with eight survey participants and in-depth interviews with market actors and implementation staff.

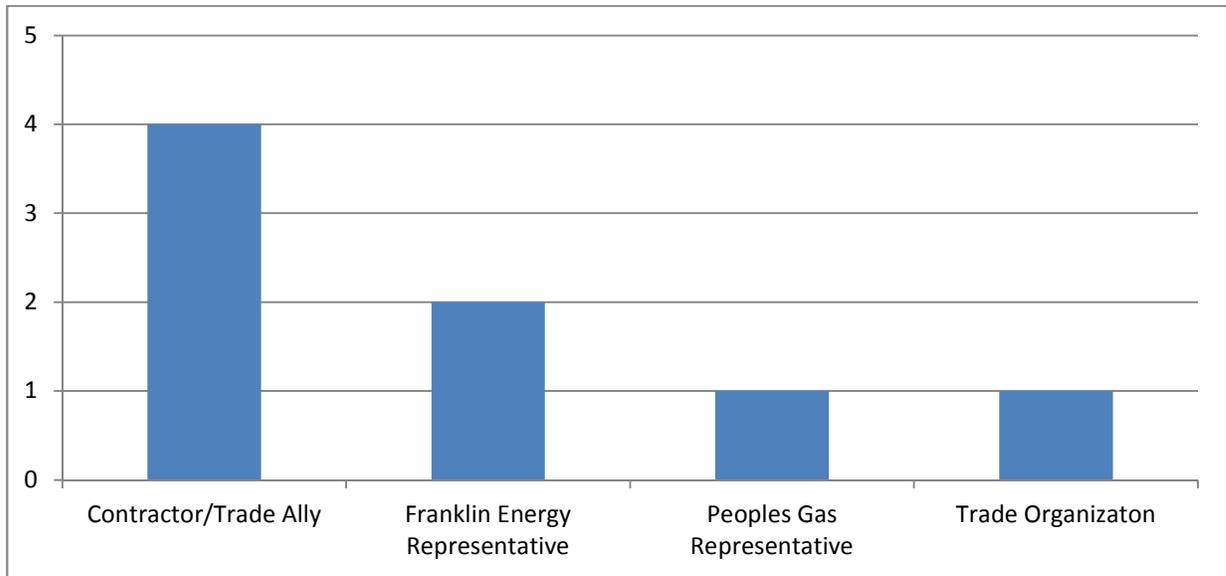
#### 3.2.1 Participant Survey Results

##### *Marketing and Participation*

As shown in Figure 3-1, half of survey respondents (50%) reported that they were first made aware of the program by their contractor or by a trade ally. An additional 25% reported that they learned of the program through a Franklin Energy representative. The other survey

respondents were first informed of the program through a trade organization or a Peoples Gas representative.

**Figure 3-1. Method of Initial Introduction to Program**



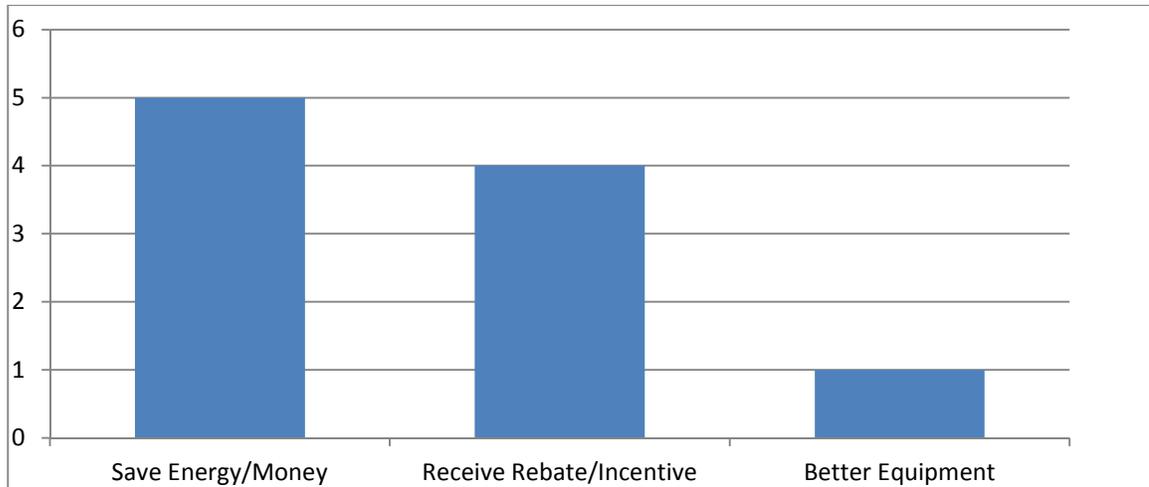
The program participants who responded to the participant survey reported very favorable responses to the program marketing materials they had been exposed to. Approximately 38% reported that the marketing materials were “very useful” and an additional 25% reported that they were “useful”.

When asked what is the best of way of reaching potential program participants with information about energy efficiency opportunities like the Commercial and Industrial Rebate programs, the most cited method was e-mail, with half of the respondents suggesting it as a method, followed by account manager outreach, which was mentioned by 38% of respondents. Also mentioned was using trade shows and trade organizations as a means of outreach, specifically BOMA/Chicago and ASHRAE.

***Program Characteristics and Barriers to Participation***

The interviewed program participants were asked about what they perceive to be the main benefits of participation in the program. As shown in Figure 3-2, the top two responses were the money that the new more efficiency equipment will save (63% of respondents) and the rebate that participants received (50% of respondents). Also mentioned was the ability to install new and/or better equipment (13% of respondents). It should be noted that participants were allowed multiple responses.

**Figure 3-2. Primary Benefit of Program Participation**



When asked about the drawbacks to participating in the program, the participants surveyed were not able to offer any specific drawbacks.

***Administration and Delivery***

As part of the of the participant survey, respondents were asked about their experiences with the program materials, and program and implementation staff.

Almost two-thirds (63%) of the survey respondents reported that they themselves filled out the program application. Of those, all reported that the application clearly explained the program requirements and how to participate. When asked to rate the application process on a scale from zero to ten, where zero is “very difficult” and ten is “very easy”, the average score was nine, and all the respondent gave the application process an eight or above. None of the survey respondents recalled placing phone calls to the Program Call Center.

Although half of the respondents reported that they had no communication with the Commercial and Industrial Custom Rebate Program staff, those that did reported very high levels of satisfaction with them, giving the program staff an average score of 9.5. Five of the eight respondents reported communicating with the Franklin Energy staff, and also rated those interactions very favorable, with an average score of 9.6.

***Program Satisfaction***

When asked to rate their satisfaction with the Commercial and Industrial Rebate Program, the average reported score was 9.1 (on the same zero to ten scale). Also, half of the participants rated their satisfaction with the program at a ten, and no participants rated their satisfaction level as less than eight.

The program participants were asked about their satisfaction with the incentive amount, using a scale of zero to ten, where zero is “not at all satisfied” and ten is “very satisfied”, the average respondent reported being quite satisfied with the incentive amount, and the average satisfaction score was 9.0. Three of the participants reported a satisfaction score of ten, and no participants rated their satisfaction at less than an eight.

When asked if they plan to participate in the program in the future, nearly all of the participants responded in the affirmative, with the exception of one who stated that his further participation depends on the needs of his facility. When asked if they had any suggestions for improving the program, the most common suggestion was to increase the measures that are included in the program. Also mentioned by several respondents was increasing the amount of publicity the program receives.

### **3.2.2 Trade Ally Survey Results**

This section summarizes the results from the survey conducted with five Trade Allies, who participated in the Commercial and Industrial Custom Rebate Program. The primary components of the Trade Ally survey were:

- Program Marketing and Outreach Effectiveness
- Program Characteristics and Barriers to Participation
- Administration and Delivery
- Satisfaction, Free Ridership, and Spillover

#### ***Program Marketing and Outreach Effectiveness***

Trade Allies were asked a series of questions regarding program-specific marketing, marketing effectiveness, and suggested changes to reach a targeted audience. Trade Allies were generally aware of other rebate programs, with two citing ComEd as a past and present collaborator. One trade ally became aware of the program within the last year while another indicated that they met a representative about two years ago, and has since been active in seeking similar programs.

For the most part, the trade allies actively marketed the program to their new and existing customers by word of mouth. Of the five trade allies, one indicated that they left marketing material with their customers, while another cited the “pizza sessions” which discuss rebate program options that they then forward the invitation on to interested parties.

Of the five trade allies, one indicated that the level of marketing material was appropriate, with three contractors indicating that it was insubstantial and more was needed. When probed further, two trade allies provided significant responses, illustrating that the marketing material

should be targeted more strategically. Generally, trade allies were satisfied with the level of marketing overall, however several suggestions were made. These included:

- Increasing the amount of energy saving case studies as a direct result of the program;
- Addressing safety concerns that the program indirectly achieves, but are not necessarily widely known;
- Streamline and make PDF documents readily accessible online, in relation to the rebate process and qualifying equipment; and
- Promote rebate costs that are imbedded in customer bills.

***Program Characteristics and Barriers to Participation***

Trade allies had multiple and varied responses to the program’s characteristics and how it could overcome barriers to participation. These included:

- Submitting the application online would improve and speed-up the entire process, in the hope that the process became more cost effective;
- Allowing the trade ally to sign forms on the customers’ behalf in order to speed-up the process;
- Providing the trade ally with “breakout information”, whereby, once the customers’ utility account number is obtained, the trade ally can then download their billing information. Subsequently, the contractor can directly obtain cost and usage information from the customers’ utility in order to show their customers return on investment based on their past billing rates;
- Improving program promotion on customers’ bills, particularly highlighting the energy efficiency fund that they’re already paying into, in order to illustrate to their customers’ that it’s worth investigating and investing in incented measures; and
- Broadening the Prescriptive Program to include Custom Projects and equipment.

***Administration and Delivery***

All five trade allies actively market the program with their customers; none of which however, target specific geographic areas. Three trade allies indicated that usually 50% of their customers know about the programs that are available, but not the finer details. One trade ally indicated that they do not typically market the program, because generally they have passed the marketing interface and are squarely in the negotiating stage explaining which rebate their customers qualify for.

Of the five trade allies, three indicated that the timeframe taken in receiving pre-approval was adequate. The same trade allies indicated that scheduling the measure installation was extremely variable depending on equipment type and manufacturer, but anywhere between 120 and 150 days was adequate for their own organizational purposes and customer satisfaction. The same trade allies also found that on average it took about 3 to 4 weeks to

process their payments; also deemed adequate by contractors. The other contractors could not provide sufficient responses to the questions posed; however, neither did they indicate a positive or negative response to scheduling and payment timeframes.

One trade ally is eager to learn more of loan arrangements, however at this time, only one trade ally provided payment plans but preferred not to offer this option to their customers. Generally, all trade allies thought that the level of training was adequate; with one indicating that these trainings be replaced with webinar sessions.

***Satisfaction, Free Ridership, and Spillover***

Four of the five trade allies were satisfied with the Program and its role in their businesses. Some trade allies indicated that the program has become an asset to their sales pitch and in some instances boosted their sales. One trade ally indicated that they would prefer to have a broader overall range of programs to work with; specifically, the type of programs available for customers' with new construction. One trade ally was dissatisfied with some elements of the Custom Program, particularly some IC employees that attended on-site visits in the past. That trade ally found that their knowledge base was limited, and therefore any ideas that the trade ally suggested were not followed through in a comprehensive manner. For example, the trade ally illustrated that at varying temperatures boiler efficiency rates changed dramatically, and with minor adjustments rather than a complete replacement or overhaul, the utility and the trade ally could make greater cost savings as opposed to a large incentive.

Trade allies unanimously agreed that the program has given them an increased level of customer service to offer their customers without compromising services in other areas of their business. Further, the trade allies found that for the most part their customers were satisfied with the program overall. Two trade allies indicated that their customers were dissatisfied with some elements of the Program. Of the two, one indicated that less than 10% of their customer base was dissatisfied, while both determined the cause was customers expecting more rebates than what was delivered by the utility.

All participating trade allies installed the same type of qualifying equipment prior to the program. Four trade allies could not determine a percentage of their sales for this type of equipment; however one claimed a rough percentage of 10% prior to participating in the Program. Two of the five trade allies, stated that their customer base is predominantly multi-million dollar companies, and that they managed to upgrade standard burners to high efficiency burners based on fuel savings and environmental sustainability. When probed further, the trade allies determined that it was difficult to say whether the incentive influenced their customers' decisions, although they did cite that the Program was another asset in the selling process. Furthermore, both trade allies indicated that the immediacy to replace such equipment would probably not exist without the program.

For the most part, all trade allies indicated that their customers previously existed, with one trade ally indicating that over the past year, 50% of their customers were new. Of the five trade allies, three claimed that without the program the sale of qualifying equipment would suffer. The extent of which however was indeterminable, and most illustrated that the program was one method in ensuring that their customer base remained satisfied.

Of the five trade allies, two confirmed that there had been spillover as a result of the program. One trade ally indicated that of those who participated in the program, 50% explored other rebate and energy efficiency equipment options. The other trade ally indicated 25% of their customers exploring other rebate and energy efficiency equipment options. However, when probed further, the trade allies could not provide sufficient and tangible examples of spillover.

All trade allies considered that some participants do not apply for the rebate, mostly due to the time and effort required. However, because most trade allies did not follow up with their customers, they could only speculate whether their customers applied for the incentives, or not.

### *Conclusion*

Overall, the interview results indicate that the Custom Program, and its execution, is effective in communicating and raising awareness of energy saving initiatives introduced by the utility. Moreover, all trade allies considered the level of incentives appropriate. Although it was difficult to determine whether the Program influenced their customers' adoption of energy efficient measures, it was an asset in their selling of qualifying equipment. All trade allies agreed that minor adjustments could be made to improve the Program, particularly in relation to marketing material distribution and streamlining the online service. One trade ally determined that it was increasingly difficult to qualify any measures for rebates that fell outside the custom qualifying equipment list, even though they managed to save on implementation costs and energy usage. Generally, most of the trade allies agreed that the application process and implementation times were suitable; however, all trade allies thought that the utility could be more flexible in offering more incentives for custom qualified equipment.

## 4. Findings and Recommendations

### 4.1 Key Impact Findings and Recommendations

The primary impact findings and recommendations are as follows:

**Finding:** The evaluation team performed an independent verification of the program tracking database to determine whether the database included an appropriate level of input, outliers, and potentially missing variables. After reviewing the program tracking system, Navigant concluded that additional information is needed to support future program evaluations and possibly allow program managers to monitor key aspects of program performance at regular intervals.

**Recommendations:**

- The IC should consider updating the tracking system for the GPY2 evaluation, to include participant business or facility type. Findings from the impact analysis showed that almost half of the projects randomly selected from the program tracking system came from participants with multi-family facilities. Tracking and reporting the facility/business type will help the evaluation team adequately represent all facility types in future M&V activities.
- The IC should consider including additional fields in the tracking system for information on baseline selection to indicate whether the implemented measure is a replacement on burn-out (ROB) or early replacement/retrofit (RET) scenario.
- The tracking system should include measure information such as equipment cost, installation and incremental cost, equipment age or estimated equipment remaining useful life. This information is useful for evaluating measure and program cost effectiveness.

