Evaluation, Measurement, and Verification Report:

Rider 29 Energy Efficiency Programs

Residential Rebate Program

Presented to:

Nicor Gas Company



**September 26, 2011**

Presented by:

Randy Gunn

Managing Director

Navigant

30 S. Wacker Drive, Suite 3100

Chicago, IL 60606

www.navigant.com

**Submitted to:**

Nicor Gas Company

1844 Ferry Road

Naperville, IL 60563

**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  312.583.5714  [randy.gunn@navigant.com](mailto:randy.gunn@navigant.com) | Julianne Meurice, Associate Director  312.583.5740  [julianne.meurice@navigant.com](mailto:julianne.meurice@navigant.com) |

Prepared by:

|  |  |
| --- | --- |
| Paul Wozniak, Senior Consultant 312.583.5741  [paul.wozniak@navigant.com](mailto:paul.wozniak@navigant.com) | Laura Tabor, Consultant  303.728.2470  [laura.tabor@navigant.com](mailto:laura.tabor@navigant.com)  Miroslav Lysyuk, Consultant  312.583.5804  [miroslav.lysyuk@navigant.com](mailto:miroslav.lysyuk@navigant.com) |

Contents

[Section E. Executive Summary 1](#_Toc304566011)

[E.1 Evaluation Objectives & Program Overview 1](#_Toc304566012)

[E.2 Evaluation Methods 2](#_Toc304566013)

[E.2.1 Verification and Due Diligence Review 2](#_Toc304566014)

[E.2.2 Tracking Systems Review 3](#_Toc304566015)

[E.2.3 Impact Evaluation 3](#_Toc304566016)

[E.2.4 Process Evaluation 3](#_Toc304566017)

[E.3 Key Findings 4](#_Toc304566018)

[E.3.1 Tracking System Review, Due Diligence and Verification 4](#_Toc304566019)

[E.3.2 Impact Findings 4](#_Toc304566020)

[E.3.4 Participant Process Evaluation Key Findings 7](#_Toc304566021)

[E.2.5 Trade Ally Process Evaluation Key Findings 8](#_Toc304566022)

[E.3.5 Recommendations 9](#_Toc304566023)

[Section 1 Program Description and Study Purpose 10](#_Toc304566024)

[1.1 Program Description 10](#_Toc304566025)

[1.1.1 Implementation Strategy 11](#_Toc304566026)

[1.1.2 Measures and Incentives 12](#_Toc304566027)

[1.2 Research Questions 13](#_Toc304566028)

[Section 2 Evaluation Methods 16](#_Toc304566029)

[2.1 Impact Evaluation 16](#_Toc304566030)

[2.1.1 Verification and Due Diligence 16](#_Toc304566031)

[2.1.2 Tracking Systems 17](#_Toc304566032)

[2.1.3 Gross Program Savings Evaluation 17](#_Toc304566033)

[2.1.4 Net Program Savings Evaluation 17](#_Toc304566034)

[2.1.5 Net-to-Gross Methodology 18](#_Toc304566035)

[2.2 Process Evaluation 20](#_Toc304566036)

[2.2.1 Data Collection Methods and Sampling Plan 20](#_Toc304566037)

[Section 3 Evaluation Findings 22](#_Toc304566038)

[3.1 Impact Findings 22](#_Toc304566039)

[3.1.1 Verification and Due Diligence and Tracking System Review 22](#_Toc304566040)

[3.1.2 Gross Program Impact Findings 23](#_Toc304566041)

[3.1.3 Net to Gross Ratio 31](#_Toc304566042)

[3.1.4 Net Program Impact Findings 35](#_Toc304566043)

[3.2 Participant Process Evaluation Findings 36](#_Toc304566044)

[3.2.1 Participant Satisfaction 37](#_Toc304566045)

[3.2.2 Program Improvement 38](#_Toc304566046)

[3.2.3 Barriers to Participation 41](#_Toc304566047)

[3.2.4 Program Awareness and Outreach 41](#_Toc304566048)

[3.2.5 Key Messages 42](#_Toc304566049)

[3.2.6 Conclusions 43](#_Toc304566050)

[3.3 Trade Ally Process Review Results 44](#_Toc304566051)

[3.3.1 Program Design and Process Satisfaction 44](#_Toc304566052)

[3.3.2 Program Improvement 46](#_Toc304566053)

[3.3.3 Trade Ally Sources of Initial Program Information 46](#_Toc304566054)

[3.3.4 Trade Ally Promotion of the Program 46](#_Toc304566055)

[3.3.5 Factors Affecting Sales Volume 46](#_Toc304566056)

[3.3.6 Conclusion 46](#_Toc304566057)

[Section 4 Conclusions and Recommendations 46](#_Toc304566058)

[4.1 Conclusions 46](#_Toc304566059)

[4.1.1 Verification and Due Diligence and Tracking System 46](#_Toc304566060)

[4.1.2 Impact Evaluation Findings 46](#_Toc304566061)

[4.1.3 Process Evaluation Findings 46](#_Toc304566062)

[4.2 Recommendations 46](#_Toc304566063)

[Section 5 Appendices 46](#_Toc304566064)

[5.1 Due Diligence, Verification, and Tracking System Review Memo 46](#_Toc304566065)

[5.1.1 Participant Survey Instrument 46](#_Toc304566066)

[5.1.2 Trade Ally Survey Instrument 46](#_Toc304566067)

# Section E. Executive Summary

## E.1 Evaluation Objectives & Program Overview

This report summarizes a third-party evaluation of Nicor’s Rider 29 Residential Rebate (RR) program. [[1]](#footnote-1) The evaluation was conducted by Navigant Consulting in summer 2011, soon after the close of the operational year of Nicor’s Rider 29 Residential Rebate program.

Navigant’s work incorporated both a

* **Process evaluation**— examining effectiveness of supporting processes, and,
* **Impact evaluation**—estimating the program’s impact in total therms.

A primary objective of the detailed evaluation was to supply Nicor managers with an independent *post hoc* assessment of earlier estimates of therm savings. Navigant’s estimates are given in terms of *ex post* gross and net savings attributable to the program, derived from applying both verification and net-to-gross (NTG) analysis processes.

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 the ability to detect a need for action. This report renders judgment on the adequacy of tracking systems and recommends specific actions in a separate deliverable labeled “verification, due diligence and tracking system review.” 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.

Described at the highest level, the RR program offers education and cash incentives to Nicor residential customers to encourage customer purchase of higher efficiency equipment. Nicor management expects that the RR program will conserve natural gas resources in accordance with the desires of Illinois Senate Bill 1989 which became the basis for Illinois law in Section 8-104 of the Illinois Public Utilities Act.

To be eligible for program rebates, customers must be active residential customers of Nicor, 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 water heaters.

## E.2 Evaluation Methods

The study combined a mix of industry standard evaluation methods to meet the evaluation objectives. Billing history was extracted from the Nicor customer information system while details on each customer installation were obtained from the program tracking system. Both were used to analyze program impacts on energy use and participation rates.

A structured phone survey gathered consumer decision data from 70 residential participants after they received equipment rebates. This was done to determine free ridership and spillover, as well as to assess processes affecting customer satisfaction. Because most of the program participants installed gas furnaces, most of the survey respondents were furnace purchasers.

Another 48 phone surveys were completed with HVAC installers, contractors and sales firms who participated as trade allies in the Nicor program. Perceived customer satisfaction and areas for program improvement were among the topics covered. A stratified sampling plan was used to ensure inclusion of suppliers of all six program equipment types.

Data collected by these evaluation methods were analyzed to answer both process and impact-related questions. The main focus of the impact evaluation was to review estimates of gross program savings and program tracking information, and to estimate net program savings. The process evaluation included a review of the program’s administration and delivery as well as of input from participant and trade ally surveys.

### E.2.1 Verification and Due Diligence Review

Navigant’s technical review of *ex ante* savings estimates and program assumptions was detailed in an August 23, 2011 memo[[2]](#footnote-2) to Nicor. The review was undertaken to verify that program savings were estimated using transparent processes and done in such a manner as to minimize future evaluation adjustments to savings. The review also included the quality control process built into the program to prevent fraud. Recommendations were made for minor adjustments to program tracking and inspection procedures. This work was intended for immediate use in program design and implementation to lessen risk to the portfolio by reducing uncertainties in the *ex ante* savings estimates.

### E.2.2 Tracking Systems Review

The program’s tracking system was reviewed to ensure that all data needed for future program assessments is being gathered as part of normal work flow. The review included quality checks on the database at that point in time. Data were examined to determine whether the database included a problematic level of missing values, and to determine the need for additional variables. The review evaluated the system’s ability to supply program managers with timely performance data. Recommendations on tracking systems were reported in the Verification, Due Diligence, and Tracking System memo which is attached as Appendix 5.1.1 and summarized in Section 3.1.1.[[3]](#footnote-3)

### E.2.3 Impact Evaluation

The impact evaluation estimated gross savings for the program by verifying deemed savings by technology using an engineering review and an analysis of selected customer billing data. Eligible measures were categorized according to the most appropriate International Performance Measurement and Verification Protocol (IPMVP) Method based on each measure’s performance characteristics and their overall contribution to program savings.

The evaluation team used Net-to-Gross (NTG) values calculated using a customer self-report approach.

### E.2.4 Process Evaluation

The purpose of the process evaluation was to develop a complete understanding of program delivery processes and to conduct a review of program marketing and outreach materials.

Data collection efforts included reviews of program materials and operations manuals, in-depth interviews, surveys and written requests for program details, policies and statistics. The evaluation team interviewed Nicor Gas Energy Efficiency program staff, the program administrator and the program implementation contractor to research issues of program design, administration and delivery. The evaluation team reviewed program marketing and outreach methodology to identify potential barriers to program participation and to identify opportunities to streamline administrative procedures for the program administrator, the program implementation contractor, trade allies and program participants. Navigant also conducted surveys of participants and trade allies to gain their perspectives on the RR program.

## E.3 Key Findings

Key findings in the section are organized into four sections: Navigant’s tracking system review, impact findings, results from participant surveys and trade ally survey findings.

### E.3.1 Tracking System Review, Due Diligence and Verification

Overall, verification and quality assurance procedures for Nicor’s Rider 29 Residential Rebate program present a reasonably detailed framework approaching nationally-recognized best practice standards.

As reported in more detail in Navigant’s Due Diligence, Verification and Tracking System Review memo, the team identified the following issues:

* The age, capacity (input Btu/hour), and efficiency of the equipment being replaced are not documented in the program database although these data would be valuable to have in hand for future studies using full-load hours methods, a more accurate form of savings measurement which Navigant recommends.
* Contractor entry of variables in the database-such as model numbers for replaced; equipment - is spotty, making accurate estimates of measure savings difficult; .
* The tracking system appears to have a number of fields that are not being utilized;
* The sampling protocol for the installation verification process may unintentionally lead to bias and not represent an adequate range of installations and trade allies;
* There is no formal system to monitor trade ally performance, while observations of poor contractor performance are passed along to customers.

### E.3.2 Impact Findings

Rider 29 Residential Rebate program ex ante savings are 11% above the ex ante savings originally projected when the program was submitted for approval in 2010. (Table E‑0‑1) Rider 29 participating units were 8% below projections while the program spending budget was exceeded by 35%.

Table E‑‑. Key Performance Metrics for the Rider 29 Residential Rebate Program

|  |  |  |  |
| --- | --- | --- | --- |
| Program Metric | Goal | Actual | Variance |
|  |  |  |  |
|  |  |  |  |
| *Ex Ante* Gross Therms Saved | 3,230,794 | 3,579,421 | +11% |
| *Ex Ante* Net Therms Saved | 1,631,956 | 1,812,565 | +11% |
| Participating Units | 22,277 | 20,466 | -8% |
| Budget/Expenditures | $4,598,650 | $6,208,656 | +35% |

Source:  Wisconsin Energy Conservation Corporation (program administrator)

The primary adjustments to estimated program savings discussed below reflect the results of Navigant’s analysis of billing data, which covered all boiler and furnace measures. This analysis focused on the 95% AFUE Furnace measures, the measure that represents more than 95% of program savings. After reviewing the program reported (*ex ante*) gross savings estimates and then making adjustments, Navigant determined an overall realization rate of 89.8% percent for the Residential Rebate program(Table E-3). Individual measures ranged from a realization rate of 89.4% for 95% AFUE furnaces to 109% for 95% AFUE boilers. These adjustments reflect Navigant’s estimated savings per measure, which were calculated using estimates of equivalent full load hours based on participant billed therms and new unit specifications.

Table E‑‑***.*** Program-Level Evaluation-Adjusted Impacts

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Segment | Ex-Ante  Gross Therms | Ex-Post  Gross Therms | Realization Rate | Net-to-Gross Ratio | Net Therms |
| 90% AFUE Boilers | 11,850 | 11,164 | 94.2% | 0.66 | 7,384 |
| 95% AFUE Boilers | 45,156 | 49,238 | 109% | 0.63 | 30,937 |
| 92% AFUE Furnaces | 123,840 | 114,704 | 92.6% | 0.62 | 70,651 |
| 95% AFUE Furnaces | 3,391,256 | 3,032,267 | 89.4% | 0.63 | 1,917,181 |
| 0.62 EF Water Heater | 2,546 | 2,546 | 100% | 0.56 | 1,431 |
| 0.67 EF Water Heater | 4,773 | 4,773 | 100% | 0.56 | 2,682 |
| Total | 3,579,421 | 3,214,692 | 89.8% | 0.63 | 2,030,267 |

Source: Navigant analysis. Ex-ante savings from Wisconsin Energy Conservation Corporation.

The evaluation team used a participant self-report approach to gather information on customer motivations and decision making that signal free-ridership and spillover and yield the net-to-gross ratios (NTGR). In some instances, customers who received rebates had already planned to purchase the equipment (so-called free-riders). In other cases, customers were influenced to implement energy-saving projects outside Nicor’s energy efficiency programs (so-called spillover) since the program got them thinking about home energy use. These survey results were used to calculate the NTGR of 0.63. This value was applied to obtain the Residential Prescriptive program’s *ex-post* net savings estimate of 1,889,689 therms. These values are also shown in Table E‑0‑2.

The RR program’s NTGR ratios at a measure level were over all better than anticipated at program launch, as shown in Table E‑0‑3.

Table E‑‑. Comparison of Net-to-Gross Ratio Estimates, pre- and post

|  |  |  |  |
| --- | --- | --- | --- |
| Measure Rebated | Projected NTGR | Estimated NTGR | Estimated NTGR Relative to Projected |
| 92-94.9% furnace | 0.5 | 0.62 | Better |
| 95%+ furnace | 0.5 | 0.63 | Better |
| 0.62 EF Water Htr | 0.25 | 0.56 | Much Better |
| 0.67 EF Water Htr | 0.25 | 0.56 | Much Better |
| 90-94.9% Boiler | 0.25 | 0.66 | Much Better |
| 95%+ Boiler | 0.1 | 0.63 | Much Better |

Source: Navigant. Ex-ante savings from Wisconsin Energy Conservation Corporation.

On September 21, 2011, final tabulations were made on invoices for Program Year 1, revealing total program costs of $6,208,656. This amount included incentive costs for PY1 of $5,067,050, based on rebates for 20,486 customer installations.[[4]](#footnote-4)

### E.3.4 Participant Process Evaluation Key Findings

Overall, customer satisfaction with Nicor’s Residential Rebate program is very high. The average program rating was 8.9 on a scale of 10, and 89% of surveyed participants indicated that they were very satisfied with the program overall (a rating of eight to ten). Program processes rated highly overall as well, ranging from an average of 8.22 to 9.36. Over half of participants had already recommended the program to someone, and all but three participants reported that they would recommend it to others. In sum, the program is doing very well.

Participants gave no indication of any significant barriers to participation other than a desire to make others aware of the program (and thus overcome an awareness barrier). However, the information available to participants about the program rebates as well as the processes associated with receiving the rebate can be improved as several participants reported some dissatisfaction. This includes improving marketing and informational material as well as the website. Improvements should be aimed at answering participants’ inquiries about the rebate process and making information accessible to the average non-technically oriented individual.

