NAVIGANT

Energy Efficiency Gas Plan Year 1 Peoples Gas and North Shore Gas (6/1/2011-5/31/2012)

Evaluation Report: Residential Prescriptive Rebate Program

FINAL

Presented to
Peoples Gas and North Shore Gas, and Commonwealth Edison Company

June 17, 2013

Prepared by:
Randy Gunn
Managing Director
Navigant Consulting
30 S. Wacker Drive, Suite 3100
Chicago, IL 60606

Phone 312.583.5700
Fax 312.583.5701

www.navigant.com

BLACKSTONE GROUP
Passion. Innovation. Insight.

© 2013 Navigant Consulting, Inc.

NAVIGANT

Submitted to:
Peoples Gas
North Shore Gas
130 East Randolph Street
Chicago, IL 60601

ComEd
Three Lincoln Centre
Oakbrook Terrace, IL 60181

Submitted by:
Navigant Consulting, Inc.
30 S. Wacker Drive, Suite 3100
Chicago, IL 60606
Phone 312.583.5700
Fax 312.583.5701

Contact:
Randy Gunn, Managing Director
312.938.4242
randy.gunn@navigant.com

Kevin Grabner, Associate Director
608.497.2323
kevin.grabner@navigant.com

Jeff Erickson, Director
608.497.2322
jeff.erickson@navigant.com

Prepared by:
Katherine Wolf, Senior Consultant
Navigant Consulting
(360) 828-4013
katherine.wolf@navigant.com

NAVIGANT

Table of Contents

E. Executive Summary 5

E.1 Evaluation Objectives 5
E.2 Evaluation Methods 6
E.3 Key Impact Findings and Recommendations 6
E.4 Key Process Findings and Recommendations 8

1. Introduction 9

1.1 Program Description 9
1.1.1 Implementation Strategy 9
1.1.2 Measures and Incentives 10
1.2 Evaluation Questions 10
1.2.1 Impact Issues 11
1.2.2 Process Issues 11

2. Evaluation Methods 12

2.1 Primary Data Collection 12
2.2 Additional Research 14
2.2.1 Verification and Due Diligence 14
2.2.2 Tracking Systems 15
2.3 Impact Evaluation Methods 15

3. Evaluation Results 17

3.1 Impact Evaluation Results 17
3.1.1 Verification and Due Diligence Procedure Review 17
3.1.2 Tracking System Review 18
3.1.3 Gross Program Impact Parameter Estimates 18
3.1.4 Gross Program Impact Results 22
3.1.5 Net Program Impact Parameter Estimates 23
3.1.6 Net Program Impact Results 27
3.2 Process Evaluation Results 27

4. Findings and Recommendations 30

4.1 Key Impact Findings and Recommendations 30
4.2 Key Process Findings and Recommendations 31

5. Appendix 32

5.1 Glossary 32
5.2 Detailed impact results 36
5.2.1 Detailed NTG Calculations 36

5.3 TRM Recommendations 37
5.4 Detailed process results 37
5.4.1 North Shore Gas Detail Process Results 37
5.4.2 Peoples Gas Detail Process Results 47
5.5 VDDTSR Memo-Final version 58
5.6 Data Collection Instruments 75
5.6.1 Participant Survey 75

NAVIGANT

List of Figures and Tables

Figures:

Figure 3-1: Energy Efficient Measures Installed Since Program Participation 25
Figure 5-1: Suggested Methods of Customer Outreach 38
Figure 5-2: Potential Barriers to Participation 39
Figure 5-3: Reasons for Participation 40
Figure 5-4: Influence of Trade Ally on Decision to Participate 41
Figure 5-5: Overall Satisfaction with the Program Experience 43
Figure 5-6: Method of Trade Ally Program Awareness 45
Figure 5-7: Overall Trade Ally Satisfaction with the Program Experience 46
Figure 5-8: Suggested Methods of Customer Outreach 48
Figure 5-9: Potential Barriers to Participation 49
Figure 5-10: Reasons for Participation 50
Figure 5-11: Influence of Trade Ally on Decision to Participate 51
Figure 5-12: Overall Satisfaction with the Program Experience 53
Figure 5-13: Method of Trade Ally Program Awareness 55
Figure 5-14: Overall Trade Ally Satisfaction with the Program Experience 56

Tables:

Table 1-1: Key Performance Goals for the Residential Rebate Program 9
Table 1-2: Rebate Amounts for Eligible Equipment 10
Table 2-1: Data Collection Activities 12
Table 2-2: Stratified Sample Design for Analysis of Tracking Data, CI = 90% 13
Table 2-3: Actual Sample Structure, CI = 90% 14
Table 2-4: Residential Prescriptive Measure Summary 15
Table 3-1: Furnace < 225 Mbtu >92% AFUE Gross Impact Parameters 19
Table 3-2: Furnace < 225 Mbtu >95% AFUE Gross Impact Parameters 19
Table 3-3: Boiler < 300 Mbtu >90% AFUE Gross Impact Parameters 20
Table 3-4: Boiler < 300 Mbtu >95% AFUE Gross Impact Parameters 20
Table 3-5: Boiler ≥ 300 MBtu >90% TE Gross Impact Parameters 21
Table 3-6: Boiler Reset Controls Gross Impact Parameters 22
Table 3-7: Verified Gross Therm Estimates 23
Table 3-8: Free-ridership Results by Measure for Participating Customers 24
Table 3-9: GPY1 Research Findings Net-to-Gross Ratios 26
Table 3-10: Net-to-Gross Ratios by Measure 27
Table 4-1. GPY1 Natural Gas Savings Estimates 30
Table 5-1: Satisfaction with Program Sub-Process 42
Table 5-2: Trade Ally Satisfaction with Program Sub-Process 46
Table 5-3: Satisfaction with Program Sub-Process 52
Table 5-4: Trade Ally Satisfaction with Program Sub-Process 56

E. Executive Summary

E.1 Evaluation Objectives

This report summarizes a third-party evaluation of Peoples Gas (PG) and North Shore Gas' (NSG) Residential Prescriptive Rebate (RPR) program. The evaluation was conducted by Navigant Consulting in summer and fall of 2012, soon after the close of the first operational year of PG and NSG's Residential Prescriptive Rebate program. A Complete System Replacement (CSR) component of this program was jointly implemented along with the Commonwealth Edison Company (ComEd) to capture natural gas and electric savings from dual replacement of heating and cooling systems, but only the PG and NSG natural gas impact results are set forth in this report. The RPR program is implemented by Franklin Energy Services.

Navigant's work incorporated a:

- Process Evaluation— examining effectiveness of supporting processes; and,
- Impact Evaluation—estimating the program's impact in total therm savings.

A primary objective of the detailed evaluation is to provide PG and NSG managers with an independent post hoc assessment of their earlier therm savings estimates. Navigant's estimates are given in terms of ex-post gross and net savings attributable to the program, derived from applying both gross savings verification and net-to-gross (NTG) research findings.

A second objective is to assess the structure and performance of the program's record-keeping practices. Quality monitoring is a prerequisite for prudent program management, and it provides a form of redundancy in oversight by giving all team members visibility into the program data and the ability to detect a need for action. This report assesses the strengths and weaknesses of the tracking system - separate recommendations of specific actions are outlined in a separate deliverable labeled "verification, due diligence and tracking system review" which is attached to this report as Appendix 5.5. Program design and implementation are compared to industry best practices published by professional associations and approved by leading regulatory authorities.

A third objective of the evaluation is to assess process strengths and weaknesses, in order to help program managers enhance program performance. Processes were examined from the perspective of both customers and trade allies.

The RPR program offers education and cash incentives to PG or NSG's residential customers to encourage customers to purchase higher-efficiency equipment. To be eligible for program rebates, customers must be active residential customers of PG and NSG, and the premises must be used for residential purposes in existing buildings. Both rental and owner-occupied dwellings are eligible for rebates for natural gas furnaces, boilers and boiler reset controls.

E.2 Evaluation Methods

The study combined standard industry evaluation methods to meet the core objectives of this program evaluation. Details on each customer installation were obtained from the program tracking system and were used to analyze program impacts on energy use and participation rates. A structured telephone survey gathered consumer decision data from 71 NSG and 68 PG residential participants subsequent to the customer's receipt of the equipment rebate. This was done to determine free-ridership and spillover as well as to assess overall customer satisfaction and satisfaction with program processes. Since the majority of the program participants installed gas furnaces, most of the survey respondents were furnace purchasers. Another 30 telephone interviews were completed with HVAC installers, contractors and sales firms who participated as trade allies in the PG or NSG RPR program. Perceived customer satisfaction and areas for program improvement were among the topics covered.

The main focus of the impact evaluation was to review program tracking information and verify gross program savings, and to estimate net program savings. This program has not been evaluated before and so according to the NTG Framework,[1] the Net-to-Gross (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*[2] *— 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.*"

Collected data was also assessed to answer process-related questions. The process evaluation included a review of the program's administration and delivery as well as input from participant and trade ally surveys.

E.3 Key Impact Findings and Recommendations

The primary impact findings and recommendations are as follows:

[1] "Proposed Framework for Counting Net Savings in Illinois." Memorandum March 12, 2010 from Philip Mosenthal, OEI, and Susan Hedman, OAG.

[2] Id. "An example of a market change might be where baselines have improved significantly and the likely free riders are growing substantially because of it."

- The verified gross savings shown in Table E-1 recognizes that gas measures covered by the State of Illinois Technical Reference Manual (TRM) are deemed for evaluation purposes in GPY1.[3] The evaluation research findings NTG ratio is 0.72 for PG, and 0.67 for NSG PG fell short of its goal of 404,499 therms, when NGS greatly exceeded its goal of 67,471.

Table E-1: GPY1 Natural Gas Savings Estimates

Category	Peoples Gas Energy Savings (Therms)	North Shore Gas Energy Savings (Therms)
Ex-Ante Gross	216,289	156,724
Ex-Ante Net	111,853	80,683
Verified Gross	216,191	156,705
Research Findings Net	**155,658**	**104,992**
Net Goal	404,499	67,471
Percent Goal Achieved	38%	156%

Finding: The current database does not collect information on the rated efficiency (annual fuel utilization efficiency or AFUE) of rebated equipment. This forces PG and NSG to use the default AFUE for high-efficiency units for both boilers and furnaces.

- **Recommendation:** Using the actual rated efficiency of each unit installed would allow PG and NSG to more accurately tabulate savings from these measures, especially for furnaces. This has the potential to increase claimed savings for furnaces, where the default AFUE is set to the minimum qualifying efficiency for the measure. Tracking actual AFUE will allow the utility to claim additional savings for units well above the qualifying efficiency. For this reason, Navigant recommends that PG and NSG track installed efficiency for all furnaces and boilers.

Finding: The algorithm for boiler reset controls incorrectly uses the TRM boiler heating load as boiler consumption.

[3] The September 14, 2012 final version of the first State of Illinois Energy Efficiency Technical Reference Manual (TRM) (effective as of June 1, 2012) was approved on January 9, 2013 by the Illinois Commerce Commission in Docket No. 12-0528. The verified gross savings shown in Table E-1 recognizes that gas measures covered by the TRM are deemed for evaluation purposes in GPY1. Since the TRM was not final until after the end of GPY1, the TRM is applicable for evaluation purposes, but not GPY1 implementation. For the Residential Prescriptive Program, evaluation research findings for gross savings that do not assume deemed status of TRM measures in GPY1 were identical to verified gross savings with deeming.

- **Recommendation**: Navigant recommends accounting for boiler efficiency in this algorithm as well as reducing the savings factor to a more conservative value of 5% as discussed in Section 3.1.3. This will increase the accuracy of the boiler reset control default savings until this measure is deemed by the Illinois TRM.

E.4 Key Process Findings and Recommendations

The primary process findings and recommendations are as follows:

Finding: The program participants are satisfied with the program and the incentive they received. The primary reason that customers chose to participate in the program was to lower their energy bills. There were some who felt that the paperwork associated with the program was too burdensome, and that there was not enough information provided to them about the program.

- **Recommendation**: PG and NSG should work with trade allies to simplify the rebate procedure. PG and NSG should also consider implementing an "instant rebate" feature, where trade allies can offer incentive directly to consumers at the time of purchase, lowering their initial purchasing price. PG and NSG should also consider adding additional information to their website and program literature to provide trade allies and customers with additional information about which equipment models are eligible for the program rebate.

Finding: The trade allies are the primary method of program promotion and were very influential in promoting program participation and the adoption of high efficiency technologies. There are opportunities for additional program promotion directly to customers and to provide more promotional literature to trade allies.

- **Recommendation**: PG and NSG should work with trade allies to develop promotional literature that can be used by trade allies to promote the program to their customers, both at the time of purchase and before. PG and NSG should consider increasing the amount of promotion that they do directly to customers.

Finding: Trade allies play an important role in both program promotion and in providing application assistance to their customers. If trade allies are to remain one of the primary methods of program promotion, then it is important to maintain their support and participation.

- **Recommendation**: Given the important role of the trade allies, Navigant suggests that PG and NSG create a form of recognition for some of the top selling the trade allies who participate in the program.

1. Introduction

1.1 *Program Description*

Under the Residential Prescriptive Rebate (RPR) program, cash incentives and education were offered to encourage upgrading space-heating equipment among residential customers of PG and NSG, and air conditioning systems for ComEd customers through the complete system replacement (CSR) portion of the program. The RPR program was designed to conserve natural gas, and lower participant monthly energy bills. Both rental and owner-occupied dwellings are eligible for rebates for furnaces, boilers, boiler reset controls, and air-conditioning systems. Customers must be active residential customers of PG or NSG in order to receive rebates for gas saving measures, or PG or NSG and ComEd to receive rebates for high-efficiency furnaces and air-conditioning systems under the CSR portion of the program, and the premises must be used for residential purposes in existing buildings. The dollar amount of the rebate depends on the size and fuel efficiency of the replacement measures.

The RPR program ran from June 1, 2011 through May 30, 2012. The CSR portion of the RPR program ran from January 1, 2012 through June 31, 2012. Table 1-1 summarizes PG and NSG's RPR program's goals.

Table 1-1: Key Performance Goals for the Residential Rebate Program

Program Metric	Peoples Gas Goal	North Shore Gas Goal
Net Therms Saved*	404,499	67,471
Participating Units**	4,170	446
Budget/Expenditures**	$2,382,431	$223,128
Portion of Residential Net Total Savings*	38%	43%

*Source: * Paul Isaac, Franklin Energy, Presentation to Illinois Stakeholders Group, 9/25/2012. ** North Shore Gas/Peoples Gas, Energy Efficiency Program Plan Jun 1, 2011 to May 31, 2014, Compliance Filing Docket 10-0564.*

1.1.1 Implementation Strategy

The field organization that delivered the RPR program to PG and NSG customers included long-established firms in the energy efficiency services sector. Program implementation is managed by Franklin Energy. Franklin Energy's assigned tasks specifically included promotion, sales assistance and rebate processing. This includes the majority of the trade ally outreach and trade ally management. The trade ally firms participating in the program were instrumental in both promoting the program to their customers and installing the rebated measures.

1.1.2 Measures and Incentives

Five types of gas-using equipment were eligible for rebates through the program ranging from $100 for a boiler reset control to $600 for an upper tier high efficiency boiler in PG territory. Two types of central air-conditioning systems were eligible for rebates as part of the CSR portion of the program. Equipment types and rebate amounts for GPY1 are in Table 1-2 below.

Table 1-2: Rebate Amounts for Eligible Equipment

Utility	Equipment	Rebate Amount
All	Boiler Reset Control	$100
North Shore Gas	High Efficiency Furnace AFUE ≥ 92%	$200
Peoples Gas	High Efficiency Furnace AFUE ≥ 92%	$350
North Shore Gas	High Efficiency Furnace AFUE ≥ 95%	$250
Peoples Gas	High Efficiency Furnace AFUE ≥ 95%	$400
North Shore Gas	High Efficiency Boiler AFUE ≥ 90%	$350
Peoples Gas	High Efficiency Boiler AFUE ≥ 90%	$500
North Shore Gas	High Efficiency Boiler AFUE ≥ 95%	$450
Peoples Gas	High Efficiency Boiler AFUE ≥ 95%	$600
All	Central Air Conditioning System SEER ≥ 14.5	$400

Source: GPY1 Application forms.

1.2 Evaluation Questions

Only the impact evaluation results for the PG and NSG portion of the RPR program are included in this report. Because the CSR program is conducted jointly between PG, NSG, and ComEd using a single implementation contractor, the process evaluation results are intended to apply to all three utilities where applicable.

The objectives of the GPY1 RPR program evaluation were to (1) quantify net savings impacts from the program; (2) identify ways in which the program can be improved, and (3) determine

process-related program strengths and weaknesses. To achieve this, this evaluation sought to answer the following researchable issues:

1.2.1 Impact Issues

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 savings goals?
4. Are the deemed savings values reasonable?

1.2.2 Process Issues

Marketing and Participation

1. In the outreach to customers through the program and program partners effective in increasing awareness of the program opportunities?
2. How did customers become aware of the program? What marketing strategies could be used to boost program awareness?

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. Is the application process burdensome? Does the process present any barriers to program participation?
3. Are customers and program partners satisfied with the aspects of program implementation in which they have been involved?

Administration and Delivery

1. 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
2. What is the level of program satisfaction and customer service experiences?
3. Do quality verification procedures exist and 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

2.1 *Primary Data Collection*

This section describes the methods of data collection and analysis used in the process and impact evaluation of the Residential Prescriptive Rebate (RPR) program. The section identifies the data sources and what sampling methods were used to protect against bias.

The main focus of the impact evaluation included a review of deemed savings algorithms and program tracking information. The process evaluation included a review of the effectiveness of the program's administration and delivery. The final data extract from the implementation contractor program tracking system was dated August 27, 2012.

Navigant's evaluation of PG and NSG's RPR program also included a survey targeting 15 trade allies for each utility to obtain deeper information about how the program was working for the trade allies, PG and NSG' primary program marketing arm. These surveys also solicited contractor input on perceived customer satisfaction and how the program can be improved.

Table 2-1: Data Collection Activities

Collection Method	Subject Data	Quantity	Gross Impact	Net Impact	Process
Telephone Surveys	Program participants	68 (PG) 71 (NSG)	X	X	X
In-Depth Interviews	Program administrators and implementation contractor staff	2			X
Telephone Surveys	HVAC Contractors	Target 15 randomly selected participants for each utility: Actual utility breakdown was 5 worked exclusively in PG territory; 8 exclusively in NSG territory; 17 work in PG and NSG territory		X	X
Deemed Savings Review	Deemed savings estimates	All	X		

Source: Navigant

The sample structure shown in Table 2-2 was designed to achieve an estimate with two-sided confidence interval of 90%, and with overall relative precision of 10%.

Table 2-2: Stratified Sample Design for Analysis of Tracking Data, CI = 90%

Utility	Measure	Participants	Samples
Peoples Gas	Boiler Reset Controls	**5**	**3**
Peoples Gas	90% AFUE Boiler	9	4
Peoples Gas	90% Boiler TERes	2	2
Peoples Gas	95% AFUE Boiler	20	5
Peoples Gas	92% AFUE Furnace	146	8
Peoples Gas	95% AFUE Furnace	1,181	55
Peoples Gas	**Total**	**1,363**	**77**
North Shore Gas	Boiler Reset Controls	1	1
North Shore Gas	90% AFUE Boiler	4	3
North Shore Gas	95% AFUE Boiler	14	6
North Shore Gas	92% AFUE Furnace	79	8
North Shore Gas	95% AFUE Furnace	893	52
North Shore Gas	**Total**	**991**	**70**

Source: Navigant analysis of program tracking data (August 27, 2012 data extract)

Incomplete tracking data made some participant records unusable for evaluation. The actual total records used for the analysis are shown below in Table 2-3.

Table 2-3: Actual Sample Structure, CI = 90%

Utility	Measure	Participants	Samples
Peoples Gas	Boiler Reset Controls	5	1
Peoples Gas	90% AFUE Boiler	5	0
Peoples Gas	90% Boiler TERes	2	0
Peoples Gas	95% AFUE Boiler	19	4
Peoples Gas	92% AFUE Furnace	111	8
Peoples Gas	95% AFUE Furnace	1,003	55
Peoples Gas	**Total**	**1,145**	**68**
North Shore Gas	Boiler Reset Controls	1	0
North Shore Gas	90% AFUE Boiler	3	0
North Shore Gas	95% AFUE Boiler	13	4
North Shore Gas	92% AFUE Furnace	69	8
North Shore Gas	95% AFUE Furnace	809	59
North Shore Gas	**Total**	**895**	**71**

Source: Navigant analysis of program tracking data (August 27, 2012 data extract)

The trade ally survey was conducted of trade allies who work in the North Shore Gas and Peoples Gas territories. Thirty surveys were conducted, and a majority (57%) of trade allies stated that they worked in both the NSG and PG territories. When the trade allies who worked in *both service territories* were asked if there is any difference in their experiences between the two territories, less than one-third (29%) replied that there was a difference, but when asked to elaborate, the only difference noted was that the incentives levels differed between the utilities. Based upon these results, and because of the difficulty in finding trade allies who work exclusively in either territory, the results presented are for both utilities.

2.2 *Additional Research*

2.2.1 Verification and Due Diligence

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

- Whether eligibility criteria had been properly adhered to and applications were appropriately completed and backed with supporting documentation
  If any QA/QC activities were biased (e.g., sampling that may inadvertently skew results);
- Whether savings were calculated correctly and project information entered in an accurate and timely manner in the tracking system; and
- Whether improvements and evaluation recommendations from the program planning phase have been implemented.

2.2.2 Tracking Systems

The Navigant team performed an independent verification of the program tracking database to determine the appropriate level of input and the existence of outliers, missing values, and potentially missing variables. The purpose of the tracking system review was to ensure these systems gather the data required to support future evaluation and allow program managers to monitor key aspects of program performance at regular intervals. If necessary, the Navigant team included recommendations for additional fields to be added to the tracking system for use in future evaluation activities.

2.3 Impact Evaluation Methods

Navigant reviewed the measure savings estimates for each of the measures in the program. For measures in the Illinois TRM, Navigant reviewed the inputs for each measure algorithm for compliance with the TRM and also verified that the algorithm was being used correctly. For measures not in the TRM, Navigant relied on other secondary sources and engineering judgment in the savings review. Table 2-4 shows all of the measures in the program, whether they are in the TRM and whether they are fully or partially deemed. The only measure not included in the TRM is the boiler reset controls measure.

Table 2-4: Residential Prescriptive Measure Summary

Measure	Illinois TRM Status
Boiler Reset Controls	Not in TRM
Boilers < 300 MBtu > 90% AFUE	Partially Deemed
Boilers < 300 MBtu > 95% AFUE	Partially Deemed
Boilers > 300 MBtu > 90% TERes	Partially Deemed
Furnace < 225 MBtu > 92% AFUE	Partially Deemed
Furnace < 225 MBtu > 95% AFUE	Partially Deemed

For both furnaces and boilers with capacities less than 300 MBtu, the TRM specifies the baseline efficiency and gas heating load by region. Program implementers may either specify actual installed efficiencies or use default values provided by the TRM.

For large boilers, the commercial boiler TRM algorithm must be used. Navigant assumed that these units serve multi-family housing due to their size: the average residential unit capacity in the Chicago area is less than 100 MBtu. The TRM also deems baseline efficiency for both hot water and steam boilers, and provides equivalent full load hour estimates by climate zone and space type. Program implementers must specify equipment capacity, and may either specify actual efficiencies or use the default values as specified for each equipment tier in the TRM.

3. Evaluation Results

3.1 Impact Evaluation Results

3.1.1 Verification and Due Diligence Procedure Review

The evaluation team found that the Residential Prescriptive Rebate program had a strong foundation in its first year. Our benchmarking of the program against national best practice standards for similar residential prescriptive HVAC programs found that the program is doing well in most Program Design and Structure, Quality Control and Verification, and Data Reporting and Tracking criteria.

Franklin Energy established sufficient verification and due diligence processes to ensure project eligibility criteria were met and that applications were backed with proper supporting documentation. The operations manual for the entire residential and commercial portfolios clearly set forth process and QA/QC plans for this program (as well as for all programs). Our in-depth interview with the implementation program manager confirmed that key performance indicator goals established in the manual were being put into practice in the program and that quality assurance and verification procedures were being followed as well. A process diagram for the program as related to the implementation of the program may help identify areas for improvement and tracking system data entry differentiation from other programs.

Clear QA/QC procedures are outlined in the operations manual for conducting pre- and post-inspections, and forms are standardized. About 8% of projects were marked as "post-inspection required" in the tracking system extract and 6% of projects had completed post-inspections, fulfilling the goal of inspecting at least 5% of projects. However, the tracking system did not have any data on inspection findings, and thus the evaluation team recommends incorporating some findings tracking into the tracking system. Furthermore, the operations manual did not outline procedures for dealing with situations where inspection findings are problematic. The team recommends establishing clear procedures for resolving inspection issues, including procedures for talking with contractors to resolve problems.