**Finding:** The evaluation team found that many program participants or their trade allies did not submit adequate information on the baseline equipment, inspection results, and the algorithms and savings estimation assumptions used for analysis. During engineering desk review for projects 35757, 29467, and 35961, the evaluation team found that no calculations were provided and no savings estimates were in the project files. Since the desk review, Navigant worked with the IC to gain access to the program tracking data and reviewed the project calculations and assumptions. Upon analysis of further and better documentation from the IC for these projects, the evaluation team determined these projects had very significant savings, achieving respectively 1.41, 3.89, and 7.09 realization rates on gross therms savings.

**Recommendation:**

- Verification of net claimed savings is greatly aided when thorough documentation of baseline and baseline conditions are provided, including:
  - a. pre-existing equipment and operation description,

- b. energy savings assumptions and methodologies,
- c. estimated equipment remaining useful life,
- d. standard maintenance practices and history, and
- e. inspection results.
- While the IC is collecting this information to some extent, Navigant stresses the importance of providing sufficient project documentation to accurately portray the program’s selection of baseline conditions for custom projects.
- The IC should consider implementing standardized procedures and forms for assembling sufficient project documentation where possible.
- Peoples Gas and North Shore Gas should encourage all customers receiving incentives through the Custom Program to participate in the CATI survey. By doing this, the evaluation will have high number of responses to improve on the precision and Net-to-Gross estimation.

#### 4.2 *Key Process Findings and Recommendations*

The primary process findings and recommendations are as follows:

**Finding:** When asked what is the best way to reach potential program participants with information about energy efficiency opportunities like the Commercial and Industrial Rebate programs, the most cited method was e-mail, with half of the respondents suggesting it as a method, followed by account manager outreach (mentioned by 38% of respondents).

**Recommendation:**

- Navigant suggests continuing and increasing distribution of program information via e-mail to customers.

**Finding:** Half of survey respondents (50% or four of eight respondents) reported that they were first made aware of the program by their contractor or by a trade ally. An additional 25% reported that they learned of the program through a Franklin Energy representative.

**Recommendation:**

- Navigant recommends continuing outreach activities by trade allies and Energy representatives, as these methods seem to be an effective means of relaying program information and recruiting program participants.

**Finding:** Almost two-thirds (63%) of the survey respondents reported that they themselves filled out the program application. Of those, all reported that the application clearly explained the program requirements and how to participate. When asked to rate the application process on a scale from zero to ten, where zero is “very difficult” and ten is “very easy”, the average score was nine, and all the respondent gave the application process an eight or above. None of the survey respondents recalled placing phone calls to the Program Call Center.

**Recommendation:**

- Navigant found the high ratings regarding the application process to be a notable accomplishment. As noted in the impact findings, additional documentation should be requested from the participants.

**Finding:** When asked if they plan to participate in the program in the future, nearly all of the participants responded in the affirmative, with the exception of one who stated that his further participation depends on the needs of his facility. When asked if they had any suggestions for improving the program, the most common suggestion was to increase the measures that are included in the program. Also mentioned by several respondents was increasing the amount of publicity the program receives.

**Recommendation:**

- Navigant recommends that the IC conduct a follow up process with the customers that indicated that they interested in future participation. In particular, working with past participants to identify new opportunities for energy efficiency improvements is likely to be worth the effort.
- In regards to increasing publicity, Navigant recommends utilizing e-mail correspondence as a means of communicating program information to current and potential customers in an efficient manner.

**Finding:** Of the five trade allies, one indicated that the level of marketing material was appropriate, with three contractors indicating that it was insubstantial and more was needed. When probed further, two trade allies provided significant responses, illustrating that the marketing material should be targeted more strategically.

**Recommendations:**

- Increasing the amount of energy saving case studies as a direct result of the program;
- Address safety concerns that the program indirectly achieves, but are not necessarily widely known;
- Streamline and make PDF documents readily accessible online, in relation to the rebate process and qualifying equipment; and
- Promote rebate costs that are imbedded in customer bills.

## 5. Appendix

### 5.1 Glossary [Left blank - There will be one glossary added for Illinois]

### 5.2 Detailed impact results

As of May 31, 2012, the C&I Custom Rebate Program reported ex-ante gross savings of 246,546 therms for Peoples Gas, through participation of 29 projects (from 33 measures), and achieved 32% of GPY1 planning gross savings estimate. Similarly, the North Shore Gas reported ex-ante gross savings of 38,755 therms, through participation of 3 projects, and achieved 22% of GPY1 planning gross savings.

Table 5-1 provides details of the reported gross savings estimates for Peoples Gas and North Shore Gas, and compared with the initial program planning goals. In total, 36 custom measures were installed by customers from both utilities, and earned \$276,866 total incentives.

**Table 5-1. GPY1 C&I Custom Program Participation and Savings vs. Program Goals**

Program	Participation Count			Ex Ante Gross Savings Impact			
	GPY1 Projects	GPY1 Program Goals	% Goal Achieved	Ex Ante Gross Savings	GPY1 Ex Ante Gross Savings Goals	% Goal Achieved	Incentives Paid
Peoples Gas	29	130	22%	246,546	780,000	32%	\$238,111
North Shore Gas	3	30	10%	38,755	180,000	22%	\$38,755

Source: Navigant analysis

Table 5-2 provides a list of reported installed measures and ex ante gross savings. Overall, 36 measures were installed by 32 participants to achieve 285,301 therms ex ante gross savings. In the Peoples Gas territory, the majority of measures implemented were boiler/burner temperature controls (accounts for 28% of gross savings), boiler replacements (21% of gross savings), and other HVAC measure installations had 31% of GPY1 savings.

In the North Shore Gas territory, 3 projects participated in the Custom Program and installed steam traps, thermal curtains and other HVAC measures with ex ante gross total savings of 38,755 therms.

**Table 5-2. GPY1 Custom Program Participation and Savings by Measure**

Consolidated Measure technology Type	Peoples Gas			North Shore Gas		
	Measure Count	Ex Ante Gross Energy Savings	% Energy Savings	Measure Count	Ex Ante Gross Energy Savings	% Energy Savings
Boiler/Burner Temperature Controls	11	68,680	28%	-	-	-
Boiler Replacement	7	50,694	21%	-	-	-
Steam Trap Repairs	-	-	-	1	18,805	49%
Burner Upgrade	1	14,680	6%	-	-	-
GREM	1	9,986	4%	-	-	-
Steam Pipe/DHW Insulation	6	17,043	7%	-	-	-
Water Heater	1	4,143	2%	-	-	-
Thermal Curtains	-	-	-	1	2,372	6%
Heat Timer	1	5,324	2%	-	-	-
HVAC/Other	5	75,996	31%	1	17,578	45%
<b>TOTALS</b>	<b>33</b>	<b>246,546</b>	<b>100%</b>	<b>3</b>	<b>38,755</b>	<b>100%</b>

*Source: Navigant analysis*

Research findings gross savings impacts were determined for the Custom Program based on M&V activities for the selected sample of 20 projects. Details of the M&V sample drawn and research findings gross realization rates for onsite and engineering file reviews are shown in Table 5-3.

**Table 5-3. Gross Impact Realization Rates for the Custom Sample by M&V Approach and Strata**

M&V Approach	Strata	Project Count	Sample-Based Ex Gross Savings (Therms)	Sample-Based Research Findings Gross Savings (Therms)	Sample-Based Research Findings Gross Realization Rate
On-Site	1	3	94,444	95,615	1.01
	2	3	54,821	43,156	0.79
	3	4	17,288	21,276	1.23
File Review	1	-	-	-	-
	2	2	33,706	30,387	0.90
	3	8	40,335	47,917	1.19
<b>Total</b>		<b>20</b>	<b>240,593</b>	<b>238,352</b>	<b>0.99<sup>9</sup></b>

Source: Navigant analysis of Peoples Gas and North Shore Gas tracking database (8/27/2012 data)

The research findings gross realization rates for the 20 sampled projects are presented in Table 5-4. The weighted mean research findings sample gross realization rate was 1.02. Projects 20148, 82184, and 86303 had gross realization rates of 1.85, 1.73, and 1.79 respectively. For project 20148, research findings gross savings were calculated using a boiler simulation model with TMY3 data, compared with the ex-ante baseline condition which based annual consumption on 2011 weather conditions (mild winter in 2011). For projects 82184 and 86303, customers performed pipe insulation. The research findings gross savings values were based on 3E Plus insulation calculation software to calculate the heat loss on a per foot basis for both pre and post pipe insulation. The evaluation team determined the gross savings were significantly higher, producing the respective 1.73 and 1.79 gross realization rates.

For projects 40935 and 72909, inadequate information was provided on the existing boilers (other than the fact that the boilers operated at very low efficiencies). The verification assumed minimum code efficiency on the burners and control types. The ex-post gross savings were low (with respect to the other realization rates), producing research findings gross realization rates of 36% and 42% respectively.

Similarly, from the engineering desk review of projects 35757, 29467, and 35961, minimal information was provided in the project documentation to explain or justify the claimed savings. The evaluation team determined a programmable thermostat measure was installed (with local temperature sensors installed) in certain locations to provide increased control. The

<sup>9</sup> This is realization rate has not been weighted by strata.

evaluation team determined this measure does not save energy unless a single point of control thermostat resulted in overheating/overcooling in the baseline condition. Upon receipt of additional documentation from the IC, the evaluation team verified that these projects could achieve 1.41, 3.89, and 7.09 realization rates, respectively, on gross therms savings.

**Table 5-4. Gross Impact Realization Rate Results for the Selected Custom Sample – by Project and Strata**

Sampled Project ID	Sample-Based Ex Ante Gross Savings (Therms)	Sampling Strata	Ex Ante-Based Therms Gross Impact Weights by Strata	Sample-Based Research Findings Gross Savings (Therms)	Application - Specific Research Findings Gross Therms Realization Rate	Weighted Research Findings Gross Therms Realization Rate by Strata
20148	22,000	1	0.23	40,634	1.85	1.01
24524	43,108	1	0.46	36,060	0.84	
22598	29,336	1	0.31	18,922	0.65	
25616	17,578	2	0.20	18,907	1.08	0.83
40935	21,626	2	0.24	7,793	0.36	
27746	15,618	2	0.18	16,456	1.05	
21884	14,901	2	0.17	12,322	0.83	
38769	18,805	2	0.21	18,065	0.96	
61179	2,014	3	0.03	1,917	0.95	
82184	2,413	3	0.04	4,170	1.73	
25326	8,647	3	0.15	7,649	0.88	
86303	4,213	3	0.07	7,540	1.79	
37806	14,683	3	0.25	12,097	0.82	
35757	931	3	0.02	1,315	1.41	
72909	6,420	3	0.11	2,727	0.42	
29467	382	3	0.01	1,486	3.89	
74259	4,915	3	0.09	5,400	1.10	
60214	9,986	3	0.17	9,609	0.96	
35961	1,992	3	0.03	14,116	7.09	
29299	1,026	3	0.02	1,167	1.14	
<b>TOTAL</b>	<b>240,593</b>	-	-	238,352	0.99	1.02

Source: Navigant analysis

The mean research findings gross realization rates for the sample was applied to the population to achieve the program level research findings gross savings discussed in Section 3 of the report.

### 5.2.1 Detailed NTG Calculations

The primary objective of the net savings analysis for the Custom Program was to determine the program's net effect on customers' natural gas usage. After gross program impacts have been assessed, net program impacts are derived by estimating a NTGR that quantifies the percentage of the gross program impacts that can be reliably attributed to the program.

For GPY1, the net program impacts were quantified from the estimated level of free-ridership and participant spillover. Quantifying free-ridership requires estimating what would have happened in the absence of the program. A customer self-report method, based on data gathered during participant telephone interviews, was used to estimate the free-ridership for this evaluation. The existence of participant spillover is examined by identifying spillover candidates through questions asked in the participant telephone interviews. If response data provided evidence of participant spillover and the participant is willing to have a follow-up interview by an engineer, an attempt is made to quantify the spillover impacts.

Once free-ridership and participant spillover has been estimated, the NTGR is calculated as follows:

$$\text{NTGR} = 1 - \text{Free-ridership Rate} + \text{Participant Spillover}$$

#### Basic Rigor Free-Ridership Assessment

Free-ridership was assessed using a customer self-report approach following a framework that was developed for evaluating net savings of California's 2006-2008 nonresidential energy efficiency programs. This method calculates free-ridership using data collected during participant telephone interviews concerning the following three items:

- A **Timing and Selection** score that reflected the influence of the most important of various program and program-related elements in the customer's decision to select the specific program measure at this time;
- A **Program Influence** score that captured the perceived importance of the program (whether rebate, recommendation, or other program intervention) relative to non-program factors in the decision to implement the specific measure that was eventually adopted or installed. This score is cut in half if they learned about the program after they decided to implement the measures; and

- A **No-Program** score that captures the likelihood of various actions the customer might have taken at this time and in the future if the program had not been available. This score accounts for deferred free-ridership by incorporating the likelihood that the customer would have installed program-qualifying measures at a later date if the program had not been available.

Each of these scores represents the highest response or the average of several responses given to one or more questions about the decision to install a program measure. The rationale for using the maximum value is to capture the most important element in the participant's decision making. This scoring algorithm and methodology follows the approach used for the ComEd and Ameren Illinois C&I programs.

### **Standard Rigor Free-Ridership Assessment**

Additional survey batteries examine other project decision-making influences including the vendor, age, and condition of existing equipment, corporate policy for efficiency improvements and open-ended responses.

### **Participant Spillover**

For the GPY1 Custom Program evaluation, a battery of questions was asked to identify spillover candidates who may then be asked to participate in a follow-up interview by an engineer to quantify spillover savings. Below are paraphrased versions of the spillover questions that were asked:

1. Since your participation in the Custom Program, did you implement any **ADDITIONAL** energy efficiency measures at this facility or at your other facilities within <Peoples Gas or North Shore Gas> service territory that did NOT receive incentives through any utility or government program?
2. On a scale of 0-10, where 0 means "no influence" and 10 means "greatly influenced," how much did your experience with the Custom Program influence your decision to install high efficiency equipment on your own?
3. Why do you give the Custom Program this influence rating?

If the response to question 2 was given a score of 7 or higher, we judged the respondent to be a spillover candidate. Unfortunately, due to the low response rate that the Custom participant survey received, Navigant was unable to identify any participants who experienced spillover as a result of their participation in the program. In GPY2, we will continue to attempt to identify participants who experienced spillover, and will ask the following additional question during the CATI survey:

“Thank you for sharing this information with us. We may have follow-up questions about the equipment you installed outside of the program. Would you be willing to speak briefly with a member of our team?”

All respondents who answer “yes” indicating that they would be willing to speak with a member of our team would be contacted by an engineer. The follow-up engineering interview attempts to confirm that spillover had occurred and estimate the energy savings.