Contractors were important in driving participation in this program. Equipment failure drove many participants to contact a contractor who was often influential in driving energy efficient installations with the program. Participants indicated that equipment related concerns and long-term savings goals over short-term costs were important reasons for participating in the program.

### E.2.5 Trade Ally Process Evaluation Key Findings

Trade allies indicated moderate satisfaction with the program overall and commented that many customers were unhappy with the program because of rebate-related issues.. The following are key findings:

**Marketing and Participation**

* Equipment suppliers were an important source of initial program information to contractors, with customers the second most significant information source.
* A fifth of trade allies heard about the program through their customers rather than through Nicor or other industry sources.
* One in three trade allies rate Nicor’s program promotion is poor.
* Trade allies (and participants) gave the brands and models of equipment the highest process satisfaction ratings in the program (average score of 9.30, n=47).
* About two-thirds of trade allies primarily promoted the program through word of mouth, and the same proportion noted it was the most effective means of gaining customers.

**Program Barriers**

* The lowest rated process component was the application form (average score of 6.27, n=45).
* Many trade allies find the application submission process to be too rigid. Several contractors stated that a majority of their applications were returned for not following detailed directions they considered tedious and unnecessary.
* Trade allies reported that a high incidence of rebate processing problems, including returned forms and refused eligibility, was a source of participant unhappiness.
* Trade allies identified three areas for improvement: 1) The rebate application process; 2) contractor marketing and outreach; and 3) the website user-friendliness.

### 

### E.3.5 Recommendations

The following recommendations reflect both Navigant’s impact and process evaluations.

The evaluation team’s Due Diligence, Verification and Tracking System Review efforts identified five key changes that Nicor could consider making to improve their program performance. Navigant recommends that Nicor consider:

* Requiring equipment installers to document the age, capacity (input Btu/hour), and efficiency of the equipment being replaced, for the program database.
* Improving contractor entry of variables in the database such as model numbers for replaced equipment as well as the age of replaced equipment.
* Reviewing the tracking system and eliminate fields that are not being utilized; Navigant has been informed that this improvement has been made for Rider 30.
* Developing a sampling protocol for the rebate verification process that is designed to avoid bias.
* Establish a system to monitor trade ally performance.

Although realization rates were relatively high, Navigant recommends more in depth research of deemed savings algorithm inputs in the future. Specifically, the evaluation team recommends:

* Use of program data to determine average size and efficiency of units actually installed.
* Use of participant billing data to estimate equivalent full load hours for a sample of participants. This analysis should utilize more advanced simulation techniques in the future, and could be strengthened through collection of additional participant data on other household gas usage patterns.

In the process evaluation, Navigant found a recurring theme among trade ally and participant data that suggests that the **rebate application process** is a main area for improvement in the program:

* Contractors recommended simplifying the application, especially to prevent redundancy of reporting information requirements between the invoice and the application. Contractors want to limit the amount of time they have to spend filling out participants’ rebate applications.
* Contractors also suggested Nicor provide customers a list of eligible measures and more clearly list requirements on the application so that rebates are not delayed due to returned applications.

Another potential area for improvement is **marketing and outreach to contractors**:

* Trade allies say the program could be improved by more mailings and other communications to them.
* Trade allies would like to have brochures and other program informational material available so they are more knowledgeable about the program for their customers

Finally, both participants and trade allies reported that the website could use improvement. In particular, trade allies and participants had difficulty finding the application as well as program information on the **website**. Nicor should consider improving the website to make it easier to find information about the program, its requirements, participation instructions, and the program application.

# Program Description and Study Purpose

This evaluation report addresses Nicor’s Rider 29 Energy Efficiency Portfolio Residential Rebate Program.

## Program Description

Under the Rider 29 Residential Rebate (RR) program, cash incentives and education were offered to encourage upgrading of water- and space-heating equipment among residential customers of Nicor Gas (Nicor). The RR program was designed to conserve natural gas and lower participant monthly bills. Both rental and owner-occupied dwellings are eligible for rebates for furnaces, boilers and water heaters. To be eligible for program rebates, customers must be active residential customers of Nicor, and the premises must be used for residential purposes in existing buildings.

The RR program promises customers a quick turn-around rebate to invest in long-term savings through better technology. Rebates are offered for the installation of high-efficiency furnaces, boilers and water heaters. The dollar amount of the rebate depends on the size and fuel efficiency of the replacement heating system.

Administratively, the Rider 29 program ran May 1, 2010 through May 31, 2011 with implementation starting June 1, 2010 and final payment before August 31, 2011. Table 1-1 summarizes Nicor’s Rider 29 RR program’s goals.

Table ‑. Key Performance Goals for the Residential Rebate Program

|  |  |
| --- | --- |
| Program Metric | Goal |
| Gross Therms Saved | 3,230,794 |
| Net Therms Saved | 1,631,956 |
| Participating Units | 22,277 |
| Budget/Expenditures | $4,598,650 |
| Portion of Rider 29 Savings | 29% |

Source: Wisconsin Energy Conservation Corporation (program administrator)

The RR Program goal for gross therm savings represented 29% of target set in early 2010 for the entire Rider 29 portfolio, making RR the largest single Nicor program in terms of projected savings.

### Implementation Strategy

The long-term goal of this Nicor Gas program, according to ICC testimony by a Nicor program manager, is to create an environment where energy efficiency becomes the norm when customers are making energy decisions.[[5]](#footnote-5) As shown in Figure 1‑1 below, the “Residential Prescriptive” program (aka, Residential Rebate program) is only one part of a seven-program organization.

Figure ‑. Organizational Structure of EEP Rider 29

Source: Nicor

The field organization that delivered the Rider 29 Residential Rebate program to Nicor customers included four long-established firms in the energy efficiency services sector. The same contractors have been retained for Rider 30 efforts. Administration of the Residential Rebate program is under contract to the Wisconsin Energy Conservation Corporation (WECC), a large Wisconsin firm; program implementation is managed by Resource Solutions Group (RSG) of California; Fulfillment and Call Center are managed by the Electric and Gas Industries Association (EGIA); and, verification inspections are done by the Center for Neighborhood Technology (CNT) of Chicago (Table 1-2). RSG’s assigned tasks specifically included promotion, sales assistance and rebate processing.

Table ‑—Roles of organizations in Residential Rebate program operations

|  |  |
| --- | --- |
| Organization | Role |
| Wisconsin Energy Conservation Corporation (WECC) | Administrator |
| Resource Solutions Group (RSG) | Program Implementer |
| Electric and Gas Industries Association (EGIA) | Fulfillment and Call Center |
| Center for Neighborhood Technologies (CNT) | Site Verification Services |

More than 2,000 trade ally firms participated as installers for customers participating in the program. Rebates were of two major types: “instant rebates” paid directly to the installer after written agreement by the customer; and mailed rebate checks. Applications were available in PDF format on the Nicor website and paper copies were available from installers and other parties. Acknowledgement of the rebate application was made within five days on an Internet site searchable by application number.

### Measures and Incentives

Six types of gas-using equipment were eligible for rebates through the program ranging from $50 for a lower-tier “high efficiency” water heater to $400 for an upper tier high efficiency boiler. Equipment types and rebate amounts for PY1 are in Table 1‑3 below.

Table ‑. Rebate amounts for eligible equipment



## Research Questions

The evaluation sought to answer the following impact and process researchable questions.

Impact Questions

1. Based on deemed savings from technologies, what are the gross impacts from this program?
2. Are the deemed savings estimates defensible and adequately documented? If not, what adjustments are needed?
3. What are the net impacts from this program—after deducting free-ridership and adding the savings of spillover?
4. Did the program meet its energy saving goals?
5. What was the impact of the applicable federal tax credits that expired December 31, 2010 on the number of applications for different technologies? What changes, if any, occurred after January 1, 2011?

Process Questions

##### Marketing and Participation

1. What percent of eligible customers were made aware of the program opportunities? What percent of eligible customers applied for the program?
2. Is the call center meeting customer needs?
3. How did customers become aware of the program? What marketing strategies could be used to boost program awareness?
4. What role did trade allies play in recruiting and enrolling residential applicants?
5. Did the program attract customers who would likely not have installed high-efficiency equipment without the program?

##### Program Characteristics and Barriers

1. Is there a documented program theory? If so, what is the program logic and the relationship among the inputs and outcomes (both short-term and long-term)?
2. What areas could the program improve to create a more effective program for customers and program partners and help increase the energy savings impacts?
3. Is the application process simple and convenient or is it somewhat difficult for customers? Does the process present any barriers to program participation?
4. 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 efficient and effective in providing incentives to customers?
   1. Program tracking and information management systems
   2. Internal and external program communications
   3. Program delivery organization and staffing
   4. Skill levels needed to implement the program
2. How have things looked so far in terms of program satisfaction and customer service experiences?
3. What are the verification procedures for the program? Have they been implemented in a manner consistent with design? Do they present a barrier to participation or are they perceived as a burden by customers?

# Evaluation Methods

This section describes the methods of data collection and analysis used in the process and impact evaluation of the Rider 29 Residential Rebate 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 as well as an analysis of participant billing data. The process evaluation included a review of the effectiveness of the program’s administration and delivery.

The moderate rigor evaluation of Nicor’s programs includes the following tasks:

* Develop evaluation plans for each program.
* Assess verification and due diligence procedures for program implementers.
* Review program tracking databases and any developed program theories.
* Review program engineering estimates and assumptions.
* Conduct telephone surveys with a random sample of program participants to support both the program impact and process evaluations, including assessing program free ridership and spillover.

Navigant’s evaluation of Nicor’s Rider 29 RR program also included a survey of about 50 trade allies to obtain deeper information about how the program was working for the trade allies, Nicor’s primary program marketing arm. These surveys also solicited contractor input on perceived customer satisfaction and how the program can be improved.

## Impact Evaluation

The impact evaluation estimated gross savings for each program measure by verifying each impact measure using engineering review and performing an analysis of participant billing data for each boiler and furnace measure. Size and efficiency of boilers and furnaces were also verified based on model numbers found in the tracking database. In addition, the tracking system was examined to determine the accuracy and consistency of data used in savings algorithms.

### 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
* Whether improvements and evaluation recommendations from the program planning phase have been implemented

### 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.

### Gross Program Savings Evaluation

The evaluation team reviewed program reported savings assumptions used to calculate deemed measure savings for the RR program. The evaluation team then compared the program reported savings assumptions to the results of the team’s analysis of participant billing data. Based on these results and its own industry experience, the evaluation team made recommendations to change many of the assumptions and algorithms used to derive the program’s gross savings estimates. A detailed discussion of this analysis and the evaluation team’s recommended changes to the RR program’s deemed savings assumptions is included in Section 3.

### Net Program Savings Evaluation

The objective of the net savings analysis is to quantify the program's net effect on natural gas use by participants. The evaluation team used data obtained from customer surveys to establish measure-specific free-rider estimates—a factor that effectively deducts “free riders” from the savings total. A second battery of questions identified participant spillover effects—savings generated by the program but not captured in the program tracking database. Net program impacts were derived by estimating a Net-to-Gross (NTG) ratio that quantifies the percentage of the gross program impacts that can reliably be attributed to the program.

### Net-to-Gross Methodology

The Residential Rebate program is one of Nicor’s larger programs, so it is evaluated at the moderate level of rigor. Therefore, net-to-gross (NTG) values are based on self-reported counterfactual responses from participant surveys. Specifically, the participant telephone surveys[[6]](#footnote-6) covered the following topics:

* Customer satisfaction
* Free ridership
* Participant spillover

As stated in the Operating Plan[[7]](#footnote-7), the Residential Rebate program was designed to promote the purchase and installation of high-efficiency space and water-heating equipment “*by customers who would not have done so.”[italics added]* The process survey questioned a sample of participating customers about timing, consistency, influences in the absence of the program in keeping with a simplified version of Navigant’s free ridership logic model (Figure 2‑1).

Figure ‑. Logic model for free ridership calculation



Figure 2‑1 above traces the decision path for calculating the free-ridership ratio. The calculation requires the percentage codes associated with alternate response on two survey questions - named FR 1 and 2 - answered by the customer. The percentage at the end of each response option is used to calculate a summary statistic:

## Process Evaluation

Process evaluations are intended to provide insight into opportunities to improve the efficiency or effectiveness of a conservation program’s design and delivery mechanisms by:

* Fully understanding how successfully a program has been delivered to market;
* Gauging how customers or suppliers targeted through the initiative perceive the program.

The purpose of the process evaluation was to develop a complete understanding of how the program works and conduct a comprehensive review of program marketing and outreach materials to identify potential barriers to program participation.

The evaluation team conducted in-depth interviews with Nicor program staff, the administrator and the implementation contractor. The team combined this effort with a review of all program marketing and outreach materials. Te evaluation team also conducted surveys with participants and trade allies to obtain their feedback on the program’s effectiveness and efficiency.

### Data Collection Methods and Sampling Plan

Data collection methods included:

1. Verification of claimed savings
   1. Engineering review of project level tracking files, applications, and the algorithms used by the program to calculate energy savings for all measures and the assumptions that feed those algorithms.
   2. Review other available program information, including program handbook
2. Analysis of participant billing data to determine equivalent full load hours
3. In-depth interviews
   1. Nicor staff
   2. Program Administrator (WECC)
   3. Program Implementation Contractor (Resource Solutions Group, Inc.)
   4. Site verification coordinator (Center for Neighborhood Technology)
4. Surveys
   1. Participants
   2. Trade Allies

Table 2‑1 provides a summary of the principal data sources contributing to the evaluation of the Nicor Gas Residential Rebate program. The table provides the targeted population, sample frame, sample size and timing of data collection for each data element listed.

Table ‑. Principal Data Sources Contributing to the Rider 29 Evaluation PY1

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Data Collection Type | Targeted Population | Sample Frame | Sample Design | Sample Size | Timing |
| Tracking Data Analysis | Custom Program Projects and Measures | Tracking Spreadsheet | - | All | July 2011 |
| In-Depth Phone Interviews | Nicor  Program Staff | Nicor  Program Staff | Nicor Energy Efficiency program staff | 1 | July 2011 |
| Program Administrator and Implementer | Contacts from Nicor | WECC Program Administrator staff; RSG Implementation Staff | 2 | July 2011 |
| Project File Review | Custom Program Completed Projects | Tracking Database/  Project Engineering Files | - | All | July-August 2011 |
| Analysis of Utility Billing Data | Participants who purchased boilers and furnaces | Twelve months of therms billed data | Stratified sample weighted by number of participants for each measure | 89 | August 2011 |
| Project File Review | Program Participants | Customer applications | Spot-check | 14 | August 2011 |
| Phone Surveys | Customer-participants | Approved Rebate Database | Navigant | 70 | August 2011 |
| Phone Surveys | Trade allies | Approved Rebate Database | Navigant | 49 | August 2011 |

# Evaluation Findings

This section presents the Nicor Gas Residential Prescriptive program impact and process evaluation results.

## Impact Findings

### Verification and Due Diligence and Tracking System Review

The evaluation team prepared a detailed Verification, Due Diligence and Tracking System (VDDTS) memorandum delivered to Nicor Gas on June 30, 2011. This section includes key findings from the memo. The entire memorandum is included in the Appendix.

Overall, verification and quality assurance procedures for Nicor’s Residential Rebate program (PY1) present a reasonably detailed framework approaching nationally-recognized best practice standards. Navigant reviewed Nicor’s program tracking system and found that it gathers nearly all the critical data required to support future evaluations. Nicor’s PY1 activities meet most of the industry “best practices” as defined by the *National Energy Efficiency Best Practices Study* a document judged acceptable by the California Public Utilities Commission in 2008 for EM&V review*.* Overall, the quality assurance and verification procedures in place for the Residential Rebate Program, as outlined in the Nicor’s Rider 29 EEP Program Portfolio document (October 2010, prepared by WECC), provide a detailed quality control framework that meets many aspects of national best practices.[[8]](#footnote-8) However, there are opportunities for improvement to aspects of tracking system management and for quality control and verification, as described below.