In reviewing program documents for the Due Diligence Review, the evaluation team found that there was no multi-lingual marketing material which would help overcome the linguistic barrier of some of Integrys' customers. Developing multi-lingual materials would benefit the program.

3.1.2 Tracking System Review

Though the program is functioning well from the perspective of due diligence and tracking system set up, the evaluation team found minor room for improvement in the tracking system database extract. The team recommends that Franklin consider standardizing field naming in the tracking database to make querying across tables more intuitive and less prone to error. Furthermore, we recommend that a data dictionary and program-specific data entry step guide be established to streamline the evaluation process.

The current database does not collect information on the rated efficiency (AFUE) of rebated equipment. This forces PG and NSG to use the default AFUE for high-efficiency units for both boilers and furnaces. Using the actual rated efficiency of each unit installed would allow PG and NSG to more accurately tabulate savings from these measures, especially for furnaces. This has the potential to increase claimed savings for furnaces, where the default AFUE is set to the minimum qualifying efficiency for the measure. Tracking actual AFUE will allow the utility to claim additional savings for units well above the qualifying efficiency. For this reason, Navigant recommends that NSG track installed efficiency for all furnaces and boilers.

Navigant also recommends that PG and NSG begin to collect information on the replaced units, such as the efficiency, age, and/or nameplate data. As the new federal standard takes effect,[4] it will be more important to look for "early retirement" units which will have much higher savings than "replace-on-burnout" (ROB) once the furnace baseline is 90% AFUE. In order to quantify those savings, we will need to know what the baseline efficiency was.

Navigant also suggests that improvements can be made in coordinating the information Franklin tracks for PG and NSG, the information Franklin tracks for ComEd, and the information Nicor Gas tracks for ComEd. The tracking databases are not consistent between the gas and electric utilities, making comparisons between them difficult. Navigant suggests that steps be taken to standardize data tracking, such as the fields tracked, the formatting of fields tracked, and the program year definitions, across all of the utilities.

3.1.3 Gross Program Impact Parameter Estimates

This section discusses the algorithms and input parameters used in the ex-ante and ex-post calculations for each measure.

[4] The U.S. Department of Energy (DOE) proposed to settle a lawsuit brought by the American Public Gas Association (APGA) regarding furnace efficiency standards completed in 2011 and slated to take effect May 2013. As a result, the new standards would be eliminated in favor of another round of DOE hearings and studies.

3.1.3.1 *High Efficiency Furnaces < 225 MBtu*

The program rebates furnaces at two efficiency levels: greater than 92% AFUE and greater than 95% AFUE. For both measures, Franklin correctly used the TRM algorithm for residential furnaces:

$$\Delta Therms = (Gas\ Furnace\ Heating\ Load) * \left(\frac{1}{AFUE_{Base}} - \frac{1}{AFUE_{Eff}}\right)$$

As illustrated in Table 3-1 and Table 3-2, the ex-ante and ex-post values for each gross impact parameter are identical for both efficiency levels.

Table 3-1: Furnace < 225 Mbtu >92% AFUE Gross Impact Parameters

Parameter	Ex-Ante Estimate	Ex-Post Estimate	Comments
$AFUE_{base}$	80%	80%	Per TRM
$AFUE_{ee}$	92%	92%	Measure qualifying efficiency
Gas Furnace Heating Load	806	806	Zone 2 (Chicago area) heat load per TRM
Gross Therm Savings	131	131	Per furnace

Source: Navigant analysis.

Table 3-2: Furnace < 225 Mbtu >95% AFUE Gross Impact Parameters

Parameter	Ex-Ante Estimate	Ex-Post Estimate	Comments
$AFUE_{base}$	80%	80%	Per TRM
$AFUE_{eff}$	95%	95%	Measure qualifying efficiency
Gas Furnace Heating Load	806	806	Zone 2 (Chicago area) heat load per TRM
Gross Therm Savings	159	159	Per furnace

Source: Navigant analysis.

3.1.3.2 *High Efficiency Boilers < 300 Mbtu*

The program rebates boilers at two efficiency levels: greater than 90% AFUE and greater than 95% AFUE. For both measures, Franklin correctly used the TRM algorithm for residential boilers:

$$\Delta Therms = (Gas\ Boiler\ Load) * \left(\frac{1}{AFUE_{Base}} - \frac{1}{AFUE_{Eff}}\right)$$

As illustrated in Table 3-3 and Table 3-4, the ex-ante and ex-post values for each gross impact parameter are identical for both efficiency levels.

Table 3-3: Boiler < 300 Mbtu >90% AFUE Gross Impact Parameters

Parameter	Ex-Ante Estimate	Ex-Post Estimate	Comments
$AFUE_{base}$	80%	80%	Per TRM
$AFUE_{eff}$	92.5%	92.5%	TRM Default for units above 90% AFUE
Gas Boiler Heating Load	1218	1218	Zone 2 (Chicago area) heat load per TRM
Gross Therm Savings	206	206	Per boiler

Source: Navigant analysis.

Table 3-4: Boiler < 300 Mbtu >95% AFUE Gross Impact Parameters

Parameter	Ex-Ante Estimate	Ex-Post Estimate	Comments
$AFUE_{base}$	80%	80%	Per TRM
$AFUE_{eff}$	95%	95%	Measure qualifying efficiency
Gas Boiler Heating Load	1218	1218	Zone 2 (Chicago area) heat load per TRM
Gross Therm Savings	240	240	Per boiler

Source: Navigant analysis.

3.1.3.3 High Efficiency Boilers ≥ 300 Mbtu

During this program year, the program rebated some large boilers (≥ 300MBtu) at the 90% Thermal Efficiency (TE) level. Again Franklin used the correct TRM algorithm for large commercial boilers. This algorithm is as follows:

$$\Delta Therms = EFLH * Capacity * \frac{\left(\frac{1}{TE_{Base}} - \frac{1}{TE_{Eff}}\right)}{100{,}000}$$

Navigant used identical gross impact parameters. However, the TRM specifies a conversion factor of 100,000 Btu per therm, which is slightly different from the 100,067 Btu per therm in the Franklin calculations. This changes the gross savings per MBtu of capacity by 0.01 therms.

Navigant finds the use of the "Unknown" building EFLH acceptable given the limitations of the TRM deemed options. The TRM does not provide an option for multifamily housing, the

assumed application for these units since they have been rebated through the residential program. Since the residential furnace and boiler measures are based on heat load and not EFLH, a direct substitution cannot be made. Future editions of the TRM should provide an estimate of EFLH for this building type.

Table 3-5: Boiler ≥ 300 MBtu >90% TE Gross Impact Parameters

Parameter	Ex-Ante Estimate	Ex-Post Estimate	Comments
TE_{base}	80%	80%	Per TRM for hot water boiler
TE_{eff}	90%	90%	Measure qualifying efficiency
Capacity	1,000	1,000	One MBtu
EFLH	1163	1163	Using "Unknown" building type in Chicago area per TRM.
Gross Therm Savings	1.61	1.62	Per Mbtu of capacity

Source: Navigant analysis.

3.1.3.4 Boiler Reset Controls

Boiler reset controls for residential customers are not in the IL TRM. Navigant agrees generally with Franklin's approach of using the gas boiler heating load for the region (as specified in the TRM) and a savings factor, but made some modifications. Franklin referenced the commercial boiler reset control measure in the TRM to determine the savings factor.

Franklin used the following algorithm to determine savings:

$$\Delta Therms = Gas\ Boiler\ Heating\ Load * Savings\ Factor$$

Navigant modified this algorithm to account for the fact that the heating load in the TRM does not represent actual therm consumption, which depends on heating system efficiency:

$$\Delta Therms = (Gas\ Boiler\ Heating\ Load / Heating\ System\ Efficiency) * Savings\ Factor$$

Navigant estimated that typical boiler efficiency would be equal to the baseline efficiency specified for boiler replacements. This accounts for a mix of newer units above the 80% manufacturing standard and older units whose efficiency has degraded or was not that high to begin with.

Navigant reviewed secondary sources to assess the 8% ex-ante savings factor. A study by ACEEE stated that boiler reset controls could produce savings of "up to 6%-8%."[5] A second source, the Energy Solutions Center, indicated "Savings estimates vary from 5 to 30%, but in a standard residential application (boiler shut-off during the mostly non-heating-season), the savings are likely to be closer to 5%."[6] Other reports of savings led back to the Energy Solutions Center[7] or were un-sourced estimates in a similar range. Due to the variability of this measure Navigant recommends an energy savings factor of 5% until the measure is deemed by the Illinois TRM.

Table 3-6: Boiler Reset Controls Gross Impact Parameters

Parameter	Ex-Ante Estimate	Ex-Post Estimate	Comments
Gas Boiler Heating Load	1,218	1,218	Zone 2 (Chicago area) heat load per TRM
Boiler Efficiency	n/a	80%	Assumed average existing efficiency
Savings Factor	8%	5%	See discussion above.
Gross Therm Savings	97	76	Per Mbtu of capacity

Source: Navigant analysis.

3.1.4 Gross Program Impact Results

Table 3-7 presents the ex-post gross therm estimates for each measure and the overall program. The program achieved about a 100% realization rate (1.00 when rounded to two decimals).

[5] The American Council for an Energy Efficient Economy. *Emerging Technology Report: Residential Boiler Controls.* May 2006. Navigant notes that ACEEE says "save up to", suggesting 6% to 8% is an upper limit, not an expected range of savings.

[6] Energy Solutions Center, a consortium of natural gas utilities, equipment manufacturers and vendors. *Boiler Reset Control*, accessed at http://naturalgasefficiency.org/residential/Boiler_Reset_Control.htm

[7] For example, *New York Standard Approach for Estimating Energy Savings from Energy Efficiency Programs*, New Department of Public Service, October 15, 2010.

Table 3-7: Verified Gross Therm Estimates

Utility	Measure	Projects or Units Installed	Ex-Ante Gross Therms	Verified Gross Therms
Peoples Gas	Boiler Reset Controls	5	487	381
Peoples Gas	Boilers < 300 MBtu > 90% AFUE	9	1,852	1,852
Peoples Gas	Boilers < 300 MBtu > 95% AFUE	20	4,808	4,808
Peoples Gas	Boilers > 300 MBtu > 90% TERes	1,197	1,926	1,933
Peoples Gas	Furnace < 225 MBtu > 92% AFUE	146	19,186	19,186
Peoples Gas	Furnace < 225 MBtu > 95% AFUE	1,182	188,031	188,031
Peoples Gas	**Total**	**2,559**	**216,289**	**216,191**
North Shore Gas	Boiler Reset Controls	1	97	76
North Shore Gas	Boilers < 300 MBtu > 90% AFUE	4	823	823
North Shore Gas	Boilers < 300 MBtu > 95% AFUE	14	3,365	3,366
North Shore Gas	Boilers > 300 MBtu > 90% TERes	0	0	0
North Shore Gas	Furnace < 225 MBtu > 92% AFUE	79	10,382	10,382
North Shore Gas	Furnace < 225 MBtu > 95% AFUE	893	142,057	142,058
North Shore Gas	**Total**	**991**	**156,724**	**156,705**

Source: Navigant analysis.

3.1.5 Net Program Impact Parameter Estimates

3.1.5.5 Free-ridership

Free-ridership is a deduction from gross program savings due to the identified "lack of influence" of the program in the customer's decision making process. Free-ridership is revealed by a series of questions posed during a post-purchase interview by a third party interrogator. For the RPR program, the free-ridership questions were asked of each of the participating customers, and of the participating trade allies in the samples. A detailed explanation of the methodology used to calculate free-ridership and spillover may be found in Appendix 5.2.1.

Free-ridership was averaged for each measure to calculate the research findings Net-to-Gross ratio. Measure level results for participating customers are shown in Table 3-8. Please note that the sampling approach was designed to achieve a statistically significant result[8] at the utility

[8] A relative precision of ±10% or better at a 90% level of confidence

program level, and only the measure level results for furnaces with an AFUE of 95% or greater were statistically significant.

The free-ridership for boiler measures in NSG territory is very high, however, Navigant feels that this may be partly due to the relatively small number of boilers in the sample. In GPY2, Navigant will re-examine the boiler measures before making any suggestions as to whether the boiler measures should continue to be part of the program. Likewise, boiler reset controls in PG territory have a very low free-ridership rate, but due to the extremely low sample size, Navigant also suggests re-examining the measure after the GPY2 evaluation.

Table 3-8: Free-ridership Results by Measure for Participating Customers

Utility	Measure	Research Findings Free-ridership	Number of Participants Surveyed
Peoples Gas	Boiler Reset Controls	0.00	1
Peoples Gas	Boilers < 300 MBtu > 95% AFUE	0.43	4
Peoples Gas	Furnace < 225 MBtu > 92% AFUE	0.23	8
Peoples Gas	Furnace < 225 MBtu > 95% AFUE	0.27	55
North Shore Gas	Boilers < 300 MBtu > 95% AFUE	0.90	4
North Shore Gas	Furnace < 225 MBtu > 92% AFUE	0.27	8
North Shore Gas	Furnace < 225 MBtu > 95% AFUE	0.32	59

Source: Navigant analysis.

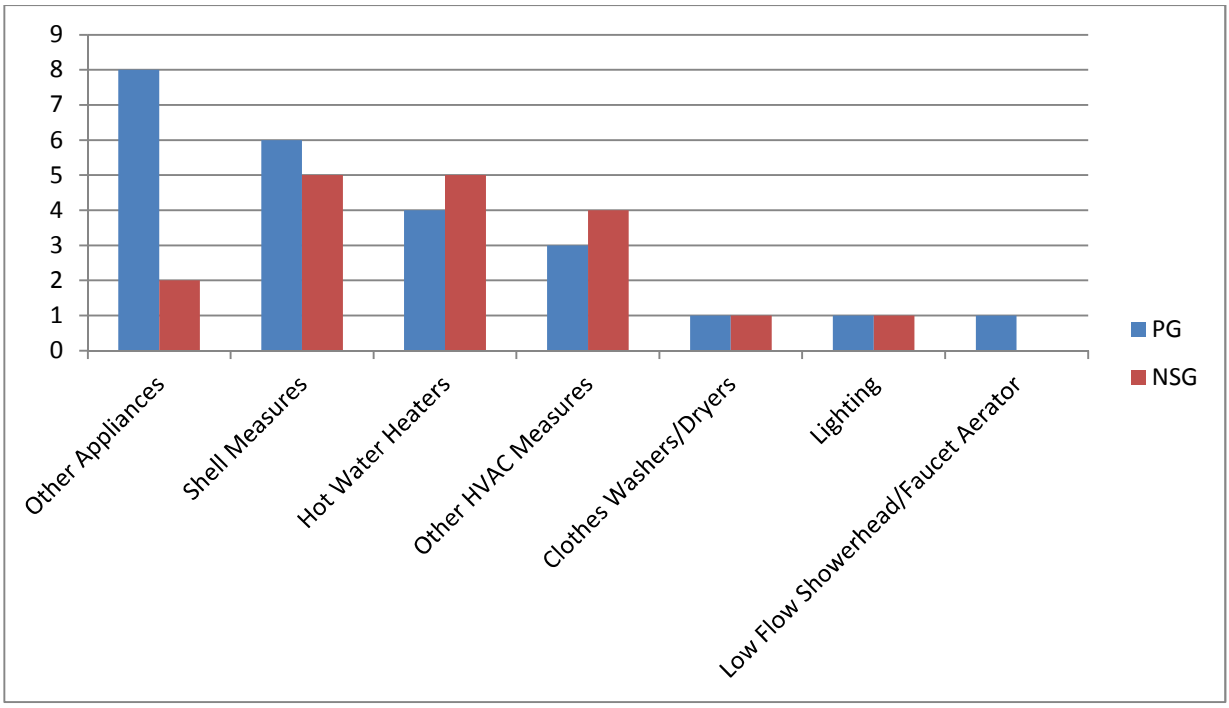
The 30 trade allies interviewed in the GPY1 evaluation were asked their perception of participant free-ridership (detailed methodology can be found in Appendix 5.2.1). The trade ally NTG rates were applied to the RPR program in toto, due to the fact that most trade allies offer all or almost all measures to their customers, and the evaluation team found that they were not able to distinguish their perception of free-ridership by measure. Overall for the program, the free-ridership rate calculated from the trade ally survey, weighted by the savings attributed to each trade ally, was 0.52.

3.1.5.6 Spillover

To gage program spillover from a trade ally perspective, the trade allies were asked what percentage of their customers who purchased high efficiency equipment did not participate in the program, and how influential their own recommendation and the program materials were on the decision to purchase the high efficiency equipment. Trade ally spillover is estimated to be 0.21.

To gage program spillover from a participant perspective, program participants were asked if they had purchased and installed any additional energy efficiency measures since their participation in the RPR program. Twenty-three of the PG participants and seventeen of the NSG and stated that they had installed additional energy efficiency measures. There does not appear to be any like measure spillover, which is to be expected given the nature of the program. Figure 3-1 presents the distribution of additional energy efficiency measures installed. Three PG participants reported that they received a rebate for the additional energy efficiency measures that they installed, but no NSG participants did.

Figure 3-1: Energy Efficient Measures Installed Since Program Participation



Source: Navigant analysis of CATI data.

These participants were also asked if their participation in the RPR program had any influence on their decision to install the additional energy efficiency measures. Nine PG and two NSG participants reported that their participation was "very influential" on the decision to install the additional measures. One NSG participant did specifically state that they installed

insulation and weatherized because they had purchased a new efficient furnace through the program, and wanted to increase their whole house efficiency, and a PG participant stated that since they were saving money due to their reduced gas bill, they decided to also save money through reduced water usage, leading them to install low-flow showerheads and faucet aerators.

3.1.5.7 Final Net to Gross Ratio

The NTGR for program participants was calculated for each measure as follows:

$$NTGR_{Participant} = 1 - \%FR_{Participant}$$

Table 3-9 presents the results for each measure, and the program average weighted by measure program savings. For North Shore Gas net-to-gross calculation purposes, due to the relatively low level of savings and low participation, the boiler measures (boiler reset controls, and greater or equal to 90% AFUE and greater or equal to 95% AFUE boilers) have been combined, and the NTG ratio from the greater or equal to 95% AFUE boilers has been applied to all three. For Peoples Gas NTG calculation purposes, the two boiler measures (greater or equal to 90% AFUE and greater or equal to 95% AFUE boilers) have been combined, and the NTG rate from the greater or equal to 95% AFUE boilers has been applied to both.

Table 3-9: GPY1 Research Findings Net-to-Gross Ratios

Utility	Weighted Average Research Findings NTGR	Overall Relative Precision at 90% CI
Peoples Gas	0.72	9.1%
North Shore Gas	0.67	9.9%

Source: Navigant analysis.

The NTGR calculated from the results of the trade ally survey was calculated as follows:

$$NTGR_{Trade\ Ally} = 1 - \%FR_{Trade\ Ally} + \%SO_{Trade\ Ally}$$

Because of the difficulty finding trade allies who worked exclusively in either PG or NSG territory, the trade ally results were combined. The NTGR calculated from the results of the trade ally survey was

$$1 - 0.52 + 0.21 = 0.68$$

Because the trade allies that were used to calculate the free-ridership rate contributed less than 5% of the total savings to the program, Navigant has opted to use the participant rate as the program NTG ratio.

3.1.6 Net Program Impact Results

Net program impacts were derived by multiplying verified gross program savings by the research findings NTG ratios. Table 3-10 provides the program-level research findings net impact results for the Residential Prescriptive Rebate program.

Table 3-10: Net-to-Gross Ratios by Measure

Utility	Research Findings NTGR	Verified Gross Savings (Therms)	Research Findings Net Savings (Therms)
Peoples Gas	0.72	216,191	155,658
North Shore Gas	0.67	156,705	104,992

Source: Navigant analysis.

3.2 Process Evaluation Results

This section provides an overview of the process evaluation results common to PG and NSG. Detailed findings that are specific to each utility are provided in Appendix 5.4.

Marketing and Participation

The RPR program has been effective in reaching out to contractors and trade allies, and leveraging these relationships to promote the program. Throughout GPY1, the program was not promoted directly to customers by the implementation contractor, but instead relied upon trade allies to promote the program and its incentives directly to their customers, mostly at the point of sale.

Over two-thirds of customers reported that their first exposure to the RPR program was through their contractor. This suggests that there are additional opportunities to promote the program directly to customers, through methods such as bill inserts and direct mailings. Increasing customer awareness can also increase the number of participating trade allies, as customers make their contractors aware of the program.

The trade allies stated they would benefit from receiving additional program literature and promotional materials from PG and NSG to help them better market the program to their customers. Many trade allies are currently using their own marketing material, but felt that utility materials, especially promotional materials that explain the financial benefits of high efficiency equipment or contain payback calculators, may be more effective.

Program Characteristics and Barriers

When asked about potential barriers to participation, the main barrier cited by both the participants and the trade allies was the perceived burdensome nature of the applications process, followed by the program itself being too complicated. Several trade allies also expressed that they are providing large amounts of assistance to program participants to ensure that their applications are processed correctly, because the program and application process are too complicated for their customers. Navigant suggests that steps be taken to simplify the application process, and that additional application support be provided to customers, to help alleviate the additional work done by trade allies.

In addition to simplifying the application process, the area that could most be improved to create a more effective program for customers and trade allies would be to increase the amount of information available to both participants and trade allies. The trade allies expressed a desire for increased communication between themselves and the program implementation staff, especially when changes are made to the program.

Overall, the program participants report being satisfied with the RPR program. They reported being highly satisfied with the work done by their contractors, which implies that PG and NSG are attracting high quality trade allies to the program, which is essential to continued program success. The trade allies also report being highly satisfied with the experience with the program itself, and that they perceived their customers as also being satisfied with their program experiences.

Administration and Delivery

The evaluation team found that the RPR program had a strong foundation in its first year. Our benchmarking of the program against national best practice standards for similar residential prescriptive HVAC programs found that the program is doing excellent in most Program Design and Structure, Quality Control and Verification, and Data Reporting and Tracking criteria.

Franklin Energy established sufficient verification and due diligence processes to ensure project eligibility criteria were met and that applications were backed with proper supporting documentation. The operations manual for the entire residential and commercial portfolios laid out process and QA/QC plans for all programs including this one. Our in-depth interview with the implementation program manager confirmed that key performance indicator goals established in the manual were being put into practice in the program and that quality assurance and verification procedures were being followed as well. A process diagram for the program as related to the implementation of the program may help identify areas for improvement and tracking system data entry differentiation from other programs.

Clear QA/QC procedures are outlined in the operations manual for conducting pre- and post-inspections, and forms are standardized. About 8% of projects were marked as "post-inspection required" in the tracking system extract and 6% of projects had completed post-inspections, fulfilling the goal of inspecting at least 5% of projects. However, the tracking system did not have any data on inspection findings, and thus the evaluation team recommends incorporating some findings tracking into the tracking system. Furthermore, the operations manual did not outline procedures for dealing with situations where inspection findings are problematic. The team recommends establishing clear procedures for resolving inspection issues, including procedures for talking with contractors to resolve problems.

4. Findings and Recommendations

4.1 *Key Impact Findings and Recommendations*

The primary impact findings and recommendations are as follows:

- The verified gross savings shown in Table 4-1 recognizes that gas measures covered by the State of Illinois Technical Reference Manual (TRM) are deemed for evaluation purposes in GPY1. The evaluation research findings NTG ratio is 0.67 for NSG, and 0.72 for PG. NSG greatly exceeded its goal of 67,471, while PG fell short of its goal of 404,499.

Table 4-1. GPY1 Natural Gas Savings Estimates

Category	Peoples Gas Energy Savings (Therms)	North Shore Gas Energy Savings (Therms)
Ex-Ante Gross	216,289	156,724
Ex-Ante Net	111,853	80,683
Verified Gross	216,191	156,705
Research Findings Net	**155,658**	**104,992**
Net Goal	404,499	67,471
Percent Goal Achieved	38%	156%

Source: Navigant analysis.

Finding: The current database does not collect information on the rated efficiency (annual fuel utilization efficiency or AFUE) of rebated equipment. This forces PG and NSG to use the default AFUE for high-efficiency units for both boilers and furnaces.

- **Recommendation:** Using the actual rated efficiency of each unit installed would allow PG and NSG to more accurately tabulate savings from these measures, especially for furnaces. This has the potential to increase claimed savings for furnaces, where the default AFUE is set to the minimum qualifying efficiency for the measure. Tracking actual AFUE will allow the utility to claim additional savings for units well above the qualifying efficiency. For this reason, Navigant recommends that PG and NSG track installed efficiency for all furnaces and boilers.

Finding: The algorithm for boiler reset controls incorrectly uses the TRM boiler heating load as boiler consumption.

- **Recommendation**: Navigant recommends accounting for boiler efficiency in this algorithm as well as reducing the savings factor to a more conservative value of 5% as discussed in Section 3.1.3. This will increase the accuracy of the boiler reset control default savings until this measure is deemed by the Illinois TRM.