### **NTG Scoring**

The scoring approach used to calculate free-ridership from data collected through participant phone surveys is summarized in Table 5-5.

**Table 5-5. Net-to-Gross Scoring Algorithm for the GPY1 Custom Program**

Scoring Element	Calculation
<p><b>Timing and Selection score.</b> The maximum score (on a scale of 0 to 10 where 0 equals not at all influential and 10 equals very influential) among the self-reported influence level the program had for:</p> <ul style="list-style-type: none"> <li>A. Availability of the program incentive</li> <li>B. Technical assistance from utility or program staff</li> <li>C. Recommendation from utility or program staff</li> <li>D. Information from utility or program marketing materials</li> <li>E. Endorsement or recommendation by a utility account rep</li> </ul>	<p>Maximum of A, B, C, D, and E</p>
<p><b>Program Influence score.</b> “If you were given a TOTAL of 100 points that reflect the importance in your decision to implement the &lt;ENDUSE&gt;, and you had to divide those 100 points between: 1) the program and 2) other factors, how many points would you give to the importance of the PROGRAM?”</p>	<p>Points awarded to the program (divided by 10) Divide by 2 if the customer learned about the program AFTER deciding to implement the measure that was installed</p>
<p><b>No-Program score.</b> “Using a likelihood scale from 0 to 10, where 0 is “Not at all likely” and 10 is “Extremely likely”, if the utility program had not been available, what is the likelihood that you would have installed exactly the same equipment?”</p> <p>Adjustments to the “likelihood score” are made for timing: “Without the program, when do you think you would have installed this equipment?” Free-ridership diminishes as the timing of the installation without the program moves further into the future.</p>	<p>Interpolate between No Program Likelihood Score and 10 where “At the same time” or within 6 months equals No Program score, and 48 months later equals 10 (no free-ridership)</p>
<p>Project-level Free-ridership (ranges from 0.00 to 1.00)</p>	<p>1 – Sum of scores (Program Components, Program Influence, No-Program)/30</p>
<p>GPY1 Project level Net-to-Gross Ratio (ranges from 0.00 to 1.00)</p>	<p>1 – Project level Free-ridership + Participant Spillover</p>
<p>Apply score to other end-uses within the same project?</p>	<p>If yes, assign score to other end-uses of the same project</p>
<p>Apply score to other projects of the same end-use?</p>	<p>If yes, assign score to same end-use of the additional projects</p>

Research findings net program savings impacts were determined from reviewing 15 participant responses from the CATI survey. Shown in Table 5-6 is the profile of the net impact of the sample of respondents to the Custom Program CATI survey, in comparison with the Custom Program population.

**Table 5-6. Profile of GPY1 Net Impact Sample**

Population Summary		Participant Interviewed			
Number of Project (N)	Ex Ante Gross Energy Savings	n	Ex Ante Gross Energy Savings	Sampled Projects % of Population	Sampled Therms % of Population
32	285,301	15	123,632	47%	43%

Table 5-7 provides the program gross savings and the net savings for Peoples Gas and North Shore Gas. The relative precision at a 90% confidence level is provided in Table 5-8. A Net-to-Gross ratio of 0.68 was estimated for the Custom Program at a relative precision of  $\pm 12\%$  at a 90% confidence level.

**Table 5-7. GPY1 Program Gross and Net Energy Savings Estimates**

Program	Ex Ante Gross Savings (Therms)	Program Research Findings Gross Savings (Therms)	Research Findings Gross Realization Rate	Research Findings Net Energy Savings (Therms)	Research Findings Net-to-Gross Ratio
Peoples Gas	246,546	252,368	1.02	171,610	0.68
North Shore Gas	38,755	39,670	1.02	26,975	0.68

Source: Navigant analysis

**Table 5-8. NTG Ratio and Relative Precision at 90% Confidence Level**

Project Population (N=32)	NTG Interviews (n=15)	NTG Sample (n=15)	Relative Precision ( $\pm$ %)	Low	NTGR (Mean)	High
				0.60		0.75
32	15	15	12%	0.60	0.68	0.75

Source: Navigant analysis of participant telephone survey responses

### 5.3 TRM Recommendations

None are applicable for this program.

### 5.4 Sampling Details

#### *Gross Impact M&V Sample*

For the GPY1 program year, a statistically significant sample based on 90/20 confidence/precision level for program-level savings was drawn for the gross savings verification.<sup>10</sup> The Custom Program tracking database extract dated 8/27/2012 was used to select 20 M&V sample points. Before final sample selection, the tracking extract was reviewed to check for outliers and missing values, and then matched to program reported energy savings.

Program-level custom savings data were analyzed by project size to inform the sample design. Projects were stratified at the tracking record level using the ex ante gross therms savings. Records were sorted from largest to smallest custom energy savings claim, and placed into one of three strata such that each contains one-third of the program total ex ante gross energy savings. The sample of 20 records were drawn such that the sample represents the final population distribution by strata: the three records in strata 1 were selected, the five records in strata 2 were selected, and 12 out of 24 records were randomly selected in strata 3. Each of the records selected represents one Custom project. In all, 18 projects (22 measures) were sampled from Peoples Gas, and 2 projects from North Shore Gas.

Table 5-9 provides a profile of the gross impact verification sample for the Custom Program in comparison with the Custom Program population. The sample drawn is responsible for 240,593 therms of ex ante gross savings impact claim and representing 84% of the ex ante gross savings impact claim for the program population.

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<sup>10</sup> Each program year, the confidence and precision of the *ex post* estimates will be better than a target of 90/20, respectively, with a three-year overall confidence and precision target of 90/10. If fewer but larger projects participate than estimated in evaluation planning, smaller sample sizes can achieve 90/10 results in a given year.

**Table 5-9. Profile of GPY1 Gross Impact Sample by Strata**

Population Summary				Sample		
Sampling Strata	Number of Project (N)	Ex Ante Claimed Gross Savings, Therms	Therms Weights	n	Ex Ante Therms	Sampled Therms % of Population
1	3	94,444	0.331	3	94,444	100%
2	5	88,527	0.310	5	88,527	100%
3	24	102,330	0.359	12	57,622	56%
TOTAL	32	285,301	1.000	20	240,593	84%

Source: Navigant analysis of Franklin Energy tracking database 8-27-2012 extract.

Table 5-10 provides a profile of the 10 sites randomly selected from the impact sample for on-site M&V.

**Table 5-10. Profile of the Gross Impact M&V On-Site Sample by Strata**

On-Site Sample				
Sampling Strata	Number of Sites	Measure Types	Ex Ante kWh Impact Claimed	Sampled % of Population
1	3	HVAC, Other	94,444	100%
2	3	HVAC/Other, Boiler/Burner Temperature Controls	54,821	62%
3	4	HVAC/Other, Boiler/Burner Temperature Controls, Boiler Replacement, Steam Trap Repairs, Pipe/DHW Insulation	17,288	17%
TOTAL	10		166,552	58%

### CATI Telephone Survey

A census was attempted for the CATI Telephone Survey. A total of 32 Custom Program participants were contacted to participate in the Participant Survey. A total of 15 customers participated.

### **5.5 Detailed process results**

No additional process results to report.

### **5.6 Detailed methodology**

#### **Gross Program Savings Impact Methodology**

The objective of the impact evaluation was to verify the accuracy of the claimed GPY1 ex ante gross energy savings estimates in the Custom Program tracking database submitted to the evaluation team on August 27, 2012. The savings reported in the tracking database was evaluated using the following steps:

1. Engineering review at the measure-level for a sample of 20 project files, with the following subcomponents:
  - a. Engineering review and analysis of measure savings based on project documentation and tracking data.
  - b. Review and consideration (if appropriate) of participant telephone survey responses in the impact analysis (reported baseline equipment age and condition) for projects in the sample.
  - c. On-site verification audits at 10 project sites selected from the engineering review sample. Performance measurements included spot measurements and run-time hour data logging for selected measures.
  - d. Calculation of an ex-post gross savings value for each project within sample, based on measure-level engineering analysis.
2. Prepare a detailed, site-specific impact evaluation report for each sampled site.
3. Carry out a quality control review of the ex post impact estimates and the associated draft site reports and implement any necessary revisions.

Navigant's gross savings impact evaluation also incorporated the following additional information that may not have been feasible to incorporate in Final Application submittal or possibly during the pre-approval on-site inspections by the program implementer:

- a. Verification that measures are installed and operational, and whether or not the as-built condition will generate the predicted level of savings.
- b. Observed post-installation operating schedule and system loading conditions.
- c. A thorough validation of baseline selection, including appropriateness of a retrofit vs. replace on burnout claim.
- d. Development of stipulated and measured engineering parameters that contribute to the impact calculations.

### **5.6.1 Gross Program Savings Onsite Verification**

The savings reported in the Custom Program tracking system were evaluated using an M&V approach in some instances and desk reviews in others. To support this review, Franklin Energy provided project documentation in electronic format for each sampled project. Documentation included some or all of scanned files of hardcopy application forms and supporting documentation from the applicant (invoices, measure specification sheets, and vendor proposals), pre-inspection reports and photos (when required), post inspection reports and photos (when conducted).

### **5.6.2 Selection of IPMVP Approach**

The research findings gross annual therms energy savings were assessed using an array of methods that are compliant with and defined by the International Performance Measurement and Verification Protocols (IPMVP). Flexibility was also considered in applying these protocols, with an eye towards deployment of a cost-effective M&V approach (i.e., reduction in uncertainty per evaluation dollar spent). Choices include IPMVP Option A (retrofit isolation: key parameter measurement), Option B (retrofit isolation all parameter measurement), Option C (normalized annual consumption model or a fully specified regression model) and Option D (calibrated building energy simulation models).

#### ***Baseline Assessment***

Development of baseline is a crucial step in accurately assessing custom measure research findings savings, and it is sometimes the case that the evaluation-defined baseline does not agree with the program-defined baseline. In each case, an investigation is needed to determine whether the existing equipment was at the end of its life and whether there is an efficiency increment among new equipment available in the market. If the equipment is at the end of its life and there is variation among new equipment efficiencies, then the savings should be based on the delta between the efficiency of the standard baseline equipment and program induced installation. If the equipment is at the end of its life (i.e., no evidence of program-induced early replacement) and there is little or no difference in efficiencies among new equipment choices, then the savings will essentially be zero. The evaluation acknowledges that early replacement activities would normally yield an array of annual energy savings throughout the effective useful life (EUL) of the new equipment, involving impacts in the first series of years that reflect differences in usage versus the pre-existing system, and in later years versus the likely equipment adoption in the absence of the program. However, this evaluation seeks to identify the predominant baseline condition, and derive a single (representative) year estimate of annual savings. The point here is to simply illustrate that baseline determination and analysis are an integral and extremely important part of custom impact evaluation.

#### ***Review Applications and Prepare Analysis Plans***

For each selected application, an in-depth application review is performed to assess the engineering methods, parameters and assumptions used to generate all ex ante gross savings estimates. Application review serves to familiarize the assigned engineer with the gross impact approach applied in the program calculations. This also forms the basis for determining the additional data and monitoring needs that are required to complete each analysis and the likely sources for obtaining those analytic inputs. For most projects on-site sources include interviews that are completed at the time of the on-site, visual inspection of the systems and equipment, spot measurements, and short-term monitoring.

Each review results in a formal analysis plan. Each plan explains the general gross impact approach used (including monitoring plans), provides an analysis of the current inputs (based on the application and other available sources at that time), and identifies sources that will be used to verify data or obtain newly identified inputs for the research findings gross impact approach. Sometimes initial plans are adjusted to reflect actual in-field conditions. Where warranted, the evaluation team refines the initial plan based on better/more information as each M&V site data collection and analysis effort develops.

#### ***Schedule and Conduct On-Site Data Collection***

On-site surveys are completed for each of the customer applications sampled. All engineers who conduct audits are trained and experienced in completing inspections for related types of projects. Each carries all equipment required to conduct the planned activities. The engineer assigned to each project first calls to set up an appointment with the customer. The on-site audit consists of a combination of interviewing and taking measurements. During the on-site audit, data identified in the analysis plan is collected, including monitoring records (measured temperatures, equipment nameplate data, location of equipment, system operation sequences and operating schedules, and a description of site conditions that might contribute to baseline selection).

For the 10 Custom projects receiving only an engineering file review in GPY1, the data collection involved customer interviews to collect operating schedules, review invoices and verify installations.

#### ***Conduct Site-Specific Impact Calculations and Prepare Draft Site Reports***

After all of the field data is collected, including any monitoring data, annual energy savings impacts are developed based on the on-site data, monitoring data, application information, and, in some cases, billing or interval data. Each program engineering analysis is based on calibrated engineering models that make use of hard copy application review and on-site gathered information surrounding the equipment installed through the program (and the operation of those systems).

Energy savings calculations are accomplished using methods that include short-term monitoring-based assessments, simulation modeling (e.g., DOE-2), bin models, application of ASHRAE methods and algorithms, analysis of pre- and post-installation billing and interval data, and other specialized algorithms and models such as 3E Plus insulation calculation software. After completion of the engineering analysis, a site-specific draft impact evaluation report is prepared that summarizes the M&V plan, the data collected at the site, and all of the calculations and parameters used to estimate savings.

***Quality Control Review and Final Site Reports***

The focus of the engineering review is on the quality and clarity of the documentation and consistency and validity of the estimation methods. Each draft site report including calculations underwent extensive senior engineer review, providing feedback to each assigned engineer for revisions or other improvements. Each assigned engineer then revised the draft reports as necessary to produce the final site reports.

## 5.7 *VDDTSR Memo-Final version*

**To:** Pat Michalkiewicz, Peoples Gas & North Shore Gas

**CC:** Jennifer Hinman, David Brightwell, ICC Staff

Sue Nathan Applied Energy Group

Kevin Grabner, Randy Gunn, Rob Neumann, Navigant, Inc.

**From:** Charles Ampong and Nick Beaman, Navigant, Inc.

**Date:** May 25, 2012

**Re:** Peoples Gas & North Shore Gas GPY1 Commercial & Industrial (C&I) Custom Rebates Program – Verification and Due Diligence and Program Tracking System Review

### **Introduction**

This document provides the results from Navigant’s verification and due diligence review of the program tracking, quality assurance and savings verification procedures used in the Peoples Gas & North Shore Gas Commercial & Industrial Custom Rebates Program (Custom Program) during the program’s first year (GPY1). The main components of this task included interviews with implementation staff, documentation review and comparing the C&I Custom Program to national best practices.