In the future, Nicor should ask the applicant whether the previous equipment was functional or not. This would improve the characterization of individual projects as either “retrofit” measure (one that is installed before the end of the old equipment’s lifetime) or as “replace on burnout” measure (one that’s installed at the end of the old equipment’s lifetime). This characterization has implications for the cost effectiveness estimates, since for retrofit measures the full measure costs are used in the TRC test, while only the incremental cost of the efficient measure relative to standard efficiency equipment is used in the TRC test for replace on burnout measures. Nicor should also establish a system to monitor trade ally performance. This will formalize the existing practice of passing on observations of poor contractor performance to customers and allow Nicor to promote long-term improvements through trade ally education.

### Gross Program Impact Findings

The evaluation team reviewed the documentation provided and accepted RSG’s deemed savings estimates for efficient water heaters.[[9]](#footnote-9) The team also estimated gross program impacts for efficient boilers and furnaces using billing data provided by Nicor and tracking data found in the RSG database. The results are provided in Table 3‑1.

Table ‑. Gross Savings Estimates

|  |  |  |  |
| --- | --- | --- | --- |
|  | Ex-Ante Therms | Ex-Post Therms | Realization Rate |
| 90% AFUE Boilers | 11,850 | 11,164 | 94.2% |
| 95% AFUE Boilers | 45,156 | 49,238 | 109% |
| 92% AFUE Furnaces | 123,840 | 114,704 | 92.6% |
| 95% AFUE Furnaces | 3,391,256 | 3,032,267 | 89.4% |
| 0.62 EF Water Heaters | 2,546 | 2,546 | 100% |
| 0.67 EF Water Heaters | 4,773 | 4,773 | 100% |

##### Evaluation of *Ex Ante* Methodology: 90% and 95% AFUE Boilers

RSG used the following algorithm, derived from the Massachusetts Statewide Technical Reference Manual for Estimating Savings from Energy Efficiency Measures, to determine baseline savings from high efficiency boilers:

Where:

* Thermsbase = Annual gross therm energy use
* AFUEbase = Baseline boiler AFUE of 80%
* RLF = Rated load factor (peak heating load/nameplate heating capacity) of 0.8
* HLH = Heating load hours (default 1350)
* S = Size of boiler, assumed 100,000 Btu/hr per ASHRAE climate zone average

Efficient measure savings were calculated using the same algorithm, using the new equipment AFUE in place of the baseline AFUE of 80%.[[10]](#footnote-10) The New York GasTechs Manual provides a similar algorithm for energy savings, but also includes a factor for baseline and efficient boiler distribution efficiencies. Other TRMs listed similar savings estimates but did not provide algorithms used: in some cases, region-specific energy models were used.

The evaluation team was unable to confirm the default value of 1350 for heating load hours (HLH). The New York *GasTechs Manual* determined HLH through energy modeling for several cities, with values ranging from 1,168 for New York, NY to 1,870 for Massena, NY.[[11]](#footnote-11) Since New York, NY has approximately 4800 annual heating degree days and Chicago has nearly 6500, we suspect that this value is too low.[[12]](#footnote-12)

Navigant also investigated the boiler size parameter. RSG’s estimate of 100,000 Btu/hr was based on the average for ASHRAE climate zone 5, which is a very broad category. The evaluation team looked up a sample of boiler model numbers found in the tracking database in order to estimate the actual average capacity of equipment installed. This was found to be much larger than the 100,000 Btu/hr estimate. Furthermore, EFLH and equipment capacity are related as a correctly-sized boiler might run more hours more efficiently than an oversized machine specified by rule-of-thumb.

Due to the lack of local heating load hour data and data on distribution efficiency, Navigant elected to analyze participant billing data to estimate EFLH specific to installed equipment size for sampled equipment size for sampled participant files for this measure. The evaluation team requested billing data from a sample of program participants and used data compiled from the tracking database to calculate equivalent full load hours (EFLH) for each record. This method is described in greater detail in the upcoming section on ex-post methodology.

##### Evaluation of Ex Ante Methodology: 92% and 95% AFUE Furnaces

RSG’s estimates for furnace deemed savings were based on modeled values from the California DEER database. DEER vintage values for 1978 and a nominal furnace size of 130,000 Btu/hr were used. Deemed savings for each measure were scaled linearly from the coldest California climate zone (CZ16, Mt. Shasta, with 5,536 heating degree days) to the Chicago climate zone (using 6,311 heating degree days).[[13]](#footnote-13)

The evaluation team sees two potential problems with this approach. First, while the number of degree days may be similar, this does not necessarily signify that climate patterns are similar. Second, the nominal furnace size used is much greater than the typical size installed in the Chicago area. The evaluation team confirmed this using the model numbers of a statistical sample of furnaces installed, finding an average size of just under 82,000 Btu/hr, with a 95% confidence interval of 78,180 Btu/hr to 85,719 Btu/hr.

Navigant reviewed the methods used by several TRMs to calculate deemed savings estimates for furnaces. Some used energy modeling, while others used algorithms. The algorithms reviewed are presented here.

The New York *GasTechs Manual* uses the following algorithm, which accounts for both furnace and duct efficiency and relies on an accurate estimate of heating load hours:[[14]](#footnote-14)

Where:

* ΔTherms per unit = Gross annual gas savings per unit
* kBtuh = The nominal rating of the heating capacity of the furnace in kBtu/hr
* η = Average seasonal efficiency of furnace
* ηduct = Average seasonal duct system efficiency
* HLH = Heating load hours
* RLFheat = Heating mode rated load factor
* 100 = Conversion factor (kBtuh/therm)

Alliant Energy uses a slightly different algorithm, which uses heating degree days and an adjustment factor in place of heating load hours, and does not explicitly account for duct efficiency[[15]](#footnote-15):

Where:

* Fadj = Actual heating load to calculated heating load adjustment factor, inferred from a 2008 Assessment of Potential. Value cited = 0.342.
* AFUE = Annual Fuel Utilization Efficiency. Baseline = 0.80.
* CAP = Capacity of heating system in MBtuh
* HDD = Heating Degree Days
* 24 = Hours per day
* 100 = Conversion factor, MBtu/therm
* 80 = Design temperature difference

Lastly, the Pennsylvania TRM uses the following algorithm for furnace therm usage, which relies on effective full load hours and does not account for duct efficiency[[16]](#footnote-16):

Where:

* CAPYGas heat = Total heating capacity of new natural gas furnace (BtuH)
* EFLHheat = Equivalent Full Load Heating hours
* AFUEGas heat = Annual Fuel Utilization Efficiency for the new gas furnace (%)

Heating load hours, heating degree days, and equivalent full load hours (EFLH) are all used to estimate how many hours the furnace is in use. Heating load hours and EFLH are direct estimates of this time, whereas heating degree days must be modified with design temperature and other adjustment factors. It is difficult to reliably estimate heating load hours and EFLH for heating without local data or energy models, and Navigant was unable to find any reasonable sources for local estimates. Due to time constraints, in-depth energy modeling was not an option. The evaluation team decided to perform a simple analysis of participant billing data to estimate EFLH and savings estimates for a sample of participants. This method did not explicitly account for duct efficiency, but Navigant believes that using actual therms billed data yielded more accurate results than a literature estimate could have.

##### Explanation of *Ex-post* Methodology: All Boilers and Furnaces

Analysis of billing data was used to determine savings estimates for both boiler and furnace measures. Navigant requested billing data for a sample of participants in order to perform this analysis.

##### Sampling Structure

The sample structure shown in Table 3‑2 was designed to achieve an estimate with two-sided confidence interval of 90%, and with overall relative precision of 10%. Relative precision for the 95% AFUE furnaces is highest because they represent 94% of program participants and 95.5% of program savings. The evaluation team expanded the boiler and 92% AFUE furnace samples beyond what was required for overall program precision in order to achieve better precision at the measure level, but did not seek to match the target precision for the 95% AFUE furnace measure.

Table 3‑2: Stratified Sample Design for Analysis of Billing Data, CI = 90%

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Measure | Participants | Coefficient of Variation (σ/μ) | Samples | Strata Relative Precision @ CI |
| **90% AFUE Boiler** | 79 | 0.5 | 10.0 | 24.5% |
| **95% AFUE Boiler** | 212 | 0.5 | 10.0 | 25.4% |
| **92% AFUE Furnace** | 860 | 0.5 | 10.0 | 25.9% |
| **95% AFUE Furnace** | 19,052 | 0.5 | 64.0 | 10.3% |
| **Total** | **20,203** | **-** | **94** | **9.8%** |

Variability in billing data and incomplete tracking data made many participant records unusable. Although Navigant requested and received billing data for three times the target sample sizes, quotas were not met for all measures. However, since the quota for the 95% AFUE furnace measure was exceeded, overall precision improved. The actual total records used for the analysis are shown below in Table 3‑3**.**.

Table 3‑3: Actual Sample Structure, CI = 90%

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Measure | Participants | Coefficient of Variation (σ/μ) | Samples | Strata Relative Precision @ CI |
| **90% AFUE Boiler** | 79 | 0.57 | 3.0 | 53.4% |
| **95% AFUE Boiler** | 212 | 0.63 | 7.0 | 38.6% |
| **92% AFUE Furnace** | 860 | 0.35 | 8.0 | 20.3% |
| **95% AFUE Furnace** | 19,052 | 0.45 | 71.0 | 8.8% |
| **Total** | **20,203** | **-** | **89** | **8.4%** |

##### Analysis Methods: Verification of Equipment Specifications

For each participant with usable billing data, model numbers in the tracking system were used to verify equipment efficiency and nominal capacity. The majority of these data were found in the AHRI online directory and cross-checked with manufacturer specifications. Some data were not in the AHRI directory, and information for these records was taken from manufacturer specifications.

##### Analysis Methods: Processing of Billing Data

The goal of the analysis of participant billing data was to determine annual equivalent full load hours (EFLH) for each customer. Given the equation

EFLH can be calculated as

Both capacity and AFUE were verified using each participant’s reported model number. Heating load was determined from the billing data by subtracting an estimated “baseline” therm use—hot water heating, cooking, and other gas appliances—from the overall therm usage. This baseline was estimated as the average therm usage from June to September, assuming that furnaces are not in use during these months.

The billing data received from Nicor was highly variable. Some customers are billed an average monthly amount all year, and receive a final bill (or credit) at the end of their yearly billing cycle. Many bills are estimated therms, and do not rely on meter readings every month. Navigant established two methods for screening inadequate data:

* Records where summer usage was unusually high (greater than 25 therms) or unusually low (less than one therm) were flagged as unusable
* Unflagged records were graphed before use to ensure a reasonable annual load shape. Usable load shapes showed a typical “U-shaped” curve with higher use in winter months and lower use in the summer. Unusual spikes or dips (often negative) and lack of a “U-shaped” curve signal unusable data. Figures 3‑1 and Figure 3‑2 give examples of both usable and unusable data.

Figure ‑: Usable Annual Load Shape

Figure ‑: Unusable Annual Load Shape

EFLH was first calculated with empirical data on a monthly basis, subtracting baseline use. An AFUE of 75% was used for existing units, assuming degradation from their original efficiencies. Nameplate efficiency was used for the retrofit equipment from the month of installation forward. Where installation data was not entered in the tracking system, the next earliest date (when application signed) in the database was used. Due to eccentricities present in even the best data, EFLH was also calculated simply for pre- and post-retrofit by allocating the correct proportion of total heat load to the baseline and retrofit equipment (determined by month and year of installation). The two methods result in similar, but consistently different estimates for EFLH. The two EFLH values were weather normalized using 2010 degree days and a 5-year average.[[17]](#footnote-17) (Table 3‑4)

Table 3‑4: Analysis Results: AFUE, Capacity, Heat Load, EFLH

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Measure Type | Average AFUE | Average Capacity, Btu/hr | Average Heat Load, Therms | Average EFLH (monthly) | Average EFLH (pre/post) |
| 90% AFUE Boiler | 92% | 176,333 | 1038 | 464 | 550 |
| 95% AFUE Boiler | 95% | 143,571 | 1414 | 724 | 809 |
| ***All Boilers*** | ***-*** | ***153,400*** | ***1,301*** | ***646*** | ***731*** |
| 92% AFUE Furnace | 93% | 84,375 | 786 | 716 | 802 |
| 95% AFUE Furnace | 95% | 81,676 | 856 | 819 | 899 |
| ***All Furnaces*** | ***-*** | ***82,486*** | ***835*** | ***788*** | ***870*** |

It is interesting to note that boilers installed are much larger than furnaces, and, correspondingly, have been bought by participants with larger heat loads. However, EFLH is lower for boilers than for furnaces.

Therm savings were calculated for each record and then averaged for each measure. Results are shown in Table 3‑5 for both EFLH calculation methods; the average is recommended for calculation of 2010 program savings.

Table ‑: Analysis Results: Average Therm Savings

|  |  |  |  |
| --- | --- | --- | --- |
| Measure | Therm Savings (monthly) | Therm Savings (pre/post) | Average Therm Savings |
| 90% AFUE Boiler | 129 | 153 | **141** |
| 95% AFUE Boiler | 219 | 246 | **232** |
| 92% AFUE Furnace | 126 | 141 | **133** |
| 95% AFUE Furnace | 152 | 167 | **159** |

Table 3‑6 presents a summary of the unit and program savings for all boiler and furnace measures. Navigant recommends tracking unit capacities in the future to enable simple calculation of nominal size estimates in the future.

Table ‑: Savings Summary for Boilers and Furnaces

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Measure | Average Therm Savings | Ex Ante Estimated Therm Savings | Ex Ante Gross Program Savings | Ex Post Gross Program Savings | Realization Rate |
| 90% AFUE Boiler | 141 | 150 | 11,850 | 11,164 | 94.2% |
| 95% AFUE Boiler | 232 | 213 | 45,156 | 49,238 | 109.0% |
| 92% AFUE Furnace | 133 | 144 | 123,840 | 114,704 | 92.6% |
| 95% AFUE Furnace | 159 | 178 | 3,391,256 | 3,032,267 | 89.4% |
| Total Furnace & Boiler | - | - | 3,579,421 | 3,214,692 | 89.8% |

### Net to Gross Ratio

Once gross program impacts have been estimated, net program impacts are calculated by multiplying the gross impact estimate by the program Net-to-Gross (NTG) ratio. The NTG ratio for the Residential Rebate program was estimated using a customer self-report approach. This approach relied on responses provided by program participants during the phone survey to determine the fraction of measure installations that would have occurred by participants in the absence of the program (free-ridership) and additional energy efficiency measures implemented due to the program’s influence.

#### 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. This free ridership is revealed by a series of questions posed during a post-purchase interview by a third party interrogator. For the Nicor Residential Rebate program, the following counterfactual questions were asked of each of the 70 participating customers.

The evaluation team used three questions in the participant survey to determine free-ridership. The first question asks participants about the timing of their installation. Initial free-ridership percentages were assigned as shown below.

FR1. Suppose that Nicor did not offer the rebate you got. Would you have installed the new energy efficient furnace/boiler/water heater…

* 1. At the same time as you did: 100%
  2. Within a year of the time you did: 100%
  3. More than a year later: 50%
  4. Never: 0%
  5. Don’t know: 50%

The response to FR1 was then multiplied by the response to FR2:

FR2: Without the Residential Rebate program and its cash rebates, how likely is it that the heating equipment you would have installed would have been as efficient as the equipment you installed through the program? Would you say the equipment would have been…

1. Definitely as efficient 100%
2. Probably as efficient 50%
3. Probably not as efficient 0%
4. Definitely not as efficient 0%
5. Don’t know 50%
6. Refused 50%

Two additional responses were used as a consistency check. This check serves only to maintain or lower the estimated free-ridership, and cannot increase it. The minimum response to FR3A and FR3D (below) was multiplied by the previous estimate to calculate adjusted free-ridership.

FR3A: Thinking of the furnace you installed, how important was the financial incentive from Nicor Gas?

FR3D: Thinking of the furnace you installed, how important was the recommendation of the heating contractor that sold the equipment?

