



Central Hudson Gas & Electric Corporation

Residential Electric HVAC Program

2012-2013 Process Evaluation · February 2015



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Executive Summary

Applied Energy Group, Inc. ("AEG") was retained by Central Hudson Gas & Electric Corporation ("Central Hudson") to conduct a process evaluation of its Residential Electric HVAC Program.

The Residential Electric HVAC Program targets residential customers that are interested in purchasing or replacing their cooling, space heating or water heating systems with the energy efficient options offered by the program. Measures that are eligible for rebates include central air conditioners, central air source heat pumps and electric heat pump water heaters. In addition, incentives of up to \$600 are available to customers to install duct and air sealing from qualified contractors.

AEG designed the 2012-3 process evaluation to examine program processes and customer responses to the program. The evaluation identifies methods for gathering data and measuring program results, and makes recommendations for program improvements. To arrive at the final recommendations, AEG performed the following tasks:

- Reviewed program materials and data
- Reviewed program tracking methods
- Updated program logic model and assessed program flow
- Conducted interviews with Central Hudson staff and ICF
- Conducted focus groups/interviews with Trade Allies
- Conducted surveys of participating customers

Summary of Key Findings

The Residential Electric HVAC Program modifications in 2012 and 2013 include:

- **Revised Rebate Application.** ICF combined the rebate application for the Residential Electric and Natural Gas HVAC Programs.
- **Online Rebate Application.** Trade Allies have the option of completing the customer application in VisionDSM via an online platform rather than submitting a paper application.
- **Rebate Processing.** ICF issues incentives to customers upon Central Hudson approval of application batches and is reimbursed by Central Hudson within 30 days.

Central Hudson exceeded the 2012 budget and MWh savings target while achieving 75 percent of the participation goal. Between January 1st and June 30th, Central Hudson spent approximately 50 percent of the budget and achieved the MWh target while achieving 33 percent of the participation goal.

Between January 1, 2012 and June 30, 2013, 1,346 customers participated in the Residential Electric HVAC Program and 2,190 measures were rebated.

- Nearly 9 out of 10 central air conditioners rebated were a SEER ≥ 16 . Heat pumps were evenly split between SEER ≥ 15 and SEER ≥ 16 .
- 43 percent of participants that installed a central air conditioner or heat pump also installed a programmable thermostat, 54 percent of participants that installed a furnace also installed an ECM furnace fan and 11 percent of participants that installed a heat pump also installed an ECM heat pump fan.

- More than 50 percent of installations were completed by Gold and Silver SavingsCentral Trade Allies. BPI certified SavingsCentral Trade Allies completed 30 percent of installations.

While the participants surveyed are satisfied with the program overall and most program components, the types of eligible equipment and the rebate processing time had the lowest satisfaction rates. However, ICF has decreased the rebate processing time since becoming the implementation contractor.

Recommendations

AEG has several recommendations on how to improve the program. These include:

Modify Trade Ally Participating Contractor Agreement

Approximately 46 percent of the SavingsCentral Trade Allies did not submit a rebate application between January 1, 2012 and June 30, 2013. The Trade Allies interviewed expressed concern regarding the list on the Central Hudson website, noting that the list is quite long and that there may be HVAC contractors that are not upselling energy efficient systems or performing quality work. Additionally, Central Hudson does not require proof that the HVAC contractors have insurance.

AEG recommends that Central Hudson and ICF consider modifying the Trade Ally Participating Contractor Agreement to (1) require proof of insurance and (2) require at least two customer references. ICF should require that all Trade Allies provide proof of insurance on an annual basis.

Continue Random Inspections of Trade Ally Projects

According to the participant survey, participants first became aware of the program via word of mouth (40 percent) and the SavingsCentral Trade Ally (31 percent). The majority of respondents reported bill savings (60 percent) and the need for a new cooling system (51 percent) among the primary reasons for participating in the program.

AEG recommends that ICF continue to inspect the first four projects completed by a new Trade Ally and a random 10 percent of Trade Ally projects. The majority of participants are made aware of the program via word of mouth or the Trade Ally. Therefore, it is crucial that customers are satisfied with the program and work completed by the Trade Ally.

Improve Application Processing QA/QC

The program requires that all work is completed by a SavingsCentral Trade Ally, except for heat pump water heaters which may be self-installed. Three (3) percent of measures rebated were installed by non-SavingsCentral Trade Allies.

Programmable thermostat and ECM fan rebates are offered to participants installing qualified heating and cooling systems. Of the programmable thermostats and ECM fans installed:

- Nine (9) percent of thermostats rebated through the Residential Electric HVAC and Residential Natural Gas HVAC Programs were not installed with a qualifying heating or cooling system.
- Twelve (12) percent of ECM fans rebated were not installed with a qualifying heat pump or furnace system.