### **Overview of Findings**

Overall, most of the quality assurance and verification procedures in place for the Custom Program as outlined in the program’s Operations Manual<sup>11</sup> provide a detailed quality control framework that meets many aspects of national best practices. While the Custom Program is generally well-designed, a key element of Custom programs is the ability to mitigate various types of risk associated with the inherent nature of custom projects, including risk of project under-performance (e.g. achieving fewer therm savings than expected), unforeseen project

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<sup>11</sup> Peoples Gas & North Shore Gas SB 1918 Energy Efficiency Programs Operation Manual (V 4.0 DRAFT, Updated: 1-6-2012, and V6 updated 4/2/2012)

delays or lack of documentation of the program's influence on the customer's decision to install energy efficiency measure(s). After carefully reviewing the Custom Program's documentation and program forms, we conclude that the Custom Program's Operations Manual does not fully address baseline selection with regard to age, condition, and replacement plans for the existing equipment for evaluation purposes.

We have included additional detail in our findings and have included recommendations about additional information for program staff to collect in order to help substantiate the program's influence on the customer's decision-making and the applicable baseline for a custom project.

The Custom Program's application form, available on the program's website, provides clear instructions for application and measure qualification and supporting documentation in order to qualify for an incentive through the Custom Program. However, the program application form does not describe and request certain information that is required to determine claimed savings, specifically: age, condition, and replacement plans for the existing equipment; baseline selection criteria; and guidelines for estimating savings and costs for alternative baseline selections.

Verification of net claimed custom project savings is greatly aided when there is thorough documentation of baseline conditions, participant decisions and decision makers, key program and trade ally influences, energy savings assumptions and methodologies, equipment age, estimated equipment remaining useful life, standard maintenance practices, choice of baseline, and inspection results. While the program implementer is collecting this information to some extent, we stress the importance of sufficient project documentation to accurately portray the program's selection of baseline and influence on the custom project. Navigant recommends that program staff consider implementing standardized procedures and forms for assembling sufficient project documentation where possible.

### **Introduction to the Program**

The Custom Program began program operations in June 2011. As with many new programs, the Custom Program initially encountered some challenges recruiting participants. Since then, customer participation in the program has been trending upward with increased market penetration and support from Peoples Gas and North Shore Gas account managers. The Custom Program maintains an active trade ally network to recruit participants. To help promote trade ally participation, the program has sponsored training events for trade allies designed to educate them about the technical and financial resources available to their customers.

### **Purpose of the Verification and Due Diligence Review**

The primary purpose of the verification and due diligence task was to determine:

- Whether appropriate eligibility criteria have been properly adhered to and applications are backed with supporting documentation;
- Whether savings were calculated correctly and project information entered in an accurate and timely manner in the program tracking system; and
- If any QA/QC activities are biased (i.e., incorrect sampling that may inadvertently skew results, purposeful sampling that is not defensible, etc.)
- Whether sufficient information is being tracked for program evaluation purposes.

### **Data Collection**

Navigant collected data for this verification and due diligence task through interviews with program implementation staff and reviewing program documentation covering the time period from January through March 2012. Navigant’s findings are based on the following activities and materials reviewed for the Custom Program:

- Interview with the program implementer
- Operations Manual
- Program application and customer incentive worksheets
- File review of projects selected by Navigant
- Program tracking system review
- Review of marketing and outreach efforts
- Comparing program materials to national best practices

### **Interview with Program Implementation Contractor**

Navigant conducted a telephone interview with the program manager to review the program’s accomplishments and challenges to date. The telephone interview included prepared question topics such as program administration, program outreach and marketing, program delivery mechanisms, customer satisfaction, and implementation challenges. At the conclusion of the interview, Navigant provided extra time to discuss any questions or raise additional topics that were not already covered in the telephone interview.

### **Program Documentation Review**

The program implementer provided program documentation requested by Navigant to conduct the verification and due diligence review. Navigant reviewed the program’s Operations Manual, Integrys 2011 Compliance Filing<sup>12</sup>, an extract from the program’s tracking database, customer applications, incentive processing worksheets and marketing materials. The program tracking database adequately tracks projects from application to completion. Navigant reviewed the program’s quarterly program delivery report submitted to Peoples Gas

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<sup>12</sup> Peoples and North Shore Gas, Integrys Compliance Filing Energy Efficiency Program Plan, June 1, 2011 – May 31, 2014, June 2011, Docket 10-0564 Attachment A.pdf

and North Shore Gas. The quarterly program delivery report included highlights of potential and realized energy savings and cost information related to the program's performance to date.

The Operations Manual specifically outlines project qualification criteria and standards, and includes a list of acceptable energy savings calculation approaches, incentive processing, and pre- and post-inspection guidelines. However, as referenced above, Navigant did not find sufficient detail in the Operations Manual regarding data collection for the purposes of documenting an appropriate baseline for a custom project.

#### Project Files Engineering Desk Review

The evaluation team selected three custom projects for engineering desk review. The projects selected were Peoples Gas projects 25326 and 35754 and North Shore Gas project 25616. Information was provided to Navigant from the program implementer. Navigant reviewed the savings calculation approaches included in the project files and compared entries in the project files to corresponding entries in the program tracking database for accuracy and completeness.

Navigant's engineering review of the project files found that the documentation submitted by applicants was generally a complete response to program requests. The project files included a project summary, itemized invoices, savings calculation assumptions and methodology, installed equipment specification sheets, utility billing information, incentive reservation application and agreement worksheets, pre- and post-installation inspection notes, and copies of paid checks. The program does request information from applicants regarding baseline equipment age and condition or baseline selection.

#### Program Tracking System Review

Navigant performed a review of the program tracking system. The program implementer provided a process guide for the Bensight Data Management system<sup>13</sup>. The Bensight Guide details the process for creating an account, setting up a project file and recording project information. In addition, the Guide includes a process for conducting final data entry quality control checks to help ensure project information was accurately recorded and tracked in the system. Navigant obtained an extract from the program tracking system (Access database format extracted from 2/14/2012) to review information included in the tracking system and compare it with corresponding entries in project files. Navigant did not find any significant data inconsistency issues relating to estimated savings and incentives between the project files and the corresponding entries in the program tracking system.

#### Marketing and Outreach Review

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<sup>13</sup> EE and EA Process in Bensight.pdf (Bensight Guide)

Navigant reviewed marketing and outreach materials supplied by the implementation contractor. The marketing and outreach documents included a program marketing plan<sup>14</sup>, list of contracted trade allies, and trade ally outreach and orientation meeting documents. Navigant found that the program's marketing and outreach materials were generally consistent with the program's marketing plan and goals.

### **Review of Program Operating Procedures**

Navigant examined the Custom Program's operating procedures as outlined in the program Operations Manual. We outline each step in the section below. The program Operations Manual identifies the following key steps leading to final project approval and incentive payment:

- Pre-Approval Application
- Pre-Installation Inspection
- Final Application
- Final Inspection and Approval
- Incentive Payment

### **Pre-Approval Application**

A customer (or contractor on behalf of the customer) enrolls in the C&I Custom Rebates program by submitting a completed pre-approval application together with the customer's most recent utility bills, detailed manufacturers' specification sheets for the proposed equipment installation (including size, type, make, model and equipment performance information), itemized quotes from a contractor or vendor, project payback information, and calculations of estimated therm savings expected to be generated by the project. The program application does not include fields or instructions for applicants to report information regarding baseline equipment age and condition or baseline selection.

The program implementer's technical staff reviews the customer's pre-approval application to determine if the project meets program eligibility requirements, including verifying that the proposed project is not eligible for incentives through the C&I Custom Rebate Program. We did not find sufficient documentation within the project files reviewed to determine what methodology the technical reviewers used to assess and approve custom project baselines. If the project qualifies for the Custom Program, the program staff calculates preliminary incentives and returns an Incentive Reservation Letter to the customer. The customer must sign and return the Incentive Reservation Letter within seven days.

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<sup>14</sup> Integrys C&I Custom Rebate Program Marketing Plan 2011v5.docx

Upon receiving the signed Incentive Reservation Letter, the project is entered into the program's tracking system and the implementation contractor schedules a pre-installation inspection with the program applicant. A pre-approval notice reserves funds for 90 days. A customer must meet all of the program requirements in order to obtain an incentive.

### **Pre-Installation Inspection**

After receiving the signed Incentive Reservation Letter, the program implementer's technical staff conducts a pre-installation inspection at the project site. The purpose of a pre-installation inspection is to document existing conditions at the project. The program staff may also review the customer's application with the customer and its contractors. The program staff may review the customer's savings calculations and methodologies and request additional information if needed. A customer may begin project installation after the customer has successfully completed the pre-installation inspection and submitted any additional documentation requested by program staff.

### **Final Application**

Once a custom project is installed and is operational, a customer submits a final project application, notifying program staff that the project is ready for final inspection. A final project application includes supporting documentation such as equipment invoices, product specification sheets, and warranty information. Customers must submit final project applications within 30 days of project completion.

### **Post-Installation Inspection and Final Approval Notice**

After receiving a final project application, program staff returns to the project site and conduct a post-installation inspection. The purpose of post-installation activities are to ensure the key performance indicators for the program are met through performing the quality assurance and quality control procedures documented in the program's Operation Manual. Program staff conducts a post-installation inspection with the customer to verify that the proposed custom project is complete and operational. Program staff performs post-installation inspections for all projects with incentives over \$10,000. For projects with incentives less than \$10,000, program staff conducts post-installation inspections for not less than 2.5% of completed custom projects. Upon satisfaction of the post-installation inspection, a customer receives a Final Approval Notice for its project.

### **Incentive Payment**

After a Final Approval Notice is issued, the program issues final incentive payment based on one of the following calculations, as outlined in the program's operation manual. These calculations include the lesser of: (i) \$1.00 per therm saved in the first year; (ii) buy down to one-year payback; (iii) full incremental project cost or 50% of total project cost. Depending on the amount of the incentive check, the project file must be approved by one or more program

managers prior to issuance. Upon sending the incentive check to the customer, the program staff marks the project as “Paid” and uploads the scanned check(s) and documentation to the program tracking system.

### **Verification and Due Diligence Findings**

Navigant reached the following findings for this task based on reviewing program documentation and interviewing program staff. Our findings are followed by a comparison of the program’s activities to program best practices from the *Best Practices Self-Benchmarking Tool*<sup>15</sup> from the *National Energy Efficiency Best Practices Study* and a section of recommendations:

- Navigant reviewed the customer application procedures for the C&I Custom Program and determined that they provide sufficient detail for customers to gain a clear understanding of the current documentation requirements and obligations when applying for an incentive. However, the program application form does not describe and request certain information that is required to determine claimed savings, specifically: age, condition, and replacement plans for the existing equipment; baseline selection criteria; and guidelines for estimating savings and costs for alternative baseline selections.
- The samples chosen for project engineering file review indicate that the program implementer is reviewing paper application information and accurately transferring this information into the program tracking system. The evaluation team did not find additional project information in the program tracking system that would be useful for evaluation, such as post inspection findings, inspection dates, make and model of inspected baseline and retrofit equipment. The tracking system does not track any information about the age or condition of baseline equipment or baseline selection.
- Findings from the sample of project files reviewed indicate customers are not required to specify the age, condition, and replacement plans of the custom baseline equipment to be replaced or upgraded. Customers are not being instructed to identify the baseline as a part of submitting energy savings and project cost estimates. For instance, custom projects IDs 25616 and 25326 upgraded existing boiler burners with new and more efficient burners. The baselines of these projects were defined as the existing burners instead of code/standard minimum or standard efficiency replacement. The age, condition, and replacement plans for the baseline burners were not presented. For these projects, the customers conducted monitoring to compare the base case load profiles with the post-installation case load profile to compare rates of throughput. This process enabled the customers to accurately account for boiler system improvements in the projects’ savings calculations assuming existing equipment in the baseline, but does not

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<sup>15</sup> Best Practices Self-Benchmarking Tool developed for the Energy Efficiency Best Practices Project: <http://www.ebestpractices.com/benchmarking.asp>

- address whether existing equipment or a standard practice replacement should have been the baseline scenario.
- Navigant reviewed methodologies from the program’s Operations Manual for calculating baseline and retrofit measures energy usage and cost and compared the Manual’s methodology with the engineering desk reviews from the selected sample of projects. Navigant found that the methodologies in the sample projects were applied consistently with the approach and assumptions from the program eligibility requirements in the program’s Operations Manual. However, the discussion in the Operations Manual regarding “Defining the Base Case” does not fully address baseline selection with regard to age, condition, and replacement plans for the existing equipment.
  - Navigant reviewed the program tracking system and found that the majority of projects that require post-inspections are sufficiently marked as such. However, Navigant identified one project file (project 21884) that should have received a post-inspection but did not have the corresponding entries in the program tracking system.
  - The extract from the program tracking database had registered two completed projects in Peoples Gas territory and 17 completed projects in North Shore Gas territory with 23% of overall net savings achieved by the program. The program Dashboard Report from a month later indicated net program savings increased from 23% to 28% of goal. This increase indicates an upward trend in program project completion.
  - The Custom Program uses standardized inspection forms or checklists that record the inspection date and inspector name, whether measure is installed as described in the application, whether model matches specification, measure functionality and quantity consistency.
  - Navigant found that project 35754 may have been mis-characterized as a Custom project as it appeared to qualify for incentives from the C&I Prescriptive Program.

### **Quality Control and Verification Best Practices**

To conduct the best practices benchmarking assessment, the evaluation team compared the program implementer’s practices (shown as a bullet list) with the *Best Practices Self-Benchmarking Tool*<sup>16</sup> from the *National Energy Efficiency Best Practices Study* (numbered items in *italic* font).

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<sup>16</sup> See the Best Practices Self-Benchmarking Tool developed for the Energy Efficiency Best Practices Project: <http://www.ebestpractices.com/benchmarking.asp>

## **I. Program Design and Structure**

1. Develop inspection and verification procedures during the program design phase.
  - The Custom Program has well designed pre-approval and final approval inspection and verification procedures documented in the program application forms and operating manual, enabling customers to navigate the program with transparency.
2. Provide technical assistance to help applicants through the application process.
  - The Custom Program provides technical resources for customers to complete custom calculations on each project to determine the energy savings potential, payback horizon, and incentive amount. The program implementer may also review selected calculations for accuracy and provide feedback as needed.
3. Keep the application process and forms from being overly complex and costly to navigate while at the same time not being over-simplified.
  - The Custom Program participation procedures and documentation requirements are reasonable, given the complexity inherent in custom projects.
4. Develop a cadre of trade allies who can then assist customers through the process.
  - The Custom Program has a goal of using Trade Allies to assist in project referrals and to assist customers with participation requirements.
  - Trade Ally participation, to date, has been lower than expected compared to program planning goals. However, the program is expanding its marketing and outreach efforts to recruit more trade allies.

## **II. Data Reporting and Tracking**

5. Define and identify key information needed to track and report early in the program development process
  - Program data requirements were defined early in the program development process and are tracked in the program tracking database.
6. Design program tracking system to support the requirements of evaluators as well as program staff.
  - The tracking system allows real-time reporting of routine functions like monthly portfolio and program reports, energy savings, financial tracking. Automated reporting and tracking increases efficiency of program staff.