1. Very important 50%
2. Somewhat important 75%
3. Somewhat unimportant 100%
4. Very unimportant 100%
5. Don’t know 50%

Adjusted free-ridership was averaged for each measure and combined with spillover results to calculate the Net-to-Gross ratio. The two water heater efficiency levels were combined due to the small number of survey participants who installed those measures. Measure level results are shown here in .

Table ‑: Adjusted Free-ridership Results by Measure

|  |  |  |
| --- | --- | --- |
| Measure | Adjusted Free-ridership | Number of Participants Surveyed |
| 90% AFUE Boilers | 36% | 7 |
| 95% AFUE Boilers | 42% | 6 |
| 92% AFUE Furnaces | 41% | 8 |
| 95% AFUE Furnaces | 39% | 43 |
| All Water Heaters | 45% | 6 |

#### Spillover

Spillover was calculated based on a series of questions that asked participants about their energy consumption. A percentage spillover was assigned to each participant for each action they confirmed taking, as listed in Table 3-8.

Table ‑: Spillover Assignment

|  |  |  |
| --- | --- | --- |
| Participants Used | Action | Assigned Spillover |
| Water heaters only | Raised water heater setting | -3% |
| Water heaters only | Lowered water heater setting | 3% |
| Furnaces/ boilers only | Raised thermostat setting | -3% |
| Furnaces/ boilers only | Lowered thermostat setting | 3% |
| All | Used more hot water figuring that your household is now more efficient | -1% |
| All | Installed more insulation, new windows or doors, or increased weather stripping | 3% |
| Water heaters only | Had the heating system tuned up | 3% |
| All | Had the air conditioning system tuned up | 3% |
| All | Bought another major appliance that was high efficiency | 3% |

Total spillover was calculated for each participant by summing the factors assigned for each response. Spillover was eliminated if participants indicated that they had received rebates from other programs for other efficiency measures, unless they also indicated that the Nicor Residential Rebate program had influenced their decision to participate in the other programs.

As with free-ridership, the evaluation team calculated average spillover for each measure (.) The survey focused on the largest measure and interviewed mostly participants who purchased 95% AFUE furnaces. As the resulting net-to-gross ratio shows (), program-level results are largely driven by this measure.

Table 3‑9: Spillover Results by Measure

|  |  |  |
| --- | --- | --- |
| Measure | Spillover | Number of Participants Surveyed |
| 90% AFUE Boilers | 1.9% | 7 |
| 95% AFUE Boilers | 4.5% | 6 |
| 92% AFUE Furnaces | 3.0% | 8 |
| 95% AFUE Furnaces | 2.6% | 43 |
| All Water Heaters | 1.2% | 6 |

#### Final Net to Gross Ratio

The NTGR was calculated for each measure as follows:

*NTGR = 1 - %FR + %SO*

Table 3‑10 presents the results for each measure.

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

|  |  |  |
| --- | --- | --- |
| Measure | NTGR | Number of Participants Surveyed |
| 90% AFUE Boilers | 0.66 | 7 |
| 95% AFUE Boilers | 0.63 | 6 |
| 92% AFUE Furnaces | 0.62 | 8 |
| 95% AFUE Furnaces | 0.63 | 43 |
| All Water Heaters | 0.56 | 6 |
| Weighted Average | 0.63 | 70 |

### Net Program Impact Findings

Net program impacts were derived by multiplying gross program savings by the estimated measure-level NTG ratios. provides the program-level evaluation-adjusted net impact results for the Residential Rebate program.

Table ‑: Evaluation-Adjusted Net Impacts

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Ex Ante Gross Therms | Ex Post Gross Therms | Realization Rate | Ex Post Net Therms | NTGR (ex post gross) |
| 90% AFUE Boilers | 11,850 | 11,164 | 94.2% | 7,384 | 0.66 |
| 95% AFUE Boilers | 45,156 | 49,238 | 109% | 30,937 | 0.63 |
| 92% AFUE Furnaces | 123,840 | 114,704 | 92.6% | 70,651 | 0.62 |
| 95% AFUE Furnaces | 3,391,256 | 3,032,267 | 89.4% | 1,917,181 | 0.63 |
| 0.62 EF Water Heaters | 2,546 | 2,546 | 100% | 1,431 | 0.56 |
| 0.67 EF Water Heaters | 4,773 | 4,773 | 100% | 2,682 | 0.56 |
| Total | 3,579,421 | 3,214,692 | 90.2% | 2,030,267 | 0.63 |

## Participant Process Evaluation Findings

The primary objective of the process evaluation effort is to identify potential improvements to program structure or strategy. The process evaluation also assesses customer satisfaction with the program.

A key component of the Process Evaluation Team’s review of Nicor’s Residential Rebate (RR) program involved obtaining feedback from program participants. Seventy customers who received a Nicor Rider 29 RR program rebate were surveyed by phone during August 2011. Customers were selected from the pool of completed applications and interviewed by market research staff at the Blackstone Group, Chicago.

**Of 70 participants interviewed, 50 installed a furnace, 10 installed a boiler, five installed a water heater, and five installed multiple measures (**Table 3‑12**). While the survey sample does not reflect the distribution of savings from the program, it should nonetheless provide reliable customer feedback on program processes effectiveness.**

Table ‑. Survey Participant Breakdown by Measure Installed

|  |  |  |
| --- | --- | --- |
| Measure | Participants Surveyed | Percent of Total |
| Furnace | 50 | 71% |
| Boiler | 10 | 14% |
| Water Heater | 5 | 7% |
| Multiple Measures | 5 | 7% |

As Figure 3-3 shows, the majority of the participants that responded to the survey were in the fifty to one-hundred fifty thousand dollar income range.[[18]](#footnote-18)

**F**igure ‑. **Survey Respondents Profile: Self-Reported Annual Income**

### Participant Satisfaction

**On a scale of one to ten, with one indicating “very dissatisfied” and ten indicating “very satisfied,” 89% of participants gave a rating of 8 or higher indicating high levels of satisfaction. The average rating for the program overall was 8.9 (n=70). Only three of the 70 individuals interviewed indicated they wouldn’t recommend the program to other people. These individuals didn’t report any significant problems during the program; however they all indicated they had issues with the rebate and the application process.**

Figure ‑. Participant Program Satisfaction

Most participants reported being very satisfied with the program. When prompted to suggest ways to improve the program, five individuals indicated that **they would like to see the program marketing and outreach increased** to both reach out to new customers and to help them become aware of the program’s benefits. A majority of these recommendations were positive ones, stemming from participants’ satisfaction with program and the desire for others to experience its benefits. However, one individual indicated that in switching to online bills, they were no longer getting certain information they received with paper billing. Two other individuals also indicated that **they would like the website improved** as it is currently “a little weird” and the descriptive information on the website “could have been [made easier] to read [as it was] a little too complex for the average person.” Note that though one individual reported that the *website* was too complex for the average person, many respondents indicated that the program generally did well in presenting information clearly. The website should be reviewed to ensure that it matches the clarity of other program documents.

### Program Improvement

Participants were asked to rate the following program components: Nicor rebate information, the application process, phone staff, the speed of the rebate, contractor quality of work, new equipment meeting expectations, and Nicor support for the program (see Figure 3‑5).

Figure ‑. Participant Process Component Ratings Distribution

**The overall program delivery processes are functioning very well**. On average, participants rated each process component at eight or above on a scale of one to ten (see Figure 3‑6). Navigant found that customers rated the new equipment meeting expectations highest of all processes at an average of 9.36 (n=70). **The lowest rating was given to Nicor rebate information** provided to customers before they signed up (8.22, n=59).

Figure ‑. Participant Process Average Ratings Comparison

**When asked how the program can be improved, participants most notably indicated that they would like Marketing and Outreach improved**. Marketing materials are important for helping participants go through the program. About 49% (n=70) of participants indicated that information from Nicor Marketing materials was either “very important” or “somewhat important” in installing their measures. The most frequent open-ended suggestion participants made for program improvement was for Nicor to increase the availability of marketing materials across different media to both inform them of (other) program opportunities and to increase other customers’ awareness of the program and its benefits. Several participants felt the program isn’t advertised enough.

**The two lowest average rated processes involved the rebate information** given to participants prior to participating **and the speed of the rebates**. However, the speed of the rebate wasn’t an issue for most customers, as the second most commonly noted compliment to the program was the speed of the rebate. Furthermore, sixteen individuals complimented the program on the ease of applying and the program’s overall smooth processes. In order to understand the delineation more, Navigant compared satisfied to dissatisfied participants per measure and for the program overall. For every respondent dissatisfied with rebate processing speed (a rating below 6), about seven were satisfied; similarly, for every participant dissatisfied with rebate information, there were about 5 satisfied people. These ratios compare lower than the overall program’s ratio of 17 satisfied to one dissatisfied participant.

Thus, though the rebate program components are generally performing well, some individuals have had issues. It appears there is room for improving information about the rebate and its speed of delivery to some individuals to increase satisfaction in both the rebate information and rebate speed process categories. However, as the average ratings and program compliments suggest, the majority of people are satisfied with these processes, and the program is doing very well overall. All but three participants indicated that they would recommend the program to others and about **59% of participants said they already recommended the program to somebody.**

### Barriers to Participation

Overall, participants were very satisfied with the program and would recommend it to others. However, in recollecting their experiences with the program, several participants indicated that a lack of awareness of program offerings should be addressed to allow others to benefit from the program.

Participants were generally **very satisfied with the application process** (Figure 3‑7). Several individuals indicated they were happy with the availability of an online application to streamline the process, though one individual suggested that making it easier to find the program application on the website would be helpful.

Figure ‑. Participant Application Process Satisfaction

### Program Awareness and Outreach

Participants most often **first heard about the program through their heating contractor** (39%, n=135; Figure 3‑8). The other two most common ways of hearing about the program were through a bill insert and through radio, TV, magazine, and newspaper advertisements. In total, those three forms of communication accounted for 70% of participants’ first sources of information about the program.

Figure ‑. Participant Sources of Initial Program Information

Participants indicated **the strongest driving force for calling a contractor was equipment failure or failure-related concerns** (59%, n=70)**.** The second most common reason was being reminded of energy savings (17%). As Figure 3‑8 above shows, contractors were important in recruiting participants. About 50% of participants (n=70) indicated that a contractor played an influential role in equipment choice; of those, **37% indicated contractors were a major influence.** Over half of participants also independently sought information about heating technologies. **Most sought information on the internet** (31%, n=103), through another heating/plumbing contractor (17%), and through friends and relatives (14%). About 53% of participants asked the contractor for the best unit to install and trusted the recommendation; 25% asked for information on all installation options including low-efficiency ones; and 20% asked for models that met Nicor’s rebate qualifications (n=70).

### Key Messages

**The top three strongest reasons given for participating in the program** were to replace a broken or worn out furnace, confidence in getting high quality and reliable equipment, and to get a rebate on efficient equipment (Figure 3‑9). These responses indicate that **a desire for discounted, reliable, efficient equipment spurred by failure-related concerns with old equipment is the main driving force for participation in the program.** Increasing the sale value of the home and protecting the environment, on the other hand, though important, were not as strong driving forces for participation. Notably, **79% of participants (n=70) leaned towards long term savings** over immediate lower equipment costs (3%) in initiating discussion of the models they may purchase.

Figure ‑. Participant Reasons for Participating

### Conclusions

**Overall, customer satisfaction** with Nicor’s Residential Prescriptive Rebate program is very high. The average program rating was 8.9 on a scale of 10 (n=70), and 89% of participants indicated that they were very satisfied with the program overall (a rating of eight to ten, n=70). Program processes rated highly overall as well, ranging from an average of 8.22 to 9.36. Over half of participants had already recommended the program to someone, and all but three participants reported that they would recommend it to others. In sum, program is doing very well.

Participants gave **no indication of any significant barriers to participation** other than a desire to make others aware of the program (and thus overcome an awareness barrier). However, the **information available to participants about the program rebates** as well as the processes associated with receiving the rebate can be improved as several participants reported some dissatisfaction. This includes improving marketing and informational material as well as the website. **Improvements should be aimed at** answering participants’ inquiries about the rebate process and making information accessible to the average non-technically oriented individual.

**Contractors were important in driving participation in this program.** Equipment failure drove many participants to contact a contractor who was often influential in driving energy efficient installations with the program. Participants indicated that equipment related concerns and long-term savings goals over short-term costs were important reasons for participating in the program.

## Trade Ally Process Review Results

Navigant surveyed a total of 48 trade allies that participated in the Residential Rebate program. The goal of the survey was to obtain both quantitative and qualitative information from trade allies regarding their thoughts on the program. The survey included a significant number of open-ended questions to provide a detailed picture of contractors’ experiences to complement their quantitative statistical results.

### Program Design and Process Satisfaction

**Overall, the Residential Rebate program performed well** from the perspective of trade allies. Trade allies gave the program overall an average rating of 8.02 on a scale of one to ten, with a score of eight to ten indicating a “very satisfied” rating. All trade allies that gave a rating of five or lower indicated they had significant issues with the rebate process.

**The** **brands and models of equipment had the highest average rating** of 9.30 (n=47), indicating trade allies were generally “very satisfied” with the program’s equipment offerings. As Figure 3‑10 below shows, 94% of trade allies were “very satisfied” with that process component.

Figure 3‑10. Trade Ally Process Satisfaction Ratings

All other processes excluding equipment satisfaction rated on average in the six to eight score range. (Figure 3‑11) The **lowest rated process component was the application process** (average score of 6.27, n=45). Navigant found that trade allies’ reasons for giving ratings of five or lower for the process components generally related to rebate application confusion and returns. Thus the rebate application process is influential in satisfaction levels across the program’s other processes.

Figure 3‑11. Trade Ally Average Process Component Ratings

Trade Ally-Reported Participant Satisfaction

Trade Allies reported an average score of 7.83 (rounding to 8, n=48) for their perceived participant satisfaction levels, **indicating they believed participants were “very satisfied” borderline “somewhat satisfied” with the program**. All trade allies that gave a low rating indicated that participants that got the rebate were happy; however, **they reported many participants were unhappy due to a high incidence of rebate processing problems**, including returned forms and denied eligibility.

### Program Improvement

Trade allies were prompted to suggest ways in which the program could be improved. Three themes were identified that notably correlate with program participant feedback: **1) The rebate application process needs improvement; 2) marketing and outreach for the program should be improved, especially to contractors; and 3) website issues should be addressed**.

The Rebate Application Process

Contractors had considerable issues with the rebate process. In particular, there were repeated mentions of returned applications because the **invoice and application submission process was reportedly too rigid.** Contractors felt the application process was too cumbersome, wasted their time, and not sufficiently flexible. For instance, one contractor reported that he had their application returned because they failed to write the word “paid” across the invoice though the contractor indicated that the actual invoice showed that the amount was paid. This contractor gave the program an overall rating of 1, and reported that they were still waiting for 18 out of 25 rebates. Another contractor noted that Nicor turned down 15 of 20 rebate applications, while another noted 9 out of 10 were returned. As a result of issues with the rebate, **several contractors stated that the program is not worth the time investment the current rebate application process requires.**

The trade allies suggested that **the application should be simplified to reduce redundancy**: “If [the] invoice has it, don’t ask for it again.” Another contract similarly indicated that “…generally the date of payment and date of purchase and installation is what they [Nicor] say is missing. It is on [the] copy of the invoice.” Many trade allies would prefer to save time by not having to input information on the invoice into the application. Furthermore, they suggested that Nicor **provide customers a list of eligible measures** and that Nicor **spell out requirements on the application more clearly** so that they’re not returned.

Finally, several contractors indicated that Nicor should be aware of the **needs of elderly customers**. In regards to the application, one contractor suggested increasing the time to submit the application, as some elderly customers need more time to prepare it.

Marketing and Outreach

Navigant identified a number of cases where trade allies learned about the program through their customers, suggesting **a lack of sufficient program marketing and outreach** targeted towards them. Similarly, contractors also indicated that they **would like to have access to program brochures** and other sources of program information so that they are more knowledgeable about the program in front of their customers.