AEG recommends that Central Hudson work with ICF to ensure the rebate processing system adheres to the requirement that systems are installed by a Trade Ally and programmable thermostats and ECM fans are installed with a qualifying heating or cooling system. The total quantity of programmable

thermostats or ECM fans incentivized should not exceed the total quantity of heating and/or cooling systems installed.

Consider Modifying Equipment Incentives

The Trade Allies recommended that Central Hudson consider rearranging the rebates, potentially lowering the central air conditioner rebates and increasing the heat pump rebates. ICF noted that possible changes for the 2014 program included reducing the central air conditioner rebates and modifying the HVAC mini-split system requirements.

- Nearly 9 out of 10 central air conditioners rebated were a SEER ≥ 16 versus a SEER ≥ 15 .
- Heat pumps were evenly split between SEER ≥ 15 and SEER ≥ 16 .

AEG recommends that Central Hudson work with ICF to determine if the rebates should be modified, particularly for SEER ≥ 15 central air conditioners.

Remove the Central Hudson Logo from SavingsCentral Website

The Central Hudson logo is available for download on the SavingsCentral website. AEG recommends that Central Hudson remove the logo from the website to minimize access to the logo and unapproved use of the corporate logo. Participating SavingsCentral Trade Allies can request the Central Hudson logo from ICF as needed.

Consider Providing Incentives for ENERGY STAR® Appliances

Forty (40) percent of participants surveyed suggested providing incentives for ENERGY STAR® appliances. AEG recommends that Central Hudson work with ICF to determine if ENERGY STAR® appliances are cost-effective and a viable addition to Central Hudson portfolio.

Continue SavingsCentral Marketing Campaigns to Customers and Trade Allies

The majority of program participants learned about the program from a SavingsCentral Trade Ally or word of mouth. However, only 11 percent of survey respondents reported that they were aware of other programs offered by Central Hudson.

AEG recommends that ICF continue to provide clear, accessible information to participating SavingsCentral Trade Allies. Central Hudson and ICF should also continue to aggressively promote this program as part of the SavingsCentral brand and inform customers of other energy efficiency programs.

1. Introduction

Applied Energy Group, Inc. ("AEG") was retained by Central Hudson Gas & Electric Corporation ("Central Hudson") to conduct a process evaluation of its Residential Electric HVAC Program. The program is part of Central Hudson's effort to help the State of New York meet its goal of reducing statewide electricity usage by 15 percent by 2015.¹ Central Hudson is a regulated transmission and distribution utility serving approximately 300,000 electric customers and 75,000 natural gas customers in New York State's Mid-Hudson River Valley, which extends from the suburbs of metropolitan New York City to the Capital District of Albany.

This report describes the key findings from the Residential Electric HVAC Program process evaluation and provides recommendations for program improvement. Section 2 provides a program overview, Section 3 summarizes the 2011 process evaluation recommendations and Section 4 presents the evaluation approach. Section 5 presents the program flow and Section 6 provides key findings from the 2013 Residential Appliance Saturation Survey. Section 7 presents the key process evaluation findings, including program performance, Trade Ally participation and program tracking. Section 8 describes opportunities for program improvement and Section 9 provides recommendations.

2. Program Overview

The Residential Electric HVAC Program targets residential customers interested in purchasing or replacing their electric heating and cooling systems with the energy efficient options offered by the program. Incentives are available for central air conditioners, central air source heat pumps, electronically commutated motor ("ECM") fans, heat pump water heaters, and programmable thermostats. Customers are also eligible for \$100 per hour of duct or air sealing, up to \$600, from a Building Performance Institute ("BPI") certified Trade Ally, based upon blower door and/or duct blaster test results.

The program is implemented by ICF International ("ICF"). The program requires that all work is completed by a SavingsCentral Trade Ally ("Trade Ally"), a qualified contractor certified by Central Hudson to participate in the program. However, customers may self-install heat pump water heaters. BPI certified Trade Allies that perform an ACCA Manual J Residential Load calculation on central air conditioner or central air source heat pump installations are eligible for a \$200 incentive.

Table 1 Program Rebates by Equipment Type

| Equipment Type | Minimum Performance | Rebate |
|---------------------------------|--|--------|
| Central Air Conditioner | SEER \geq 15, EER \geq 12.5 | \$400 |
| | SEER \geq 16, EER \geq 13.0 | \$600 |
| Central Air Source Heat Pump | SEER \geq 15, EER \geq 12.5, HSPF \geq 8.5 | \$400 |
| | SEER \geq 16, EER \geq 13.0, HSPF \geq 9.0 | \$600 |
| ECM Fan | Installed on qualifying heat pump | \$200 |
| Electric Heat Pump Water Heater | Energy Factor $>$ 2.0 | \$400 |
| Programmable Thermostat | Installed with qualifying cooling system | \$25 |

¹ The New York State Department of Public Service ("DPS") established the energy efficiency portfolio standard on June 23, 2008. As part of this portfolio standard, the DPS mandated New York State gas and electric utilities and the New York State Energy Research and Development Authority ("NYSERDA") to administer energy efficiency programs.