- The data tracking system is well designed for use by program staff and review by program evaluators. It tracks program key performance metrics, fully integrates marketing, customer, trade ally and impact data.
  - The evaluation team recommends that the program staff consider including additional project information in the program tracking system, such as post inspection findings, inspection dates, make and model of inspected baseline and retrofit equipment, and measure life. The tracking system does not track information about the baseline equipment that will be required to conduct impact evaluation.
7. Verify accuracy of rebates, coupons, invoices to ensure the reporting system is recording actual product installations by target market
- Customers are required, as part of the program terms and conditions, to submit copies of all invoices or other reasonable documentation of the costs associated with purchasing the incentivized equipment, and to allow program staff to conduct pre- and post-installation inspections.
  - As part of the application review process, technical staff of the program implementer compares invoices and purchase orders to the application information to confirm that the claimed measures were actually installed at the specified time.
8. Set reasonable and accurate expectations for energy savings and measure performance.
- The Custom Program has an estimate of expected savings, although it is difficult to accurately estimate what projects will apply for the program due to the nature of custom business programs. However, the custom program conducts pre-installation inspections and reviews potential energy savings and incentive levels prior to approving the customer to participate in the program.
  - The program does not describe to applicants the need to determine the appropriate baseline as the basis for savings and incentive calculations, thus participants could be surprised by substantial reductions if program review indicates the proper baseline is standard replacement rather than existing equipment.

### **III. Inspection Procedures**

9. Require pre-inspections for large projects with highly uncertain baseline conditions that significantly affect project savings.
- The Custom Program requires pre-inspections for all projects regardless of size or baseline conditions.

10. Require pre- and post-inspections and commissioning for all large projects and projects with highly uncertain savings.
  - The Custom Program requires post-inspections for all projects with incentives over \$10,000, and a random sample of not less than 2.5% of projects with incentives under \$10,000.
  - Commissioning is not required for projects.
  - Navigant recommends requiring a post-installation inspection for projects with incentives under \$10,000 under special circumstances (see Recommendations).
  
11. Conduct inspections in a timely manner.
  - Based on findings from project review and from the telephone interview, the Custom Program appears to conduct pre- and post-inspection and verifications in a timely manner. However, in some cases, it appears that the post-inspection findings could have been input into the program tracking system more quickly. The program team should review the frequency of project post-installation inspection inputs into the program tracking system.
  
12. Conduct either in-program measurement or measurement through an impact evaluation on the very largest projects and those that contribute most to uncertainty in overall program savings.
  - The program conducts in-program measurement for all projects with incentives over \$10,000 and a random sample of not less than 2.5% of projects with incentives under \$10,000. Navigant conducts an independent measurement and verification impact evaluation with special consideration given to the largest projects and those that contribute most to uncertainty in overall program savings.

#### **IV. Evaluation**

13. Assess customer satisfaction with the product through evaluation.
  - Navigant is conducting an evaluation for the program that includes process evaluation and impact evaluation.

#### Recommendations

Navigant has the following recommendations for consideration by Peoples Gas and North Shore Gas and the program implementation contractor.

- We stress the importance of sufficient project documentation to justify baseline selection and portray the program’s influence on the custom project. Navigant recommends that program staff update the Operations Manual and application forms, and implement standardized procedures for assembling project documentation to confirm baseline selection and program influence that will be needed for impact evaluation.
- In addition to tracking each project’s net savings, the program implementer should include each project’s gross savings and identify the default Net-to-Gross Ratio incorporated into the program tracking system. The three project files reviewed by Navigant included an estimated NTGR of 0.76 factored into reported net savings.
- The baseline and replacement/retrofit equipment specification should be documented in the program tracking system. This should include a clear definition and thorough documentation of what baseline the program is using for the installed measure and how the incentive is calculated from the chosen baseline.
- Pre- and post-installation inspection findings should be documented in the tracking system. Post-installation inspection information could include baseline information, age and condition of baseline equipment, the make and model of the replacement/retrofit equipment, the inspection completion date, and additional notes during the pre- or post-installation inspection that would be useful for future reference.
- If possible, the program implementer should encourage customers implementing an HVAC measure to use the program implementer’s Heating Systems Savings Calculation Worksheet. If the customer is unable or unwilling to do so, the customer should be encouraged to provide a simplified spreadsheet documenting assumptions and methodology for calculating savings and cost for the HVAC measure.
- We encourage the implementer to estimate and track the measure life for installed custom measures – this value will be needed to calculate cost-effectiveness. We observed that total measure costs and incentives were being tracked.

For Custom projects with incentives under \$10,000, Navigant recommends that additional post-installation inspection criteria be applied in the first two years. Required inspections should be considered in the following special circumstances:

- Does the program inspect the initial project or projects submitted from a trade ally? If not, Navigant recommends the program implementer do so, and monitor performance of trade allies if an issue arises.

- The program implementer could also consider inspecting the first few instances of a measure in the program, or measures with highly uncertain savings.
- The program implementer could also consider inspections of high impact measures that account for a large proportion of program savings.
- As the Custom Program gets more penetration in the marketplace, the program implementer should consider higher inspection rates initially and reduce inspections if problems are not found.

**5.8 *Franklin Energy Services Memorandum in Response to VDDTSR (C&I Custom Rebate excerpt)***

**Date:** July 18, 2012

**To:** Pat Michalkiewicz, Manager, Energy Efficiency and Major Accounts, Peoples Gas and North Shore Gas

**Cc:** Ed Carroll, Jamie Peters, Tim Kaddatz, Ken Dentice – Franklin Energy  
Susan Nathan, AEG

**From:** Jay Boettcher, Regional Director  
Paul Isaac, Regional Director

**Re:** Navigant’s verification and due diligence review of program tracking, quality assurance and savings verification procedures in GPY1 of the Peoples Gas and North Shore Gas C&I Portfolio

The following memo provides analysis, feedback, and strategies for improvement in response to four (4) program evaluation memos provided to the program by our evaluator, Navigant. As the Program Manager on record for the entire C&I portfolio, responses to all four memos are contained within.

**C&I Custom Rebate Program**

Again, the evaluation team found that program QA and verification procedures met with national best practices. However, one significant issue was raised throughout the document relating to baseline project conditions. Program management will review this issue carefully, as addressed in recommendation #1. This, and other recommendations, are addressed below.

- 1. Recommendation:** Request additional information from the customer regarding existing system conditions on program application in order to correctly determine the baseline.

**Response:** Program management will survey other efficiency program applications (as well as the “Defining the Base Case” section of our program Operations Manual) to determine which fields should be requested on the application. We will then work with the marketing team to add those fields to the application to capture existing system conditions. If changes are needed in the program tracking system, program management will work with the IM team to address those changes.

2. **Recommendation:** Similar to the findings in the prescriptive evaluation, Navigant feels that valuable pre- and post-inspection data is not captured in the program tracking system.

**Response:** Program management will work with the IM team to identify additional fields not already in the system (as suggested by Navigant) that could be added to the system for tracking pre- and post-inspection findings, such as baseline equipment, pass/fail status, equipment make and model, etc. It would be helpful if Navigant could provide more specific examples of missing data.

3. **Recommendation:** Review project 21884 for non-compliance with post-inspection requirement.

**Response:** All custom projects are pre- and/or post-inspected by Franklin Energy staff due to our existing relationships with Custom Program participants. Project 21884 was pre-inspected by the assigned FES Energy Engineer, Jennifer Hesson, on September 2, 2011 and was post-inspected on December 8, 2011 before any payment was issued to the customer.

4. **Recommendation:** Review projects for data entry errors in the tracking system column field name “Project Type.”

**Response:** The project type field is a new field in Bensight. Process documents will be updated to ensure that these fields are all populated and populated correctly. The project identified in the memo (35754) was reviewed and is categorized appropriately.

5. **Recommendation:** Develop a larger pool of trade allies qualified in the custom process.

**Response:** As this program develops, more effort will be placed toward this goal. We have recently hired an additional trade ally liaison to focus solely on growing the base of qualified C&I contractors.

6. **Recommendation:** Conduct inspections in a timely manner.

**Response:** In the Custom Program all pre and post-inspections are conducted by the assigned Franklin Energy Engineer and are conducted in a timely manner to ensure that projects are completed within the 90 day window and paid within 30 days. Greater details would need to be provided by Navigant as to specific projects where inspections were not completed in a timely manner.

7. **Recommendation:** Tracking net and gross savings in addition to the default NTG ratio.

**Response:** The NTGR for the Custom Program was preset at 0.76 and is used for all projects. Program management will work with the IM team to determine if adding gross savings is feasible given the existing system.

- 8. Recommendation:** Encourage customers to use the program implementer's Heating Systems Savings Calculation Worksheet.  
**Response:** Program management will discuss this within the company to determine if this is proprietary information or if it can be shared with parties outside of the company.
- 9. Recommendation:** Estimate and track measure life for installed custom measures.  
**Response:** Program management will work with the engineering and IM departments to determine establish best practices from other programs and how to incorporate them into this program and the tracking system.
- 10. Recommendation:** Additional post-installation inspection criteria be applied in the first two years of the program.  
**Response:** This recommendation has four parts: 1) post-inspection of the first project submitted by a TA; 2) inspect the first three installations of a measure, or those with highly uncertain savings; 3) inspect high impact measures that account for a large proportion of savings; and 4) increase initial inspection rates and reduce the rate over time if no issues are found. These are all wise recommendations and program management will review existing practices and processes to implement this recommendation.

## 5.9 Data Collection Instruments

### 5.9.1 Participant Survey

#### PEOPLES GAS and NORTH SHORE GAS COMMERCIAL AND INDUSTRIAL CUSTOM REBATE PROGRAM PARTICIPANT SURVEY – DRAFT July 31, 2012

Section	Topics	Questions
Screening		A0-A3c
Market Influencers	Who informed and influenced the incentive/rebate and incentive process and timing	MM1-MM3
Measure Loop	What were the steps in the incentive/installation process?	MS1-MS4
Free-ridership	Would customers have installed the equipment without the program?	N00-N27
Spillover	About what percentage of customers have installed additional energy efficient equipment without an incentive?	SP1-SP5
Satisfaction	To what extent was the program satisfactory for the participant?	S0-S12
Marketing and Outreach	How well did the program marketing and outreach influence the participant?	MK0-MK2
Benefits and Barriers	What did the participant perceive to be the benefits and barriers to the program?	B1a-B3
Feedback and Recommendations	What feedback and recommendations do the participants offer?	R1 –R2
Firmographics	Firm-specific data for characterization	F1-F7

#### INTRODUCTION

[READ IF CONTACT=1]

Hello, this is \_\_\_\_\_ from \_\_\_\_\_ calling on behalf of <UTILITY>. This is not a sales call. May I please speak with <PROGRAM CONTACT>?

Our records show that <COMPANY> installed <ENDUSE>, for which they received an incentive of <INCENTIVE AMOUNT> from <UTILITY>. We are calling to do a follow-up study about <COMPANY>'s participation in this incentive program, which is called the Commercial and Industrial Custom Rebate Program. I was told you're the person most knowledgeable



about this project. Is this correct? [IF NOT, ASK TO BE TRANSFERRED TO MOST KNOWLEDGABLE PERSON OR RECORD NAME & NUMBER.]

This survey will take about 30 minutes. Is now a good time? [If no, schedule call-back]

[READ IF CONTACT=0]

Hello, this is \_\_\_\_\_ from \_\_\_\_\_ calling on behalf of <UTILITY>. I would like to speak with the person most knowledgeable about recent changes in heating, process, , or other energy-related equipment for your firm at this location.

[IF NEEDED] Our records show that <COMPANY> installed <ENDUSE>, for which they received an incentive of <INCENTIVE AMOUNT> from <UTILITY>. We are calling to do a follow-up study about your firm’s participation in this incentive program, which is called the Commercial and Industrial Custom Incentive Program. I was told you’re the person most knowledgeable about this project. Is that correct? [IF NOT, ASK TO BE TRANSFERRED TO MOST KNOWLEDGABLE PERSON OR RECORD NAME & NUMBER.]

This survey will take about 30 minutes. Is now a good time? [If no, schedule call-back]

## SCREENING QUESTIONS

A0 Which of the following statements best characterizes your relation to <COMPANY>?

1. I am an employee of <COMPANY> (THIS CATEGORY SHOULD INCLUDE THE OWNER/PRESIDENT/PARTNER ETC. OF THE COMPANY.)
2. My company provides energy-related services to <COMPANY>
3. I am a contractor and was involved in the installation of energy efficient equipment for this project
000. (Other, specify) (PUT OWNER/PRESIDENT/PARTNER ETC. OF THE COMPANY IN 1)
888. (Don’t know)
999. (Refused)

[READ if S1 <> 1] This survey asks questions about the energy efficiency upgrades for which <COMPANY> received an incentive at <ADDRESS>. Please answer the questions from the perspective of <COMPANY>. For example, when I refer to “YOUR COMPANY”, I am referring to <COMPANY>. The following questions refer to the Commercial and Industrial Custom Rebate Program, which may be referred to as “THE PROGRAM” throughout the survey. If you

are not familiar with certain aspects of the project, please just say so and I will skip to the next question.

- A1. Just to confirm, between June 1, 2011 and May 31, 2012 did <COMPANY> participate in <UTILITY>' Commercial and Industrial Custom Rebate Program at <ADDRESS>? (IF NEEDED: This is a program where your business received an incentive for installing one or more energy-efficient products.)
1. (Yes, participated as described)
  2. (Yes, participated but at another location)
  3. (NO, did NOT participate in program)
  000. (Other, specify)
  888. (Don't know)
  999. (Refused)

[SKIP A2 IF A1 = 1, 2]

- A2. Is it possible that someone else dealt with the energy-efficient product installation?
1. (Yes, someone else dealt with it)
  2. (No)
  000. (Other, specify)
  888. (Don't know)
  999. (Refused)

[IF A2 = 1, ask to be transferred to that person. If not available, thank and terminate. If available, go back to A1]

[IF A1 = 2, 3, 00, 888, 999: Thank and terminate. Record dispo as "Could not confirm participation".]

Before we begin, I want to emphasize that this survey will only be about the energy efficient <END USE> you installed through the Commercial and Industrial Custom Rebate Program at <ADDRESS>.

- A3. I'd like to confirm some information in <UTILITY>'s database. Our records show that you installed the following <ENDUSE> measure through the Program. Is this correct?
1. (Yes)
  3. (No, did not install)
  888. (Don't know)
  999. (Refused)

IF A3 = 3, 888, 999: Thank and Terminate, Record Dispo as “Could Not Confirm Measures”

**MEASURE MODULE**

MM1 Who was the most influential in identifying and recommending that you install the <ENDUSE> project you completed through the Program? [\[DO NOT READ\]](#)

1. (self)
2. (contractor)
3. (engineer)
4. (architect)
5. (manufacturer)
6. (distributor)
7. (Owner)
9. (<UTILITY> Representative/Program Staff)
10. (Franklin Energy Staff)
000. (Other, specify)
888. (Don't know)
999. (Refused)

MM2 And who informed you about the availability of an incentive through the Program? [\[DO NOT READ\]](#)

1. (self)
2. (contractor)
3. (engineer)
4. (architect)
5. (manufacturer)
6. (distributor)
7. (<UTILITY> Account Manager)
8. (owner/developer)
9. (project manager)
11. (<UTILITY> Representative/Program Staff)
12. (Franklin Energy Staff)
000. (Other, specify)
888. (Don't know)
999. (Refused)

MM3 When did you implement this project [\[IF NECESSARY, PROBE FOR BEST GUESS\]](#)

- a. Month [\[Precodes for Jan through Dec.\]](#)
- b. Year [\[Precodes for 2011 and 2012\]](#)



The following questions are about the <END USE> installed through the Program.