**Trade allies rated the program’s promotional materials and marketing an average 7.45** out of 10 (n=42). Trade allies that gave ratings of 5 or lower indicated that they heard about the program through a customer or another program first, that they had never seen any marketing materials, and that customers are not aware of the program until the contractors tell them about it. About **one in five trade allies reported having heard about the program first through a customer** (19%, n=48).

Trade allies also rated their perception of the Nicor’s promotion of the program to customers (Figure 3‑12). While 38% of trade allies thought it was very well promoted, 17% thought it was somewhat poorly promoted, and 15% thought it was very poorly promoted (that is, about **one in three trade allies surveyed believe Nicor’s Residential Rebate program promotion is poor**).

Figure ‑. Trade Ally Perception of Program Promotion to Customers

One contractor suggested that **Nicor should “go through manufacturers…put ads in trade magazines, or [provide] flyers to inform the contractors about the program.”** Another contractor also reported that customers had difficulty finding information about the program online.

Website

Some program participants may have difficulty using the website. Customers attempting to find information about the program and the application online have had difficulties and referred to contractors for help. Furthermore, more than one contractor indicated that elderly people in particular have trouble with the online application, and that a call-in application option should be available to them in case they need it, especially since “not everybody is online nowadays.”

### Trade Ally Sources of Initial Program Information

The primary source of initial program information for trade allies was the “other” category (see Figure 3‑13) which was predominantly **equipment suppliers.** Other free responses included **information obtained through other utility programs, and some emails and fliers from Nicor**. Customers were the second largest source of contractors’ initial information. None of the trade allies first heard about the program through TV or radio advertisements.

Figure ‑. Trade Ally First Sources of Program Information

### Trade Ally Promotion of the Program

About **two-thirds of Trade Allies primarily promoted the program through word of mouth**. About another fourth of trade allies reported having used some sort of advertising in newspapers, direct mail, on websites, or during sales calls. About two-thirds of the trade allies also reported that **word of mouth marketing yielded the most customers that participated in the program.** About 98% of trade allies indicated that they had no problem following Nicor’s rules for promoting the program. The 2% that indicated they had trouble following the rules were referring to the rules of the rebate program rather than the rules of promoting the program. Furthermore, though most contractors also indicated they had no issues explaining and implementing the program with customers, **some contractors believe it would be easier if they had brochures to give to customers** about the program.

### Factors Affecting Sales Volume

About 83% (n=48) of trade allies indicated that the federal residential tax credits had a substantial effect on the firm’s sales since 2009.

Most contractors indicated that Nicor’s program had a positive impact on their sales of efficient furnaces, boilers, and water heaters. About 95% of trade allies (n=40) indicated that **the Nicor program definitely increased the number of customers inquiring about higher-efficiency gas-fueled equipment**. Of 48 trade allies that responded to each of the respective questions, **81% indicated the rebate program increased the number of customers buying furnaces**, 31% indicated it increased boiler sales, and 25% indicated it increased water heater sales.

### Conclusion

Overall the Residential Rebate program is well viewed by trade allies. Nonetheless, as is common with programs in their first year, the Rider 29 Residential Rebate program has potential to become even better in future years.

Trade allies identified the rebate application process as the main area with improvement potential. Navigant found that all lower process ratings across program components were related in some way to contractors’ issues with rebate processing. Thus, the trade ally suggestions and ratings indicate that if the rebate application and payment processes are improved, program satisfaction is also likely to improve across all process components. In simplifying and streamlining the rebate application process, Nicor may be able to increase both trade ally satisfaction and some customers’ satisfaction as well, since the participant survey analysis found evidence of some participant dissatisfaction with the rebate information available as well as the speed. The lower *participant* satisfaction ratings most likely originated in cases where rebate applications were returned, as the trade allies indicated, delaying the rebate receipt process. Nicor can also improve the application process by adding more detailed instructions on the application to further ensure trade allies and participants properly submit their applications and receive their rebates in a timely fashion.

Another potential area for improvement is marketing and outreach. One-fifth of trade allies initially found out about the program through customers. Though this may be a sign that customer outreach is strong, it may also be an indication that trade ally outreach efforts should be strengthened. Furthermore, those trade allies that found out about the program through customers would like additional information from Nicor to help them learn more about the program. Trade allies in general would like to have brochures and other program informational material available to give to customers to support their own marketing efforts.

# Conclusions and Recommendations

This section includes the evaluation team’s key conclusions and recommendations from the Rider 29 evaluation of the Nicor Gas Residential Rebate Program.

## Conclusions

### Verification and Due Diligence and Tracking System

The Residential Rebate program QA/QC and tracking systems are working well for the first year of a new program. Minor adjustments are needed to improve program performance to the standard of industry best practices.

### Impact Evaluation Findings

Navigant’s evaluation yielded an overall realization rate for the Residential Rebate program of 90.2%, which reduced ex ante reported therms of 3,579,421 to 3,214,692. Participant surveys indicated that adjustments for free-ridership and spillover result in a net to gross ratio of 0.63. As a result, program net savings for Rider 29 totaled 2,030,267. (Table 4‑1)

Table 4‑1. Gross and Net Impact Results

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Ex Ante Gross Therms | Ex Post Gross Therms | Realization Rate | Ex Post Net Therms | NTGR |
| 90% AFUE Boilers | 11,850 | 11,164 | 94.2% | 7,384 | 0.66 |
| 95% AFUE Boilers | 45,156 | 49,238 | 109% | 30,937 | 0.63 |
| 92% AFUE Furnaces | 123,840 | 114,704 | 92.6% | 70,651 | 0.62 |
| 95% AFUE Furnaces | 3,391,256 | 3,032,267 | 89.4% | 1,917,181 | 0.63 |
| 0.62 EF Water Heaters | 2,546 | 2,546 | 100% | 1,431 | 0.56 |
| 0.67 EF Water Heaters | 4,773 | 4,773 | 100% | 2,682 | 0.56 |
| Total | 3,579,421 | 3,214,692 | 90.2% | 2,030,267 | 0.63 |

### Process Evaluation Findings

The Residential Rebates program rates highly overall. The program is viewed positively by participants and is generally well viewed by trade allies. Nonetheless, there are several areas for improvement that would make the program even more successful in the future. A common theme among both dissatisfied participants and trade allies is the desire for a better rebate application process and better communication about the program and application requirements. The information available to participants about the program rebates as well as the processes associated with receiving the rebate can be improved. This includes enhancing both marketing and informational material as well as the website. Improvements should be aimed at answering participants’ inquiries about the rebate process and making information accessible to the average non-technically oriented individual.

Navigant also found that contractors’ have a number of issues with rebate processing and that if the rebate application and payment processes are improved, contractor program satisfaction is also likely to improve across all process components.

Another potential area for improvement is contractor marketing and outreach. One-fifth of trade allies initially found out about the program through customers. Though this may be a sign that customer outreach is strong, it also suggests that trade ally outreach efforts should be strengthened.

## Recommendations

In light of the evaluation findings, Navigant has identified the following areas for improvement in the due diligence and verification, tracking system, impact, and process components to further enhance Nicor’s Residential Rebate program.

The tracking system and due diligence and verification procedures for the program are functioning well.  Navigant additionally recommends that Nicor:

* Improve compliance on contractor entry of variables in the database such as model numbers for equipment. Contractors need to be told how the information they provide will be used to make the program work more efficiently or effectively and that, in the long run, they are helping themselves.
* Establish a system to monitor trade ally performance. This will formalize the existing trend of passing on observations of poor contractor performance to customers and help identify quality issues that communication and training can remediate.
* Obtain or develop a sampling protocol to sample rebate recipients without bias.   A display of efforts working for transparency and fraud prevention can be more valuable to all stakeholders than the actual verification inspections.
* Eliminate fields from the tracking system and web portal that are not being utilized; Navigant has been informed that this improvement has been made for Rider 30.
* Simplify the application, especially to prevent redundancy of reporting information requirements between the invoice and the application.
* Provide customers a list of eligible measures and more clearly list requirements on the application so that rebates are not delayed due to returned applications.

Although realization rates were relatively high, Navigant recommends more in depth research of deemed savings algorithm inputs in the future. Specifically, the evaluation team recommends:

* Use of program data to determine average size and efficiency of units actually installed
* Use of participant billing data to estimate equivalent full load hours for a sample of participants. This analysis should utilize more advanced simulation techniques in the future, and could be strengthened through collection of additional participant data on other household gas usage patterns.

In the participant and trade ally process evaluations, Navigant found a recurring theme among the data that suggests that the rebate application process is a main area for improvement in the program. Navigant recommends that Nicor:

* Simplify the application, especially to prevent redundancy of reporting information requirements between the invoice and the application.
* Provide customers a list of eligible measures and more clearly list requirements on the so that rebates are not delayed due to returned applications.

Another potential area for improvement is marketing and outreach.  Navigant recommends that Nicor:

* Increase marketing and outreach communication to trade allies as they would like more information about the program.
* Provide more informational and marketing collateral material to trade allies to help them become more informed about the program and to have material to show customers to help increase program participation.

The website should be assessed to determine whether it can be enhanced to make it easier to find information about the program, its requirements, participation instructions, and the program application.

Navigant believes that implementing these recommendations will help Nicor further streamline the Residential Rebate program as well as enhance the program’s efficiency and effectiveness.

# Appendices

## Due Diligence, Verification, and Tracking System Review Memo

|  |  |
| --- | --- |
| To: | Jim Jerozal; Nicor Gas |
| Copy:  From: | Julianne Meurice, Randy Gunn  Paul Wozniak, Navigant |
| Date: | September 7, 2011 |
| Re: | Verification, Due Diligence and Tracking System Review of Nicor Gas’s Residential Rebate Program |

This document reports on Navigant’s verification and due diligence review of quality assurance, program tracking, and eligibility verification procedures used in the Nicor Gas Residential Rebate (RR) program under Rider 29. Navigant will provide a separate engineering review of the deemed savings used in calculating total program savings as a section in the final program evaluation report. The Verification and Due Diligence recommendations reported below are based on findings from the Navigant’s in-depth interviews with the program staff and from review of program documentation. This documentation included process flow diagrams, summary statistics on rebate process flow, and tracking system databases on applications and contractors.

**Overview of Findings**

Overall, verification and quality assurance procedures for Nicor’s Residential Rebate program (PY1) present a reasonably detailed framework approaching nationally-recognized best practice standards.

Navigant has reviewed Nicor’s program tracking system and found that it gathers nearly all the critical data required to support future evaluations. Nicor’s PY1 activities meet most of the industry “best practices” as defined by the *National Energy Efficiency Best Practices Study* a document judged acceptable by the California Public Utilities Commission in 2008 for EM&V review*.* Overall, the quality assurance and verification procedures in place for the Residential Rebate Program, as outlined in the Nicor’s Rider 29 EEP Program Portfolio document (October 2010, prepared by WECC), provide a detailed quality control framework that meets many aspects of national best practices.[[19]](#footnote-19) However, remedial work is needed on aspects of tracking system management and for quality control and verification, as described below.

In the future, Nicor should ask the applicant whether the previous equipment was functional or not. This would improve the characterization of individual projects as either “retrofit” measure (one that is installed before the end of the old equipment’s lifetime) or as “replace on burnout” measure (one that’s installed at the end of the old equipment’s lifetime). This characterization has implications for the cost effectiveness estimates, since for retrofit measures the full measure costs are used in the TRC test, while only the incremental cost of the efficient measure relative to standard efficiency equipment is used in the TRC test for replace on burnout measures.

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

The purpose of the review is to determine:

* Whether appropriate eligibility criteria have been properly adhered to and applications are appropriately completed and backed with supporting documentation
* If any QA/QC activities are biased (i.e., incorrect sampling that may inadvertently skew results, purposeful sampling that is not defensible, etc.)
* Whether savings were calculated correctly and project information entered in an accurate and timely manner in the tracking system
* Whether QA and verification activities were well-designed and implemented.

**Data Collection**

The Navigant Evaluation, Measurement and Verification (EM&V) team collected data with in-depth interviews of key Nicor staff and staff of two of the contractor organizations. In addition, we requested and reviewed program documentation from contractors and implementers.

**Review of Program Process Due Diligence**

Navigant examined the operating procedures for gathering tracking system data used by WECC, Nicor’s program administrator; Resource Solutions Group, Inc. (RSG), program implementer; Electric and Gas Industries Association (EGIA) fulfillment and call center; and the Center for Neighborhood Technologies (CNT), provider of project verification services.

The detailed procedure is illustrated in Figure 1 (on the following page) by a flow diagram detailing the following steps:

* Application submission on-line or on paper
* Application review
* Pre-inspection or plan review
* Installation
* Post-inspection
* Incentive payment

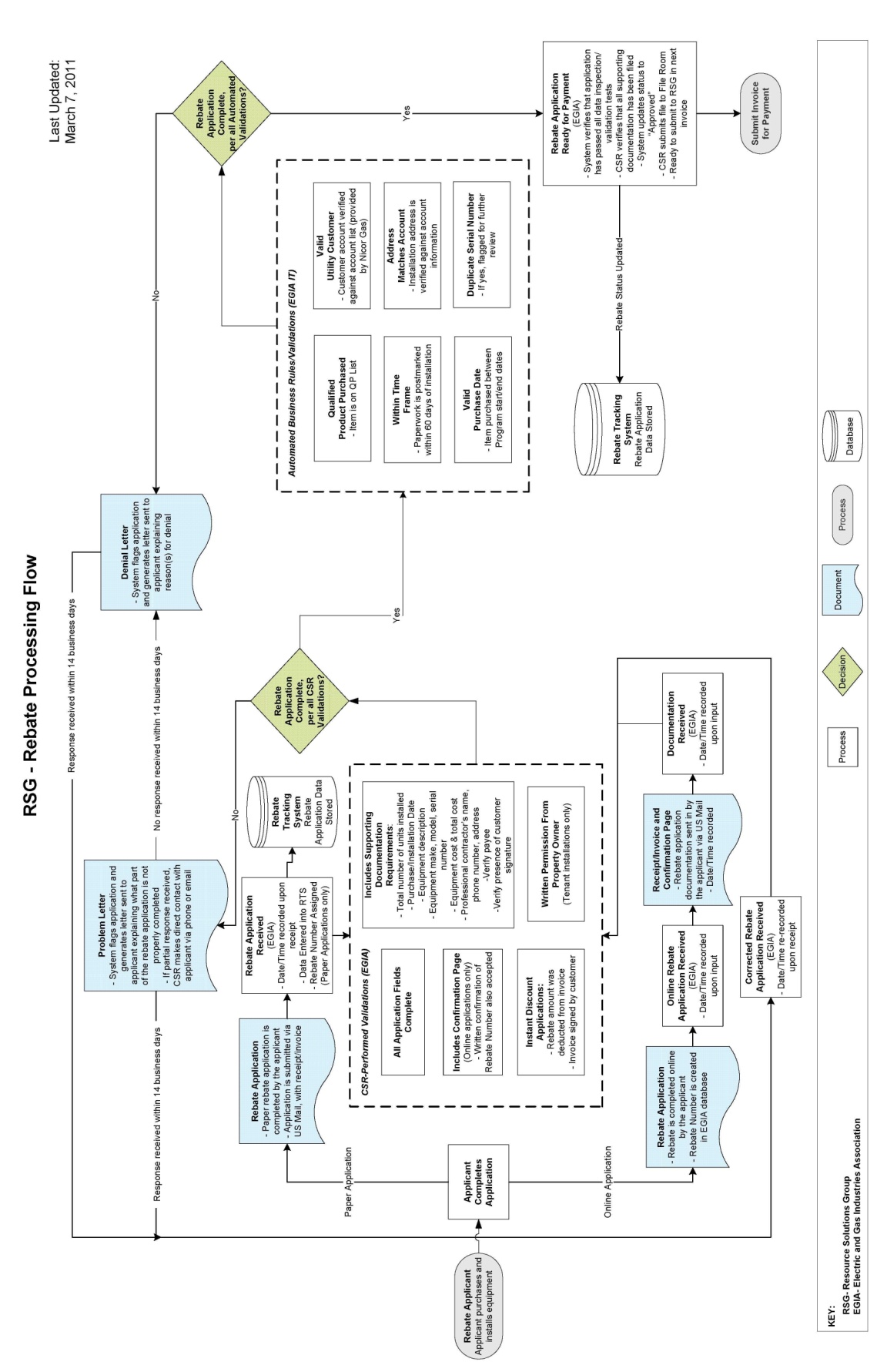
****

Figure - Rebate Processing Flow

Data collection processes were examined at the record level and records summary level. In addition, Navigant interviewed program and implementation staff, some of whom supplied written and graphic descriptions of their process of handling rebate applications with systematic review.