The New York Department of Public Service (“DPS”) approved a program budget of \$3,593,138 for 2012-2015, with a cumulative program energy savings goal of 3,358 MWh.²

Table 2 Annual Program Goals

| | 2012 | 2013 | 2014 | 2015 |
|---|------|------|------|------|
| Annual Energy Savings Goal (MWh) | 951 | 951 | 728 | 728 |
| Participants | | | | |
| Central Air Conditioner | 500 | 500 | 500 | 500 |
| Central Air Source Heat Pump | 500 | 500 | 500 | 500 |
| ECM Fan | 225 | 225 | 225 | 225 |
| Electric Heat Pump Water Heater | 150 | 150 | 150 | 150 |
| Programmable Thermostat | 600 | 600 | 600 | 600 |
| Duct/Air Sealing | 40 | 40 | 40 | 40 |

Table 3 Program Budget³

| | 2012 | 2013 | 2014 | 2015 |
|-------------------------------|------------------|------------------|------------------|------------------|
| General Administration | \$71,638 | \$50,000 | \$71,638 | \$71,638 |
| Program Marketing | \$40,000 | \$40,000 | \$40,000 | \$40,000 |
| Trade Ally Training | \$50,127 | \$50,127 | \$25,126 | \$25,126 |
| Incentives & Services | \$500,735 | \$500,735 | \$552,326 | \$552,325 |
| Direct Program Implementation | \$239,157 | \$260,795 | \$115,994 | \$115,994 |
| Evaluation | \$47,456 | \$47,456 | \$42,373 | \$42,373 |
| Total Budget | \$949,113 | \$949,113 | \$847,457 | \$847,456 |

Central Hudson is an active participant on the Energy Efficiency Program Administrator Collaborative with NYSEERDA and the other New York State utilities. Central Hudson is an active participant on the Steering Committee and working groups discussing double dipping / counting, referrals, contractor qualifications, training, and collaborative outreach. Central Hudson has participated in numerous conference calls and meetings with the other utilities in New York State to discuss program operation and structure to minimize market confusion and promote best practices.

3. 2011 Process Evaluation Recommendations

AEG conducted a process evaluation of Central Hudson’s 2010-2011 Residential Electric HVAC Program. Recommendations and Central Hudson’s actions, in response to the recommendations, are listed below.

Improve Rebate Processing Times

Recommendation: AEG recommends Central Hudson review the rebate process with Honeywell to reduce the time it takes, on average, for customers to receive their rebates to four to six weeks from the time the rebate is submitted.

Central Hudson Action: Honeywell would withdraw customer incentives from an account funded by Central Hudson. If the account was low, there was a waiting period until the account was replenished.

² Central Hudson Gas & Electric Corp. Energy Efficiency Program Portfolio Implementation, Marketing, Outreach & Education Plan Authorized Programs for 2012 – 2015. Revision August 2013.

³ The 2012 budget reflects the October 31, 2012 letter from Floyd Barwig approving the “Reallocation of Program Budgets and Targets from the Residential Appliance Recycling Program to the Residential Electric HVAC Program.”

Central Hudson has a new implementation contractor that covers the incentives upfront, allowing for faster rebate processing.

Conduct a Residential Appliance Saturation Survey (“RASS”) and Market Potential Study

Recommendation: AEG recommends that Central Hudson conduct a RASS to identify the type, age and efficiency level of appliances and HVAC equipment currently being used by households within Central Hudson's territory. The RASS will inform program design changes and measures to be considered for inclusion in Central Hudson's programs.

Central Hudson Action: Central Hudson engaged AEG to conduct a RASS in 2013; the results are presented in Section 6 of this report.

Continue Aggressive Marketing Campaign to Customers and Trade Allies

Recommendation: Central Hudson should continue to provide clear, accessible information to its residential customers on the benefits of installing efficient HVAC equipment and systems and continue to aggressively promote the program as part of the SavingsCentral brand. Honeywell should continue to aggressively market the program to Trade Allies. In order to track changes in customer awareness moving forward, Central Hudson should include a question on the rebate application that asks customers to identify how they learned about the program.

Central Hudson Actions: Central Hudson continues to promote energy efficiency programs under the SavingsCentral branding and customers are periodically sent information on program offerings. Central Hudson has set up a system for Trade Allies so that their continued effort to support and promote programs is highlighted on the SavingsCentral website. The new rebate application includes a question that asks customers to identify how they learned about the program.