### REMOVED EQUIPMENT

MS1 Did the < END USE > you installed through the Program replace old or outdated equipment at this facility, or was it an addition of new equipment?

1. (Addition of new equipment - did not replace anything)
2. (Replacement of old or outdated equipment)
3. (Partial equipment replacement on existing equipment)
4. (No equipment added or replaced – this was a tune-up or controls adjustment)
000. (Other) [SPECIFY]
888. (Don't know)
999. (Refused)

[SKIP MS2 MS3 AND MS4 IF MS1=1, 888, 999]

MS2. Approximately how old was the existing equipment?

[RECORD ESTIMATED AGE]

888. (Don't know)
999. (Refused)

[IF RESPONDENT HAS TROUBLE ESTIMATING AGE OF EQUIPMENT, ASK:]

MS2a. Was it?

1. (Less than 5 years old)
2. (Between 5 and 10 years old)
3. (Between 10 and 15 years old)
4. (Between 15 and 20 years old)
5. (Between 20 and 25 years old)
6. (More than 20 years old)
888. (Don't know)
999. (Refused)

MS3. How many more years do you think the replaced equipment would have lasted?

[RECORD ESTIMATE USEFUL LIFE]

888. (Don't know)
999. (Refused)

MS4. Which of the following statements best describes the performance and operating condition of the equipment you replaced through the <UTILITY> program?

1. (Existing equipment was fully functional and without significant problems)

2. (Existing equipment was functional but with some problems)
3. (Existing equipment was fully functioning, but with significant problems)
4. (Existing equipment had failed or did not function.)
5. (Not applicable, ancillary equipment {Controls, non-routine maintenance etc.})
000. Other [RECORD VERBATIM]
888. (Don't know)
999. (Refused)

**NET-TO-GROSS MODULE**

I'd now like to ask a few questions about the <ENDUSE> you installed through the program.

N00 In deciding to do a project of this type, there are usually a number of reasons why it may be undertaken. In your own words, can you tell me the reasons that you decided to implement this project? Were there any other reasons? [RECORD MULTIPLE - DO NOT READ]

1. (To replace old or outdated equipment)
2. (As part of a planned remodeling, build-out, or expansion)
3. (To gain more control over how the equipment was used)
4. (The maintenance downtime and associated expenses for the old equipment were too high)
5. (Had process problems and were seeking a solution)
6. (To improve equipment performance)
7. (To improve the product quality)
8. (To comply with codes set by regulatory agencies)
9. (To comply with company policies regarding regular/normal maintenance/replacement policy)
10. (To get a rebate from the program)
11. (To protect the environment)
12. (To reduce energy costs)
13. (To reduce energy use/power outages)
14. (To update to the latest technology)
000. Other [RECORD VERBATIM]
888. (Don't know)
999. (Refused)

N1 Does your company have an annual capital budget?

1. (Yes)
2. (No) [Skip to N1b]
888. (Don't know) [Skip to N1b]

999. (Refused) [Skip to N1b]

N1a Was the measure already part of that capital budget before you were aware of the Program? [NOTE TO INTERVIEWER: “this measure” refers to the specific energy efficient equipment installed through the program.]

- 1. (Before)
- 2. (After)
- 888. (Don't know)
- 999. (Refused)

[ASK IF N1a N1b=2, 88, 999]

N1b Did you learn of the Program before or after you began to THINK about the implementation of this measure?

- 1. (Before) [Skip to N3]
- 2. (After)
- 888. (Don't know)
- 999. (Refused)

[ASK N2 IF N1a = 1 or N1b = 2, 888, 999]

N2 Did you learn of the Program BEFORE or AFTER you DECIDED to implement the measure that was installed? [NOTE TO INTERVIEWER: “the measure” refers to the specific energy efficient equipment installed through the program.]

- 1. (Before)
- 2. (After)
- 888. (Don't know)
- 999. (Refused)

N3 Next, I’m going to ask you to rate the importance of the program as well as other factors that might have influenced your decision to implement this measure. Think of the degree of importance as being shown on a scale with equally spaced units from 0 to 10, where 0 means not at all important and 10 means extremely important. Now using this scale please rate the importance of each of the following in your decision to implement the measure at this time.

[FOR N3a-n]

[RECORD 0 to 10]

- 666. (Not Applicable)
- 888. (Don't Know)
- 999. (Refused)

[IF NEEDED] How important in your DECISION to implement the project was...)

N3a. The age or condition of the old equipment

N3b. Availability of the Program incentive

[ASK IF N3b = 8, 9, 10]

N3bb. What were the reasons that you gave it this rating?

[OPEN END, RECORD VERBATIM]

888. (Don't know)

999. (Refused)

[ASK IF <TECH\_ASSIST> = 1, ELSE SKIP TO N3d]

N3c. Information provided through the technical assistance you received from <UTILITY>

[ASK IF N3c = 8, 9, 10]

N3cc. What were the reasons that you gave it this rating?

[OPEN END, RECORD VERBATIM]

888. (Don't know)

999. (Refused)

N3d. Recommendation from an equipment vendor or contractor that helped you with the choice of the equipment

N3e. Previous experience with this type of equipment

N3f. Recommendation from a <UTILITY> program staff person

[ASK N3ff IF N3f=8, 9, 10]

N3ff. What were the reasons that you gave it this rating?

[OPEN END, RECORD VERBATIM]

888. (Don't know)

999. (Refused)

N3h. Information from the Commercial and Industrial Custom Rebate Program or <UTILITY> marketing materials

[ASK IF N3h=8, 9, 10]

N3hh. What were the reasons that you gave it this rating?

[OPEN END, RECORD VERBATIM]

888. (Don't know)

999. (Refused)

[ASK N3i IF V3=1]

N3i. A recommendation from a design or consulting engineer

N3j. Standard practice in your business/industry

N3k. Endorsement or recommendation by a <UTILITY> account manager  
[\[ASK IF N3k=8, 9, 10\]](#)

N3kk. What were the reasons that you gave it this rating?  
 [OPEN END, RECORD VERBATIM]

- 888. (Don't know)
- 999. (Refused)

N3l. Corporate policy or guidelines

N3m. Payback on the investment

N3n. Were there any other factors we haven't discussed that were influential in your decision to install this MEASURE?

- 000. Other [RECORD VERBATIM]
- 666. (Nothing else influential)
- 888. (Don't Know)
- 999. (Refused)

[\[ASK N3nn IF N3n=00\]](#)

N3nn. Using the same zero to 10 scale, how would you rate the influence of this factor?  
 [RECORD 0 to 10]

- 888. (Don't Know)
- 999. (Refused)

Thinking about this differently, I would like you to compare the importance of the Commercial and Industrial Custom Rebate Program with the importance of other factors in implementing the <ENDUSE> project.

[\[READ IF \(N3A, N3D, N3E, N3I, N3J, N3L, N3M, OR N3N\) = 8, 9, 10;  
 ELSE SKIP TO N3p\]](#)

You just told me that the following factors, other than the program were important:

[\[READ IN ONLY ITEMS WHERE THEY GAVE A RATING OF 8 or higher\]](#)

- N3A. Age or condition of old equipment,
- N3D. Equipment Vendor recommendation
- N3E. Previous experience with this measure
- N3I. Recommendation from a design or consulting engineer
- N3J. Standard practice in your business/industry
- N3L. Corporate policy or guidelines
- N3M. Payback on investment

N3N. Other factor

N3p If you were to assign a percentage of your decision to implement the <ENDUSE> to 1) the Program and 2) all other factors, what percentage would you give to the importance of the PROGRAM?

[RECORD 0 to 100]

888. (Don't Know)

999. (Refused)

[CALCULATE VARIABLE "OTHERPCNT" AS: 100 MINUS N3p RESPONSE; IF N3p = 888, 999, SET OTHERPTS = BLANK]

N3o And what percent would you give to other factors?

[RECORD 0 to 100]

888. (Don't Know)

999. (Refused) [The response should be <OTHERPTS> because both numbers should equal 100. If response is not <OTHERPTS> ask INC1]

INC1 The last question asked you to assign a percentage between the program and other factors. You just noted that you would give <N3p RESPONSE> percent to the program. Does that mean you would give <OTHERPCNT> percent to other factors?

1. (Yes)

2. (No)

888. (Don't know)

999. (Refused)

[IF INC1 = 2, go back to N3p]

### CONSISTENCY CHECK ON PROGRAM IMPORTANCE SCORE

[ASK IF (N3p>69 AND ALL OF (N3b, N3c, N3f, N3h, AND N3k) = 0, 1, 2, 3), ELSE SKIP TO N4aa]

N4 You just gave <N3p RESPONSE> percent to the importance of the program; I would interpret that to mean that the program was quite important to your decision to install this equipment. Earlier, when I asked about the importance of individual elements of the program I recorded some answers that would imply that they were not that important to you. Just to make sure I have recorded this properly, I have a couple questions to ask you.

N4a When asked about THE AVAILABILITY OF THE PROGRAM INCENTIVE, you gave a rating of ...<N3B RESPONSE> ... out of ten, indicating that the program incentive was not that important to you. Can you tell me the reasons that it was not that important?

[Record VERBATIM]

888. (Don't know)

999. (Refused)

[SKIP N4b IF <TECH ASSIST> = 0]

N4b When I asked you about THE INFORMATION PROVIDED THROUGH THE TECHNICAL ASSISTANCE, you gave a rating of ...<N3C RESPONSE> ... out of ten, indicating that the information provided was not that important to you. Can you tell me the reasons that provided was not that important?

[Record VERBATIM]

888. (Don't know)

999. (Refused)

N4c When I asked you about THE RECOMMENDATION FROM A <UTILITY> PROGRAM STAFF PERSON, you gave a rating of ...<N3F RESPONSE> ... out of ten, indicating that the information provided was not that important to you. Can you tell me the reasons that provided was not that important?

[Record VERBATIM]

888. (Don't know)

999. (Refused)

N4d When asked about THE INFORMATION from the Program or <UTILITY> MARKETING MATERIALS, you gave a rating of ...<N3H RESPONSE> ... out of ten, indicating that this information from the program or utility marketing materials was not that important to you. Can you tell me the reasons that this information was not that important?

[Record VERBATIM]

888. (Don't know)

999. (Refused)

[SKIP N4e IF N3k = 666, 888, 999]

N4e When asked about THE ENDORSEMENT or RECOMMENDATION by YOUR UTILITY ACCOUNT MANAGER, you gave a rating of <N3K RESPONSE> ... out of ten, indicating that this Account manager endorsement was not that important to you. Can you tell me the reasons that this endorsement was not that important?

[Record VERBATIM]

888. (Don't know)

999. (Refused)

[ASK IF N3p < 31 AND ANY ONE OF (N3b, N3c, N3f, N3h, OR N3k = 8, 9, 10) ELSE SKIP TO N5]

N4aa You just gave <N3p RESPONSE> points to the importance of the program. I would interpret that to mean that the program was not very important to your decision to install this equipment. Earlier, when I asked about the importance of individual elements of the program I recorded some answers that would imply that they were very important to you. Just to make sure I understand, would you explain the reasons that the program was not very important in your decision to install this equipment?

Now I would like you to think about the action you would have taken with regard to the installation of this equipment if the utility program had not been available.

N5 Using a likelihood scale from 0 to 10, where 0 is “Not at all likely” and 10 is “Extremely likely”, if the utility program had not been available, what is the likelihood that you would have installed exactly the same equipment?

[RECORD 0 to 10]

888. (Don't know)

999. (Refused)

## CONSISTENCY CHECKS

[ASK N5a-d IF N3b=8,9,10 AND N5=7,8,9,10]

N5a When you answered ...<N3B RESPONSE> ... for the question about the influence of the incentive, I would interpret that to mean that the incentive was quite important to your decision to install. Then, when you answered <N5 RESPONSE> for how likely you would be to install the same equipment without the incentive, it sounds like the incentive was not very important in your installation decision.

I want to check to see if I am misunderstanding your answers or if the questions may have been unclear. Will you explain the role the incentive played in your decision to install this efficient equipment?

[Record VERBATIM]

888. (Don't know)

999. (Refused)

N5b Would you like for me to change your score on the importance of the incentive that you gave a rating of <N3B RESPONSE> or change your rating on the likelihood you would install the same equipment without the incentive which you gave a rating of <N5 RESPONSE> and/or we can change both if you wish?

1. (Change importance of incentive rating)
2. (Change likelihood to install the same equipment rating)
3. (Change both)
4. (No, don't change)
888. (Don't know)
999. (Refused)

[ASK IF N5b=1,3]

N5c How important was... availability of the PROGRAM incentive? (IF NEEDED: in your DECISION to implement the project)

[Scale of 0 to 10, where 0 means not at all important and 10 means extremely important]

888. (Don't know)
999. (Refused)

[ASK IF N5b = 2,3]

N5d If the utility program had not been available, what is the likelihood that you would have installed exactly the same equipment?

[Scale of 0 to 10, where 0 means "Not at all likely" and 10 means "Extremely likely"]

888. (Don't know)
999. (Refused)

[ASK IF N3j>7]

N6 In an earlier question, you rated the importance of STANDARD PRACTICE in your industry very highly in your decision making. Could you please rate the importance of the PROGRAM, relative to this standard industry practice, in influencing your decision to install this measure. Would you say the program was much more important, somewhat more important, equally important, somewhat less important, or much less important than the standard practice or policy?

1. (Much more important)
2. (Somewhat more important)
3. (Equally important)
4. (Somewhat less important)
5. (Much less important)
888. (Don't know)
999. (Refused)

[ASK IF N5 > 0, ELSE SKIP TO N8]

N7 You indicated earlier that there was a <N5 RESPONSE> in 10 likelihood that you would have installed the same equipment if the program had not been available. Without the program, when do you think you would have installed this equipment? Would you say...

1. (At the same time)
2. (Earlier)
3. (Later)
4. (Never)
888. (Don't know)
999. (Refused)

[ASK N7a IF N7=3]

N7a. How much later would you have installed this equipment? Would you say...?

1. (Within 6 months)
2. (6 months to 1 year later)
3. (1 - 2 years later)
4. (2 - 3 years later)
5. (3 - 4 years later)
6. (4 or more years later)
888. (Don't know)
999. (Refused)

[ASK N7b IF N7a=6]

N7b. What were the reasons that you think it would have been 4 or more years later?

[Record VERBATIM]

888. (Don't know)
999. (Refused)

## PAYBACK BATTERY

[ASK N8 - N10e IF N3m = 6, 7, 8, 9, 10]

I'd like to find out more about the payback criteria <COMPANY> uses for its investments.