For example, CNT documents record completion of the following tasks:

* 1. Performance of site visits to confirm that reported equipment was installed according to application criteria.
  2. Completion in PY1 of 645 residential rebate verifications in the Nicor service territory with counts by measure.
  3. Performance of a visual combustion safety check at each site verification, to ensure flues and exhaust vents are properly connected.
  4. Appropriate completion of verification sheets at the inspection sites.

Figure -Sample photo documentation of installation

Above (Figure 2) is an example of photos taken by CNT for each of 645 furnaces, boilers and water heater installations inspected. The data form used in site verification collected data includes serial number and model, type of venting and building type. Age of equipment was supplied by the rebate applicant on the application form.

For furnace and boiler projects, manufacturer name, model and serial numbers are confirmed for all inspected units. Field engineers conduct inspections for a percentage of accepted projects primarily to verify that eligible models were installed as the application forms indicate. Data is recorded in standardized forms, and a note is made that photographs or other additional information was recorded.

However, it is unclear to Navigant whether peculiarities (not necessarily “wrong” or “unsafe”) are noted in these visits and tracked separately in the WECC database. We recommend tracking projects that have been inspected, including tracking of inspections in the online program database, at a minimum, as a safety measure to assure transparency as a protection against doubts about bias.

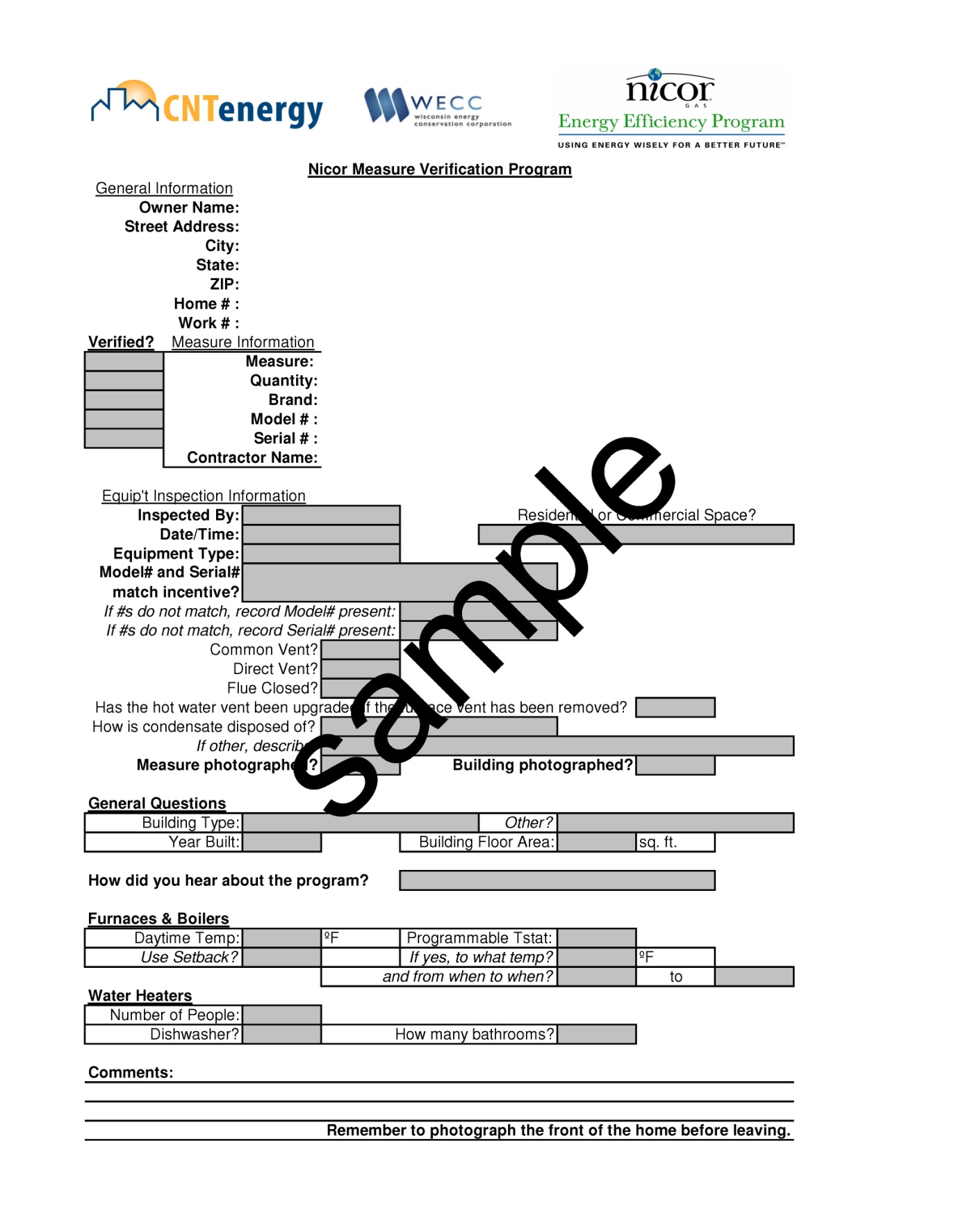


Figure -Data collection form used in site verification visit

***Tracking System Review***

**Data Collection by Nicor Contractors**

For the purpose of fraud prevention as well as for verification of application integrity, Nicor contracted with a third-party energy efficiency firm for site inspections. The contractor was the Center for Neighborhood Technology (CNT) who assigned a staff member to conduct site inspections of a sample of completed residential installations. CNT’s work aligned with the verification and due diligence procedure of Exhibit A (“Scope of Project Services”), which, in turn, met satisfactory ratings according to national best practices. CNT’s reports to the implementation contractor (Wisconsin Energy Conservation Corporation, WECC) indicate adherence to the prescribed scope of work. Most units verified and inspected were in northern Illinois.

CNT reports inspection for safety aspects, but the inspection form does not list specific safety features checked. A checklist would be insurance that a few important items are reviewed (e.g., hissing sounds, odors, flue connected properly). CNT was asked whether safety problems were observed during any safety inspections, and they reported that none were discovered.

More than three percent (645 of 20,296) of rebated installations were inspected post-installation, a ratio meeting nationally accepted norms and exceeding the 2% target mentioned in the Rider 29 EEP Program Portfolio. However, Navigant noted a lack of a formal sampling protocol to protect against conscious or unconscious bias in selecting sites for verification. Given that the site inspections are done only for verification of model and serial number, the lack of a sampling protocol is not viewed as a problem. However, programs commonly evolve to add features. As a note of caution to Nicor managers, if the verification process were to add features (e.g., expand to include safety inspection or engineering performance measurement), the lack of sampling protocol could pose problems.

Navigant reviewed data collection plans, process flow statistics, related documentation, and field verification summary reports. We also reviewed the database developed by WECC and RSG and found tracking for the following information on each incentive transaction:

• Customer data (i.e., name, address, telephone, e-mail)

• Installation data (i.e., address, date, contactor)

• Measure information (i.e., quantity, model, serial number, efficiency)

• Transaction data (i.e., invoice tracking number, measure cost, purchase date)

• Contractor info (i.e. firm name, phone number)

In adherence to principles of data transparency, RSG made a detailed database available on demand through an Internet portal. Access is reported for multiple parties, ranging from Nicor staff and its multiple contractors to registered users such as Navigant. Applicants are able to check on their application status 24/7 without the need for a voice phone inquiry or waiting in queue. Under the oversight of the program administrator, WECC; the implementation contractor, RSG, reports application verification of each product for which incentives are paid. Such verification includes qualification of equipment as meeting the prescribed efficiency standards using third-party databases (i.e. ENERGY STAR, GAMA, AHRI). The program accepts equipment made by major manufacturers for the mass market and did not rebate custom devices.

**Benchmarking**

Navigant reviewed the Residential Rebate program practices using an evaluation matrix and scoring system in the *Best Practices Self-Benchmarking Tool* from the *National Energy Efficiency Best Practices Study*.[[20]](#footnote-20) The program scored 25 of 32 total possible points in the applicable categories. This indicates a good effort that needs minor improvement. The section immediately below identifies six items that need attention should Nicor wish to claim credentials for best practices in the Residential Rebate program. Four of the items involve details of the tracking systems. The other two items relate to broader issues of process quality control.

**Reporting and Tracking**

1. *Define and identify the key information needed to track and report early in the program development process. And,*
2. *Clearly articulate the data requirements to measure success*

* Program tracking needs minor improvements. In the future, Navigant recommends that contractors be asked to record the make, model, and approximate age of replaced equipment. Manufacturer and model number data will enable program implementers to check size and efficiency estimates, improving the accuracy of savings algorithms.
* Navigant recommends tracking projects that have been inspected, including tracking any comments by inspectors on inspection results, in the online program database.
* Navigant observed discrepancies between tracking system savings estimates and the values cited RSG’s work paper on boilers. RSG confirmed that the system was reporting Rider 30 values for both boiler measures, but that program totals were calculated using the correct values. Care should be taken to ensure that such glitches are caught sooner in the future.

1. *Build in rigorous quality control screens for data entry.*

* While generally good, the tracking system failed to capture the age of the replaced equipment, despite the application form’s request for that data.

1. *Carefully document the tracking system and provide manuals for all users.*

* Flow diagrams and access to the tracking system were provided, but best practice calls for a manual to be prepared describing the tracking system.

**II. Quality Control and Verification**

1. *Provide quick and timely feedback to applicants.*

* Customers and trade allies can check the status of rebate applications through the Nicor gas rebates web portal within a matter of days, according to WECC. Nicor’s “instant rebate” provides feedback to applicants through the immediate approval at time of purchase. This exceeds Best Practice standards which call for feedback to customers on status within five days of a query.

1. *Build in statistical features to the sampling protocol to allow reduction in required inspections based on observed performance and demonstrated quality work*

* Sampling for site verification inspections should be according to a transparent protocol rather than the current convenience-based sampling approach.

**Summary of Recommendations**

In summary, following are Navigant’s recommendations for bringing Residential Rebate program practices to best practice standards:

* Require equipment installers (“trade allies”) to document the age, capacity (input Btu/hour), and efficiency of equipment rebated equipment as well as of the equipment being replaced, with entry of such information into the program database. This recommendation is aligned with a recommendation forthcoming in the engineering review, to be presented in the final report
* Improve contractor entry of variables in the database such as model numbers for replaced equipment as well as the age of replaced equipment.
* Review tracking system and eliminate fields that are not being utilized; Navigant has been informed that this improvement has been made for Rider 30.
* Obtain or develop a sampling protocol for the verification process to sample rebate recipients without bias.
* Establish a system to monitor trade ally performance. This will formalize the existing practice of passing on observations of poor contractor performance to customers and help identify quality issues that communication and training can remediate.

**Conclusions**

The Residential Rebate program QA/QC and tracking systems are working well for the first year of a new program. Minor adjustments are needed to improve program performance to the standard of industry best practices.

## Participant Survey Instrument

Participant Survey Questionnaire for Nicor Gas residential rebate program

(Gas-fueled Space and Water Heating Equipment Rebate)

PY1- May 2010-May 2011

NTGR, Process & Satisfaction Evaluations

Residential Participant Survey

Telephone Survey Instrument

Draft Questionnaire 080711

Contents

[Participant Survey Questionnaire for Nicor Gas residential rebate program 46](#_Toc302896462)

[INTRODUCTION 46](#_Toc302896463)

[SCREENING QUESTIONS AND MEASURE IDENTIFICATION 46](#_Toc302896464)

[A. PARTICIPATION DECISION 46](#_Toc302896465)

[B. EFFECT OF TAX CREDITS 46](#_Toc302896466)

[C. FREE RIDERSHIP 46](#_Toc302896467)

[D. CONTRACTOR INFLUENCE 46](#_Toc302896468)

[E. SPILLOVER AND REBOUND EFFECT 46](#_Toc302896469)

[F. OVERALL PROGRAM SATISFACTION 46](#_Toc302896470)

[G. SATISFACTION WITH SUB-PROCESSES 46](#_Toc302896471)

[H. BUZZ FACTOR 46](#_Toc302896472)

[I. DEMOGRAPHICS 46](#_Toc302896473)

Interviewer Instructions

Call is to be placed asking to speak to the individual named in the customer contact information obtained from program records.

If that individual no longer has the phone number of record, ask the respondent if they live at [customer address of record].

If the individual of record no longer lives at address of record, take any info offered, thank and terminate.

Make at least 5 attempts to each customer at different times of the day/week.

The purpose of the introductory script is to ensure the survey is answered by the primary decision maker involved in enrolling in Nicor’s Prescriptive Rebate program.

Initial questions are to qualify the respondent

Acceptable respondents include: persons who signed up on behalf of a dependent person (e.g., older relative) but who may not live at the target service address.

|  |  |
| --- | --- |
| SAMPLE\_NO |  |
| CUST\_NAME (NAME) |  |
| SERVICE\_ADDRESS |  |
| HOME\_PHONE |  |
| SECONDARY\_PHONE |  |
| PROGRAM IN WHICH PARTICIPATED  **QUOTAS**   |  |  |  | | --- | --- | --- | | **[Strata]** | **Program Totals by Measure-Rider 29** | **Samples** | | **Boiler 90 AFUE** | 82 | **7** | | **Boiler 95 AFUE** | 192 | **7** | | **Furnace 92 AFUE** | 736 | **7** | | **Furnace 95 AFUE** | 17,805 | **43** | | **Water Heater 0.62** | 133 | **3** | | **Water Heater 0.67** | 82 | **3** | |  |  | **70** | |  |

INTRODUCTION

**INTRO1** Hello, my name is \_\_\_\_\_\_,and I’m calling on behalf of NICOR Gas to ask your help in evaluating the energy efficiency program that gave you a rebate on equipment you had installed in your home during the past 12 months. 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 Nicor has hired us to evaluate their energy efficiency programs, and we’d to like talk briefly with you because records in Nicor’s files show that you took part in their Rebate program this past year and replaced a furnace, boiler or hot water heater.

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

9 DON’T KNOW REFUSED **[SKIPTO THANK8]**

SCR2 The **Residential Rebate** Program gives a cash rebate for Nicor customers buying a high-efficiency furnace, boiler or water heater. The check may have been mailed directly to the equipment contractor, but you should have been informed that there was a rebate reducing the cost of equipment you installed.Do you remember the program?

1 YES **[SKIPTO EQT1]**

2 NO, I don’t recall having any equipment installed in the past year (since April 2010) **[SKIP TO SCR2A]**

**3 YES I had equipment installed but I don’t recall hearing about a NICOR rebate. [SKIPTO EQT1]**

9 DON’T KNOW / 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 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]**

9 DON’T KNOW / REFUSED **[SKIPTO THANK8]**

**[QUALIFIED RESPONDENT – QAL STATEMENT]**

EQT1 What type of equipment did you have installed under the Nicor Residential Rebate program?

Furnace

Boiler

Water heater

NONE OF THE ABOVE **[SKIP TO THANK2]**

EQT1B Did you receive Nicor rebates on more than one piece of gas-fueled equipment since May 2010? (example: customer could have received rebate for a water heater and a furnace, or for two furnaces for single building or for two water heaters.)

YES [If customer received a Nicor rebate for two or more pieces of equipment, inform the customer that all questions in rest of survey should be answered only for the most expensive piece of equipment covered by a Nicor rebate]

NO

DK/REFUSED

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

Furnace

Boiler

Water heater

DK/REFUSED

EQT2 What was the approximate age of the equipment you replaced?