4.2 Key Process Findings and Recommendations

The primary process findings and recommendations are as follows:

Finding: The program participants are satisfied with the program and the incentive they received. The primary reason that customers chose to participate in the program was to lower their energy bills. There were some who felt that the paperwork associated with the program was too burdensome, and that there was not enough information provided to them about the program.

- **Recommendation**: PG and NSG should work with trade allies to simplify the rebate procedure. PG and NSG should also consider implementing an "instant rebate" feature, where trade allies can offer incentive directly to consumers at the time of purchase, lowering their initial purchasing price. PG and NSG should also consider adding additional information to their website and program literature to provide trade allies and customers with additional information about which equipment models are eligible for the program rebate.

Finding: The trade allies are the primary method of program promotion and were very influential in promoting program participation and the adoption of high efficiency technologies. There are opportunities for additional program promotion directly to customers and to provide more promotional literature to trade allies.

- **Recommendation**: PG and NSG should work with trade allies to develop promotional literature that can be used by trade allies to promote the program to their customers, both at the time of purchase and before. PG and NSG should consider increasing the amount of promotion that they do directly to customers.

Finding: Trade allies play an important role in both program promotion and in providing application assistance to their customers. If trade allies are to remain one of the primary methods of program promotion, then it is important to maintain their support and participation.

- **Recommendation**: Given the important role of the trade allies, Navigant suggests that PG and NSG create an additional incentive or recognition for the trade allies who participate in the program.

5. Appendix

5.1 Glossary

ComEd, Nicor, Peoples Gas, and North Shore Gas EM&V Reporting Glossary. January 10, 2013

High Level Concepts

Program Year

- EPY1, EPY2, etc. Electric Program Year where EPY1 is June 1, 2008 to May 31, 2009, EPY2 is June 1, 2009 to May 31, 2010, etc.
- GPY1, GPY2, etc. Gas Program Year where GPY1 is June 1, 2011 to May 31, 2012, GPY2 is June 1, 2012 to May 31, 2013.

There are two main tracks for reporting impact evaluation results, called Verified Savings and Impact Evaluation Research Findings.

Verified Savings composed of

- Verified Gross Energy Savings
- Verified Gross Demand Savings
- Verified Net Energy Savings
- Verified Net Demand Savings

These are savings using deemed savings parameters when available and after evaluation adjustments to those parameters that are subject to retrospective adjustment for the purposes of measuring savings that will be compared to the utility's goals. Parameters that are subject to retrospective adjustment will vary by program but typically will include the quantity of measures installed. In EPY4/GPY1 ComEd's deemed parameters were defined in its filing with the ICC. The Gas utilities agreed to use the parameters defined in the TRM, which came into official force for EPY5/GPY2.

Application: When a program has deemed parameters then the Verified Savings are to be placed in the body of the report. When it does not (e.g., Business Custom, Retrocommissioning), the evaluated impact results will be the Impact Evaluation Research Findings.

Impact Evaluation Research Findings composed of

- Research Findings Gross Energy Savings
- Research Findings Gross Demand Savings
- Research Findings Net Energy Savings
- Research Findings Net Demand Savings

These are savings reflecting evaluation adjustments to any of the savings parameters (when supported by research) regardless of whether the parameter is deemed for the verified savings analysis. Parameters that are adjusted will vary by program and depend on the specifics of the research that was performed during the evaluation effort.

Application: When a program has deemed parameters then the Impact Evaluation Research Findings are to be placed in an appendix. That Appendix (or group of appendices) should be labeled

Impact Evaluation Research Findings and designated as "ER" for short. When a program does not have deemed parameters (e.g., Business Custom, Retrocommissioning), the Research Findings are to be in the body of the report as the only impact findings. (However, impact findings may be summarized in the body of the report and more detailed findings put in an appendix to make the body of the report more concise.)

Program-Level Savings Estimates Terms

N	Term Category	Term to Be Used in Reports‡	Application†	Definition	Otherwise Known As (terms formerly used for this concept)§
1	Gross Savings	Ex-ante gross savings	Verification and Research	Savings as recorded by the program tracking system, unadjusted by realization rates, free ridership, or spillover.	Tracking system gross
2	Gross Savings	Verified gross savings	Verification	Gross program savings after applying adjustments based on evaluation findings for only those items subject to verification review for the Verification Savings analysis	Ex post gross, Evaluation adjusted gross
3	Gross Savings	Verified gross realization rate	Verification	Verified gross / tracking system gross	Realization rate
4	Gross Savings	Research Findings gross savings	Research	Gross program savings after applying adjustments based on all evaluation findings	Evaluation-adjusted ex post gross savings
5	Gross Savings	Research Findings gross realization rate	Research	Research findings gross / ex-ante gross	Realization rate
6	Gross Savings	Evaluation-Adjusted gross savings	Non-Deemed	Gross program savings after applying adjustments based on all evaluation findings	Evaluation-adjusted ex post gross savings
7	Gross Savings	Gross realization rate	Non-Deemed	Evaluation-Adjusted gross / ex-ante gross	Realization rate
1	Net Savings	Net-to-Gross Ratio (NTGR)	Verification and Research	1 – Free Ridership + Spillover	NTG, Attribution
2	Net Savings	Verified net savings	Verification	Verified gross savings times NTGR	Ex post net
3	Net Savings	Research Findings net savings	Research	Research findings gross savings times NTGR	Ex post net
4	Net Savings	Evaluation Net Savings	Non-Deemed	Evaluation-Adjusted gross savings times NTGR	Ex post net
5	Net Savings	Ex-ante net savings	Verification and Research	Savings as recorded by the program tracking system, after adjusting for realization rates, free ridership, or spillover and any other factors the program may choose to use.	Program-reported net savings

‡ "Energy" and "Demand" may be inserted in the phrase to differentiate between energy (kWh, Therms) and demand (kW) savings.

† **Verification** = Verified Savings; **Research** = Impact Evaluation Research Findings; **Non-Deemed** = impact findings for programs without deemed parameters. We anticipate that any one report will either have the first two terms or the third term, but never all three.
§ Terms in this column are not mutually exclusive and thus can cause confusion. As a result, they should not be used in the reports (unless they appear in the "Terms to be Used in Reports" column).

Individual Values and Subscript Nomenclature

The calculations that compose the larger categories defined above are typically composed of individual parameter values and savings calculation results. Definitions for use in those components, particularly within tables, are as follows:

Deemed Value – a value that has been assumed to be representative of the average condition of an input parameter and documented in the Illinois TRM or ComEd's approved deemed values. Values that are based upon a deemed measure shall use the superscript "D" (e.g., delta watts^{D}, HOU-Residential^{D}).

Non-Deemed Value – a value that has not been assumed to be representative of the average condition of an input parameter and has not been documented in the Illinois TRM or ComEd's approved deemed values. Values that are based upon a non-deemed, researched measure or value shall use the superscript "E" for "evaluated" (e.g., delta watts^{E}, HOU-Residential^{E}).

Default Value – when an input to a prescriptive saving algorithm may take on a range of values, an average value may be provided as well. This value is considered the default input to the algorithm, and should be used when the other alternatives listed for the measure are not applicable. This is designated with the superscript "DV" as in X^{DV} (meaning "Default Value").

Adjusted Value – when a deemed value is available and the utility uses some other value and the evaluation subsequently adjusts this value. This is designated with the superscript "AV" as in X^{AV}

Glossary Incorporated From the TRM

Below is the full Glossary section from the TRM Policy Document as of October 31, 2012[9].

Evaluation: Evaluation is an applied inquiry process for collecting and synthesizing evidence that culminates in conclusions about the state of affairs, accomplishments, value, merit, worth, significance, or quality of a program, product, person, policy, proposal, or plan. Impact evaluation in the energy efficiency arena is an investigation process to determine energy or demand impacts achieved through the program activities, encompassing, but not limited to: *savings verification*, *measure level research*, and *program level research*. Additionally, evaluation may occur outside of the bounds of this TRM structure to assess the design and implementation of the program.

Synonym: **Evaluation, Measurement and Verification (EM&V)**

[9] IL-TRM_Policy_Document_10-31-12_Final.docx

Measure Level Research: An evaluation process that takes a deeper look into measure level savings achieved through program activities driven by the goal of providing Illinois-specific research to facilitate updating measure specific TRM input values or algorithms. The focus of this process will primarily be driven by measures with high savings within Program Administrator portfolios, measures with high uncertainty in TRM input values or algorithms (typically informed by previous savings verification activities or program level research), or measures where the TRM is lacking Illinois-specific, current or relevant data.

Program Level Research: An evaluation process that takes an alternate look into achieved program level savings across multiple measures. This type of research may or may not be specific enough to inform future TRM updates because it is done at the program level rather than measure level. An example of such research would be a program billing analysis.

Savings Verification: An evaluation process that independently verifies program savings achieved through prescriptive measures. This process verifies that the TRM was applied correctly and consistently by the program being investigated, that the measure level inputs to the algorithm were correct, and that the quantity of measures claimed through the program are correct and in place and operating. The results of savings verification may be expressed as a program savings realization rate (verified ex post savings / ex ante savings). Savings verification may also result in recommendations for further evaluation research and/or field (metering) studies to increase the accuracy of the TRM savings estimate going forward.

Measure Type: Measures are categorized into two subcategories: custom and prescriptive.

Custom: Custom measures are not covered by the TRM and a Program Administrator's savings estimates are subject to retrospective evaluation risk (retroactive adjustments to savings based on evaluation findings). Custom measures refer to undefined measures that are site specific and not offered through energy efficiency programs in a prescriptive way with standardized rebates. Custom measures are often processed through a Program Administrator's business custom energy efficiency program. Because any efficiency technology can apply, savings calculations are generally dependent on site-specific conditions.

Prescriptive: The TRM is intended to define all prescriptive measures. Prescriptive measures refer to measures offered through a standard offering within programs. The TRM establishes energy savings algorithm and inputs that are defined within the TRM and may not be changed by the Program Administrator, except as indicated within the TRM. Two main subcategories of prescriptive measures included in the TRM:

Fully Deemed: Measures whose savings are expressed on a per unit basis in the TRM and are not subject to change or choice by the Program Administrator.

Partially Deemed: Measures whose energy savings algorithms are deemed in the TRM, with input values that may be selected to some degree by the Program Administrator, typically based on a customer-specific input.

In addition, a third category is allowed as a deviation from the prescriptive TRM in certain circumstances, as indicated in Section 3.2:

> **Customized basis:** Measures where a prescriptive algorithm exists in the TRM but a Program Administrator chooses to use a customized basis in lieu of the partially or fully deemed inputs. These measures reflect more customized, site-specific calculations (e.g., through a simulation model) to estimate savings, consistent with Section 3.2.

5.2 *Detailed impact results*

5.2.1 Detailed NTG Calculations

Participant Free-ridership

In order to calculate participant free-ridership using data obtained from the participant interviews, the program participants were asked the likelihood that they would have purchased the high efficiency equipment had the program been unavailable, and the importance of the program on their decision.

If the customer did not have specific plans to install the program measure prior to participation, the qualifying measure was considered "early replacement", and free-ridership is estimated to be zero.

If the installation was not an early replacement, then the first of two equations is used:

$$FR = \frac{LIKELIHOOD * \left(1/3\right) + (10 - IMPORTANCE) * \left(2/3\right)}{10}$$

Else, if the participant had specific plans to install equipment and the likelihood score was greater than 3:

$$FR = \frac{\frac{(LIKELIHOOD + TIMING)}{2} * \left(1/3\right) + (10 - IMPORTANCE) * \left(2/3\right)}{10}$$

Where:

LIKELIHOOD = On a 0 to 10 scale, with 0 being not at all likely and 10 being very likely, how likely is it that you would have installed <MEASURE> if you had not received an incentive from the program? (LIKELIHOOD, 0-10)

IMPORTANCE = There may have been several reasons for the installation of the <MEASURE>, but the program was a critical factor in my decision to have the <MEASURE> installed. (IMPORTANCE, 0-10)

TIMING = I would have installed <MEASURE> within a year of when I did, if I had not received an incentive from the program. (TIMING, 0-10)

Trade Ally Perspective of Participant Free-ridership

To calculate participant free-ridership using data obtained from the trade ally interviews, the trade allies were asked the likelihood that they would have sold the same volume of high efficiency equipment had the program been unavailable, and the importance of the program incentive and the program educational and marketing materials on the participants' decision to select equipment with higher levels of efficiency.

$$FR = \frac{LIKELIHOOD * (1/3) + [10 - MAX\ INFLUENCE(Program\ Incentive, Program\ Materials)] * (2/3)}{10}$$

Trade Ally Spillover

To calculate participant free-ridership using data obtained from the trade ally interviews, the trade allies were asked to estimate approximately what percentage of qualifying equipment was purchased by non-program participants, and the influence their own recommendations and the program materials had on their customers' decisions to purchase high efficiency equipment.

$$SO = \%NonPart\ HE\ Purch * MAX\ INFLUENCE(TA\ Recommendation, Program\ Materials)$$

5.3 TRM Recommendations

The TRM does not provide a building type option for multifamily housing for boiler and furnace measures, the assumed application for commercial-scale units rebated through the residential program. Implementers use the "Unknown" building EFLH given the limitations of the TRM deemed options. Future editions of the TRM should provide an estimate of EFLH for the multifamily building type.

5.4 Detailed process results

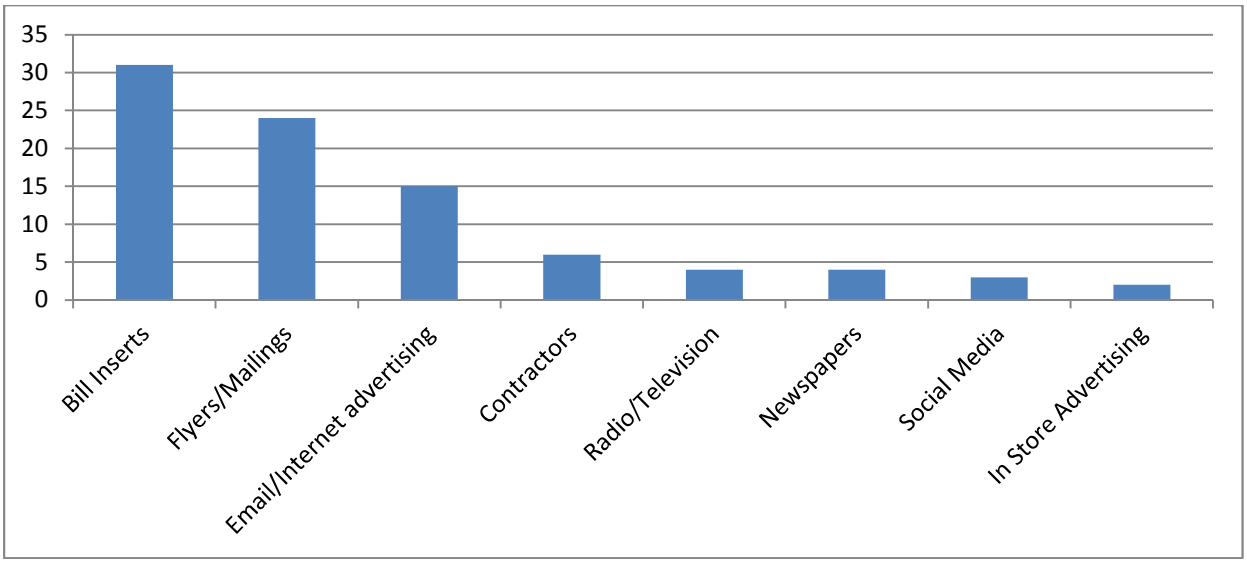
5.4.1 North Shore Gas Detail Process Results

Participant Survey Results

When asked how they first heard about the Residential Prescriptive Rebate program, a majority (68%) of the participants stated that they first heard of the program through their contractor. The next most common methods that participants first heard of the program were NSG Bill Inserts (9%) and media advertisements (8%). Two respondents replied that they first heard of the program through their real estate agents, which was unique to NSG participants.

The survey respondents were asked what methods they thought NSG could employ to reach out to customers to encourage them to participate in the program. The most commonly cited method was bill inserts, with 35% of respondents mentioning it, followed by direct mailing, and email or internet advertising. All of the suggested methods are presented in Figure 5-1.

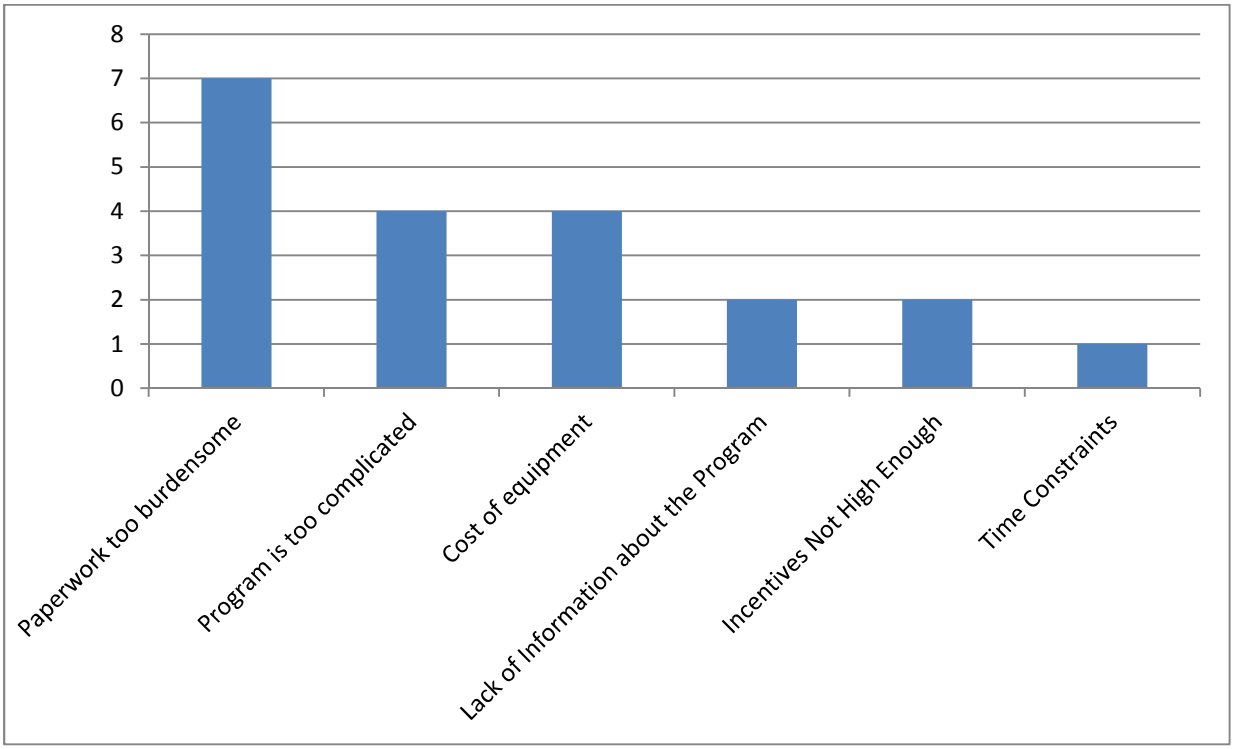
Figure 5-1: Suggested Methods of Customer Outreach



Source: Navigant analysis of CATI data.

When asked about any potential barriers that customers may face that would prevent customers from participating in the program in the future, most of the respondents could not cite any specific potential barriers, however, among those who did, the most commonly cited potential barriers were that the paperwork may be too burdensome, and that the program is too complicated. Several respondents mentioned that they did not feel that they had enough information about the program. This suggests that there is some room for improvement in both educating the participating trade allies to ensure that they can explain the program to potential participants, and that there may be an opportunity for NSG to provide additional literature to help customers understand the program better. Also mentioned were that the incentives may not be high enough, and the program deadlines were also mentioned as a potential barrier to participation.

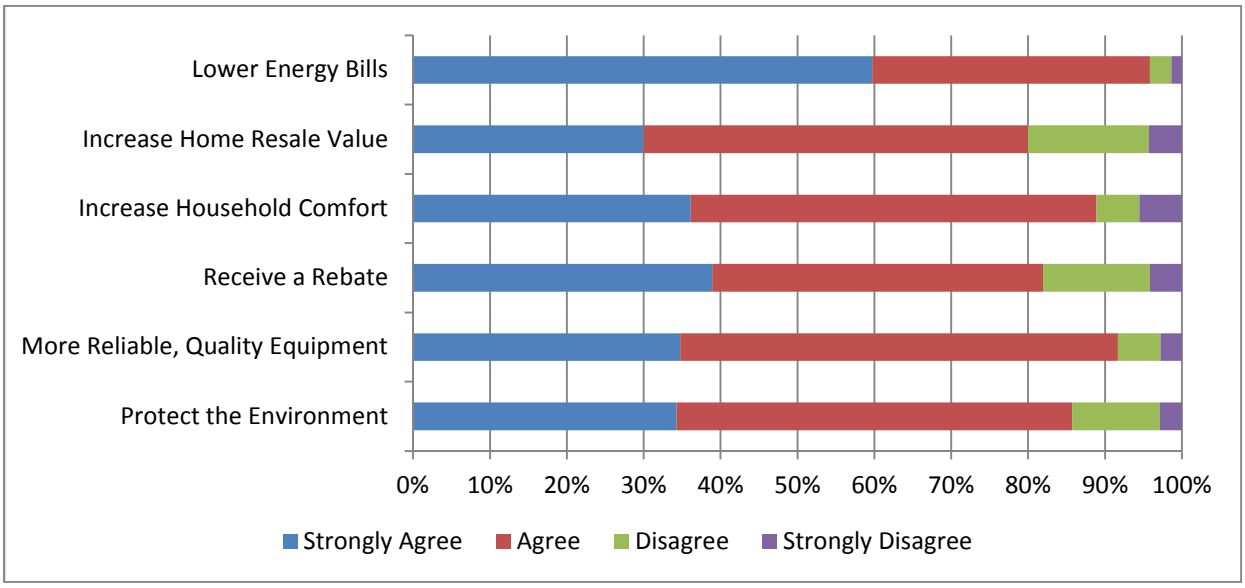
Figure 5-2: Potential Barriers to Participation



Source: Navigant analysis of CATI data.

Program participants were also asked about their reasons for participating in the program. Survey respondents were asked if they strongly agreed, agreed, disagreed, or strongly disagreed that a potential reason to participate influenced their decision to participate in the program. The most highly agreed with reason for participation was to lower energy bills. Well over half (60%) of respondents strongly agreed that lowering energy bills was a reason for them to participate in the program, and an additional 36% of respondents agreed that it was a reason for their decision to participate in the program.

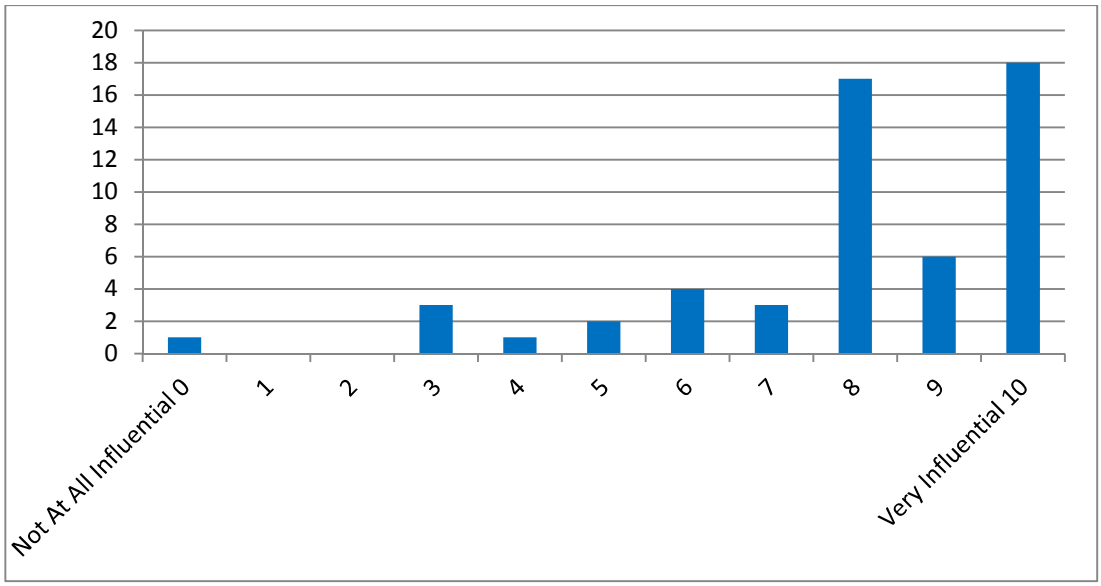
Figure 5-3: Reasons for Participation



Source: Navigant analysis of CATI data.