N8 What financial calculations does <COMPANY> make before proceeding with installation of a MEASURE like this one?

[Record VERBATIM]

888. (Don't know)
999. (Refused)

N9 What is the payback cut-off point <COMPANY> uses (in months) before deciding to proceed with an investment? Would you say...

1. (0 to 6 months)
2. (7 months to 1 year)
3. (more than 1 year up to 2 years)
4. (more than 2 years up to 3 years)
5. (more than 3 years up to 5 years)
6. (Over 5 years)
888. (Don't know)
999. (Refused)

N10 Does your company generally implement projects that meet the required financial cut-off point?

1. (Yes)
2. (No)
888. (Don't know)
999. (Refused)

[ASK N10aa IF N10=2]

N10aa What are the reasons that your company generally doesn't implement projects that meet the required financial cut-off point?

- [Record VERBATIM]
888. (Don't know)
  999. (Refused)

N10a Did the rebate play a big role in moving your project within the acceptable payback cutoff point?

1. (Yes)
2. (No)
888. (Don't know)
999. (Refused)

## CORPORATE POLICY BATTERY

[ASK N11 - N17 IF N3L = 6, 7, 8, 9, 10]

N11 Does your organization have a corporate environmental policy to reduce environmental emissions or energy use? Some examples would be to "buy green" or use sustainable approaches to business investments.

1. (Yes)
2. (No)
888. (Don't know)
999. (Refused)

[ASK N12 - N17 IF N11 = 1]

N12 What specific corporate policy influenced your decision to adopt or install the <ENDUSE> through the <UTILITY> program?

[RECORD VERBATIM]

888. (Don't know)
999. (Refused)

N13 Had that policy caused you to adopt energy efficient <ENDUSE> at this facility before participating in the <UTILITY> program?

1. (Yes)
2. (No)
888. (Don't know)
999. (Refused)

N14 Had that policy caused you to adopt energy efficient <ENDUSE> at other facilities before participating in the <UTILITY> Program?

1. (Yes)
2. (No)
888. (Don't know)
999. (Refused)

[ASK N15 - N16 IF N13 = 1 OR N14 = 1]

N15 Did you receive an incentive for a previous installation of <ENDUSE>?

1. (Yes)
2. (No)
888. (Don't know)
999. (Refused)

[ASK N16 IF N15=1]

N16 To the best of your ability, please describe....

[Record VERBATIM]

888. (Don't know)
999. (Refused)
- A. the amount of incentive received

- B. the approximate timing
- C. the name of the program that provided the incentive

[ASK N17 IF N13=1 OR N14=1]

N17 If I understand you correctly, you said that <COMPANY>'s corporate policy has caused you to install energy efficient <ENDUSE> previously at this and/or other facilities. I want to make sure I fully understand how this corporate policy influenced your decision versus the <UTILITY> program. Can you please clarify that?

[Record VERBATIM]

888. (Don't know)

999. (Refused)

**STANDARD PRACTICE BATTERY**

[ASK N18 - N22 IF N3j = 6, 7, 8, 9, 10]

N18 Approximately, how long has use of energy efficient <ENDUSE> been standard practice in your industry?

M [Record Number of Months]

888. (Don't know)

999. (Refused)

Y [Record Number of Years]

888. (Don't know)

999. (Refused)

N19 Does <COMPANY> ever deviate from the standard practice?

1. (Yes)

2. (No)

888. (Don't know)

999. (Refused)

[ASK IF N19=1]

N19a Please describe the conditions under which <COMPANY> deviates from this standard practice.

[Record VERBATIM]

888. (Don't know)

999. (Refused)

N20 How did this standard practice influence your decision to install the <ENDUSE> through the <PROGRAM>?

[Record VERBATIM]

- 888. (Don't know)
- 999. (Refused)

N20a Could you please rate the importance of the Program, versus this standard industry practice in influencing your decision to install the <ENDUSE>. Would you say the Program was...

- 1. (Much more important)
- 2. (Somewhat more important)
- 3. (Equally important)
- 4. (Somewhat less important)
- 5. (Much less important)
- 888. (Don't know)
- 999. (Refused)

N21 What industry group or trade organization do you look towards to establish standard practice for your industry?

- [Record VERBATIM]
- 888. (Don't know)
  - 999. (Refused)

N22 How do you and other firms in your industry receive information on updates in standard practice?

- [Record VERBATIM]
- 888. (Don't know)
  - 999. (Refused)

## DESIGN ASSISTANCE

N23 Who provided the most assistance in the design or specification of the <ENDUSE> you installed through the Program? [\[If necessary, probe from the list below.\]](#)

- 1. (Designer)
- 2. (Consultant)
- 3. (Equipment distributor)
- 4. (Installer)
- 5. (<UTILITY> account manager)
- 6. (<PROGRAM> staff)
- 7. (Franklin Energy staff)
- 000. (Other, specify)

- 888. (Don't know)
- 999. (Refused)

[SKIP N24 IF N23 = 888, 999]

N24 Please describe the type of assistance that they provided.

[Record VERBATIM]

- 888. (Don't know)
- 999. (Refused)

**SPILLOVER MODULE**

Thank you for discussing the new <ENDUSE> that you installed through the Program. Next, I would like to discuss any energy efficient equipment you might have installed OUTSIDE of the Program.

- SP1 Since your participation in the <UTILITY> program, did you implement any ADDITIONAL energy efficiency measures at this facility or at your other facilities within <UTILITY> service territory that did NOT receive incentives through any utility or government program?
1. (Yes)
  2. (No)
  888. (Don't know)
  999. (Refused)

[ASK SP2 - SP7i IF SP1 = 1, ELSE SKIP TO S0]

- SP2 What was the first measure that you implemented?
- [Record VERBATIM]
888. (Don't know)
  999. (Refused)

[SKIP TO S0 IF SP2 = 888, 999]

- SP3 What was the second measure?
- [Record VERBATIM]
888. (Don't know)
  999. (Refused)

SP5 I have a few questions about the FIRST measure that you installed. [If needed, read back measure: <SP2 RESPONSE>]

- [Record VERBATIM]
888. (Don't know)
  999. (Refused)
- a. What were the reasons that you not receive an incentive for this measure?
  - b. What were the reasons that you did not install this measure through a <UTILITY> Commercial and Industrial Program?
  - c. Please describe the SIZE, TYPE, and OTHER ATTRIBUTES of this measure.
  - d. Please describe the EFFICIENCY of this measure.
  - e. How many of this measure did you install?

SP5f. Was this measure specifically recommended by a program related audit, report or program technical specialist?

- 1. (Yes)
- 2. (No)
- 888. (Don't know)
- 999. (Refused)

SP5g. How significant was your experience with the Commercial and Industrial Custom Rebate Program in your decision to implement this Measure, using a scale of 0 to 10, where 0 is not at all significant and 10 is extremely significant?

- [SCALE 0 - 10]
- 888. (Don't know)
  - 999. (Refused)

[SKIP SP5h IF SP5g = 888, 999]

SP5h. What were the reasons that you gave it this rating?

- [OPEN END – RECORD VERBATIM]
- 888. (Don't know)
  - 999. (Refused)

SP5i. If you had not participated in the Commercial and Industrial Custom Rebate Program, how likely is it that your organization would still have implemented this measure, using a 0 to 10, scale where 0 means you definitely WOULD NOT have implemented this measure and 10 means you definitely WOULD have implemented this measure?

- [SCALE 0 - 10]
- 888. (Don't know)
  - 999. (Refused)

### CONSISTENCY CHECK ON PROGRAM IMPORTANCE RATING VS. NO PROGRAM RATING

[ASK CC1a IF SP5g = 0, 1, 2, 3 AND SP5i = 0, 1, 2, 3]

CC1a When you answered ...<SP5g RESPONSE> ... for the question about the influence of the Commercial and Industrial Custom Rebate Program on your decision to install this measure, I would interpret that to mean the Program was not very important to your decision. However, when you answered the previous question, it sounds like it was not very likely that you would have installed this measure had you not participated in the Program. Can you please explain the role the program made in your decision to implement this measure?

- [Record VERBATIM]

- 888. (Don't know)
- 999. (Refused)

[ASK CC1b IF SP5g=8,9,10 AND SP5i =8,9,10]

CC1b When you answered ...<SP5g RESPONSE> ... for the question about the influence of the Commercial and Industrial Custom Rebate Program on your decision to install this measure, I would interpret that to mean the Program was quite important to your decision. However, when you answered the previous question, it sounds like it was very likely that you would have installed this measure had you not participated in the Program. Can you please explain the role the program made in your decision to implement this measure?

[Record VERBATIM]

- 888. (Don't know)
- 999. (Refused)

[SKIP SP6-SP7i IF SP3 = 888, 999]

SP6 I have a few questions about the SECOND measure that you installed. (If needed, read back measure: <SP3 RESPONSE>)

[Record VERBATIM]

- 888. (Don't know)
- 999. (Refused)

- a. What were the reasons that you did you not receive an Rebate for this measure?
- b. What were the reasons that you did not install this measure through a <UTILITY> Commercial and Industrial Program?
- c. Please describe the SIZE, TYPE, and OTHER ATTRIBUTES of this measure.
- d. Please describe the EFFICIENCY of this measure.
- e. How many of this measure did you install?

SP6f. Was this measure specifically recommended by a program related audit, report or program technical specialist?

- 1. (Yes)
- 2. (No)
- 888. (Don't know)
- 999. (Refused)

SP6g. How significant was your experience in the Commercial and Industrial Custom Rebate Program in your decision to implement this Measure, using a scale of 0 to 10, where 0 is not at all significant and 10 is extremely significant?

[SCALE 0 - 10]

- 888. (Don't know)

999. (Refused)

[SKIP SP6h IF SP6g = 888, 999]

SP6h. What were the reasons that you gave it this rating?

[OPEN END – RECORD VERBATIM]

888. (Don't know)

999. (Refused)

SP6i. If you had not participated in the Commercial and Industrial Custom Rebate Program, how likely is it that your organization would still have implemented this measure, using a 0 to 10, scale where 0 means you definitely WOULD NOT have implemented this measure and 10 means you definitely WOULD have implemented this measure?

[SCALE 0 - 10]

888. (Don't know)

999. (Refused)

#### CONSISTENCY CHECK ON PROGRAM IMPORTANCE RATING VS. NO PROGRAM RATING

[ASK CC2a IF SP6g = 0,1,2,3 AND SP6i = 0,1,2,3]

CC2a When you answered ...<SP6g RESPONSE> ... for the question about the influence of the Commercial and Industrial Custom Rebate Program on your decision to install this measure, I would interpret that to mean the Program was not very important to your decision. However, when you answered the previous question, it sounds like it was not very likely that you would have installed this measure had you not participated in the Program. Can you please explain the role the program made in your decision to implement this measure?

[Record VERBATIM]

888. (Don't know)

999. (Refused)

[ASK CC2b IF SP6g = 8, 9, 10 AND SP6i = 8, 9, 10]

CC2b When you answered ...<SP6g RESPONSE> ... for the question about the influence of the Commercial and Industrial Custom Rebate Program on your decision to install this measure, I would interpret that to mean the Program was quite important to your decision. However, when you answered the previous question, it sounds like it was very likely that you would have installed this measure had you not participated in the Program. Can you please explain the role the program made in your decision to implement this measure?

[Record VERBATIM]

888. (Don't know)

999. (Refused)

**PROCESS MODULE**

I'd now like to ask you a few general questions about your participation in the Commercial and Industrial Custom Rebate Program.

**Program Processes and Satisfaction**

S0 How did you first hear about the Program? [DO NOT READ]

- 1. (<UTILITY> Account Manager)
- 2. (<UTILITY> Website)
- 4. (Contractor/Trade Ally)
- 5. (Email)
- 6. (Friend/colleague/word of mouth)
- 000. (Other, specify)
- 888. (Don't know)
- 999. (Refused)

S1a Did YOU fill out the application forms for the project? (Either the initial or the final program application)

- 1. (Yes)
- 2. (No)
- 888. (Don't know)
- 999. (Refused)

[ASK S1b IF S1 a = 1 ELSE SKIP TO S1e]

S1b Did the application forms clearly explain the program requirements and how to participate?

- 1. (Yes)
- 2. (No)
- 3. (Somewhat)
- 888. (Don't know)
- 999. (Refused)

S1c How would you rate the application process? Please use a scale of 0 to 10 where 0 is "very difficult" and 10 is "very easy".

[SCALE 0 - 10]

- 888. (Don't know)
- 999. (Refused)

[ASK S1d IF S1c<4]

S1d What were the reasons that you gave that rating? [DO NOT READ]

1. (Difficult to understand)
2. (Long process)
000. (Other, specify)
888. (Don't know)
999. (Refused)

[ASK S1e IF S1a=2]

S1e Who filled out the application forms for the project? [READ ONLY IF NECESSARY]

1. (Someone else at the facility)
2. (Someone else at the company)
3. (Trade Ally)
4. (Contractor)
5. (Supplier/Distributor/Vendor)
6. (Engineer)
7. (Consultant)
000. (Other, specify)
888. (Don't know)
999. (Refused)

[IF S1=3, SKIP TO S8]

S4a Did you use a contractor for your <ENDUSE> project?

1. (Yes)
2. (No)
888. (Don't know)
999. (Refused)

[ASK S4b IF S4a=1]

S4b Was the contractor you used a <UTILITY> Trade Ally? [IF NEEDED] Was the contractor REGISTERED with the Commercial and Industrial Custom Rebate Program?)

1. (Yes)
2. (No)
888. (Don't know)
999. (Refused)

[ASK S5 IF S4a=1 ELSE SKIP TO S7]

S5 How would you rate the contractor's ability to meet your needs in terms of implementing your project? Please use a scale from 0 to 10, where 0 is "not at all able to meet needs" and 10 is "completely able to meet needs"?

[SCALE 0 - 10]

888. (Don't know)

999. (Refused)

S6a Would you recommend the contractor you worked with to other people or companies?

1. Yes

2. No

888. (Don't know)

999. (Refused)

[ASK S6b IF S6a=2]

S6b What are the reasons that you would or would not recommend the contractor with whom you worked?

[RECORD VERBATIM]

888. (Don't know)

999. (Refused)

S7 When implementing an energy efficiency project, how important is it to you that the contractor is a <UTILITY> Trade Ally? Please use a scale from 0 to 10, where 0 is "not at all important" and 10 is "very important"?

[SCALE 0 - 10]

888. (Don't know)

999. (Refused)

S8 During the course of your participation in the program, did you place any calls to the Program Call Center?

1. Yes

2. No

888. (Don't know)

999. (Refused)

[ASK S9 IF S8=1]

S9 On a scale of 0 to 10, where 0 is "very dissatisfied" and 10 is "very satisfied;" how would you rate your satisfaction with the Call Center's ability to answer your questions?