Furnace : \_\_\_\_\_\_\_\_\_\_\_\_years [IF UNCERTAIN, ASK a-d OPTIONS BELOW]

\_\_\_\_ less than 10 years old (installed 2001 or later)

\_\_\_\_ 11 to 20 years old (installed 1991-2000)

\_\_\_\_ 21-30 years old (installed 1981-1990)

\_\_\_\_ more than 30 years old (installed before 1981)

Boiler: \_\_\_\_\_\_\_\_\_\_\_\_\_\_years [IF UNCERTAIN, ASK a-d OPTIONS BELOW]

\_\_\_\_ less than 10 years old (installed 2001 or later)

\_\_\_\_ 10 to 20 years old (installed 1991-2000)

\_\_\_\_ 21-30 years old (installed 1981-1990)

\_\_\_\_more than 30 years (installed before 1981)

Water heater: \_\_\_\_\_\_\_\_\_\_years [IF UNCERTAIN, ASK a-d OPTIONS BELOW]

\_\_\_\_ less than 5 years old (installed 2006 or later)

\_\_\_\_ 5 to 10 years old (installed 2001-06)

\_\_\_\_ 11-15 years old (installed 1996-2000)

\_\_\_\_ more than 15 years old (installed before 1996)

Other: Did you replace any other equipment?

YES (SPECIFY)

NO

DK/REFUSED

A. PARTICIPATION DECISION

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? [check all mentioned; but ask which was the single MOST important reason]

When the equipment you had broke down or gave signs that it was near end of useful life

When you heard there were federal or state tax credits were available but about to expire

When you learned there were other rebates or discounts available for a limited time

When you were reminded that you could reduce your monthly utility bills by upgrading to more efficient technology

Other: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

A2. How much influence would you say that the contractor played in your decision about which specific type of technology or model to install? [READ LIST]

Major influence

Minor influence

It was 50-50

No influence at all; I knew what I wanted

A3 Besides what you learned from the contractor/installer, did you independently seek information about heating (or water heating) technologies?

YES

NO

DON’T KNOW

REFUSED

A3A (ASK IF A3=1) where did you seek information? [READ LIST]

Another plumbing or heating contractor

Friend/relative/neighbor

Internet search

NICOR website (NicorGasRebates.com or Nicor.com), call center or NICOR employee I know

Government (federal, state or local)

Print articles in magazine, newspaper

Previous knowledge/research

Reference books at library or bookstore

Other

Don’t know/refused

A4. Do you remember how you heard about the Residential Rebate Program offered by Nicor Gas? Let me read a list of possibilities and tell me if you recall learning through…

**[RANDOMIZE ITEMS 1-7]**

**[SELECT ALL THAT APPLY]**

1 A Nicor Gas bill insert

2 Radio, TV, magazine or newspaper ad

3 Program brochure

4 Heating contractor

5 Word of mouth

6 the Nicor web site

7 a special event like a home show

8 Were there any other ways you heard about the program? **[SPECIFY])**

88 DON’T KNOW/NO RECALL AT ALL

99 REFUSED

A5. I’m going to read you a list of reasons we’ve heard why people participate in programs like this one. 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 Rebate** Program.

**[ROTATE A5A – A5H]**

**[For A5A, RE-READ SCALE FOR AT LEAST EVERY THREE ITEMS]**

A5A Do you strongly agree, agree, disagree or strongly disagree that you participated in the **Residential Rebate** Program in order to…?

…protect the environment**?**

1 STRONGLY AGREE

2 AGREE

3 DISAGREE

4 STRONGLY DISAGREE

8 DON’T KNOW

9 REFUSED

A5B Receive Tax credits

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

A5G Replace a worn out or broken furnace (decrease noise, smells, make sure I’d have reliable heat/hot water

A5H Increase the resale value of my home

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

1 YES

2 NO **[SKIPTO FR1]**

8 DON’T KNOW

9 REFUSED

A6A. **[ASK IF A6 = 1]** What were the other reasons for participating in Nicor’s **rebate** program?

**[OPEN-END] [RECORD VERBATIM RESPONSE]**

**[CLARIFY AS NECESSARY]** Don’t Know, Refused

B. EFFECT OF TAX CREDITS

A6B. Some Nicor customers were able to get a federal tax credit for installing the equipment that you had installed.

Before you actually purchased the equipment, were you aware of this federal tax credit availability for calendar years 2010 and 2011? [READ LIST]

Yes, I was aware [SKIP TO A6C]

No, I was not aware until after agreeing to buy the unit [SKIP TO C.FREERIDERSHIP]

No, I was not aware until the process of buying it (e.g., salesman mentioned it; I heard it on the radio, etc.)

No, but I heard there might be a State of Illinois tax credit [SKIP TO C.FREERIDERSHIP]

REFUSED/DON’T KNOW [SKIP TO C.FREERIDERSHIP]

BATTERY BELOW ONLY FOR RESPONDENTS WHO WERE AWARE OF FEDERAL CREDIT

A6C. Did you apply for this federal tax credit “-----“…?

IF PURCHASE HAPPENED IN 2010, ASK “FOR 2010”

YES, applied for tax credit in 2010

NO, didn’t apply for tax credit in 2010

DON’T RECALL/DON’T KNOW

REFUSED

IF PURCHASE HAPPENED IN 2011, ASK “FOR 2011”

YES, I plan to apply for the tax credit for 2011 filing year

NO, I don’t plan to apply for federal tax credit for 2011

DON’T KNOW; MAYBE

REFUSED

A6D. Suppose a Federal Tax Credit incentive were NOT available when you bought your new equipment, but you could still get the Nicor rebate. In that case, would you have installed your new equipment …(READ LIST)

1. At the same time as you did [FR=0%]

2. Within a year of the time you did [FR=50%]

3. More than a year later [FR=100%]

4. Never [FR=0%]

5. (DON’T KNOW)

C. FREE RIDERSHIP

FR1. [Timing] Suppose that Nicor did not offer the rebate you got.

Would you have installed the new energy efficient furnace/boiler/water heater…(Read list)

1. At the same time as you did [FR=100%]

2. Within a year of the time you did [FR=50%]

3. More than a year later [FR=0%]

4. Never [FR=0%]

5. (DON’T KNOW)

FR2. **[Efficiency**] Without the Residential Rebate program and its cash rebates, how likely is it that the heating equipment you would have installed would have been as efficient as the equipment you installed through the program. Would you say the equipment would have been… [READ LIST]

1. Definitely as efficient [FR=0%]

2. Probably as efficient [FR=50%]

3. Probably not as efficient [FR=25%]

4. Definitely not as efficient [FR=100%]

5. DON’T KNOW

6. REFUSED

FR3A to FR3I**. [Consistency]** Thinking of the furnace you installed, how important was the (insert attribute) in installing your new equipment? Would you say it was… [RANDOMIZE ATTRIBUTES A through I] [READ LIST]

1. Very important

2. Somewhat important

3. Somewhat unimportant

4. Very unimportant

98. DON’T KNOW

A. Financial incentive from Nicor Gas [FR=0 IF 3,4]

B. Age or condition of the old heating equipment [FR=0 IF 3,4]

C. Information provided from Nicor [FR=..

D. Recommendation of the heating contractor that sold the equipment

E. Your previous experience with the equipment

F. Previous experience with this program or a similar program

G. Information from a utility event

H. Information from Nicor marketing materials

I. Endorsement or recommendation by Program Staff

D. CONTRACTOR INFLUENCE

D1. When deciding to start discussions on the model, did you lean toward the lowest initial cost or did you lean toward the best economy over the long-term? [READ LIST]

LOWEST COST TO ME (AT THE MOMENT OF PURCHASE)

SAVINGS OVER THE LONG TERM

OTHER [use this response category for comments that suggest customer refuses to think of it as either/or decision, such as responses volunteering any the following: reliability, repair records, safety, manufacturer I knew, warranty, etc.]

DON’T RECALL

D2. Before you decided on the model you purchased, did you compare models of lower efficiency that didn’t qualify for the Nicor rebates? Let me read three options and tell me which is closest to how you recall it. [READ LIST]

I asked for information on all the options, including lower efficiency models.

I asked the contractor for the best overall unit and went with the recommendation.

I asked for models that met the Nicor rebate qualifications

D3. Did your heating contractor offer you models of lower efficiency than the one you eventually decided on?

YES

NO

DON’T RECALL/DON’T KNOW

E. SPILLOVER AND REBOUND EFFECT

E1. Since getting your new gas equipment installed, do you feel your household has become more energy efficient, less energy efficient, or stayed the same?

MY HOUSEHOLD IS MORE ENERGY EFFICIENT

MY HOUSEHOLD IS PROBABLY LESS ENERGY EFFICIENT

MY HOUSEHOLD’S ENERGY EFFICIENCY BASICALLY STAYED THE SAME

E2. For cold weather heating, do you keep your thermostat set at one temperature 24 hours a day, seven days a week, or do you vary your thermostat?

Keep one temp all the time(PROBE: which is \_\_\_\_\_\_? ) place in Col1/Row3

Change day/night

Daytime temp:\_\_\_\_\_\_\_[probe: same all 7 days?]

Nighttime temp: \_\_\_\_\_\_[probe: same all 7 days?)

Change temp weekdays/weekends

Weekday temp (PROBE: which is\_\_\_\_\_\_\_?

Weekend temp (PROBE: which is\_\_\_\_\_\_\_?

WE CHANGE IT LIKE THIS (table below or verbatim as appropriate)\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_-

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  | Column1 | Column2 | Column3 |
|  |  | Everyday | M-F | Sat-Sun |
| Row1 | daytime |  |  |  |
| Row2 | nighttime |  |  |  |
| Row3 | Keep one temp |  |  |  |

E4. I’d like to ask about lifestyle changes that may--or may not-- have happened since you improved your energy efficiency through the **Residential Rebate** Program?

**[ROTATE E4A – E4H]**

E4A

[FOR HOT WATER REPLACEMENT REBATE CUSTOMERS]

Have you raised or lowered the hot water thermostat?

1 YES, RAISED THE WATER HEATER SETTING (MADE THE WATER HOTTER)

2 YES, LOWERED THE WATER HEATER SETTING (MADE THE WATER COOLER)

3 NO, KEPT THE SAME TEMP OF HOT WATER AS BEFORE

8 DON’T KNOW

9 REFUSED

E4B …[FOR FURNACE OR BOILER REPLACEMENT REBATES]

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 SAME TEMPERATURE SETTING SAME AS BEFORE

8 DON’T KNOW

9 REFUSED

HAVE YOU…

E4C Used more hot water figuring that your household is now more efficient

E4D Installed more insulation, new windows or doors, or increased weather stripping

E4E Had the heating system tuned up

E4F Had the air conditioning system tuned up

E4H Bought another major appliance that was high-efficiency

E5. Did your previous heating system (or water heater) use natural gas?

YES

NO

DON’T KNOW/REFUSED

(ASK E6 IF E5 = 2)

E6. What fuel did your old heating system use?

Electric

Fuel Oil

Wood

OTHER (SPECIFY)

DON’T KNOW/REFUSED

E7. Which fuel did your old water heater use?

oil

propane/LPG-liquid petroleum gas

electric

wood

other(record)\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

E8. Since participating in Nicor’s Residential Rebate program, have you participated in any other energy efficiency programs offered by Nicor, your electric utility or other organization?

YES, NICOR

YES, ELECTRIC UTILITY

YES, OTHER. SPECIFY IF POSSIBLE \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

NO

DON’T KNOW

REFUSED

**[If E8=D, E or F go to F1.]**

E8a. Can you please describe the program or programs that you participated in – either by name or by the type of equipment you replaced or action you took? (Please record verbatim.)

DON’T KNOW, REFUSED

E8b. Was your participation in this program or these programs influenced by your participation in Nicor’s Residential Rebate program? [READ LIST]

Yes, in all cases

Yes, in some part

No

DON’T KNOW

REFUSED

F. OVERALL PROGRAM SATISFACTION

PGMSAT We’d like you to describe your experience with Nicor’s rebate program, using a number scale from 1 to 10. Please choose a number between 1-and-10, where one means very dissatisfied and 10 means very satisfied. Thinking of your overall experience, how do you feel about Nicor’s Residential Rebate program?

A. \_\_\_\_\_Enter rating 1 through 10

B. DON’T KNOW/REFUSED

PGMSAT2 **[ASK IF PGMSAT is 5 or less]** 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]**

Don’t Know, Refused

G. SATISFACTION WITH SUB-PROCESSES

S1. To make the rebate program work, there are many pieces you probably have forgotten about. One or more may be important to you as an individual. I’d like to ask you about a variety of things that may have affected your experience for better or worse.

As I read the list, please rate each on a scale of 1 to 10, where 1 is very dissatisfied 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]**

S1A. Please rate your satisfaction with…

…the Nicor rebate **information you received** before signing up for the program.

S1B the **application process**

S1C the phone staff

S1D the speed in getting the rebate to you

S1E the quality of work by the **contractor** who installed the new equipment

S1F the new equipment meeting your expectations

S1G the Nicor support for the Prescriptive Rebate Program

S3a Is there anything about the program that you think was done particularly well?

**[OPEN-END] [RECORD VERBATIM RESPONSE]**

**[CLARIFY AS NECESSARY]** Don’t Know, Refused

S3b Is there anything about the program that you think could be improved?

**[OPEN-END] [RECORD VERBATIM RESPONSE]**

**[CLARIFY AS NECESSARY]** Don’t Know, Refused

H. BUZZ FACTOR

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

A. YES

B. NO, I HAVE NOT RECOMMENDED THE PROGRAM

C. DON’T KNOW

F. REFUSED

G1A [ASK IF G1=A] How many people have you recommended the program to outside your household? [DON’T READ RESPONSES]

A. ONE OR TWO PEOPLE

B. MORE THAN TWO PERSONS

C. [ENTER NUMBER GREATER THAN TWO]

D. NO, I HAVE NOT RECOMMENDED THE PROGRAM

E. DON’T KNOW

F. REFUSED

G2 Would you recommend the program to other people?

A. YES

B. NO

C. DON’T KNOW

D REFUSED

G3. **[ASK IF G2 =B OR C]** Why not?

**[OPEN-END] [RECORD VERBATIM RESPONSE]**

**[CLARIFY AS NECESSARY]** Don’t Know, Refused

I. 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

3 OTHER **[SPECIFY]**

9 DON’T KNOW / 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

4 OTHER **[SPECIFY]**

9 DON’T KNOW / REFUSED

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

\_\_ ENTER NUMBER OF PEOPLE

88 DON’T KNOW

99 REFUSED

Q4 Roughly how many square feet of heated space does the home have?

**[PLEASE USE YOUR BEST ESTIMATE]**

\_\_\_\_ ENTER NUMBER OF SQUARE FEET

8888 DON’T KNOW

9999 REFUSED

Q5 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]

Under 25

25-34,

35-44,

45-54,

55-64, or

65 or older?

DON’T KNOW

REFUSED

Q6 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 it…

1 Up to $30,000 per year,

2 $30,000 to under $50,000,

3 $50,000 to under 75,000,

$75,000 to under $100,000,

$100,000 to under $150,000,

$150,000 to under $200,000, or

7 more than $200,000?

8 DON’T KNOW

9 REFUSED

Q7 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 Nicor’s Residential 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 Nicor’s Residential Rebate program

**[DISPOS = 25]**

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

**[DISPOS = 24]**

## Trade Ally Survey Instrument

**Trade Ally Survey Guide**

Nicor Gas Rider 29 –Illinois EE programs

PY2010-11 Process and Impact Evaluations

**Evaluation of Residential Rebate Program**

|  |  |  |  |
| --- | --- | --- | --- |
| **[Strata]** | **Program Totals by Measure-Rider 29** | **Revised sample strata TA** |  |
| **Boiler 90 AFUE** | 82 | **5** |  |
| **Boiler 95 AFUE** | 192 | **5** |  |
| **Furnace 92 AFUE** | 736 | **5** |  |
| **Furnace 95 AFUE** | 17,805 | **31** |  |
| **Water Heater 0.62** | 133 | **2** |  |
| **Water Heater 0.67** | 82 | **2** |  |
|  |  | **50** |  |

=====================================================================

SCREENER/INTRODUCTION

INTRO1Hello, my name is\_\_\_\_\_\_\_\_\_\_ , and I’m calling on behalf of Nicor Gas to ask your organization’s feedback on their Residential 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 Nicor Gas to ask for your feedback on their Residential Rebate program. Nicor is 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 Nicor 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] \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**[IF OK, go to PD1]**

PARTICIPATION DECISION BY TRADE ALLY

PD1 This Nicor program was launched in May 2010. How did you first learn about Nicor’s Residential Rebate program?