The program participants were asked about how influential their trade ally was on their decision to participate in the program. When rated on a scale from zero-to-ten, where zero is rated "not at all influential" and ten is rated "very influential", the average score given was a 7.3. The responses given reveal that three-quarters (75%) of participants rated the influence of the trade ally at greater than seven. Furthermore, a third of participants ranked the influence of their trade ally at "highly influential", with a rating of ten. Only two percent of participants reported that the trade ally had no influence on their decision to participate at all, and rated the influence of the trade ally at zero. This suggests that the trade allies are highly instrumental in spurring participation in the program, and the adoption of higher efficiency measures in their customers. It also suggests that there is additional room for NSG to promote the benefits of the program and of high efficiency technologies directly to customers. Figure 5-4 presents the distribution of the rating.

Figure 5-4: Influence of Trade Ally on Decision to Participate



Source: Navigant analysis of CATI data.

Table 5-1 presents the results of the participant survey on their satisfaction with the program sub-processes. As before, participants were asked to rate their level of satisfaction on a zero-to-ten scale, where zero meant "not all at satisfied" and ten meant "very satisfied". As can be seen, the areas that receive the highest levels of satisfaction were the quality of work completed by the contractor and the performance of the measure installed. This suggests that the contractors who are opting to participate in the program are of high quality, and perform high quality work, and that they are promoting and selling high quality equipment to their customers. Two areas where there appear to be opportunities for additional growth include the information participants received prior to program participation and the program website. This suggests that there are opportunities for NSG to provide additional information about the program and its benefits to customers before they speak to a contractor.

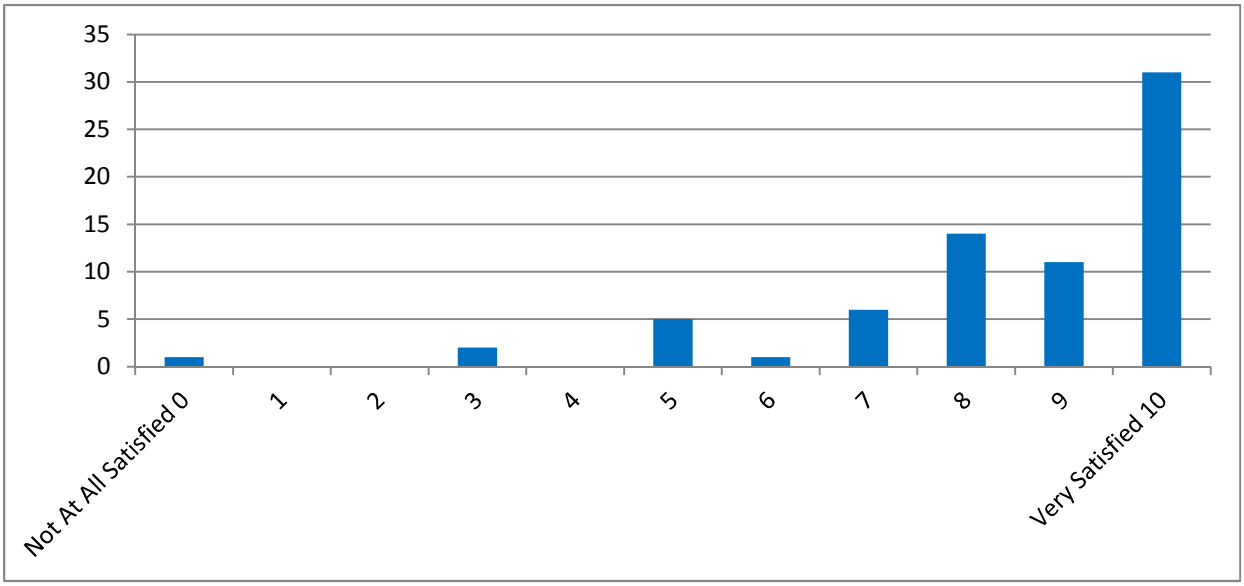
Table 5-1: Satisfaction with Program Sub-Process

	Mean Score	Median Score	Percent of Responses Greater than 7	Percent of Responses Less than 4	n
Program Information Received Before Participation	7.0	8	56%	12%	57
The Application Process	8.2	8	76%	6%	67
The Phone Staff at NSG	8.3	9	78%	5%	37
The Program Website	7.5	8	66%	13%	32
The Rebate Deliver Speed	8.2	9	71%	5%	66
The Quality of Work by the Contractor	9.3	10	99%	0%	68
The Performance of the Installed Measure	9.5	10	100%	0%	67

Source: Navigant analysis of CATI data.

Program participants were asked about their overall satisfaction with the program, on a scale from zero-to-ten, where zero means "not at all satisfied" and ten means "very satisfied". The average overall satisfaction score was an 8.5. The vast majority (79%) of program participants rated their satisfaction with the program at greater than seven. Only one participant rated their overall satisfaction at a zero, and when asked what their reasons were, replied that their initial application was rejected by the program, and that they had to appeal to the Illinois Commerce Commission. This suggests again that there is opportunity to provide additional information to customers before they participate to ensure that confusion is minimized. When other low-rating participants were asked the reasons for their level of satisfaction, the most commonly cited reasons was difficulties with the application process, and the perceived burdensome nature of the application process in general.

Figure 5-5: Overall Satisfaction with the Program Experience



Source: Navigant analysis of CATI data.

When asked if there was anything that the program did particularly well, many of the participants expressed that they were generally pleased with the program, and several mentioned that they were happy to have received a rebate from the program, especially because furnaces and boilers tend to be "large ticket" items to purchase. Several respondents also mentioned that they were impressed with the speed at which they received the rebate. When asked what could be done to improve the program, the most commonly cited suggestion was to simplify the application process, followed by increasing the rebate amount. Several participants mentioned that they felt that the program could benefit from greater publicity, and that they themselves were not aware of the program or the incentive until it was brought up by their contractor.

Slightly more than half (51%) of survey participants reported that they had recommended the Residential Prescriptive Rebate program to someone outside of their household. When asked how many people they had recommended the program to, the average response was 4 people outside of their household. The most commonly cited number of people they had recommended the program to was two. More than half of respondents (53%) who had recommended the program stated that they had recommended the program to three or fewer people, and 22% stated that they had recommended the program to more than five people. When those who had not already recommended the program to others outside their household were asked if they would recommend it, 97% of respondents replied in the affirmative.

Trade Ally Survey Results

Thirty trade ally surveys were conducted, and a majority (57%) of trade allies stated that they worked in both the PG and NSG territories. When the trade allies who worked in *both service territories* were asked if there is any difference in their experiences between the two territories, less than one-third (29%) replied that there was a difference, but when asked to elaborate, the only difference noted was that the incentives levels differed between the utilities. Because of these results, and because of the difficulty in finding trade allies who work exclusively in North Shore Gas territory, the results include trade allies who reported working exclusively in North Shore Gas territory (8 trade allies) and in both Peoples and North Shore territories (17 trade allies).

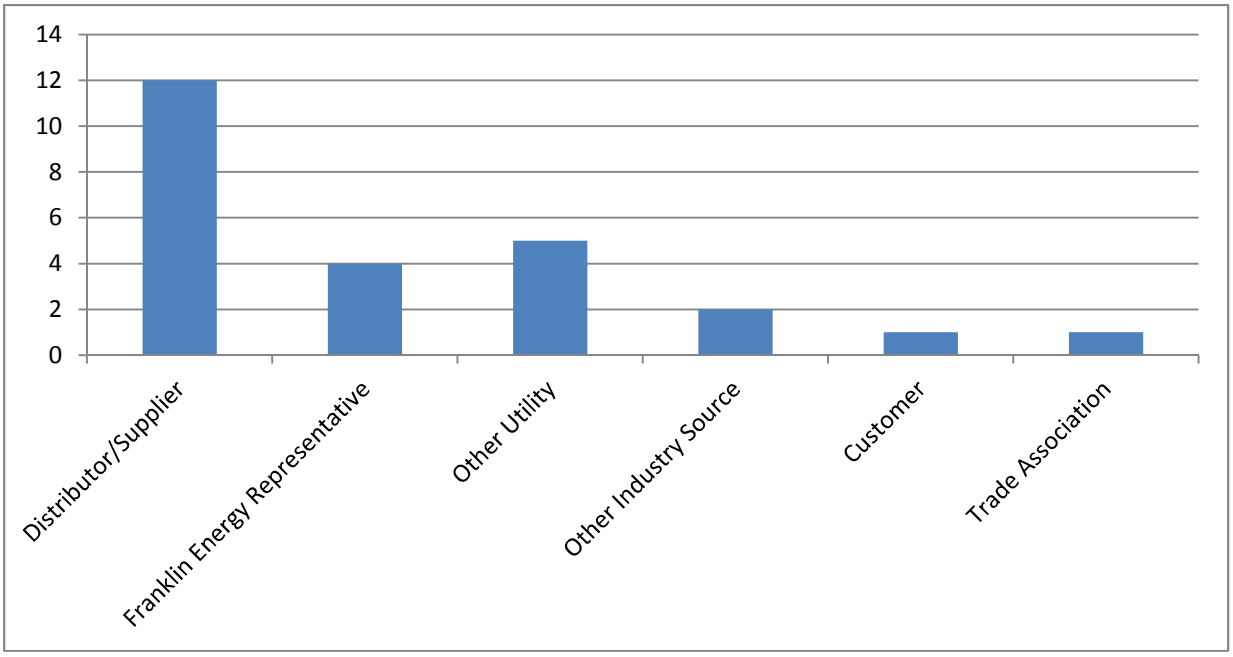
When asked how they marketed the Residential Prescriptive Rebate program to their customers, approximately half of the trade allies stated that they primarily relied upon explaining the rebate to the customer at the time of purchase, many either used flyers or mailers that they themselves created, or sent out emails to customers advertising the program. When asked what the most effective method of program promotion was, over two-thirds of the trade allies stated that explaining the program to customers at the time of purchase was the most effective. Several trade allies mentioned that additional marketing material from NSG that they could provide to their customers would be beneficial, especially materials that explained the financial benefits of high efficiency equipment.

When asked how effectively NSG promoted the program to its residential customers, on a scale from zero–to-ten, where zero stands for "not promoted" and ten means "very well promoted", the average rating given was 7.5, and 40% of respondents rated North Shore Gas' promotion efforts at greater than seven. When those who did not feel that the program was being adequately advertised were asked what NSG could do to better promote the program, trade allies mentioned using bill inserts, and increasing television and radio advertising.

The trade allies surveyed were asked what the most significant barrier to participation their customers experienced was. The most commonly given answer was the additional cost associated with more efficient units. The next most common answer was a lack of awareness of the program and its associated incentives.

When trade allies were asked how they themselves became aware of the program, almost half (48%) mentioned that they first heard of the program through their equipment distributor or supplier, making that the most common response. Next most common response was that the trade ally was first informed about the program by a Franklin Energy representative, with 16% of responses.

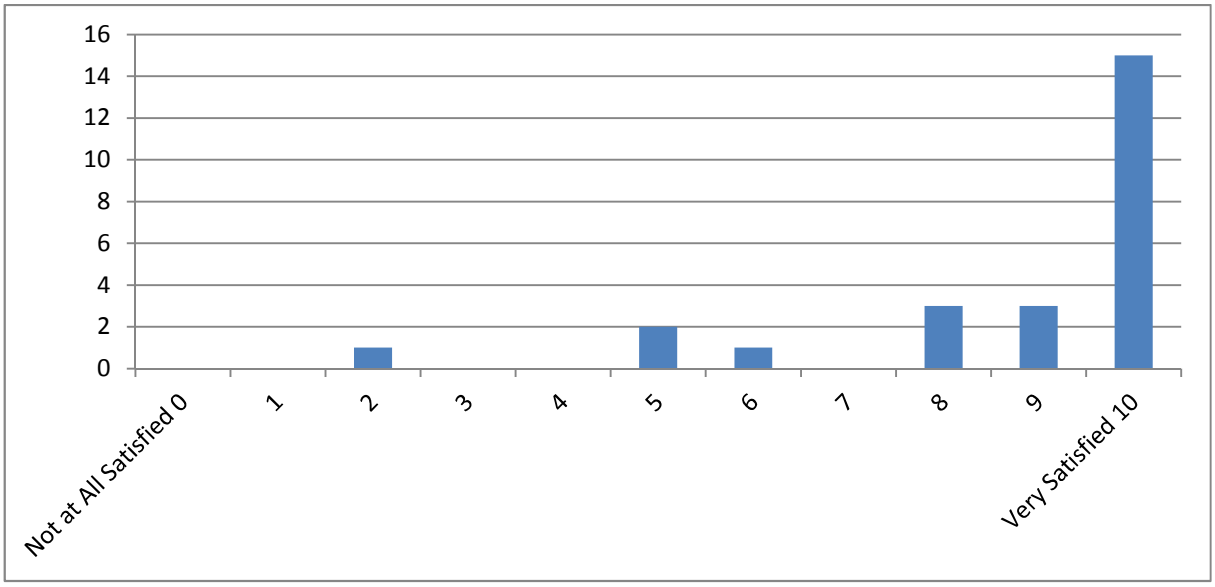
Figure 5-6: Method of Trade Ally Program Awareness



Source: Navigant analysis of CATI data.

The trade allies were asked both about their own levels of satisfaction with the RPR program, and their customers' perceived levels of satisfaction with the program. Trade allies were asked to rate their own levels of satisfaction with the program on a scale from zero-to-ten, where zero is "not at all satisfied" and ten is "very satisfied". The average satisfaction score given was an 8.8 and 84% of trade allies reported having satisfaction levels of higher than 7. The distribution of trade ally satisfaction is presented in Figure 5-7. When those trade allies with satisfaction scores of less than 5 were asked what their reasons were, the all answered that the program application paperwork and process was too complicated, both for themselves and for their customers.

Figure 5-7: Overall Trade Ally Satisfaction with the Program Experience



Source: Navigant analysis of CATI data.

Table 5-2 presents the trade ally satisfaction with the program sub-processes. The trade allies were once again asked to rate their satisfaction on a zero-to-ten scale, where zero is "not at all satisfied" and ten is "very satisfied". As can be seen, the area with the lowest level of satisfaction was the promotional materials and marketing efforts by NSG. Several contractors expressed that they felt that the efforts to promote the program directly to customers could be expanded, and that they would benefit from additional materials to assist them in promoting the program to their customers.

Table 5-2: Trade Ally Satisfaction with Program Sub-Process

	Mean Score	Median Score	Percent of Responses Greater than 7	Percent of Responses Less than 4	n
Promotional Materials and Marketing Efforts by NSG	8.1	9	63%	4%	24
Application Form and Process	8.4	9	72%	0%	25
Brands and Models of Equipment Covered by Program	9.3	10	88%	0%	24
Rebate and Incentive Levels	8.9	10	80%	0%	25

Source: Navigant analysis of CATI data.

When the trade allies were asked about the levels of satisfaction that they perceive in their customers, on a scale from zero-to-ten, where zero is "not at all satisfied" and ten is "very

satisfied", the average perceived level of participant satisfaction was 8.6, and 83% of trade allies reported that the level of satisfaction they perceive in their customers was greater than seven. When asked what could be done to increase the participant satisfaction, the most commonly given answer was to simplify the application process, followed by increasing program awareness.

When the trade allies were asked for any suggestions for improving the program, a few trade allies mentioned that they would like to see increased communication between the trade allies and the implementation staff, especially when changes are made to the program. One of the trade allies reported that there was some confusion with customers due to the differences in rebate amounts between the North Shore Gas and Peoples Gas, which could have been alleviated had the trade allies received clearer information about the program from Franklin Energy. The trade allies also mentioned that they would like to check the status of the applications that they have submitted, and that they would like the ability to submit applications on-line.

Navigant suggests that, given the amount of work that trade allies do for the program, in terms of both promotional efforts and assisting customers in applying for the rebates, NSG and should consider some kind of incentive or recognition for the trade allies who participate in the program. If trade allies are to remain one of the primary methods of program promotion, then it is important to maintain their support and participation.

5.4.2 Peoples Gas Detail Process Results

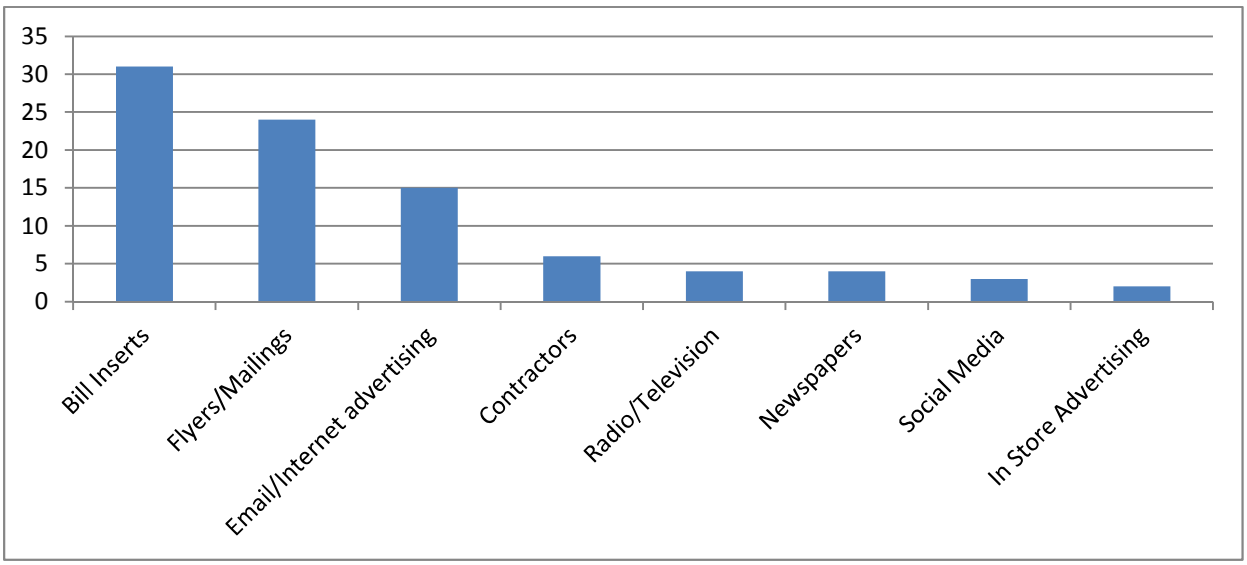
Participant Survey Results

When asked how they first heard about the Peoples Gas Residential Prescriptive Rebate program, a majority (68%) of the participants stated that they first heard of the program through their contractor. The next most common methods that participants first heard of the program were Peoples Gas Bill Inserts (10%) and on the internet (10%). Homeowner's associations and other organizations, including the Historic Chicago Bungalow Association and the Citizens Utility Board, were mentioned by 4% of respondents, which was unique to Peoples Gas.

The survey respondents were asked what methods they thought Peoples Gas could employ to reach out to customers to encourage them to participate in the program. The most commonly cited method was bill inserts, with 35% of respondents mentioning it, followed by direct

mailing, and email or internet advertising. All of the suggested methods are presented in Figure 5-8.

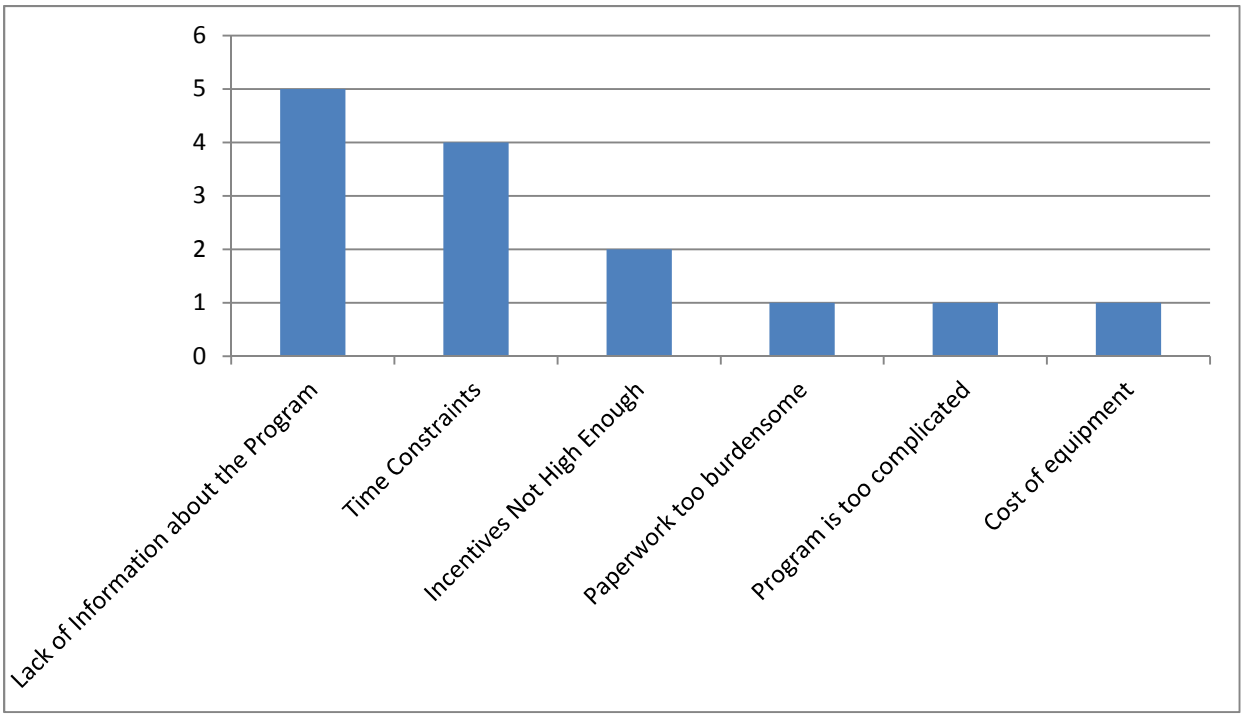
Figure 5-8: Suggested Methods of Customer Outreach



Source: Navigant analysis of CATI data.

When asked about any potential barriers that customers may face that would prevent customers from participating in the program in the future, most of the respondents could not cite any specific potential barriers, however, among those who did, the most commonly cited potential barriers were that the paperwork may be too burdensome, and that the program is too complicated. Several respondents mentioned that they did not feel that they had enough information about the program. This suggests that there is some room for improvement in both educating the participating trade allies to ensure that they can explain the program to potential participants, and that there may be an opportunity for Peoples Gas to provide additional literature to help customers understand the program better. Also mentioned were that the incentives may not be high enough, and the program deadlines were also mentioned as a potential barrier to participation.

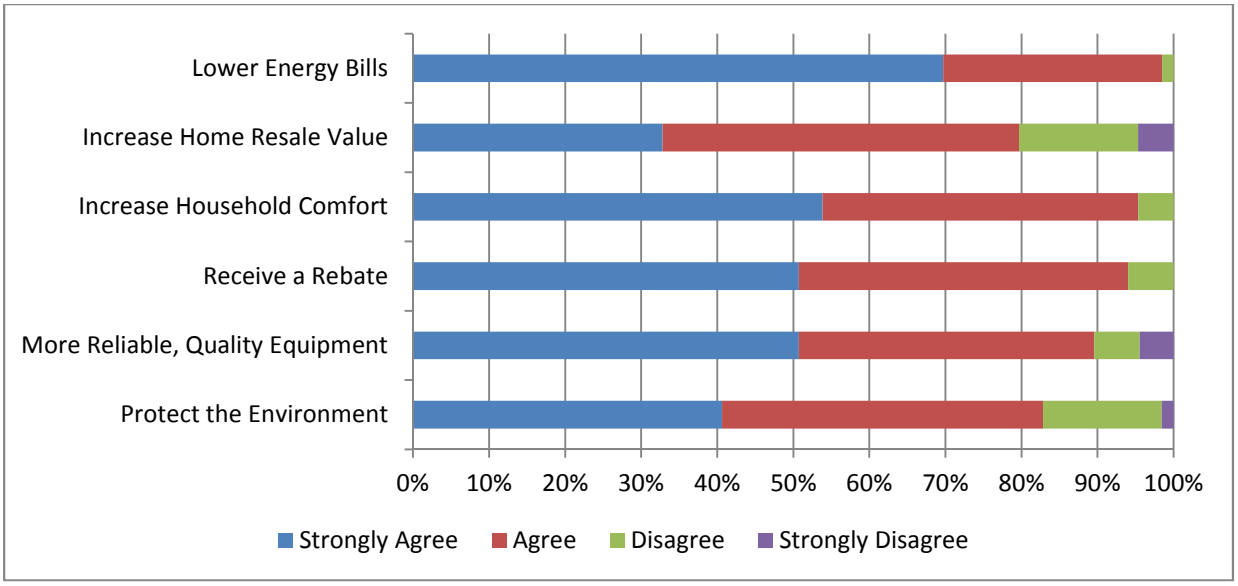
Figure 5-9: Potential Barriers to Participation



Source: Navigant analysis of CATI data.

Program participants were also asked about their reasons for participating in the program. Survey respondents were asked if they strongly agreed, agreed, disagreed, or strongly disagreed that a potential reason to participate influenced their decision to participate in the program. The most highly agreed with reason for participation was to lower energy bills. Over two-thirds (68%) of respondents strongly agreed that lowering energy bills was a reason for them to participate in the program, and an additional 28% of respondents agreed that it was a reason for their participation in the program.