[SCALE 0-10]

888. (Don't know)

999. (Refused)

[ASK S10 IF S9<4]

S10 What were the reasons that you gave it that rating? [DO NOT READ]

1. (Provided inconsistent information)
2. (Didn't understand the question)
3. (Hard to reach the right person/person with the answer)
000. (Other, specify)
888. (Don't know)
999. (Refused)

S11 On a scale of 0 to 10, where 0 is very dissatisfied and 10 is very satisfied, how would you rate your satisfaction with...

[SCALE 0-10]

666. (Not Applicable)
888. (Don't know)
999. (Refused)
- a. the incentive amount
- b. the communication you had with the Commercial and Industrial Custom Rebate Program staff
- c. the communication you had with Franklin Energy staff
- d. the Commercial and Industrial Custom Rebate Program overall
- e. <UTILITY> overall

[ASK S12a IF S11a < 4]

S12a You indicated some dissatisfaction with the incentive amount, what are the reasons that you gave this rating? [DO NOT READ, ACCEPT MULTIPLE]

1. (Better rebates in other states)
2. (Too small)
3. (Equipment didn't qualify)
000. (Other, specify)
888. (Don't know)
999. (Refused)

[ASK S12b IF S11b < 4]

S12b You indicated some dissatisfaction with the communication you had with the Program staff, what are the reasons that you gave this rating? [DO NOT READ, ACCEPT MULTIPLE]

1. (Provided inconsistent information)
2. (Didn't understand the question)
3. (Hard to reach the right person/person with the answer)
000. (Other, specify)

- 888. (Don't know)
- 999. (Refused)

[ASK S12b IF S11c<4]

S12c You indicated some dissatisfaction with the measures offered by the Program, what are the reasons that you gave this rating?

[RECORD VERBATIM]

- 888. (Don't know)
- 999. (Refused)

[ASK S12d IF S11d<4]

S12d You indicated some dissatisfaction with the Program overall, what are the reasons that you gave this rating? [DO NOT READ, ACCEPT MULTIPLE]

- 1. (Not as easy as other states)
- 2. (No clear guidance)
- 000. (Other, specify)
- 888. (Don't know)
- 999. (Refused)

[ASK S12e IF S11e<4]

S12e You indicated some dissatisfaction with <UTILITY> overall, what are the reasons that you gave this rating? [DO NOT READ, ACCEPT MULTIPLE]

- 1. (Rates are too high)
- 2. (Took too long to get rebate)
- 3. (Poor customer service)
- 4. (Poor power supply/service)
- 000. (Other, specify)
- 888. (Don't know)
- 999. (Refused)

## Marketing and Outreach

[IF S1<1, SKIP TO B1A]

MK0 I'm now going to ask you about several specific ways in which you might have seen or heard information about the Commercial and Industrial Custom Rebate Program, Have you ever...

- 1. (Yes)
- 2. (No)

- 888. (Don't know)
- 999. (Refused)
  
- a. Received information about the program in your monthly utility bill?
- b. Attended a <UTILITY> customer event where the program was discussed?
- c. Discussed the program with a <UTILITY> Account Manager?
- d. Discussed the program with a Contactor or Trade Ally?
- e. Seen information about the program on the <UTILITY> Website?
- f. Received information about the program in an Email?
- g. Heard about the program from a colleague, friend or family member?
- h. Attended a meeting, seminar or workshop where the program was presented?
- i. Attended a webinar where the program was discussed?
- j. Read about the program in a <UTILITY> Newsletter?
- k. Been directly contacted by a <UTILITY> outreach staff?

MK1b How useful were the program's marketing materials in providing information about the program? Would you say they were...

- 1. (Very useful)
- 2. (Somewhat useful)
- 3. (Not very useful)
- 4. (Not at all useful)
- 888. (Don't know)
- 999. (Refused)

[ASK MK1c IF MK1b=3,4]

MK1c What would have made the materials more useful to you? [DO NOT READ, ACCEPT MULTIPLE]

- 1. (More detailed information)
- 2. (Where to get additional information)
- 000. (Other, specify)
- 888. (Don't know)
- 999. (Refused)

MK2 In general, what is the best way of reaching companies like yours to provide information about energy efficiency opportunities like the Commercial and Industrial Custom Rebate Program? [DO NOT READ, ACCEPT MULTIPLE]

- 1. (Bill inserts)
- 2. (Flyers/ads/mailings)
- 3. (e-mail)

- 4. (Telephone)
- 5. (<UTILITY> Account Manager)
- 8. (Trade allies/contractors)
- 000. (Other, specify)
- 888. (Don't know)
- 999. (Refused)

### Benefits and Barriers

B1a What do you see as the main benefits to participating in the Program? [DO NOT READ, ACCEPT MULTIPLE]

- 1. (Energy Savings/Saving money)
- 2. (Good for the Environment)
- 3. (Lower Maintenance Costs)
- 4. (Better Quality/New Equipment)
- 5. (Rebate/Incentive)
- 9. (Able to make improvements sooner)
- 000. (Other, Specify)
- 888. (Don't know)
- 999. (Refused)

B1b What do you see as the drawbacks to participating in the program? [DO NOT READ, ACCEPT MULTIPLE]

- 1. (Paperwork too burdensome)
- 2. (Incentives not high enough/not worth the effort)
- 3. (Program is too complicated)
- 4. (Cost of equipment)
- 5. (No drawbacks)
- 000. (Other, specify)
- 888. (Don't know)
- 999. (Refused)

B3 Was the scope of your project limited by the program's incentive cap?

- 1. (Yes)
- 2. (No)
- 000. (Other, specify)
- 888. (Don't know)
- 999. (Refused)

## Feedback and Recommendations

- R1 Do you plan to participate in the program again in the future?
1. (Yes)
  2. (No)
  3. Maybe
  888. (Don't know)
  999. (Refused)
- R2 How could the Program be improved? **[DO NOT READ, ACCEPT MULTIPLE]**
1. (Higher incentives)
  2. (More measures)
  3. (Greater publicity)
  4. (Better Communication/Improve Program Information)
  8. (Simplify application process)
  11. (Quicker processing times)
  000. (Other, specify)
  666. (No recommendations)
  888. (Don't know)
  999. (Refused)

## Firmographics

I only have a few general questions left.

- F2 Which of the following best describes the ownership of this facility?
1. (<COMPANY> owns and occupies this facility)
  2. (<COMPANY> owns this facility but it is rented to someone else)
  3. (<COMPANY> rents this facility)
  888. (Don't know)
  999. (Refused)
- F6 And which of the following best describes the facility? This facility is...
1. (<COMPANY>'s only location)
  2. (one of several locations owned by <COMPANY>)
  3. (the headquarters location of <COMPANY> with several locations)
  000. (Other, specify)
  888. (Don't know)
  999. (Refused)



F4a How old is this facility?  
[NUMERIC OPEN END, 0 TO 150]  
888. (Don't know)  
999. (Refused)

F5a How many employees, full plus part-time, are employed at this facility?  
[NUMERIC OPEN END]  
888. (Don't know)  
999. (Refused)

[SKIP F7 IF F2 = 2]

F7 In comparison to other companies in your industry, would you describe <COMPANY>  
as...  
1. (A small company)  
2. (A medium-sized company)  
3. (A large company)  
666. (Not applicable)  
888. (Don't know)  
999. (Refused)

[THANK YOU AND CLOSING]

5.9.2 Trade Ally Survey

**Peoples Gas and North Shore Gas Commercial and Industrial Custom Rebate Program Trade Ally Contractor In-Depth Interview Guide**

<b>Respondent name:</b>	
<b>Respondent phone number:</b>	
<b>Respondent title:</b>	
<b>Email Address:</b>	
<b>Respondent Company</b>	
<b>Date:</b>	
<b>Status:</b>	

Section	Topics	Questions
Background	What type of business does the trade ally conduct and what types of experience does this trade representative have?	Q1-Q3
Marketing and Participation	How did trade ally become aware of this program and other utility programs? Do you refer customers to other utility programs? Is the level of utility marketing sufficient? Has word of mouth marketing had an impact?	Q4-Q8
Program Barriers	How could the program be changed to overcome the barriers encountered by customers and trade allies?	Q9-Q10
Administration and Delivery	How do you market the program? How do you provide customers with service for both electric and gas energy efficient equipment? Does program delivery occur in a timely manner? Do you need more training?	Q11-Q17

Section	Topics	Questions
Program Satisfaction	How satisfied are trade allies with the program? How satisfied are customers with the program? Do the inspections increase or decrease customer satisfaction?	Q18-Q21
Economic Indicators	How do the current economic conditions impact the program? Have your business revenues grown? Have you hired more employees? Do you plan on continuing your participation?	Q22-Q26
Free Ridership and Spillover	Would small business customers have installed the equipment without the program (free ridership)? About what percentage of customers have installed additional energy efficient equipment without an incentive (spillover)?	Q27-Q37

*[Note to Reviewer] The Interview Guide is a tool to guide process evaluation interviews with utility staff and implementation contractors. The guide helps to ensure the interviews include questions concerning the most important issues being investigated in this study. Follow-up questions are a normal part of these types of interviews. Therefore, there will be sets of questions that will be more fully explored with some individuals than with others. The depth of the exploration with any particular respondent will be guided by the role that individual played in the program’s design and operation, i.e., where they have significant experiences for meaningful responses. The interviews will be audio taped and transcribed.*

## 6. Introduction

(Note: the interviewer should change the introduction to match his/her own interviewing style)

Hi, may I please speak with [NAME]?

My name is \_\_\_ and I’m calling from Navigant Consulting, we are part of the team hired to conduct an evaluation of the [UTILITY] Commercial and Industrial Custom Rebate Program. At this time we are interested in asking you some questions about your experiences with the Commercial and Industrial Custom Rebate Program. The questions will only take about a half hour. Is this a good time to talk? [IF NOT, SCHEDULE A CALL BACK.]

### 6.1.1.1

## 7. Background

1. Can you briefly describe the company you work for and the type of business it conducts? How many are employed at your company? Who are your primary business customers?
2. Can you briefly summarize your roles and responsibilities at your company? For how long have you carried these out?
3. How would you describe your familiarity with your company's relationship with the [UTILITY] Commercial and Industrial Custom Rebate Program?

## 8. Marketing and Participation

4. How and when did you (the contractor) become aware of the program? What other ways can the utilities and program implementers use to boost program awareness with contractors?
5. Are you aware of other [Nicor Gas, Peoples Gas, or North Shore Gas Programs]? Have you referred any customers to other [Nicor Gas, Peoples Gas, or North Shore Gas Programs] business programs? Do you have any materials that you can leave with customers describing the full range of [Nicor Gas, Peoples Gas, and North Shore Gas] Programs? [\[ASK SEPARATELY ABOUT EACH\]](#)
6. What kind of support, if any, does [UTILTIY] provide to you for marketing the Custom Rebate Program to your customers? Do you use utility-produced marketing materials?
7. Do you think the level of marketing and promotion of the Custom Rebate Program has been appropriate so far? Do you think promotional efforts are successful? Do you think they reach the right audience? If the utilities or implementers are missing areas of opportunity, what are those areas?
8. Have you noticed any spontaneous word-of-mouth marketing among [UTILTIY] customers? For example, do customers know of other participating businesses before you contact them?

## 9. Program Characteristics and Barriers

9. What areas could be improved to create a more effective program for customers and program partners? What could be modified to make the program work better (e.g., incentive levels, eligible equipment, etc.)? What would you recommend? Why do you think this change is needed?
10. Have you looked at the website to find program information? Did you find the information that you needed?

## **10. Administration and Delivery**

11. Do you actively market the program to your customers? How do you decide which [UTILITY] customers to contact about the program? Are these customers current customers of yours? Do you market to targeted geographic areas? What prevented you from more active participation in the program?
12. After the customer agrees to install the recommended low-cost equipment, how long does it usually take to receive pre-approval from the program?
13. After an application has been pre-approved, how long does it usually take to schedule the measure installation?
14. How long does it take to process your payment after installation? Is this an acceptable amount of time?
15. Are you able to provide qualified customers with a loan arrangement? Who financed these loans? About what percent of your Custom Rebate Program sales are financed?
16. Do you know whom to contact for help with this program? Who would you call?
17. What training did you receive in how to deliver this equipment to business and industrial customers? Would more training be useful? What types of training would be helpful?

## **11. Satisfaction with the Custom Incentive Program**

18. Are you satisfied with the program? Why or why not?
19. Has the program provided your organization with an opportunity to provide an increased level of customer service to your new and current customers?
20. Are customers satisfied with the program? Why or why not?
21. Are the incentives levels effective at encouraging customers to install equipment they would not have considered without the program? The implementers conduct pre- and post-inspections of the installations. Are these inspections conducted quickly? Do they present a barrier to participation or are they a burden on customers? Do the pre-inspections unnecessarily delay installations? Have any post-inspections unnecessarily delayed incentive payments?

## 12. Economic Indicators

22. Do you think the current economic conditions are affecting the program? If so, how?
23. Do you find the Custom Rebate Program is a competitive advantage for your firm?
24. Has your business revenues grown in the past year (Y/N)? If yes would you attribute any of that growth to the Custom Rebate Program? About what % (+/- 10%)
25. Have you hired more employees because of work generated by the Custom Rebate Program? How many? In the next year will you hire more employees to handle increased work generated by the program? About how many?
26. Do you plan to continue participating in the program through 2013?

## 13. Free-ridership and Spillover

27. Were you installing the type of equipment that would have qualified for an incentive prior to participating in this program? [IF YES] What kind? About what percent of your sales do you think were of this type of efficient equipment before the program? [IF UNSURE] Was it more than 50% or less than 50%? More or less than 75% or 25%? Etc.
28. About what percent of your total sales do you think qualified for the program in after you became a Custom Rebate Program Trade Ally? Was it more than 50% or less than 50%? More or less than 75% or 25%? Etc. Did all of these installations receive a rebate?
29. About what percent of your total sales do you think would have been for the same type of qualifying equipment if the Custom Rebate Program was not offered?
30. Of the [number of projects in program] participants, how many of these were your customers before they participated in the program?
31. Of the participants who were your customers before the Custom Rebate Program, how many of them had EVER installed energy efficient equipment that you are aware of? What type of equipment was it? When was that project installed?
32. Did the customer receive a rebate from a utility program for installing that equipment?
33. Why do you think the customer did not receive a rebate for this equipment?

34. Have any of the Custom Rebate Program participants asked your organization to install additional energy efficient equipment after their program participation? What did you install? Why did they want more equipment? Did the equipment qualify for a utility incentive?

35. If the Custom Rebate Program had not been available, how would your sale of program-qualifying equipment be different?

#### **14. Spillover**

36. How many of your small business customers purchase program equipment and do not apply for the incentive offered by the utility? [Which measure types and rough scope.]

- What do you think is the reason for this ? (e.g., too time-consuming, too much paperwork, incentive too small to bother)

37. How many of your business customers choose to implement other energy efficiency measures (actions like pipe wrap or other energy efficiency equipment not incented by the program) as a result of awareness of or participating in the program? What types of things do they usually do? (Try to develop a number for each type.)

#### **15. Thank you and closing.**