Trade association ….IF YES, WHICH:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Customer first made me aware

Friend in the furnace/boiler/water heater industry

Radio

TV

Other news media

Bill insert from NICOR

Direct mailing to me from NICOR

Other: (verbatim) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

TRADE ALLY SATISFACTION WITH PROGRAM

Next, I’m going to discuss your satisfaction--as an equipment service and sales professional--with Nicor’s **Residential Rebate** program.

TASAT1. From your perspective as a gas appliance installer/vendor, overall how satisfied have you been with Nicor Gas’s **Residential Rebate** program? Using a number scale from 1 to 10, where one means “Very Dissatisfied” and 10 means “Very Satisfied.”

A. \_\_\_\_\_Enter rating 1 through 10

B. DON’T KNOW/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? \_\_\_\_\_\_\_\_VERBATIM

**[OPEN-END] [RECORD VERBATIM RESPONSE]**

**[CLARIFY AS NECESSARY]**

**DON’T KNOW, REFUSED**

TASAT2. I’d like to get a sense of your satisfaction with the components of the **Residential Rebate** program. On a 1-10 scale where 1=”Very Dissatisfied” and 10=”Very Satisfied,”, how would you rate the following parts of the rebate program? If the item doesn’t apply to you, just say so [record NA for ‘not applicable’]

A. the promotional materials and marketing efforts by Nicor Gas \_\_\_\_ **[IF rating=5 or less, PROBE WHY]**

**[OPEN-END] [RECORD VERBATIM RESPONSE]**

**[CLARIFY AS NECESSARY]**

**DON’T KNOW, REFUSED**

B. the application forms and process \_\_\_\_ **[IF rating=5 or less, PROBE WHY]**

**[OPEN-END] [RECORD VERBATIM RESPONSE]**

**[CLARIFY AS NECESSARY]**

**DON’T KNOW, REFUSED**

C. the brands and models of equipment covered by the programs \_\_\_\_ **[IF rating=5 or less, PROBE WHY]**

**[OPEN-END] [RECORD VERBATIM RESPONSE]**

**[CLARIFY AS NECESSARY]**

**DON’T KNOW, REFUSED**

D. the technical and customer assistance provided by Nicor Gas \_\_\_\_**[IF rating=5 or less, PROBE WHY]**

**[OPEN-END] [RECORD VERBATIM RESPONSE]**

**[CLARIFY AS NECESSARY]**

**DON’T KNOW, REFUSED**

E. the speed of getting the rebate to you if you participated in the instant discount process offered by the program? \_\_\_\_\_ **[IF rating=5 or less, PROBE WHY]**

**[OPEN-END] [RECORD VERBATIM RESPONSE]**

**[CLARIFY AS NECESSARY]**

**DON’T KNOW, REFUSED**

PERCEIVED CUSTOMER SATISFACTION WITH PROGRAM

TACSAT. Based on your interaction with customers, how satisfied are **they** with the **Residential Rebate Program** (apart from equipment-specific issues)? Giving your best guess, how might customers rate the program on a 1-10 scale where 1=”Very Dissatisfied” and 10=”Very Satisfied”?

\_\_\_ Enter numerical rating 1-10

\_\_\_ DON’T KNOW/REFUSED

TACSATB. **[IF TACSAT=5 OR LESS ASK OTHERWISE SKIP TO TACSATC]**

Why do you say that?

**[OPEN-END] [RECORD VERBATIM RESPONSE]**

**[CLARIFY AS NECESSARY]**

**DON’T KNOW, REFUSED**

TACSATC. If there were one thing Nicor could change about the rebate program--other than the incentive levels—that might improve customer satisfaction, what would that be?

**[OPEN-END] [RECORD VERBATIM RESPONSE]**

**[CLARIFY AS NECESSARY]**

**DON’T KNOW, REFUSED**

TRADE ALLY PROMOTION OF PROGRAM

TAMKTG. Next, I’d like to ask you how you may have marketed these programs to your customers and the awareness of the programs you’ve seen among customers.

What are the main methods that you used to market the programs to customers?

**[OPEN-END] [RECORD VERBATIM RESPONSE]**

**[CLARIFY AS NECESSARY]**

**DON’T KNOW, REFUSED**

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

**[OPEN-END] [RECORD VERBATIM RESPONSE]**

**[CLARIFY AS NECESSARY]**

**DON’T KNOW, REFUSED**

NGMKTG. In your opinion, how effectively did Nicor Gas promote these programs to residential **customers**? Giving your gut feeling, how well did Nicor do in promotion to the customer? Rate the program on a 1-10 scale where 1=”Very Poorly Promoted” and 10=”Very Well Promoted”?

\_\_\_ Enter numerical rating 1-10

\_\_\_ DON’T KNOW/REFUSED

NGMKTGB. **[ASK IF NGMKTG=5 OR LESS OTHERWISE SKIP TO PROB1]** How might Nicor Gas have better promoted these programs to end-users?

**[OPEN-END] [RECORD VERBATIM RESPONSE]**

**[CLARIFY AS NECESSARY]**

**DON’T KNOW, REFUSED**

PERCEPTION OF NICOR SUPPORT OF TRADE ALLIES

PROB1. Have you had any problems explaining and implementing the program for your customers?

\_\_\_ YES

\_\_\_ NO

\_\_\_ DON’T KNOW/REFUSED

PROB1A. **[ASK IF PROB1= A.YES, OTHERWISE SKIP TO PROB2]** Could you suggest ways that Nicor Gas could have better helped you explain and/or implement the programs for your customers?

**[OPEN-END] [RECORD VERBATIM RESPONSE]**

**[CLARIFY AS NECESSARY]**

**DON’T KNOW, REFUSED**

PROB2. Have you had any difficulties following Nicor Gas’s rules for vendors in promoting the programs?

\_\_\_ YES

\_\_\_ NO

\_\_\_ DON’T KNOW/REFUSED

PROB2A. **[ASK IF PROB2 =A. YES, OTHERWISE SKIP TO TAXCRED1]** Would you describe the nature of the problems you had and whether they were ever resolved to your satisfaction?

**[OPEN-END] [RECORD VERBATIM RESPONSE]**

**[CLARIFY AS NECESSARY]**

**DON’T KNOW, REFUSED**

PROB2B. **[ASK IF PROB2 =A. YES, OTHERWISE SKIP TO TAXCRED1]**

Could you suggest any improvements for future Nicor programs?\_\_\_\_\_\_\_\_\_\_\_\_\_VERBATIM

**[OPEN-END] [RECORD VERBATIM RESPONSE]**

**[CLARIFY AS NECESSARY]**

**DON’T KNOW, REFUSED**

FACTORS AFFECTING SALES VOLUME

TAXCRED1. Did the federal residential tax credits for home efficiency have a substantial effect on your firm’s sales since 2009?

A.\_\_\_Yes, positive effect

B.\_\_\_ Yes, negative effect (hurt sales)

C.\_\_\_ No, little or no effect

D.\_\_\_(verbatim if respondent offers a unique response)

**DON’T KNOW, REFUSED**

NTG. Has the Nicor rebate program increased the number of customers **“asking about”** higher efficiency gas-fueled equipment?

Yes, I think it definitely has increased inquiries

Yes, possibly,, but it’s difficult to tell

No, I don’t think the program has had much effect yet

**DON’T KNOW, REFUSED**

PROGRAM RESULTS/NET-TO-GROSS

NTG1. Do you think Nicor’s rebate program has increased the number of your customers buying energy efficient **furnaces?**

**Check all that apply; DO NOT read list**

\_\_\_ YES

\_\_\_ NO, not at my firm

\_\_\_ (if offered as response) other tradespeople report increase due to Nicor program

\_\_\_ DON’T KNOW/REFUSED

NTG1A. **[IF NTG1 =A.YES, ASK]** Could you estimate how many more high-efficiency units have you sold since the program began May 2010 compared to the previous 12 months (of May 2009 through April 2010)?\_\_\_ #furnaces [Note to interviewer: this is one way to get a sense for whether units have been sold that are not reflected in program numbers.]

**DON’T KNOW, REFUSED**

NTG2. Has the program increased the number of your customers buying energy efficient **boilers?**

\_\_\_ YES

\_\_\_ NO

\_\_\_ DON’T KNOW/REFUSED

NTG2A. **[IF NTG2 =A.YES, ASK]** Could you estimate how many more high-efficiency units have you sold since the program began May 2010 compared to the previous 12 months (of May 2009 through April 2010)?\_\_\_ #boilers

NTG3. Has the program increased the number of your customers buying energy efficient **water heaters**?

\_\_\_ YES

\_\_\_ NO

\_\_\_ DON’T KNOW/REFUSED

NTG3A. **[IF NTG3 =A.YES, ASK]** Could you estimate how many more high-efficiency units have you sold since the program began May 2010 compared to the previous 12 months (of May 2009 through April 2010)?\_\_\_ #water heaters

NTG4. Are you aware of other programs supporting energy efficient appliances in the Chicagoland area?

\_\_\_ YES

\_\_\_ NO

\_\_\_ DON’T KNOW/REFUSED

NTG4A. **[IF NTG4 =A.YES, ASK]** Which other programs are you aware of?\_\_(VERBATIM)\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**DON’T KNOW, REFUSED**

NTG4b. What is your reaction to having multiple such programs? (If unsure, probe: Was it helpful for business or confusing for customers and for you, or both?)­­­­­­­­­­­­­­­­­­ ­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­–(VERBATIM)\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**DON’T KNOW, 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.]*

\_\_\_YES, one-person business…PROCEED TO Q4

\_\_\_ NO, it’s a partnership with \_\_\_\_\_# working partners…PROCEED TO Q4

\_\_\_NO….PROCEED TO Q2-Part2

**DON’T KNOW, REFUSED**

Q2-Part2. [If Q2=C] do you have employees and subcontractors working for you?

\_\_\_\_\_\_#NUMBER full-time employees

\_\_\_\_\_\_#NUMBER part-time employees

\_\_\_\_\_\_#NUMBER partners

\_\_\_\_\_\_#NUMBER subcontractors

**DON’T KNOW, REFUSED**

*SEGUE: 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?

**(READ LIST, CHECK ALL THAT APPLY)**

A. FURNACES\_\_\_\_\_

B. BOILERS\_\_\_\_\_

C. WATER HEATERS\_\_\_\_\_

D. FIREPLACES\_\_\_\_\_\_\_\_

E. SPACEHEATERS\_\_\_\_\_

F. CLOTHES DRYERS\_\_\_\_

G. THERMOSTATS

F. OTHER \_\_\_\_\_

**DON’T KNOW, REFUSED**

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

[CHECK ALL THAT APPLY]

Sell\_\_\_\_\_\_

Install\_\_\_\_

Service\_\_\_

**DON’T KNOW, REFUSED**

Q4. Are you aware of the new program partnership between Nicor and ComEd to make it easier for tradespeople to help residential customers get home efficiency gas and electric savings?

\_\_\_\_Yes

\_\_\_\_No

\_\_\_\_ Don’t know/refused

Q5. As a tradesperson, would you find value in a rebate program that joined electric air conditioning improvements with gas appliance improvements?

\_\_\_\_Yes

\_\_\_\_No

\_\_\_\_Maybe (including comments such as would have to learn more)

\_\_\_\_DON’T KNOW/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 1-to-10 where 10 is “many aware of” and 1 is “virtually none aware of”, how would you rate customer awareness? \_\_\_\_\_

\_\_\_ Enter numerical rating 1-10

\_\_\_ DON’T KNOW/REFUSED

We have one final question for you.

Q7. Do you have any additional suggestions as to how Nicor can improve its Residential Rebate program? (Record verbatim.)

Thank you for your time.

1. The Nicor Gas Rider 29 Energy Efficiency Program year began May 1, 2010 and (installations) ended May 31, 2011. In some Nicor regulatory filings, the program reviewed here is referred to as the Residential Prescriptive Rebate program. In customer communications, the program is referred to as the Residential Rebate program. [↑](#footnote-ref-1)
2. Memo to Jim Jerozal, RR program manager, from Paul Wozniak, Navigant evaluator, titled “Nicor Gas Verification, Due Diligence and Tracking System Review of Nicor Gas’s Residential Rebate Program,” August 23, 2011. [↑](#footnote-ref-2)
3. *Ibid.* [↑](#footnote-ref-3)
4. Spreadsheet supplied by WECC Program Manager Lisa Aumann, September 21, 2011 [↑](#footnote-ref-4)
5. Nicor Gas, Exhibit 1.1, prepared testimony of James Jerozal before the Illinois Commerce Commission, titled Nicor Gas Energy Efficiency Plan 2011-2014, September 29, 2010. [↑](#footnote-ref-5)
6. The data collection instruments are included in the Appendix. [↑](#footnote-ref-6)
7. Rider 29 EEP Program Portfolio, Version 1.3, Updated 9/21//2010 [↑](#footnote-ref-7)
8. See normative details and scoring code in the Best Practices Self-Benchmarking Tool developed for the Energy Efficiency Best Practices Project: [*http://www.eebestpractices.com/benchmarking.asp*](http://www.eebestpractices.com/benchmarking.asp) [↑](#footnote-ref-8)
9. Work Paper WPRSGRES103: Gas Storage Water Heater—Residential. Resource Solutions Group, December 2010.

   Energy Star Residential Water Heaters: Final Criteria Analysis. April 2008. [↑](#footnote-ref-9)
10. Workpaper WPRSGRES101: Space Heating Boilers—Residential. Resource Solutions Group, December 2010. [↑](#footnote-ref-10)
11. Hall, N. et al. *New York Standard Approach for Estimating Energy Savings from Energy Efficiency Programs: Selected Residential & Small Commercial Gas Measures.* TecMarket Works, March 2009. [↑](#footnote-ref-11)
12. http://ggweather.com/ccd/nrmhdd.htm [↑](#footnote-ref-12)
13. *Workpaper WPRSGRES102: High Efficiency Gas Furnace—Residential.* Resource Solutions Group, December 2010. [↑](#footnote-ref-13)
14. Hall, N. et al. *New York Standard Approach for Estimating Energy Savings from Energy Efficiency Programs: Selected Residential & Small Commercial Gas Measures.* TecMarket Works, March 2009. [↑](#footnote-ref-14)
15. *2009 Savings Reference Manual.* The Cadmus Group, Inc and Interstate Power and Light Company, May 2010. [↑](#footnote-ref-15)
16. *Technical Reference Manual: State of Pennsylvania Act 129 Energy Efficiency and Conservation Program & Act 213 Alternative Energy Portfolio Standards.* Public Utility Commission, June 2011. [↑](#footnote-ref-16)
17. BizEE Degree Days: Weather Data for Energy Professionals. KORD Weather Station Data. <http://www.degreedays.net/>. Accessed 8/24/2011. [↑](#footnote-ref-17)
18. Note that 20% of respondents refused to answer the question. [↑](#footnote-ref-18)
19. See normative details and scoring code in the Best Practices Self-Benchmarking Tool developed for the Energy Efficiency Best Practices Project: [*http://www.eebestpractices.com/benchmarking.asp*](http://www.eebestpractices.com/benchmarking.asp) [↑](#footnote-ref-19)
20. See the Best Practices Self-Benchmarking Tool developed for the Energy Efficiency Best Practices Project: <http://www.eebestpractices.com/benchmarking.asp> worksheet tab labeled HVAC. [↑](#footnote-ref-20)