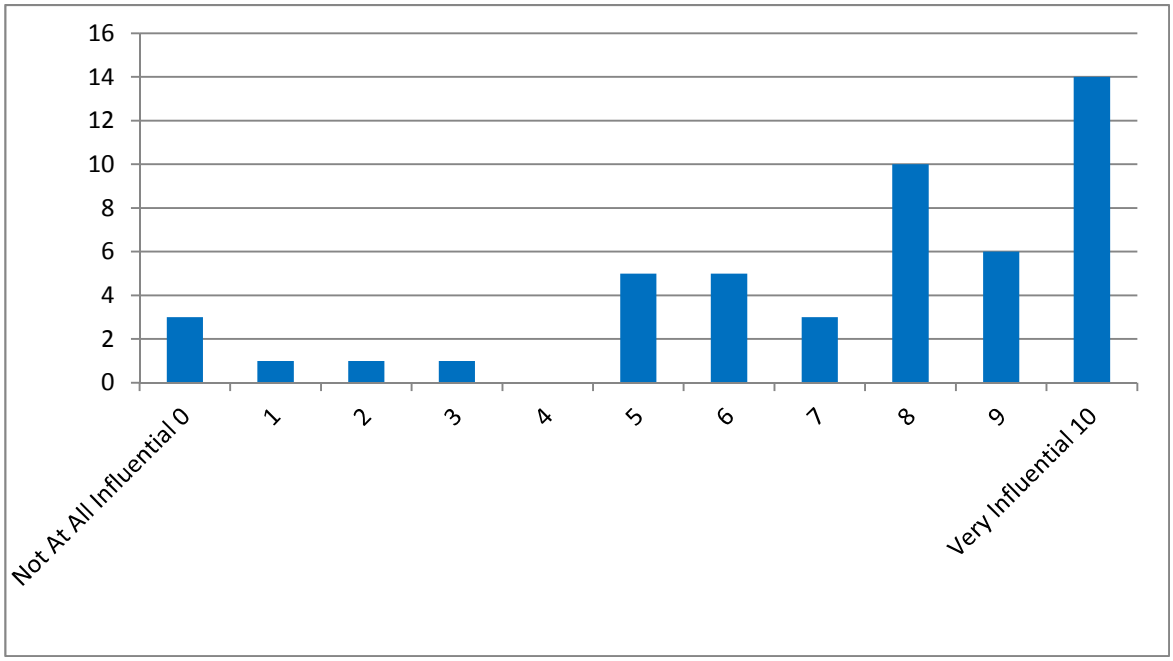
Figure 5-10: Reasons for Participation



Source: Navigant analysis of CATI data.

The program participants were asked about how influential their trade ally was on their decision to participate in the program. When rated on a scale from zero to ten, where zero is rated "not at all influential" and ten is rated "very influential", the average score given was a 7.3. When the distribution of ranking in analyzed, it is revealed that a majority (61%) of participants rated the influence of the trade ally at greater than seven. Furthermore, almost a third (29%) of participants ranked the influence of their trade ally at "highly influential", with a rating of ten. Only six percent of participants reported that the trade ally had no influence on their decision to participate at all, and rated the influence of the trade ally at zero. This suggests that the trade allies are highly instrumental in spurring participation in the program, and the adoption of higher efficiency measures in their customers. It also suggests that there is additional room for Peoples Gas to promote the benefits of the program and of high efficiency technologies directly to customers. Figure 5-11 presents the distribution of the rating.

Figure 5-11: Influence of Trade Ally on Decision to Participate



Source: Navigant analysis of CATI data.

Table 5-3 presents the results of the participant survey on their satisfaction with the program sub-processes. As before, participants were asked to rate their level of satisfaction on a zero to ten scale, where zero meant "not all at satisfied" and ten meant "very satisfied". As can be seen, the areas that receive the highest levels of satisfaction were the quality of work completed by the contractor and the performance of the measure installed. This suggests that the contractors who are opting to participate in the program are of high quality, and perform high quality work, and that they are promoting and selling high quality equipment to their customers. Two areas where there appear to be opportunities for additional growth were the information that participants received before their participation and the program website. This suggests that there are opportunities for Peoples Gas to provide additional information about the program and its benefits to customers before they speak to a contractor.

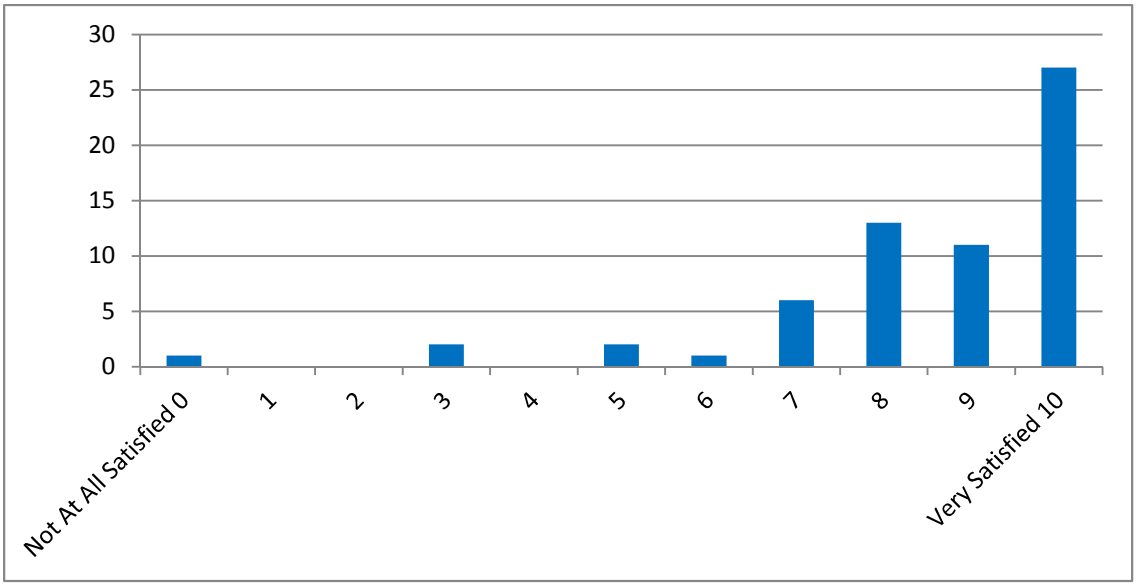
Table 5-3: Satisfaction with Program Sub-Process

	Mean Score	Median Score	Percent of Responses Greater than 7	Percent of Responses Less than 4	n
Program Information Received Before Participation	7.4	8	63%	7%	62
The Application Process	8.2	8	68%	2%	66
The Phone Staff at Peoples Gas	8.4	9	78%	2%	49
The Program Website	7.8	8	53%	2%	38
The Rebate Deliver Speed	8.1	9	70%	2%	67
The Quality of Work by the Contractor	9.3	10	94%	1%	68
The Performance of the Installed Measure	9.5	10	98%	2%	66

Source: Navigant analysis of CATI data.

Program participants were asked about their overall satisfaction with the program, on a scale from zero to ten, where zero means "not at all satisfied" and ten means "very satisfied". The average overall satisfaction score was a 9.2. The nearly all (91%) of program participants rated their satisfaction with the program at greater than seven. No participants rated their overall satisfaction at a zero. When the participant who rated their satisfaction with the program at less than four was asked the reason, they cited confusion with the application process.

Figure 5-12: Overall Satisfaction with the Program Experience



Source: Navigant analysis of CATI data.

When asked if there was anything that the program did particularly well, many of the participants expressed that they were generally pleased with the program, and several mentioned that they were happy to have received a rebate from the program, especially because furnaces and boilers tend to be "large ticket" items to purchase. Several respondents also mentioned that they were impressed with the speed at which they received the rebate. When asked what could be done to improve the program, the most commonly cited suggestion was to simplify the application process, followed by increasing the rebate amount. Several participants mentioned that they felt that the program could benefit from greater publicity, and that they themselves were not aware of the program or the incentive until it was brought up by their contractor.

Two-thirds (66%) of survey participants reported that they had recommended the Residential Prescriptive Rebate program to someone outside of their household. When asked how many people they had recommended the program to, the average response was 4 people outside of their household. The most commonly cited number of people they had recommended the program to was two. More than half of respondents (62%) who had recommended the program stated that they had recommended the program to three or fewer people, and 31% stated that they had recommended the program to more than five people. When those who had not already recommended the program to others outside their household were asked if they would recommend it, all (100%) of respondents replied in the affirmative.

Trade Ally Survey Results

Because of the difficulty previously noted in finding trade allies who work exclusively in Peoples Gas territory, the results include trade allies who reported working exclusively in Peoples Gas territory (5 trade allies) and in both Peoples and North Shore territories (17 trade allies).

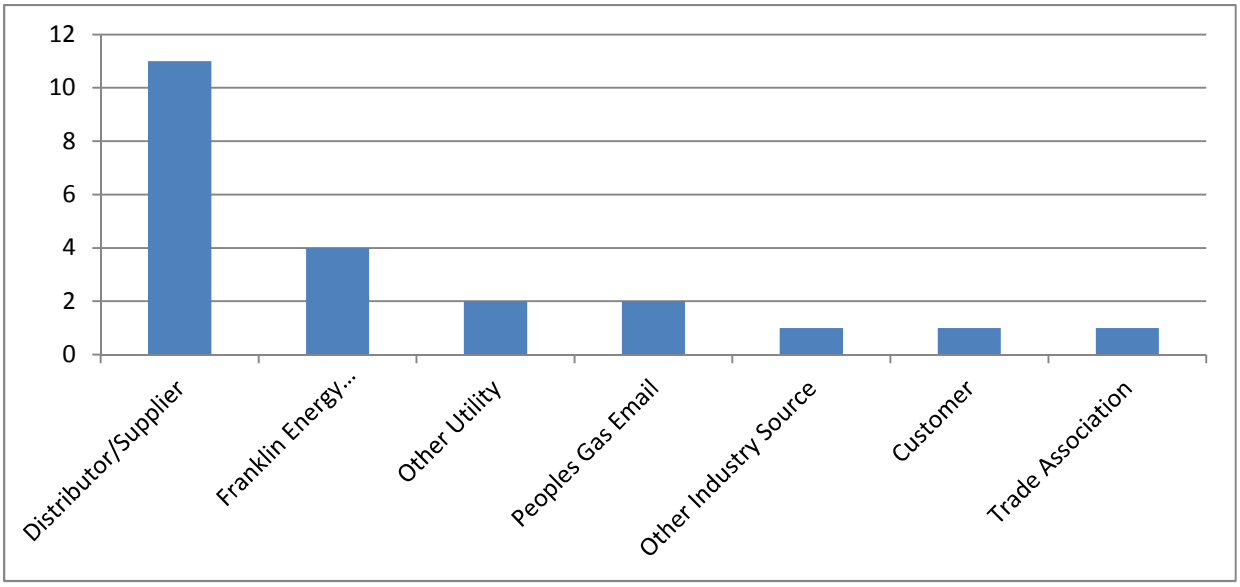
When asked how they marketed the Residential Prescriptive Rebate program to their customers, approximately half of the trade allies stated that they primarily relied upon explaining the rebate to the customer at the time of purchase, many either used flyers or mailers that they themselves created, or sent out emails to customers advertising the program. When asked what the most effective method of program promotion was, over two-thirds of the trade allies stated that explaining the program to customers at the time of purchase was the most effective. Several trade allies mentioned that additional marketing material from Peoples Gas that they could provide to their customers would be beneficial, especially materials that explained the financial benefits of high efficiency equipment.

When asked how effectively Peoples Gas promoted the program to its residential customers, on a scale from zero to 10, where zero stands for "not promoted" and ten means "very well promoted", the average rating given was 7.0, and 35% of respondents rated Peoples Gas' promotion efforts at greater than seven. When those who did not feel that the program was being adequately advertised were asked what Peoples Gas could do to better promote the program, trade allies mentioned using bill inserts, and increasing television and radio advertising.

The trade allies surveyed were asked what the most significant barrier to participation their customers experienced was. The most commonly given answer was the additional cost associated with more efficient units. The next most common answer was a lack of awareness of the program and its associated incentives.

When trade allies were asked how they themselves became aware of the program, half (50%) mentioned that they first heard of the program through their equipment distributor or supplier, making that the most common response. Next most common response was that the trade ally was first informed about the program by a Franklin Energy representative, with 18% of responses.

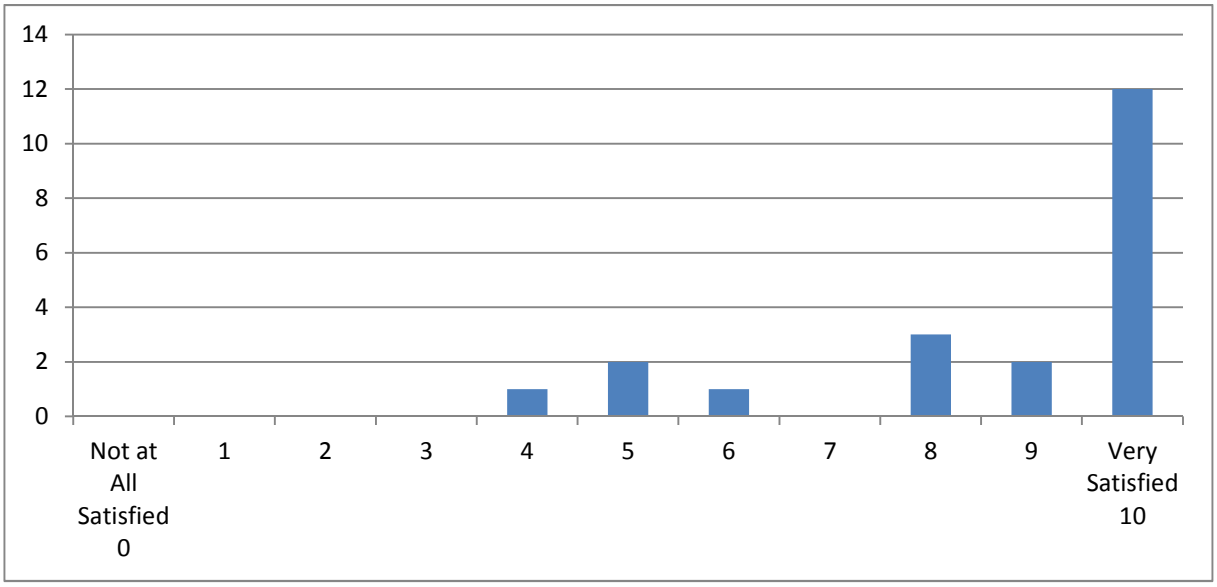
Figure 5-13: Method of Trade Ally Program Awareness



Source: Navigant analysis of CATI data.

The trade allies were asked both about their own levels of satisfaction with the RPR program, and their customers' perceived levels of satisfaction with the program. Trade allies were asked to rate their own levels of satisfaction with the program on a scale from zero to ten, where zero is "not at all satisfied" and ten is "very satisfied". The average satisfaction score given was an 8.6 and 81% of trade allies reported having satisfaction levels of higher than 7. The distribution of trade ally satisfaction is presented in Figure 5-14. When those trade allies with satisfaction scores of less than 5 were asked what their reasons were, they answered that the program paperwork was too complicated, and that Peoples Gas was not promoting the program sufficiently. Also mentioned was that the rebate levels were not high enough.

Figure 5-14: Overall Trade Ally Satisfaction with the Program Experience



Source: Navigant analysis of CATI data.

Table 5-4 presents the trade ally satisfaction with the program sub-processes. The trade allies were once again asked to rate their satisfaction on a zero to ten scale, where zero is "not at all satisfied" and ten is "very satisfied". As can be seen, the area with the lowest level of satisfaction was the promotional materials and marketing efforts by Peoples Gas. Several contractors expressed that they felt that the efforts to promote the program directly to customers could be expanded, and that they would benefit from additional materials to assist them in promoting the program to their customers.

Table 5-4: Trade Ally Satisfaction with Program Sub-Process

	Mean Score	Median Score	Percent of Responses Greater than 7	Percent of Responses Less than 4	n
Promotional Materials and Marketing Efforts by NSG	7.6	8	58%	5%	19
Application Form and Process	8.3	8	68%	0%	22
Brands and Models of Equipment Covered by Program	9.0	10	81%	0%	21
Rebate and Incentive Levels	8.3	9	73%	5%	22

Source: Navigant analysis of CATI data.

When the trade allies were asked about the levels of satisfaction that they perceive in their customers, on a scale from zero to ten, where zero is "not at all satisfied" and ten is "very satisfied", the average perceived level of participant satisfaction was 8.4, and 80% of trade allies reported that the level of satisfaction they perceive in their customers was greater than seven. When asked what could be done to increase the participant satisfaction, a suggestion was to increase the amount of financing available, especially to lower income customers who may currently be ineligible for financing.

When the trade allies were asked for any suggestions for improving the program, a few trade allies mentioned that they would like to see increased communication between the trade allies and the implementation staff, especially when changes are made to the program. One of the trade allies reported that there was some confusion with customers due to the differences in rebate amounts between the North Shore and Peoples Gas, which could have been alleviated had the trade allies received clearer information about the program from Franklin Energy. The trade allies also mentioned that they would like to check the status of the applications that they have submitted, and that they would like the ability to submit applications on-line.

Navigant suggests that, given the amount of work that trade allies do for the program, in terms of both promotional efforts and assisting customers in applying for the rebates, Peoples Gas and Franklin Energy should consider some kind of incentive or recognition for the trade allies who participate in the program. If trade allies are to remain one of the primary methods of program promotion, then it is important to maintain their support and participation.

5.5 *VDDTSR Memo-Final version*

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

CC: **Jennifer Hinman, David Brightwell, ICC**
Sue Nathan, Applied Energy Group
Kevin Grabner, Randy Gunn, Rob Neumann, Navigant, Inc.

From: **Paul Wozniak, Miroslav Lysyuk, and Laura Tabor, Navigant, Inc.**

Date: **May 22, 2012**

RE: Integrys PY1 Residential Prescriptive Rebate Program— Verification and Due Diligence and Program Tracking System Review

Introduction

This document provides the findings from Navigant's verification and due diligence review of quality assurance, program tracking, and eligibility verification procedures used in the Peoples Gas (PG) and North Shore Gas (NSG) Residential Prescriptive Rebate program during program year one (PY1). The main components of this task included in-depth interviews with Franklin Energy implementation staff, database tracking system review, projects and marketing documentation review, and a benchmarking of these activities to industry or national best practices.

Overview of Findings

Navigant's review of the Residential Prescriptive Rebate program documents, tracking database, and interview findings found that:

- Franklin Energy has sufficient verification and due diligence processes set up to insure project eligibility criteria have been met and that applications are backed with supporting documentation.
- Savings are calculated through a deemed savings approach. The evaluation team believes the approach is acceptable, but that deemed savings values may need to be adjusted.
- Project information related to impact calculations were entered in a timely and accurate manner based on program timing and our sample application review. Though there were minor data entry and update errors identified, the evaluation team found no major issues with the impact tracking and calculation process.
- Franklin Energy has key quality assurance and verification activities clearly outlined in its operations manual[10], and according to our Franklin Energy Program Manager interview, they

[10] 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), pages 38 to 51.

are generally being followed. Pre- and post-inspections by Franklin and KEMA are occurring and are required to be documented on standard forms. The tracking system showed evidence of key performance indicator tracking as well, including inspection dates; however we recommend some additional milestone tracking in our findings.

Given the findings, the evaluation team recommends that the implementer consider the following:

- Establishing a data dictionary for the tracking database extract to help streamline evaluation processes and to make using the tracking system and data less prone to error for all parties using it.
- Establishing consistent naming conventions for identical fields across tables in the tracking database. The evaluation team found that key fields that related tables to one another in the tracking system were titled differently across tables, resulting in difficulty navigating the data and increasing the potential for error in using the database.
- Reducing data entry redundancy. The evaluation team found cases where customer information was entered correctly in one section of the database, and incorrectly in another during the application review. This indicates possible multiple manual data entry, which increases the potential for error in the system. We recommend establishing ways to prevent the need for multiple-iteration data entry in the project management software.
- Including customer complaint resolution time, call response time, and call abandon rate Key Performance Indicators (KPIs) in the tracking system to match tracking goals outlined in the operations manual. Though the evaluation team found one of several KPIs outlined in the operations manual in the tracking database along with various date tracking, we recommend tracking all KPIs and key project milestone dates.
- Navigant's preliminary review of deemed savings assumptions found that although the algorithms are appropriate, several input assumptions should be revised. We recommend some changes to PY1 default inputs, addressed in separate findings, and also recommend adopting the Illinois Statewide Technical Reference Manual when it becomes final for PY2.
- Navigant recommends creating an operations manual specific to the Residential Prescriptive Rebate program that includes a process flow chart to clearly outline and envision the QA/QC procedures for this program separately from others. A clear outline for this program separate from other programs in the portfolio would help both implementation and evaluation staff to verify that key process steps and program-specific nuances are clear and not omitted or confused with other programs. This is especially important in differentiating Residential Prescriptive Rebate program tracking system data entry steps from other programs.
- Though a procedure for pre-installation and post-installation inspections exists, there is no tracking of inspection results and contractor performance in the tracking system submitted to Navigant. Navigant recommends tracking findings from inspections and establishing procedures for working with contractors to resolve problems if they are identified.
- The evaluation team encourages researching and considering the use of advertising material in languages other than English to better reach out to non-native English speaking communities in the Peoples Gas and North Shore Gas territory. Peoples Gas and North Shore Gas could review the multi-lingual material produced by Metra, Cook County, and other public-facing entities in the region to develop an idea of potential languages for advertising material.

Purpose of the Verification and Due Diligence Review

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

- Whether project 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 key quality assurance and verification activities were adequately implemented.
- Whether all the data needed for evaluation is included in the program tracking system.

Data Collection and Review Process

To accomplish the stated objectives, the evaluation, measurement and verification (EM&V) team initiated a data collection and telephone interview process from January through March 2012. During this period, the evaluation team collected the following information among others: program manuals, application forms, marketing plans, project and trade ally documents, default savings spreadsheets, and a Microsoft Access™ database extracted from the program tracking system. The EM&V team's findings were based on reviewing program documentation and conducting in-depth interviews with staff from Franklin Energy.[11] Subsequently, the EM&V team compared the findings from the Residential Prescriptive Rebate program management and implementation in PY1 to national best practices for energy efficiency programs.[12]

In-depth Interviews with Program Stakeholders

The evaluation team initiated a kick-off telephone discussion with the implementation program manager to familiarize ourselves with the collected program documents, particularly the structure of the tracking system and other general internal QA/QC procedures. The EM&V team then conducted in-depth telephone interviews separately with the Residential Prescriptive Rebate Program manager and tracking system staff. The telephone interview with the program manager included prepared question topics such as program administration, program outreach and marketing, program delivery mechanism, customer satisfaction, and implementation challenges. Interviews with database staff were used to clarify outstanding questions for understanding the database tracking system during review.

Program Documentation Desk Review

The EM&V team performed a desk review of all documents obtained from Peoples Gas, North Shore Gas, and Franklin Energy. The documentation provided included:

---

[11] As part of the PY1 process evaluation, in-depth interviews will be conducted with additional program staff, including program management from Peoples and North Shore Gas.

[12] See the Best Practices Self-Benchmarking Tool developed for the Energy Efficiency Best Practices Project: **http://www.eebestpractices.com/benchmarking.asp**

- Peoples Gas & North Shore Gas SB 1918 Energy Efficiency Programs Operation Manual (V 4.0 draft dated 1-6-2012 and V6 updated 4/2/2012)
- Program Tracking Database (2-14-2012 update)
- Evaluation Key Variables Inquiry (Evaluation Key Variables Inquiry_Answers 2.29.2012)
- Application:
    - Application Template
    - Sample Applications (Project IDs: 25050 and 25591 from NSG; 31896, 35209, and 32458 from PG)
- Program outreach and marketing materials
- Trade ally activity and training documentation
- Integrys Status Update (dated 2-17-2012)
- Deemed Savings Assumptions and References, and TRM comparison

The Integrys Operations Manual clearly outlines all program services provided by Franklin Energy, Franklin Energy staff, call center protocols, training and professional development plans, project eligibility and participation procedures, the quality assurance framework, and other process details for Integrys's programs as a whole.

For additional due diligence review, the evaluation team requested from the program implementer scanned copies of hand-written application documents of five (5) purposefully selected projects (Project IDs: 25050 and 25591 from NSG; 31896, 35209, and 32458 from PG). Each project document set included an application document checklist, an application, an installed measure spec sheet, proof of purchase, and a copy of the customer's utility bill. The project documentation was thoroughly reviewed and compared to corresponding entries in the program tracking database for accuracy and completeness.

Program Tracking System Review

As part of the due diligence task, the evaluation team performed a thorough review of the program database tracking system. The program implementer supplied several process guides for the Bensight Data Management system. The Bensight Guides detail the processes for creating an account, setting up a project file, recording project information, coordinating administrative tasks between employees, and handling customer complaints.

The evaluation team received an extract of the Bensight tracking database (Microsoft Access™ database format), which contained the information required for the M&V impact evaluation and the customer and trade ally information needed for the process evaluation. For each of the five project files reviewed, the evaluation team compared the recorded information in the handwritten project application forms with the entries in the Bensight tracking database to look for any data gaps, consistency issues, and assess the accuracy of information documented in the tracking system, and used to estimate project level savings. This file review process allows Navigant to verify the accuracy of calculated measure savings, thereby ensuring that they are representative of installation conditions.

Review of Marketing Activities
The evaluation team was provided with marketing and trade ally documents, including the Residential Prescriptive Rebate Program Tactical Marketing Plan[13]. The plan outlines market conditions, trade ally and customer motivations for participation, marketing message tactics, training plans and costs, and marketing material and associated costs. The evaluation team reviewed all received documents and identifiable marketing material.

Review of Program Operating Procedures
The EM&V team examined the operating procedures as outlined in the Operations Manual and verified QA/QC practices through an in-depth interview with the program implementer. The Operations Manual includes detailed procedures and flow diagrams relating to application and measure installation process. These activities are categorized by the evaluation team into the following key steps:

- Pre-Installation and Installation
- Post-Installation
- Safety and Training
- Customer Service, Invoicing and Reporting

According to the operations manual, Franklin's Key Performance Indicators (KPIs) for the application review process include:

- Customer complaint resolution- response within 48 hours; final resolution for 98% within 10 calendar days
- Incentive checks must be sent out to at least 90% of applicants within 30 days of receipt of complete application
- The Customer Service Center must achieve an abandonment rate of less than 5% and average call response times must be less than 30 seconds

Pre-Installation and Installation
The Residential Prescriptive Rebate program relies on trade allies as the primary source of program promotion. Thus the pre-installation component of the program consists of participating trade allies making customers aware of the rebate price discounts available to them on eligible efficiency measures if they decide to purchase them. The rebate allows the trade allies to "up-sell efficiency."

[13]Version 1.2 from Feb 25, 2012

It is the responsibility of the trade ally to determine whether the customers and measures they promote and install on behalf of the program are eligible for rebates according to the program's stipulations. Customers, or trade allies on behalf of customers, have thirty days after the installation of eligible measures to submit (by posted mail or email) a customer-signed application and accompanying verification material to the program implementer. Alternatively, customers can apply directly through Franklin Energy to participate in the program.

Upon receiving an application, Franklin Energy follows the QA/QC and database registration procedures outlined in the program's operations manual. Initial QA/QC procedures include PG/NSG customer premise and account verification, prior program participation check against the database, and alternative DCEO program eligibility.

If the application meets the initial eligibility requirements, a project coordinator enters the project into the tracking database and assigns the application to an Energy Advisor and Engineer to conduct a technical review of submitted forms. If documentation is missing, a follow-up communication is arranged with the customer. If the customer or trade ally has submitted all required documentation, a confirmation letter is sent to the customer. If a customer has not yet installed the measure, they have seven days to respond to the acceptance letter to schedule an installation appointment with a trade ally within 90 days. Customers that do not respond within seven days are contacted for follow-up.

Post-Installation

Once a project installation is complete, all applications undergo an inspection check to identify if an inspection is advised. Energy Advisors/Engineers reserve the right to do a physical pre- or post-inspection on all projects. New trade ally projects and 1 in 20 (5%) existing trade ally projects are supposed to be post-inspected by KEMA according to the operations manual. Our review of the tracking system extract showed 6% of projects were marked with post-inspection completion dates, 1% more than the minimum of 5%. Pre- and post-inspections are completed on a standard form.

After going through an inspection check and completing the post-inspection if selected, all applications go through a final QA/QC review. If approved, an incentive fulfillment order is placed and a rebate check is printed and issued to the customer; all checks from a week are mailed at the same time. If checks are not cashed after 90 days, Integrys follows up with the customer to check in.

Safety, Customer Service, Invoicing and Reporting

From the telephone interviews with the implementation program manager and a review of the operations manual, the EM&V team learned the program customer service staff is regularly trained on best practices in customer service. In the event that a customer is dissatisfied or has

an issue with program staff or delivery, the program implementer uses a complaint resolution process to address the cause of the customer's dissatisfaction and to respond to all complaints and notifications to Peoples Gas and North Shore Gas. Complaints are tracked and reported monthly, but detailed complaint logs are available to Peoples Gas and North Shore Gas Program Managers on a weekly basis. The program implementer has developed a Workplace Safety Program and safety policies, and provides online safety training for all staff involved in this program, particularly driving and personal safety training for technicians doing the field installations. The program implementer provides weekly, monthly, or quarterly reporting, including financial reporting, invoicing, measure reporting and program activity reporting consistent with requirements set forth by Peoples Gas and North Shore Gas.

Tracking System Review Findings

The EM&V team performed an independent verification of the program tracking database provided by the implementer in Microsoft Access database format. The team determined level of input, outliers, missing values, and potentially missing variables. This included verification of the accuracy of participation data being entered into the program tracking system, based on a review of a sample of five rebate applications. Since the database has an extensive collection of data ranging from project measures to call records, the team paid special attention to data and relationships important to impact calculations. Another purpose of the tracking system review was to ensure these systems gather the data required to support future evaluation and allow program managers to monitor key aspects of program performance at regular intervals.

The following are the criteria Navigant reviewed and an overview of findings for both tracking systems:

Table 1. Field Check Findings

Field Check	Verification and Findings
Standardized field names	No
Clear definitions of data being measured	No
Understanding of data types	Yes

Table 2. Data Check Findings

Data in Fields	Verification and Findings
Ensure no duplicates in key variables	None found
Compare totals	Not possible due to static nature of extract, though generally consistent
Outliers	None found
Ensure no missing values	Some missing values found
Ensure no missing variables	None missing
Accuracy of inputs: review of application sample	2/5 files have minor data entry errors

The Access database Franklin Energy provided to the evaluation team was produced by the Bensight project management software used in the program for tracking. The database included variables tracking:

- Participant account information
- Contact information
- Contractor contact information
- Calculated project savings and rebate information
- Program-specific data such as savings goals
- Project information
- Project-level retrofit information
- Site information

The evaluation team found that the program database structure is very robust and generally captures the requisite information necessary to accurately and completely track the program's actions. There is a great level of detail of information on projects status (both realized and pipeline projects), customer and trade ally contacts, and communication records. The EM&V team identified among other things the following strengths of the program implementation, based on the telephone interview with program staff and the review of program documentation and tracking database.

Strengths

- The program database structure is very robust and generally captures the requisite information necessary to accurately and completely track the program's actions. There is a considerable level of detail of information on projects status (both realized and pipeline projects), customer and trade ally contacts, and measures installed.
- The program implementer stores the Residential Prescriptive Rebate program data in the same tracking system together with other program/portfolio data. This single database structure is very useful and can greatly reduce the data entry burden and ensures that program staff are easily acclimated and understand tracked fields. In addition, the single database can ease the task of querying the tracking database and enhances report creation.
- Common reports are automated in the tracking system. These reporting features support the best practice to automate, as much as is practical, routine functions (e.g. monthly portfolio and program reports, energy savings, financial tracking). Automated reporting and tracking can reduce the administrative burden on program staff, freeing their time up to engage in other program activities.
- The program tracking database (dated February 14, 2012) reveals 1,214 realized projects in the program with a total of 151,164 therms saved and $414,338 in rebates given out.

The evaluation team also identified some challenges in reviewing project documents and the tracking database. While these challenges may not affect the day-to-day operations of the program, additional or clarified data entry can not only ease evaluations, but also provide improved reporting or analysis options for program staff. The following are key findings:

Challenges

- While there is a set of instructional documents for using the project management software, there is no clean data dictionary that allows complete understanding of data fields or cells within the extracted Access tracking database delivered to the evaluation team. This impedes evaluation efforts and limits understanding of the data as presented. Creating a data dictionary for the database will assist clear and thorough evaluation of the tracking system. This is especially important given the field naming inconsistencies in the database.
- There is inconsistency in field naming between tables. Linking files or tables in the Access database could be a difficult task, particularly if the program staff or evaluator is not familiar with the data entry process. For example, a project can be linked to its installed retrofit measures by field name "Id" from the Project Table and by field name "eo2__Project__c" from the Retrofit Table. While both tables have the same identification codes for projects, their different naming conventions creates confusion, especially if one needs to trace information between a third or fourth table with their own unique names for the same variable. As long as a change in naming would not impede the functioning of the project management software, it would be best to standardize field names across tables for shared data to prevent confusion and to streamline evaluation procedures.

- The evaluation team was not able to identify specific timelines from when the project site survey is completed, to the period of approval of submitted applications, and the duration of installation to work completion status. It is recognized that these timelines are supposed to be tracked, but while completion dates are provided for the "realized" projects, the statuses of the "pipeline" projects were difficult to verify. There are inconsistencies in the reported data such as some pipeline projects with completion dates and some realized projects with "not completed" application statuses.
- The method for calculating savings data for boilers with > 300 MBtu at > 90% TERs differed from other measures in the program. However, both are tracked in the same measure, quantity, and savings fields. This resulted in these boiler installations being flagged as outliers in our review in terms of savings and quantity installed reporting. Further investigation revealed that the meaning of measure quantities reported in the database varied by boiler type. This indicates inconsistent tracking of boiler installation quantity unit types in the database. While most boilers report quantity by units installed in the quantity field, the > 300 MBtu at > 90% TERs boilers report quantity in terms of MBTUs. The inconsistency in units within the field resulted in an outlier flag in the review and could lead to errors in reporting.
- Our review found a single unaccounted for record (*project.ID* a0RC0000004AYQ1MAO) with missing savings and rebate values. It is unclear whether the project should be set to a cancelled status or if removing the retrofit was a data entry error. Though one entry is not cause for major concern, it is a potential source of greater error in the future; thus we recommend that Franklin Energy establish a regular QC process wherein "illogical" records (e.g. a "completed" project with missing rebate and savings figures) are flagged for review.
- The evaluation team found minor errors during the application check and database review. For instance, for Project ID 31896, the individual's last name was entered into the first name column of one row, and then the last name was entered in the same column in the next row, resulting in two separate entries for the same person. In another application an individual's telephone number was entered incorrectly in one sheet, and correctly in another. Since the evaluation team did not have access to the tracking software to see the direct relationship between manual data entry and the resulting database output provided to Navigant, we cannot make specific recommendations for preventing these minor data entry errors. However, since in both cases the correct information existed alongside incorrect information, this may be an indication of multiple instances of data entry for the same information. Separately coded data redundancies in the database across tables should be limited.

Overall the program tracking database has an impressive level of tracking detail, and includes all necessary data for impact review. The tracking database can be optimized to help future evaluation by creating a data dictionary to explain variables and by standardizing naming between linked fields across tables. This is especially important given the complexity and breadth of information in the database. Furthermore, some data inconsistencies such as the "realized" projects with "not completed" application statuses and both correct and incorrect entries of certain data may be an indication that there are too many manual steps in the project entry process that led to omissions and inconsistencies. Streamlining and outlining the data

entry process by either automating more of it or by providing a program-specific data-entry checklist for tracking staff may minimize data entry errors.

Engineering Review Findings

Navigant's preliminary review of deemed savings found that although the algorithms are appropriate, several input assumptions should be revised. We recommend some changes to PY1 default inputs, addressed in separate findings, and also recommend adopting the Illinois Statewide Technical Reference Manual when it becomes final for PY2.

Due Diligence Findings

The evaluation team reviewed program documents provided to Navigant, conducted interviews with implementation staff, and reviewed the tracking system to ensure project eligibility criteria were being properly verified, that project information was entered in an accurate and timely manner in the program tracking system, and whether key quality assurance and verification activities were adequately implemented.

Strengths

- The program implementer has a sound operations manual that clearly articulates the overall program theory and describes the program logic and QA/QC procedures.
- Review of project application documents and reports indicate the program implementer is clearly screening building units for program eligibility. The QA/QC procedures in place for the program are detailed and thoroughly applied by the implementer to ensure only qualifying measure installations are given rebates. Inspections are completed by KEMA and standardized forms are used to record findings.
- The operations manual is supplemented by a program-specific marketing plan that describes an understanding of local market conditions. Marketing efforts for the program include several different formats including postcards and association presentations.

Challenges

- Though specific timelines for completion and approval periods for applications were not identifiable in the database, at least one Key Performance Indicator (KPI) outlined in the operations manual is being tracked in the database with its own field name. The evaluation team found that KPI #2 of the operations manual- incentive check distribution within 30 days- is being tracked. As of the Feb 14, 2012 database, of 1161 Residential Prescriptive Rebate labeled projects, 1027 were successful, meaning 88% of checks were distributed within 30 days. At the residential prescriptive level this is slightly short of the 90% goal overall. Note that six projects labeled "realized" status were not categorized into either successful or failure categories. Overall success among residential and C&I prescriptive programs was at 88% as well. The evaluation team encourages using the tracking system for the other KPIs established in the operations manual as well.
- A brief operations manual specific to the program that includes a process flow chart might help clearly outline this program's specific QA/QC procedures. A clear outline for this program separate from other programs in the portfolio could help both implementation and evaluation

staff verify that key process steps and program-specific nuances are clear and not omitted in the day-to-day operation of this program amongst the other programs in the portfolio. This is especially important regarding the tracking system data entry steps given that a common database is used with varying procedures depending on the program.

- Though a QA/QC pre- and post-inspection process is well established and being tracked in the tracking database, we recommend tracking inspection findings in the database and/or keeping together inspection documents with project documents.
- The marketing plan should include references to data sources being used in establishing market understandings in order to verify the regional applicability and timeliness of the supporting research. Furthermore, the evaluation team encourages creating advertising material in other languages to better reach out to non-native English speaking communities in the Peoples Gas and North Shore Gas territory.

Conclusions

The evaluation team found that the Residential Prescriptive Rebate program had a strong foundation in its first year. Our benchmarking of the program against national best practice standards for similar residential prescriptive HVAC programs found that the program is doing excellent in most Program Design and Structure, Quality Control and Verification, and Data Reporting and Tracking criteria.

Franklin Energy established sufficient verification and due diligence processes to insure project eligibility criteria were met and that applications were backed with proper supporting documentation. The operations manual for the entire residential and commercial portfolios laid out process and QA/QC plans for all programs including this one. Our in-depth interview with the implementation program manager confirmed that key performance indicator goals established in the manual were being put into practice in the program and that quality assurance and verification procedures were being followed as well. A process diagram for the program as related to the implementation of the program may help identify areas for improvement and tracking system data entry differentiation from other programs.

Clear QA/QC procedures are outlined in the operations manual for conducting pre- and post-inspections, and forms are standardized. About 8% of projects were marked as "post-inspection required" in the tracking system extract and 6% of projects had completed post-inspections, fulfilling the goal of inspecting at least 5% of projects. However, the tracking system did not have any data on inspection findings, and thus the evaluation team recommends incorporating some findings tracking into the tracking system. Furthermore, the operations manual did not outline procedures for dealing with situations where inspection findings are problematic. The team recommends establishing clear procedures for resolving inspection issues, including procedures for talking with contractors to resolve problems.

Navigant's preliminary review of deemed savings found that although the algorithms are appropriate, several input assumptions should be revised. We recommend changing some

inputs and consider adopting the Illinois Statewide Technical Reference Manual when it becomes final. The tracking system was robust and generally had no issues as related to impact tracking.

Though the program is functioning well from the perspective of due diligence and tracking system set up, the evaluation team found minor room for improvement in the tracking system database extract. The team recommends that Franklin consider standardizing field naming in the tracking database to make querying across tables more intuitive and less prone to error. Furthermore, we recommend that a data dictionary and program-specific data entry step guide be established to streamline the evaluation process and to make the tracking system less error prone.

In reviewing program documents, the evaluation team found that there was no multi-lingual marketing material which would help overcome the linguistic barrier of some of Peoples Gas and North Shore Gas customers.

Appendix: Quality Control and Verification Best Practices

The following are key quality control and verification best practices outlined in the *Best Practices Self-Benchmarking Tool developed for the Energy Efficiency Best Practices Project*.[14] The evaluation team benchmarked the Residential Rebate Program against these best practices in evaluating the program operations and tracking system.

I. Program Design and Structure

1. *Have a sound program plan and clearly articulated program theory that describe the program logic, niche, resources and ultimate goal.*
    - The *Operations Manual* and Residential Prescriptive Rebate Program Marketing Plan clearly and thoroughly outline the program logic, market conditions, resources, and program goals. Program interventions and key metrics are based on the underlying theories and processes laid out in both.

2. *Include features targeting supply-side actors in the program design.*
    - The operations manual and program marketing plan articulate theories about trade ally insights and barriers and incorporate those understandings in efforts to recruit and train trade allies to participate in the program. However, the program is not currently harnessing big-box retail stores as an additional channel for recruitment to the program.

3. *Understand local market conditions.*
    - The program marketing plan lays out findings from research on Peoples Gas and North Shore Gas building demographic data as well as Trade Ally (HVAC contractors and insulation installers), Home Owners, and Property Owner insights and barriers to participation. Navigant recommends including references to sources of research data in the report to allow for verification of the findings and its timeliness and applicability to the program region.

[14] **http://www.eebestpractices.com/benchmarking.asp**

II. Quality Control and Verification

4. *Develop inspection and verification procedures during the program design phase.*
    - The operations manual clearly and thoroughly outlines inspection and verification procedures for all programs, which includes the Residential Prescriptive Rebate program. Inspection and verification procedures include multiple rebate application eligibility and technical reviews, pre- and post- inspections on select projects, and quarterly reviews of Key Performance Indicator (KPI) metrics. Navigant recommends developing a clear program process diagram to outline program-specific processes and to differentiate it from other program operations laid out in the general operations manual.

5. *Consider administrative cost in designing the verification strategy.*
    - The program's verification strategy was designed taking into account the administrative cost. The implementer tracking system uses a common database for all programs that aims to limit manual re-entry, resulting in less administrative demand.

6. *Provide quick and timely feedback to applicants.*
    - The program QA/QC process includes KPIs that are tracked and regularly reviewed against pre-determined goals to insure that customers receive timely feedback. These timely feedback KPIs include a stipulation that the program implementer mail incentive checks out to at least 90% of applicants within 30 days of receipt of a complete application and that they provide an initial response to customer complaints within 48 hours, and resolve 98% of complaints within 10 calendar days. Furthermore, the call center must achieve an abandonment rate of less than 5% and an average call response time less than 30 seconds. According to the implementer interview and database review, most applicants hear back about their application status within a week and about 88% of applicants received their rebate within 30 days.

7. *Ensure that inspectors have adequate training in identifying and explaining reasons for failure.*
    - KEMA is contracted to conduct inspections for the program. Furthermore, the implementer conducts regular general trainings for both staff and trade allies in energy efficiency nomenclature, equipment, and applications.

8. *Establish a streamlined inspection scheduling process.*
    - A simplified, efficient inspection scheduling process is used. The Energy Advisor/Engineer inspects all documentation clearly and reserves the right to do a physical pre- (or post) inspection on all projects. At least one in twenty existing Trade Ally (TA) projects is post-inspected, and all new TAs automatically have their projects post-inspected. Navigant recommends tracking inspection findings in the tracking database and establishing procedures for dealing with inspections where problems are identified. This should include a procedure for talking to the contractor when a problem is found.

9. *Build in statistical features to the sampling protocol to allow reduction in required inspections based on observed performance and demonstrated quality work.*
    - Since this is a prescriptive rebate program, the application process requires the submission of a project invoice and measure verification sheet. When these are not clear or there is cause for suspicion, the implementer schedules an inspection. Otherwise, the implementer audits one in twenty projects and all new TA projects.

III. Data Reporting and Tracking

10. *Define and identify the key information needed to track and report early in the program development process.*
    - The implementer uses special Program Management System software that is set up to capture and track key information for tracking the program progress and customer relations. Program results are tracked via expense, energy savings, and program participation "critical areas" data outlined in the program operations manual.

11. *Minimize duplicative data entry by linking databases to exchange information dynamically.*
    - Generally, fields in the tracking system database are linked across tables to prevent duplicative data entry. However, Navigant found minor data entry errors between the same information in different tables which may be indicative of potential duplicative data entry in the application review.

12. *Conduct regular checks of tracking reports to assess program performance.*
    - A program performance dashboard shows performance data in real-time. Program managers monitor program status regularly to monitor performance versus goals.

13. *Develop accurate algorithms and assumptions on which to base estimates of savings.*
    - Navigant's preliminary review of deemed savings found that although the algorithms are appropriate, several input assumptions should be revised. We recommend some changes to PY1 default inputs, addressed in separate findings, and also recommend adopting the Illinois Statewide Technical Reference Manual when it becomes final for PY2.

14. *Use the Internet to facilitate data entry and reporting; build in real-time data validation systems that perform routine data quality functions.*
    - The tracking system features Internet-based data entry and reporting functions. The system has fully automated data validation functions to assess data quality.

15. *Build in rigorous quality control screens for data entry.*
    - According to the operations manual, the implementer pulls a sample of paid projects from the tracking system on a monthly basis for review. Audit results are delivered to a QA Manager who develops the monthly QA report. Navigant found data entry errors in the database that were not caught prior to our review. Though it may not be realistic to assume all errors can be prevented, we recommend reviewing whether current QC processes could be modified to prevent the errors we found in our due diligence review.

16. *Carefully document the tracking system and provide manuals for all users.*
    - The Bensight tracking system has manuals for understanding data entry procedures. However, the tracking database provided to Navigant did not have a manual for understanding variables and cross-referencing.

5.6 *Data Collection Instruments*

5.6.1 Participant Survey

INTRODUCTION

INTRO1 Hello, my name is _____, and I'm calling on behalf of <UTILITY> to ask your help in evaluating the energy efficiency program that gave you a rebate on equipment you had installed in your home in <PARTIC_DATE>. Let me assure you that this is not a sales call.
May I speak with <**CUST NAME**>?

1. CONTINUE WITH CUSTOMER ONCE THEY ARE ON THE PHONE
2. CUSTOMER NOT AVAILABLE [SCHEDULE CALLBACK]
3. NOT A GOOD TIME TO CONDUCT SURVEY [SCHEDULE CALLBACK]

INTRO2 <UTILITY> has hired us to evaluate their energy efficiency programs, and we'd like to talk briefly with you because you replaced a furnace or boiler, and/or purchased a Boiler Reset Control and received a rebate from <UTILITY> for it.

SCREENING QUESTIONS AND MEASURE IDENTIFICATION

SCR1 Do you live at <SERVICE_ADDRESS>?

1. YES [SKIPTO SCR2]
2. NO
3. NOT NOW, BUT I DID LIVE THERE

888. Don't Know [SKIP TO THANK8]
999. Refused [SKIP TO THANK8]

SCR2 The **Residential Prescriptive Rebate** Program gives a cash rebate for <UTILITY> customers buying a high-efficiency furnace or boiler, or boiler reset control. Do you remember the program?

1. YES [SKIPTO EQT1]
2. NO, I don't recall having any equipment installed in the past year (since June 2011) [SKIP TO SCR2A]
3. YES I had equipment installed but I don't recall hearing about a <UTILTIY> rebate. [SKIPTO EQT1]

888. Don't Know
999. Refused

SCR2A Is there someone in the household at <SERVICE_ADDRESS> who might recall the program and could talk about your household's experience with the Residential Prescriptive Rebate program?

1. YES [ASK TO SPEAK WITH PERSON WHO RECALLS PROGRAM & CONTINUE WITH THAT PERSON; take call-back info] [SKIPTO INTRO2]
2. NO, I'm sure your records are in error. [SKIPTO THANK8]

888. Don't Know
999. Refused

[QUALIFIED RESPONDENT – QAL STATEMENT]

The following questions refer to the Residential Prescriptive Rebate Program, which may be referred to as "the Program" or the "Rebate Program" throughout the survey.

EQT1 What type of equipment did you have installed under the <UTILITY> program? [ACCEPT MULTIPLE]

1. Furnace
2. Boiler
3. Boiler Reset Control
4. Complete System Replacement (Furnace and Central Air Conditioning)

000. NONE OF THE ABOVE [SKIP TO THANK2]
888. Don't Know
999. Refused

EQT1B. Did you receive <UTILITY> rebates on more than one piece of gas-fueled equipment since June 2011? [example: customer could have received rebate for a boiler and a furnace, or for two furnaces for single building or for two boilers.]

1. YES
2. NO

888. Don't Know
999. Refused

[IF EQTIB = 1]

EQT1C. You indicated you received <UTILITY> rebates on more than one piece of gas-fueled equipment. Which was the most expensive piece of equipment covered by the <UTILITY> Rebate?

1. Furnace
2. Boiler
3. Boiler Reset Control

888. Don't Know
999. Refused

[Inform the customer that all questions in rest of survey should be answered only for the most expensive piece of equipment covered by a program rebate]

[IF EQT1C = Furnace or Boiler ask EQT2 – ER2]

EQT2. What was the approximate age of the <furnace or boiler> you replaced?
RECORD YEARS [IF UNCERTAIN, ASK OPTIONS BELOW]

1. Less than 10 years old (installed 2001 or later)
2. 11 to 20 years old (installed 1991-2000)
3. 21-30 years old (installed 1981-1990)
4. More than 30 years old (installed before 1981)

888. Don't Know
999. Refused

ER1. Which of the following statements best describes the performance and operating condition of the equipment you replaced through the program?

1. Existing equipment was fully functional and without significant problems.
2. Existing equipment was functional but with some problems.
3. Existing equipment was functioning, but with significant problems.
4. Existing equipment had failed or did not function.

000. Other [RECORD VERBATIM]
888. (Don't know)
999. (Refused)

[IF ER1 = 1, 2, 3]

ER2. How many more years do you think the replaced equipment would have lasted?
RECORD ESTIMATE USEFUL LIFE

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

[IF EQT1C = Furnace ASK CSR1]

CSR1. When you replaced your furnace, did you consider replacing your air conditioning system at the same time?

1. Yes, and I replaced my air conditioning system.
2. Yes, and I considered replacing my air conditioning system, but did not replace it.
3. No, I did not consider replacing my air conditioning system.

000. Other [RECORD VERBATIM]
888. (Don't know)
999. (Refused)

[IF CSR1 = 1]

CSR2. What were the factors that influenced your choice of air conditioning unit? [DO NOT READ – ACCEPT MULTIPLE]

1. It was energy efficient
2. My contractor recommended it
3. It was affordable
4. Ability to get a rebate

000. Other [RECORD VERBATIM]
888. (Don't know)
999. (Refused)

CSR2. Do you know what the SEER rating of your new air conditioning unit is?

1. Yes – RECORD SEER
2. No

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

[IF CSR2 = 2]

CSR2a. Do you know if your new air conditioning unit is energy efficient?

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

[IF CSR1 < 14.5 OR CSR2a = 2]

CSR2b. Were there any reasons why you did not choose a 14.5 SEER or greater/an energy efficient air conditioning system? [DO NOT READ, ACCEPT MULTIPLE]

1. Too expensive
2. Not aware of availability
3. No utility incentive for AC
000. Other [RECORD VERBATIM]
888. (Don't know)
999. (Refused)

[IF CSR1 = 2, 3]

CSR3. Did your furnace contractor discuss possibly replacing your air conditioning system with you when you replaced your furnace?

1. Yes, we did discuss it.
2. No, we did not discuss it.
000. Other [RECORD VERBATIM]
888. (Don't know)
999. (Refused)

[IF CSR1 = 2]

CSR4. What were the reasons that you did not replace your air conditioning unit? [DO NOT READ, ACCEPT MULTIPLE]

1. Too expensive
2. Air Conditioning System works fine
3. No utility incentive to replace AC
000. Other [RECORD VERBATIM]
888. (Don't know)
999. (Refused)

[IF EQT1 = Complete System Replacement, ask EQT3 - ER2FUR]

EQT3. What was the approximate age of the central air conditioning system that you replaced? RECORD YEARS [IF UNCERTAIN, ASK OPTIONS BELOW]

1. Less than 10 years old (installed 2001 or later)
2. 11 to 20 years old (installed 1991-2000)
3. 21-30 years old (installed 1981-1990)
4. More than 30 years old (installed before 1981)
888. Don't Know
999. Refused

ER1AC. Which of the following statements best describes the performance and operating condition of the air conditioning system you replaced through the program?

1. (Air conditioning system was fully functional and without significant problems)
2. (Air conditioning system was functional but with some problems)
3. (Air conditioning system was functioning, but with significant problems)
4. (Air conditioning system had failed or did not function.)

000. Other [RECORD VERBATIM]
888. (Don't know)
999. (Refused)

[IF ER1AC = 1, 2, 3]

ER2AC. How many more years do you think the air conditioning system would have lasted?

RECORD ESTIMATE USEFUL LIFE

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

ER1FUR. Which of the following statements best describes the performance and operating condition of the furnace you replaced through the program?

1. (Furnace was fully functional and without significant problems)
2. (Furnace was functional but with some problems)
3. (Furnace was functioning, but with significant problems)
4. (Furnace had failed or did not function.)

000. Other [RECORD VERBATIM]
888. (Don't know)
999. (Refused)

[IF ER1FUR = 1, 2, 3]

ER2FUR. How many more years do you think the furnace would have lasted?

RECORD ESTIMATE USEFUL LIFE

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

BM6. Are the products you installed during the Program *still* installed and operational?

1. Yes
2. No

888. Don't Know
999. Refused

[Ask BM6A through BM6D if BM6=2]

BM6A. What is no longer installed and/or operational? [DO NOT READ, accept multiple]

1. Boiler
2. Furnace
3. Boiler Reset Control
4. Central Air Conditioning

888. Don't Know

999. Refused

BM6B. Why is it no longer installed and/or operational?
OPEN ENDED – RECORD VERBATIM
888. Don't Know
999. Refused

BM6D. Did you replace it with equipment of the same efficiency, higher efficiency, or lower efficiency?
1. Same efficiency
2. Higher efficiency
3. Lower efficiency
4. Did not replace yet
000. Other: (verbatim)
888. Don't Know
999. Refused

FREE-RIDERSHIP
[IF EQT1 = Complete System Replacement, ask FR1 – FRCC1 twice, once for air conditioning system and once for furnace, alternating between respondents.]

Sample Variables:
- <PRODUCT CATEGORY> = broad category such as "furnace", "boiler", etc.

FR1. At the time that you first heard about this program, had you already been thinking about purchasing new <PRODUCT CATEGORY> for this property?
1. (Yes) [CONTINUE TO FR2]
2. (No) [SKIP TO FR5]
888. (Don't know) [SKIP TO FR5]
999. (Refused) [SKIP TO FR5]

FR2. Had you already began researching or collecting information about <PRODUCT CATEGORY> to aid in your purchase decision?
1. (Yes) [CONTINUE TO FR3]
2. (No) [SKIP TO FR5]
888. (Don't know) [SKIP TO FR5]
999. (Refused) [SKIP TO FR5]

FR3. Had you already selected which <PRODUCT CATEGORY> you were planning to purchase?
1. (Yes) [CONTINUE TO FR4]
2. (No) [SKIP TO FR5]
888. (Don't know) [SKIP TO FR5]
999. (Refused) [SKIP TO FR5]

FR4. Was the <PRODUCT CATEGORY> that you planned to purchase lower efficiency, the same efficiency, or higher efficiency than the one you ended up installing through the program?

1. Lower efficiency [SKIP TO FR6]
2. The same efficiency [SKIP TO FR6]
3. Higher efficiency [SKIP TO FR6]
888. (Don't know) [CONTINUE TO FR5]
999. (Refused) [CONTINUE TO FR5]

FR5. Just to be sure I understand, did you have any specific plans to purchase and install <MEASURE> before learning about the program? I'm asking specifically about the high efficiency <Product Category> that you installed. [BE SURE THAT THE INTERVIEWEE UNDERSTANDS THAT WE ARE ASKING ABOUT THE HIGH EFFICIENCY MEASURE]

1. Yes [CONTINUE TO FR6]
2. No [SKIP TO A1CSR]
8. (Don't know) [SKIP TO A1CSR]
9. (Refused) [SKIP TO A1CSR]

FR6. On a 0 to 10 scale, with 0 being not at all likely and 10 being very likely, how likely is it that you would have installed <MEASURE> if it had not been eligible for a rebate from the program? I'm asking specifically about the high efficiency <Product Category> that you installed.

NUMERIC OPEN END from 0 to 10
888. (Don't know)
999. (Refused)

I'm going to read two statements about the <MEASURE> you installed. On a scale of 0 to 10, where 0 is strongly disagree and 10 is strongly agree, how much do you agree with each statement.

FR7. There may have been several reasons for the installation of the < MEASURE>, but the program was a critical factor in my decision to have the < MEASURE> installed. Remember, I'm asking specifically about the high efficiency <Product Category> that you installed.

NUMERIC OPEN END from 0 to 10
888. Don't know
999. Refused

IF ER1, ER1AC, or ER1FUR = 4 SKIP FR8;

FR8. I would have installed a <MEASURE> within a year of when I did, if I had not received a rebate from the program.

NUMERIC OPEN END from 0 to 10
888. Don't know
999. Refused

Consistency Check & Resolution

[FRCC1 will be asked only for those respondents who have a clear inconsistency between responses (i.e., all but one of the questions are at one end of the spectrum for free-ridership while one question is at the other spectrum.) The question responses that will be used to trigger FRCC1 are:

- FR6 (how likely is it that you would have installed the same item)
- FR7 (program was a critical factor in my decision to install item)
- FR 8(would have installed item within a year, without the program)

{IF FR6 = 0, 1, 2 AND FR7 = 0, 1, 2 AND FR8 = 8, 9, 10, ASK FRCC1. INCONSISTENCY1 = 'you would likely not have installed the <MEASURE> without the program but that differs from when you said the program was not a critical factor and you would install the [insert MEASURE] within a year'}

{IF FR6 = 8, 9, 10 AND FR7 = 8, 9, 10 AND FR8 = 0, 1, 2, ASK FRCC1. INCONSISTENCY1 = 'you would likely have installed the <MEASURE> without the program but that differs from your response that the program was a critical factor and you would not have installed the <MEASURE> within the year'}

{IF FR6 = 0, 1, 2 AND FR7 = 0, 1, 2 AND FR8 = 0, 1, 2, ASK FRCC1. INCONSISTENCY1 = 'the program was not a critical factor in your decision to install the <MEASURE> but that differs from your response that you would not have installed the <MEASURE> within the year'}

{IF FR6 = 8, 9, 10 AND FR7 = 8, 9, 10 AND FR8 = 8, 9, 10, ASK FRCC1. INCONSISTENCY1 = 'the program was a critical factor in your decision to install the <MEASURE> but that differs from your response that you would have installed <MEASURE> within the year without the program'}

{IF FR6 = 8,9,10 AND FR7 = 0,1,2 AND FR8 = 0,1,2, ASK FRCC1. INCONSISTENCY1= 'you would not have installed the <MEASURE> within the year but that differs from your response that the program was not a critical factor and you were likely to install the <MEASURE> without the program'}

{IF FR6 = 0,1,2 AND FR7 = 8,9,10 AND FR8 = 8,9,10, ASK FRCC1. INCONSISTENCY1='you would have installed the <MEASURE> within the year but that differs from your response that you were not likely to install the <MEASURE> and the program was a critical factor'}]

FRCC1. Let me make sure I understand you. Earlier, you said <INCONSISTENCY1>.
Please tell me in your own words what influence, if any, the program had on your decision install the <MEASURE> at the time you did?

OPEN-END, RECORD VERBATIM RESPONSE, CLARIFY AS NECESSARY
888. Don't know
999. Refused

CSR PARTICIPATION DECISION
[IF EQT1 = Complete System Replacement, ask A1CSR - A3A_FUR]
A1CSR. Thinking back to when you first decided to contact an equipment installation contractor, which of the following statements best describes the reason you decided to call a contractor? [Record all mentioned, but *ask* which was the single MOST important reason and record separately]

1. When the furnace broke down
2. When the air conditioning system broke down

3. Something else broke down, not directly related to the CSR equipment purchases made with this contractor.
4. When you learned there were rebates or discounts available for a limited time
5. When you were reminded that you could reduce your monthly utility bills by upgrading to more efficient technology

000. Other: (verbatim)
888. Don't Know
999. Refused

A2CSR. On a 0 to 10 scale, with 0 being not at all likely and 10 being very likely, how much influence would you say that the contractor played in your to participate in the CSR?

NUMERIC OPEN END from 0 to 10
888. (Don't know)
999. (Refused)

PARTICIPATION DECISION

[IF EQT1C = Furnace or Boiler ask A1 – A3]

A1. Thinking back to when you first decided to contact an equipment installation contractor, which of the following statements best describes the reason you decided to call a contractor? [Record all mentioned, but *ask* which was the single MOST important reason and record separately]

1. When the equipment you had broke down or gave signs that it was near end of useful life
2. Something else broke down, not directly related to the most-expensive purchase made with this contractor.
3. When you learned there were rebates or discounts available for a limited time
4. When you were reminded that you could reduce your monthly utility bills by upgrading to more efficient technology

000. Other: (verbatim)
888. Don't Know
999. Refused

A2. On a 0 to 10 scale, with 0 being not at all likely and 10 being very likely, how much influence would you say that the contractor played in your decision about which specific type of technology or model to install?

NUMERIC OPEN END from 0 to 10
888. (Don't know)
999. (Refused)

[ASK ALL]

A4. Do you remember how you heard about the Residential Prescriptive Rebate Program offered by <UTILITY>.

[DO NOT READ, ACCEPT MULTIPLE]

1. A <UTILITY> bill insert
2. Radio, TV, magazine or newspaper ad

3. Heating contractor
4. Word of mouth
5. The <UTILITY> web site
6. A special event like a home show
7. Brochure
8. Internet
9. Customer called <UTILITY> to ask about reducing energy bill
10. Utility representative – other
11. Through a homeowner's association or other organization
12. Through another utility program
13. Were there any other ways you heard about the program? **[SPECIFY]**

888. Don't Know
999. Refused

[ASK IF A4=12]

P1a. Through which utility program?

OPEN ENDED – RECORD VERBATIM
888. Don't Know
999. Refused

[SKIP IF A4=1]

P1b. Do you recall receiving information about the program through the mail?

1. Yes
2. No

888. Don't Know
999. Refused

[ASK IF P1b=1 OR P1=1, ELSE SKIP TO P2b]

P2. Thinking about the materials you received through the mail, how useful were the materials in providing you information about the program? Would you say they were…

1. Very useful
2. Somewhat useful
4. Not very useful
5. Not at all useful

888. Don't Know
999. Refused

[ASK IF P2 = 3, 4]

P2a. What would have made the materials more useful to you? [MULTIPLE RESPONSE]

1. More detailed information
2. Where to get additional information

000. Other: (verbatim)
888. Don't Know
999. Refused

P2b. How would you suggest <UTILITY> try to reach out to their customers to get them to participate in this program? [DO NOT READ. ALLOW MULTIPLE RESPONSES]

1. With program representatives
2. With phone calls
3. Flyers/ads/mailings
4. Bill inserts
5. Homeowners association
6. Through building supply and appliance stores
7. Email
8. Social media

000. Other, specify
888. Don't know
999. Refused

A5. I'm going to read you a list of reasons we've heard why people participate in programs like this one, why people choose to purchase high efficiency units over lower efficiency ones. Please tell me if you STRONGLY AGREE, AGREE, DISAGREE OR STRONGLY DISAGREE with each reason as it applies to your decision to participate in the **Residential Prescriptive Rebate** Program.

[ROTATE A5A – A5H]
[For A5A – A5H, RE-READ SCALE FOR AT LEAST EVERY THREE ITEMS]

Do you strongly agree, agree, disagree or strongly disagree that you participated in the Rebate Program in order to…?

1. Strongly agree
2. Agree
3. Disagree
4. Strongly Disagree

888. Don't know
999. Refused

A5A. Protect the environment
A5C. Have more confidence that I'd get a reliable, quality unit
A5D. Have more confidence that I'd cut energy bills
A5E. Get a rebate on energy-efficient equipment
A5F. Increase household comfort
A5H. Increase the resale value of my home
A5I. Lower my energy bills

A6. Are there any other reasons that influenced your decision to participate in the Program?

1. YES
2. NO [SKIPTO SO1]

888. Don't know
999. Refused

A6A. [ASK IF A6 = 1] What were the other reasons for participating in <UTILITIES>' rebate program?

OPEN-END, RECORD VERBATIM RESPONSE, CLARIFY AS NECESSARY

888. Don't know

999. Refused

SPILLOVER

SO1. Have you purchased and installed any additional energy efficiency measures since participating in the program?

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

[ASK IF SO1 = 1, ELSE SKIP TO PGMSAT]

SO2. What have you installed?

OPEN ENDED – RECORD VERBATIM

888. Don't know

999. Refused

SO3. How many/much additional <insert MEASURE from E7> have you installed?

OPEN ENDED – RECORD VERBATIM

888. Don't know

999. Refused

SO1. Did you receive a utility rebate for these additional <insert MEASURE from E7> that you installed?

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

SO4. How influential was the program in encouraging you to install the additional [insert MEASURE from SO2]? Please rate this on a 0-10 scale, where 0 means not at all influential and 10 means very influential.

NUMERIC OPEN END from 0 to 10

888. Don't know

999. Refused

SO5. You gave the program a score of <NUMERIC FROM SO4>. Can you please explain how the program influenced your decision to install the additional [insert MEASURE from SO2]?

RECORD VERBATIM

888. Don't know
999. Refused

BEHAVIORAL CHANGES

E4B. Have you adjusted the thermostat for space heating to a hotter or cooler temperature?

1. Yes, raised the thermostat to a higher temperature setting
2. Yes, lowered the thermostat to a lower temperature setting
3. No, kept the temperature setting the same as before

000. OTHER - RECORD
888. Don't know
999. Refused

E4C. [FOR COMPLETE SYSTEM REPLACEMENT REBATES] Have you adjusted the thermostat for space cooling to a hotter or cooler temperature?

1. Yes, raised the thermostat to a higher temperature setting
2. Yes, lowered the thermostat to a lower temperature setting
3. No, kept the temperature setting the same as before

000. OTHER - RECORD
888. Don't know
999. Refused

OVERALL PROGRAM SATISFACTION

PGMSAT. We'd like you to describe your overall experience with <UTILITY>'s rebate program, using a number scale from 0 to 10. Please choose a number between 0-and-10, where zero means not at all satisfied and 10 means very satisfied. Thinking of your overall experience, how do you feel about the program?

NUMERIC OPEN END from 0 to 10
888. Don't know
999. Refused

[ASK IF PGMSAT is 5 or less]

PGMSAT2. Your rating suggests that you were not fully satisfied. If that is so, could you tell me what kept you from full satisfaction?

OPEN-END, RECORD VERBATIM RESPONSE, CLARIFY AS NECESSARY
888. Don't know
999. Refused

SATISFACTION WITH SUB-PROCESSES

S1. I'd like to ask you about a variety of items that may have affected your experience in the program for better or worse.
As I read the list, please rate each on a scale of 0 to 10, where 0 is not at all satisfied and 10 is very satisfied. For parts of the program that do not apply to you, just say so.

[DO NOT ROTATE – PROCESSES S1A-S1J]
[RE-READ SCALE FOR AT LEAST EVERY THREE ITEMS]

NUMERIC OPEN END from 0 to 10
777. Not Applicable
888. Don't know
999. Refused

Please rate your satisfaction with…

S1A. The <UTILITY rebate information you received before signing up for the program.
S1B. The application process
S1C. The phone staff at <UTILITY>
S1Ca. [FOR COMPLETE SYSTEM REPLACEMENT REBATES] The phone staff at ComEd
S1D. The program website
S1E. The speed in getting the rebate to you
S1F. The quality of work by the **contractor** who installed the new equipment
S1G. The performance of the [MEASURE]

S3a. Is there anything about the program that you think was done particularly well?
OPEN-END, RECORD VERBATIM RESPONSE, CLARIFY AS NECESSARY
888. Don't know
999. Refused

S3b. What do you see as the drawbacks to participating in the program?
[DO NOT READ LIST - MULTIPLE RESPONSES, UP TO 3]

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

S3c. Is there anything about the program that you think could be improved?
OPEN-END, RECORD VERBATIM RESPONSE, CLARIFY AS NECESSARY
888. Don't know
999. Refused

BUZZ FACTOR

G1. Have you recommended the program to people outside your household?

1. Yes
2. No, I have not recommended the program
888. Don't know
999. Refused

[ASK IF G1=A]

G1A How many people have you recommended the program to outside your household?
NUMERIC OPEN END
888. Don't know
999. Refused

[ASK IF G1 = 2, 888]
G2. Would you recommend the program to other people?
1. Yes
2. No
888. Don't know
999. Refused

[ASK IF G2 =B OR C]
G3. Why not?
OPEN-END, RECORD VERBATIM RESPONSE, CLARIFY AS NECESSARY
888. Don't know
999. Refused

THERMOSTATS
TSTAT0. Thank you for taking the time to answer questions about your participation in the Residential Prescriptive Rebate program. I understand that your time is valuable, but if you able, would you be willing to answer a few additional questions about thermostat usage in your home? The additional questions will take about 5 minutes.
1. Yes [ASK TSTAT1 – TSTAT13]
2. No [SKIP TO Q1]

TSTAT1. Does your home use one or more thermostats to control heating and/or cooling?
1. Yes
2. No [SKIP TO Q1]
888. Don't know [SKIP TO Q1]
999. Refused [SKIP TO Q1]

TSTAT2. How many programmable thermostats are in your home? [IF NECESSARY] One that lets you program a schedule and set the temperature up or down at different times of the day and/or different days of the week.
RECORD NUMBER
888. Don't know
999. Refused

TSTAT3. How many manual thermostats are in your home? [IF NECESSARY] One that you have to manually adjust and that has only one setting for the internal temperature you want.
RECORD NUMBER
888. Don't know
999. Refused

TSTAT4. [IF TSTAT2 +TSTAT3 >1 ask "Do any of your thermostats", if TSTAT2 + TSTAT3 =1, ask "Does your thermostat"] control when your air conditioning turns on and off in your home?

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

[IF TSTAT2 + TSTAT3 >1]
Please think about the thermostat that controls [IF TSTAT4=1 say "air conditioning in"] the largest amount of living space in your home to answer the following questions about the thermostats.

[IF ANSWER TO TSTAT2 AND TSTAT3 ARE BOTH >0].
TSTAT5. Is this thermostat manual or programmable?

1. Manual
2. Programmable
888. Don't know
999. Refused

TSTAT5a. Does this thermostat also control your heating system?

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

[IF 0 < TSTAT2 < 98 and TSTAT5 does not =1]
TSTAT6. Do you program your thermostat for regular temperature setting changes, do you manually adjust it on occasion, or do you leave it at the same setting always? [PROBE TO FIND THE RESPONSE MOST ACCURATE, CHOOSE ONLY ONE]

1. Program for regular temperature setting changes [SKIP TO TSTAT7]
2. Only manually adjust on occasion
3. Leave at same setting [SKIP TO TSTAT10]

888.Don't know [SKIP TO Q1]
999. Refused [SKIP TO Q1]

[IF TSTAT6 = 2]
TSTAT6a. Which of the following best describes how you manually adjust your programmable thermostat? Do you…

1. Override setting when it is too hot or too cold
2. Use override instead of programming regular setting changes

888. Don't know [SKIP TO Q1]
999. Refused [SKIP TO Q1]

[IF TSTAT6=1]

TSTAT7. Please describe how you program your thermostat. [PROBE TO DETERMINE WHICH RESPONSE BELOW IS MOST ACCURATE, CHOOSE ONLY ONE]

1. Adjusted during night and daytime work hours both summer and winter
2. Adjust for night only both summer and winter
3. Adjust for night and daytime work hours, winter only
4. Adjust for night and daytime work hours, summer only
5. Adjust for night only, winter only
6. Adjust for night only, summer only
7. Adjust for vacations only
8. Set at one temperature for summer and one temperature for winter

000. Other, specify
888. Don't know [SKIP TO TSTAT11]
999. Refused [SKIP TO TSTAT11]

[IF TSTAT3>0 and TSTAT5 does not =2]

TSTAT8. Do you manually adjust your thermostat regularly, on occasion, or do you leave it at the same setting always? [PROBE TO FIND THE RESPONSE MOST ACCURATE, CHOOSE ONLY ONE]

1. Adjust for regular temperature setting changes
2. Only manually adjust on occasion [SKIP TO TSTAT10]
3. Leave at same setting [SKIP TO TSTAT10]

888. Don't know [SKIP TO TSTAT11]
999. Refused [SKIP TO TSTAT11]

[IF TSTAT8 = 1]

TSTAT9. Please describe how you regularly adjust your thermostat. [PROBE TO DETERMINE WHICH RESPONSE BELOW IS MOST ACCURATE, CHOOSE ONLY ONE]

1. Adjusted for night and daytime work hours both summer and winter
2. Adjust for night only both summer and winter
3. Adjust for night and daytime work hours, winter only
4. Adjust for night and daytime work hours, summer only
5. Adjust for night only, winter only
6. Adjust for night only, summer only
7. Adjust for vacations only
8. Set at one temperature for summer and one temperature for winter

000. Other, specify
888. Don't know [SKIP TO TSTAT11]
999. Refused [SKIP TO TSTAT11]

TSTAT10. Approximately how long have you been operating your thermostat this way? Would it be…

1. Less than 3 months
2. 3 to less than 6 months
3. 6 months to less than 9 months
4. 9 months to a year
5. More than a year

888. Don't know
999. Refused

TSTAT11. What temperature setting is your thermostat typically set for at night in the winter, would it be…

1. Less than 62
2. 63 to 66°F
3. 66-69°F
4. 70-74°F
5. 75-79°F
6. 80°F or higher

888. Don't know
999. Refused

[ASK IF TSAT4 = YES]

TSTAT12. What temperature setting is your thermostat typically set for at 4 p.m. in the summer, would it be…

1. Less than 62
2. 63 to 66°F
3. 66-69°F
4. 70-74°F
5. 75-79°F
6. 80°F or higher

888. Don't know
999. Refused

TSTAT13. Approximately what percentage of your home's living space has the temperature controlled with this thermostat? Would it be…

1. Less than 10%
2. 11-20%
3. 21-30%
4. 31-40%
5. 41-50%
6. 51-60%
7. 61-70%
8. 71-80%
9. 81-90%
10. More than 90%

888. Don't know
999. Refused

DEMOGRAPHICS

Q1. I have just a few questions left to ask for classification purposes. "First, do you own or rent the home at <SERVICE_ADDRESS>?"

1. Own
2. Rent

000. Other, specify
888. Don't know
999. Refused

Q2. What type of home do you live in? Is it a… [READ LIST]

1. Single Family detached,
2. Single Family attached (duplex, town home, etc.)
3. Multifamily Apartment or Condominium

000. Other, specify
888. Don't know
999. Refused

Q3. How many people currently live full-time in that home, at least six months of the year, including you?

ENTER NUMBER OF PEOPLE
888. Don't know
999. Refused

Q4. Roughly how many square feet of heated space does the home have? [IF NECESSARY] Please use your best estimate.

ENTER NUMBER OF SQUARE FEET
888. Don't know
999. Refused

[IF Q4 = 888]
Q4a. How many bedrooms does your house have?
RECORD NUMBER
888. Don't know
999. Refused

Q7. Do you have any additional heating equipment in your home?
1. Electric space heater
2. Woodstove or fireplace
3. Propane fireplace
000. Other, specify
888. Don't know
999. Refused

Q8. It's helpful if we can analyze comments by age group. Would you please tell me which of the following categories includes your age? Is it… [READ LIST]
1. Under 25
2. 25-34,
3. 35-44,
4. 45-54,
5. 55-64, or
6. 65 or older?
888. Don't know
999. Refused

Q9. We're collecting information from hundreds of customers, and it's helpful to know the income boundaries for sets of respondents. This information will not be retained after analysis. I'm going to read a variety of broad income ranges. Would be please stop me when I state the range of income relevant to your household before taxes? Please stop me when I state the range of income that is the correct range. Was your household income last year…
1. Up to $30,000 per year,
2. $30,000 to under $50,000,
3. $50,000 to under 75,000,
4. $75,000 to under $100,000,
5. $100,000 to under $150,000,
6. $150,000 to under $200,000, or
7. More than $200,000?
888. Don't know
999. Refused

Q10. GENDER (DO NOT ASK)
1 Male
2 Female
3 Unsure

THANK. Thank you for taking time to help with our survey and the helpful information you provided. Have a great day/evening!

[DISPOS = 40]

THKPRXY. Thank you for taking time to help with our survey. However, for this survey we are only interviewing those who, themselves, participated in <UTILITY> Residential Prescriptive Rebate Program. Have a great day/evening!

[DISPOS = 24]

THANK2. Thank you for taking time to help with our survey. However, for this survey we are only interviewing those who have participated in <UTILITY> Residential Prescriptive Rebate program

[DISPOS = 25]

THANK8. We cannot continue without that information. Thank you for your time. Have a great day/evening!

[DISPOS = 24]

5.6.2 Trade Ally Survey

SCREENER/INTRODUCTION

INTRO1 Hello, my name is_____ , and I'm calling on behalf of Peoples Gas and North Shore Gas to ask your organization's feedback on their Residential Prescriptive Rebate program, specifically how well it has worked for you and how it can be improved. This is not a sales call. May I speak to your sales, service or installation manager? [If not available, request their name and a good time to call back.]

ALTERNATIVE INTRO:
Hello, my name is <>, and I'm calling on behalf of Peoples Gas and North Shore Gas to ask for your feedback on their Residential Prescriptive Rebate program. They are interested in learning how well their program has worked for you and how it can be improved. This is not a sales call. I work for The Blackstone Group, a Research firm hired by Peoples Gas and North Shore Gas to collect equipment installers' comments. Is this a good time for you to talk?
[IF NOT A GOOD TIME for respondent, ask to set appointment for time convenient to the respondent]

The following questions refer to the Residential Prescriptive Rebate Program, which may be referred to as "the Program" throughout the survey.
[IF OK, go to PD1]

PARTICIPATION DECISION BY TRADE ALLY

PD1. The Program was launched in May 2011. How did you first learn about the program?
1. (Trade association) IF YES, RECORD WHICH
2. (Customer first made me aware)
3. (Friend in the furnace/boiler/water heater industry
4. (Radio)
5. (TV)
6. (Other news media)
7. (Bill insert from Peoples or North Shore Gas)
8. (Direct mailing to me from Peoples or North Shore Gas)

000. Other: (verbatim)
889. Don't Know
999. Refused

PD2. In this program, did you work with Peoples Gas or North Shore Gas customers, or both?
1. (Peoples Gas)
2. (North Shore Gas)
3. (Both)

888. Don't Know
999. Refused

[ASK IF PD2 = 3]
PD2A. Did your installations that qualified for a rebate differ in any way between the two territories?
1. (Yes) [IF YES] How So? [RECORD VERBATIM]
2. (No)

888. Don't Know
999. Refused

[If PD2=1 THEN <UTILITY>=PEOPLES GAS, If PD2=2 THEN <UTILITY>=NORTH SHORE GAS If PD2=3 THEN <UTILITY>=PEOPLES AND NORTH SHORE GAS]

PD3. About how many installations did you have that qualified for the Program between June 2011 and May 2012?
RECORD #
[IF NECESSARY] Was it…
1. Less than 10
2. Between 10 and 25
3. Between 25 and 50
4. Between 50 and 100
5. More than 100
888. Don't Know
999. Refused

[IF PD3 < 25]
PD3a. Has anything kept you from taking on more installations that qualify for a rebate with the program?
RECORD VERBATIM RESPONSE – CLARIFY AS NECESSARY
888. Don't Know
999. Refused

TRADE ALLY SATISFACTION WITH PROGRAM

Next, I'm going to discuss your satisfaction--as an equipment service and sales professional--with <UTILITY> Residential Prescriptive Rebate program.

TASAT1. From your perspective as a gas appliance installer/vendor, overall how satisfied have you been with <UTILTIY>'s Program? Using a number scale from 0 to 10, where zero means "Not at all Satisfied" and 10 means "Very Satisfied."
ENTER RATING 0 - 10
888. Don't Know
999. Refused

[ASK IF TASAT1 is 5 or less OTHERWISE SKIP TO TASAT2]
TASAT1b. Your rating suggests that you were not fully satisfied. If that is so, could you tell me what kept you from full satisfaction?
RECORD VERBATIM RESPONSE - CLARIFY AS NECESSARY
888. Don't Know
999. Refused

TASAT2. I'd like to get a sense of your satisfaction with the components of the Program. Using a number scale from 0 to 10, where zero means "Not at all Satisfied" and 10 means "Very Satisfied," how would you rate the following parts of the rebate program? If the item doesn't apply to you, just say so.
FOR A – D ENTER RATING 0 – 10 [IF rating = 5 or less, PROBE WHY, RECORD VERBATIM, IF <UTILITY> = PEOPLES AND NORTH SHORE GAS, PROBE FOR UTILITY]
888. Don't Know
999. Refused

A. the promotional materials and marketing efforts by <UTILITY>
B. the application forms and process
C. the brands and models of equipment covered by the program

D. the rebate levels

PERCEIVED CUSTOMER SATISFACTION WITH PROGRAM

TACSAT. Based on your interaction with customers, how satisfied are **they** with the **Residential Prescriptive Rebate Program** (apart from equipment-specific issues)? Giving your best guess, how might customers rate the program on a 0-10 scale where 0 = "Not at all Satisfied" and 10 = "Very Satisfied"?

ENTER RATING 0 - 10
888. Don't Know
999. Refused

[IF TACSAT=5 OR LESS ASK OTHERWISE SKIP TO TACSATC]
TACSATB. Why do you say that?

RECORD VERBATIM RESPONSE - CLARIFY AS NECESSARY
888. Don't Know
999. Refused

TACSATC. If there were one thing <UTILITY> could change about the Program--other than the incentive levels—that might improve customer satisfaction, what would that be?

RECORD VERBATIM RESPONSE - CLARIFY AS NECESSARY
888. Don't Know
999. Refused

TRADE ALLY PROMOTION OF PROGRAM

TAMKTG. Next, I'd like to ask you how you may have marketed the Program to your customers and the awareness of the Program you've seen among customers.
What are the main methods that you used to market the programs to customers?

RECORD VERBATIM RESPONSE - CLARIFY AS NECESSARY
888. Don't Know
999. Refused

TAMKTG 2. Which marketing method(s) generally yielded most of your customers that participate in the program?

RECORD VERBATIM RESPONSE - CLARIFY AS NECESSARY
888. Don't Know
999. Refused

NGMKTG. In your opinion, how effectively did <UTILITY> promote the Program to residential customers? On a 0 - 10 scale where 0 ="Not Promoted" and 10 ="Very Well Promoted" based on your gut feeling, how well did <UTILITY> do in promotion to the customer?

ENTER RATING 0 - 10
888. Don't Know
999. Refused

[ASK IF NGMKTG = 5 OR LESS OTHERWISE SKIP TO PROB1]
NGMKTGB. How might <UTILITY> have better promoted the Program to end-users?

RECORD VERBATIM - CLARIFY AS NECESSARY
888. Don't Know
999. Refused

NGMKTGZ. What was the most significant barrier to participation for customers?
RECORD VERBATIM - CLARIFY AS NECESSARY
888. Don't Know
999. Refused

PERCEPTION OF PEOPLES GAS AND NORTH SHORE GAS SUPPORT OF TRADE ALLIES

PROB1. Have you had any problems explaining and implementing the Program for your customers?
1. (Yes)
2. (No)
888. Don't Know
999. Refused

[ASK IF PROB1= A.YES, OTHERWISE SKIP TO PROB2]
PROB1A. Could you suggest ways that <UTILITY> could have better helped you explain and/or implement the Programs for your customers?
RECORD VERBATIM - CLARIFY AS NECESSARY
888. Don't Know
999. Refused

PROB2. Have you had any difficulties following <UTILITY> rules for vendors in promoting the Programs?
1. (Yes)
2. (No)
888. Don't Know
999. Refused

[ASK IF PROB2 =A. YES]
PROB2A. Would you describe the nature of the problems you had and whether they were ever resolved to your satisfaction?
RECORD VERBATIM - CLARIFY AS NECESSARY
888. Don't Know
999. Refused

[ASK IF PROB2 =A. YES]
PROB2B. Could you suggest any improvements for future <UTILITY> programs?
RECORD VERBATIM - CLARIFY AS NECESSARY
888. Don't Know
999. Refused

FACTORS AFFECTING SALES VOLUME

NTG. Has the <UTILITY> Program increased the number of customers **"asking about"** higher efficiency gas-fueled equipment?

1. (Yes, I think it definitely has increased inquiries)
2. (Yes, possibly, but it's difficult to tell)
3. (No, I don't think the program has had much effect yet)
888. Don't Know
999. Refused

NTGB. Has the low price of gas significantly slowed high efficiency sales in Chicagoland?
1. (Yes)
2. (No)
000. Other: (verbatim)
888. Don't Know
999. Refused

NTGC. What is your sense of the size of the Do-It-Yourself Market (meaning potential participants installing equipment themselves rather than calling a contractor) in Chicagoland?
RECORD VERBATIM - CLARIFY AS NECESSARY
888. Don't Know
999. Refused

NTGD. In your opinion, what were the major factors affecting the HVAC energy efficient equipment installation market in the last year?
RECORD VERBATIM - CLARIFY AS NECESSARY
888. Don't Know
999. Refused

MARK1. Did the utility provide any point of purchase sales materials?
1. (Yes)
2. (No)
888. Don't Know
999. Refused

[ASK IF MARK1 = 2]
MARK1a. Would they be helpful in selling higher efficiency equipment that qualified for a rebate?
1. (Yes)
2. (No)
888. Don't Know
999. Refused

MARK2. Did the utility provide any savings and or payback charts?
1. (Yes)
2. (No)
888. Don't Know
999. Refused

MARK2b. Would they be helpful in selling higher efficiency equipment that qualified for a rebate?
1. (Yes)
2. (No)
888. Don't Know

999. Refused

Naturally Occurring Baseline and Free-ridership

I'm going to ask you some questions about your sales of energy-efficient equipment *prior* to your involvement with the Residential Prescriptive Rebate Program, which began in [month/year of entry into program].

BL1. Prior to your involvement with the Residential Prescriptive Rebate Program, did you offer your customers a high efficiency option for <MEASURE CATEGORY>?

3. (Yes)
4. (No) – SKIP TO BL4
888. Don't Know – SKIP TO BL4
999. Refused – SKIP TO BL4

[IF BL1= "Yes"]

BL2. How often did you *recommend* the high efficiency option to your customers? Would you say that you recommended it always, often, sometimes, rarely, or never? [If necessary, remind interviewee that you're discussing the pre-program time frame]

1. Always recommended the high efficiency option
2. Often
3. Sometimes
4. Rarely
5. Never/Only when customers specifically requested high efficiency options
000. Other: (verbatim)
888. Don't Know
999. Refused

[IF BL1= "Yes"]

BL3. About what percent of the time did customers actually *purchase* the high efficiency option for <MEASURE CATEGORY>, prior to your involvement with the Program?

RECORD PERCENTAGE
888. Don't Know
999. Refused

BL4. Now that you are participating in the Program, have you changed what <MEASURE CATEGORY> products you offer to customers?

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

[IF BL4= "Yes"]

BL5. Please describe the changes that you've made to your product offerings.

[RECORD VERBATIM]
888. Don't Know
999. Refused

BL6. On a scale of 0 to 10, with 10 being the most influential, how much influence did the program have on your decision to change your <MEASURE CATEGORY> offerings?

ENTER RATING 0 - 10
888. Don't Know

999. Refused

BL7. Do you still offer standard efficiency <MEASURE CATEGORY> or do you only stock/offer high efficiency options now?

1. (Both standard efficiency and high efficiency options)
2. (High efficiency options only) SKIP TO BL11

000. Other: (verbatim) SKIP TO BL11
888. (Don't Know) SKIP TO BL11
999. (Refused) SKIP TO BL11

[IF BL7=1]
BL8. How often do you recommend that customers purchase the high efficiency options? Would you say that you recommend them always, often, sometimes, rarely, or never?

1. Always recommended the high efficiency option
2. Often
3. Sometimes
4. Rarely
5. Never/Only when customers specifically requested high efficiency options

000. Other: (verbatim)
888. Don't Know
999. Refused

[IF BL7=1]
BL9. About what percent of your customers actually *purchase* the high efficiency option for <MEASURE CATEGORY>? Please think about all sales of <MEASURE CATEGORY>, *including but not limited to* the participants in the Program.

RECORD PERCENTAGE

888. Don't Know
999. Refused

[IF BL7=1]
BL10. About what percent of your customers *who aren't participating in the program* purchase the high efficiency option for <MEASURE CATEGORY>?

RECORD PERCENTAGE

888. Don't Know
999. Refused

BL11. Using a 0 to 10 likelihood scale where 0 is NOT AT ALL LIKELY and 10 is EXTREMELY LIKELY, if the program had not been available, what is the likelihood that you would have been recommending and selling the same <MEASURE CATEGORY> products, as provided through the program?

ENTER RATING 0 - 10

888. Don't Know
999. Refused

BL12. On a scale of 0 to 10, with 10 being the most influential, how much influence do you think *your recommendation* has on your customers' decision to select higher levels of efficiency when purchasing <MEASURE CATEGORY>?

ENTER RATING 0 - 10

888. Don't Know
999. Refused

BL13. On a scale of 0 to 10, with 10 being the most influential, how much influence do you think *utility program incentives and educational materials* have on your customers' decision to select higher levels of efficiency when purchasing <MEASURE CATEGORY>?

ENTER RATING 0 - 10
888. Don't Know
999. Refused

[Only ask of people with multiple measure categories; IF <MEASURE CATEGORY 2> is blank, skip to Program Spillover section]

BL14. The questions I just asked focused on your sales of <MEASURE CATEGORY>, but our records indicate that you have also sold other types of gas-fueled equipment that qualify for the Program. Has the program had a similar influence on sales of energy-efficient <MEASURE CATEGORY 2>? Please describe any substantial differences in the program's influence on these sales of <MEASURE CATEGORY 2>.

1. [OPEN ENDED - RECORD VERBATIM]
2. No substantive differences
888. Don't Know
999. Refused

[SKIP BL15 if BL14=2, 888, or 999]

BL15. Using that same 0 to 10 likelihood scale where 0 is NOT AT ALL LIKELY and 10 is EXTREMELY LIKELY, if the program had not been available, what is the likelihood that you would have been recommending and selling the same <MEASURE CATEGORY 2> products, as provided through the program?

ENTER RATING 0 - 10
888. Don't Know
999. Refused

PROGRAM SPILLOVER

D1a. Approximately what percent of your customers did not install equipment that qualified for a rebate?

RECORD %
888. Don't Know
999. Refused

D1b. Approximately what percent of your customers did install equipment that qualified for a rebate but did not apply for a rebate?

RECORD %
888. Don't Know
999. Refused

D1. For these two groups of customers, did your experience with the Residential Prescriptive Rebate Program in any way influence you to recommend additional energy efficiency measures to customers beyond what you would have done otherwise?

1. (Yes)
2. (No)
000. Other: (verbatim)
888. Don't Know
999. Refused

[If D1 = "Yes" ask D2 – D6]

D2. What efficiency measures were recommended?
RECORD VERBATIM - CLARIFY AS NECESSARY
888. Don't Know
999. Refused

D2a. How many of the recommended measures installed were installed?
RECORD VERBATIM - CLARIFY AS NECESSARY
888. Don't Know
999. Refused

[For those that were installed]

D3. Approximately when were they installed? [Probe for month and year]
RECORD VERBATIM - CLARIFY AS NECESSARY
888. Don't Know
999. Refused

D4. Please briefly describe how the Program has influenced your decisions to recommend additional high-efficiency measures to other customers that did not participate in any utility programs.
RECORD VERBATIM - CLARIFY AS NECESSARY
888. Don't Know
999. Refused

D5. On average, would you estimate the energy savings from these other installed non-program measures to be less than, similar to, or more than the energy savings from the energy efficiency measures incorporated through the Program project? [Confirm answers are based on all installed, not recommended, measures]
1. (Less Than)
2. (Similar To)
3. (More Than)
000. Other: (verbatim)
888. Don't Know
999. Refused

D6. To the best of your knowledge, what percentage of the savings from energy efficiency measures installed by these non-participating customers can reasonably be attributed to the influence of the Program?
RECORD PERCENTAGE
888. Don't Know
999. Refused

NON-PARTICIPANT SPILLOVER

E1. Do you believe that other HVAC Contractors that are not participating in the Program are increasing their incorporation of energy efficient measures because of the influence of the Program? In other words, are they doing more with energy efficiency than they would have if the Program did not exist?
1. (Yes)
2. (No)
000. Other: (verbatim)
888. Don't Know
999. Refused

[If E1 = "yes"]
E2. Please briefly describe how the Program is influencing the market for energy efficiency measures in Chicagoland.
[Probe for availability, types of equipment, timing, quantity, and efficiency]
RECORD VERBATIM - CLARIFY AS NECESSARY
888. Don't Know
999. Refused

COMPLETE SYSTEM REPLACEMENT

CSR1. Are you aware of the Complete System Replacement component of the Residential Prescriptive Rebate Program?
1. (Yes)
2. (No)
000. Other: (verbatim)
888. Don't Know
999. Refused

[If CSR1 = "yes" ASK CSR2-CSR5, else skip to Q1]

CSR2. Have you participated in the Complete System Replacement component of the Residential Prescriptive Rebate Program? [Clarify if necessary] Have you sold heating and/or cooling equipment to customers as part of a heating and cooling package rebated by <UTILITY> and ComEd?
1. (Yes)
2. (No)
000. Other: (verbatim)
888. Don't Know
999. Refused

[If CSR3 = "yes", ASK CSR3, else skip to CSR4]
CSR3. Did you sell the heating equipment, cooling equipment, or both?
1. (Heating equipment only)
2. (Cooling equipment only)
3. (Both cooling and heating equipment)
888. Don't Know
999. Refused

[If CSR3 = 1 or 2, ASK CSR3a, else skip to CSR4]
CSR3a. What is your relationship to the contractor who sold the (heating or cooling) equipment?
RECORD VERBATIM
888. Don't know
999. Refused

CSR4. Has the Complete System Replacement component of the Program had any effect on your ability to market and sell energy efficient measures to your customers?
1. (Yes) [IF YES] How So? [RECORD VERBATIM]
2. (No)
000. Other: (verbatim)
888. Don't Know
999. Refused

CSR3. Do you have any suggestions for improving the Complete System Replacement component of the Program?
RECORD VERBATIM - CLARIFY AS NECESSARY
888. Don't Know
999. Refused

ILLINOIS ENERGY EFFICIENCY LOAN PROGRAM

IEELP1. Are you aware of the Illinois Energy Efficiency Loan Program?
1. (Yes)
2. (No)
000. Other: (verbatim)
888. Don't Know
999. Refused

[If IEELP1 = "yes" ASK IEELP 2 and IEELP 3, else skip to Q1]
IEELP 2. Has the Illinois Energy Efficiency Loan Program had any effect on your ability to market and sell energy efficient measures to your customers?
1. (Yes) [IF YES] How So? [RECORD VERBATIM]
2. (No)
000. Other: (verbatim)
888. Don't Know
999. Refused

IEELP3. Do you have any suggestions for improving the Illinois Energy Efficiency Loan Program?
RECORD VERBATIM - CLARIFY AS NECESSARY
888. Don't Know
999. Refused

SIZE AND FOCUS OF TRADE ALLY BUSINESS

Q1. Are you a one-person business, or do you have employees, partners or subcontractors?
[NOTE TO INTERVIEWER: Don't confuse a "one-person business" with the term "sole proprietorship." A sole proprietorship can have one or more employees.]
1. (Yes, one person business)
2. (No, it's a partnership with __ working partners) [RECORD NUMBER OF PARTNERS]
3. (No)
000. Other: (verbatim)
888. Don't Know
999. Refused

[If Q1 = 3 ask Q1a, else ask Q2]
Q1a. Do you have employees and subcontractors working for you?
RECORD NUMBER FOR A-D
888. Don't Know
999. Refused

A. Full-time employees
B. Part-time employees
C. Partners

D. Subcontractors

Let's talk about the range of gas appliances you sell or install in residential buildings.

Q2. In the residential sector, which of the following types of equipment does your company install or service?

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

A. Furnaces
B. Boilers
C. Water heaters
D. Fireplaces
E. Space heaters
F. Clothes dryers
G. Thermostats
H. Central air conditioning systems
F. OTHER [SPECIFY]

Q3. Do you sell gas appliances as well as install and/or service them?

1. (Sell)
2. (Install)
3. (Service)
000. Other: (verbatim)
888. Don't Know
999. Refused

Q4. On average, what is the condition of the appliances that you replace with program equipment? Are they usually…

1. In excellent condition
2. In good condition
3. In fair condition
4. In poor condition
5. Broken/inoperable
000. Other: (verbatim)
888. Don't Know
999. Refused

Q5. How old would you estimate these appliances are?

1. 0-5 years old
2. 5-10 years old
3. 10-15 years old
4. 15-20 years old
5. 20-25 years old
6. More than 25 years old
000. Other: (verbatim)
888. Don't Know
999. Refused

Q6. We would like to know what your experience is in terms of residential customers being aware of multiple efficiency programs from multiple organizations. On a scale of 0-to-10 where 10 is "many aware of" and 0 is "none aware of", how would you rate customer awareness?

ENTER RATING 0 - 10
888. Don't Know
999. Refused

Q7. Are you familiar with what an AHRI certificate is?

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

[IF Q7=YES]
Q7a. Do you know where to find one?

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

Q8. Are you aware of the phone number on the program rebate application for the <UTILITY> support line for filling out applications?

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

[ASK IF Q8=YES]
Q8A. Have you used it?

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

Q9. Are you aware that starting in 2013, only furnaces with 90% AFUE will be manufactured for the northern states and probably in 2014, only furnaces with 90% AFUE or higher will be available for sale in the northern states.

1. (Yes, I am aware)
2. (No, I am not aware)
888. Don't Know
999. Refused

Q9a. What impact will this have for you, considering codes and the housing stock in Chicagoland?
RECORD VERBATIM - CLARIFY AS NECESSARY
888. Don't Know
999. Refused

We have one final question for you.

Q10. Do you have any additional suggestions as to how <UTILITY> can improve its Residential Prescriptive Rebate program? (Record verbatim.)

RECORD VERBATIM - CLARIFY AS NECESSARY

888. Don't Know

999. Refused

Thank you for your time.