Create a Flexible System for Completing and Submitting Rebate Applications

Recommendation: Honeywell should create a mechanism for Trade Allies to complete applications online and give them the option of submitting the rebate application online or of filling out the application online and printing it through Adobe Acrobat. This would streamline the application process for many contractors and potentially end problems associated with handwriting.

Central Hudson Action: Central Hudson changed implementation contractors in 2012 and implemented a new system to submit rebate applications online with instant feedback that it has been received.

4. Evaluation Methodology

AEG designed the process evaluation to examine program processes and customer responses to the program. The focus of the process evaluation activities was to gain a better understanding of program operations, assess the overall effectiveness of program operations, and identify areas for program improvement. The process evaluation was designed to comply with the *New York Evaluation Plan Guidance for EEPS Program Administrators* and the *New York State Process Evaluation Protocols*.

The evaluation was guided by the following key researchable issues:

- Are Central Hudson's requirements being effectively communicated to program implementers and are those requirements adhered to?

- Does the program implementer have sufficient resources to effectively implement the program?
- Is the tracking system effective for documenting and reporting program progress?
- Have customer/Trade Ally participation rates improved as the program has developed?
- Is the program achieving participation and energy savings goals?
- What marketing/promotional efforts resonate with customers? Trade Allies?
- Are Trade Allies sufficiently knowledgeable about the Central Hudson program?
- What types of training/education do Trade Allies receive?
- Is the rebate processing system effective in managing the application and rebate payment process?
- Are rebate applications processed, approved and paid on a timely basis?
- Are customers/Trade Allies satisfied with the program?
- What are the areas for improvement?
- What are the barriers to program participation? How can those barriers be overcome?
- Would customers recommend the program?
- Has program participation generated interest in other Central Hudson programs? In other energy efficiency actions?

The process evaluation included the period from January 1, 2012 through June 30, 2013. To arrive at the final recommendations in this report, AEG undertook the following activities:

Program Materials and Data

AEG reviewed current program documents and processes including, but not limited to, the customer application, marketing materials, the 2012-2015 implementation plan, the Residential Appliance Saturation Survey,⁴ and program performance data. The review served as the basis for understanding whether the program has been implemented as planned and is on track to meet energy savings goals.

Program Flow

AEG updated the program logic model based on interviews with Central Hudson program staff and the third-party implementer. The model shows the linkages among the program's activities, outputs, key program stakeholders and outcomes, and highlights potential external influences.

Program Tracking System

AEG reviewed ICF's program tracking and reporting, including the monthly reports provided by the third-party implementer, summarizing rebate applications received, incentives paid, and applications denied. AEG also reviewed Central Hudson's tracking database and the reports submitted to the New York DPS.

Central Hudson Staff Interview

AEG conducted a comprehensive, group interview with Central Hudson program staff in August 2013 to get staff impressions of program implementation activities, program performance, marketing and customer awareness, and opportunities for program improvements. Individual interviews with program staff, as well as informal discussions, were conducted between August and October 2013. The individual

⁴ Central Hudson Gas & Electric Corporation. March 30, 2013. Energy Management Survey – 2013. Prepared by Opinion Research Specialists, LLC.

interviews focused on program delivery issues, program performance, potential areas of improvements and overall program effectiveness.

Third-Party Implementer Interview

As third-party implementation contractor, ICF International ("ICF") is responsible for program delivery, Trade Ally recruitment, rebate processing, program tracking, managing a customer call center, and assisting CHGE with marketing. AEG interviewed ICF in October 2013. The interview provided information on program implementation activities, Trade Ally participation, tracking methods, and barriers to increased participation. An interview guide can be found in Appendix A.

Participating Customer Surveys

AEG administered a 10 to 12 minute telephone survey to a sample of program participants to assess program experience and awareness, customer satisfaction, barriers to participation, free ridership and areas for potential program improvement. A survey guide can be found in Appendix B.

Between January 1, 2012 and June 30, 2013, Central Hudson rebated 2,190 measures to 1,346 participants for the Residential Electric HVAC Program. Central Hudson provided data for all 2,190 measures rebated, including customer name, account number and telephone number. AEG scrubbed the participant data to remove duplicate electric Central Hudson account numbers from the participant list, thereby accounting for customers that received more than one rebate. The scrubbed participant data included 1,346 unique participants. AEG calculated the sample size at a 90 percent confidence interval with an error margin of +/-10 percent. The sample size was calculated at 65.

Participants were then randomly selected based on unique identifiers determined by Microsoft Excel's random number generator. Program participants were contacted based on the unique identifier, beginning with the smallest number. Sixty-five (65) surveys were completed.

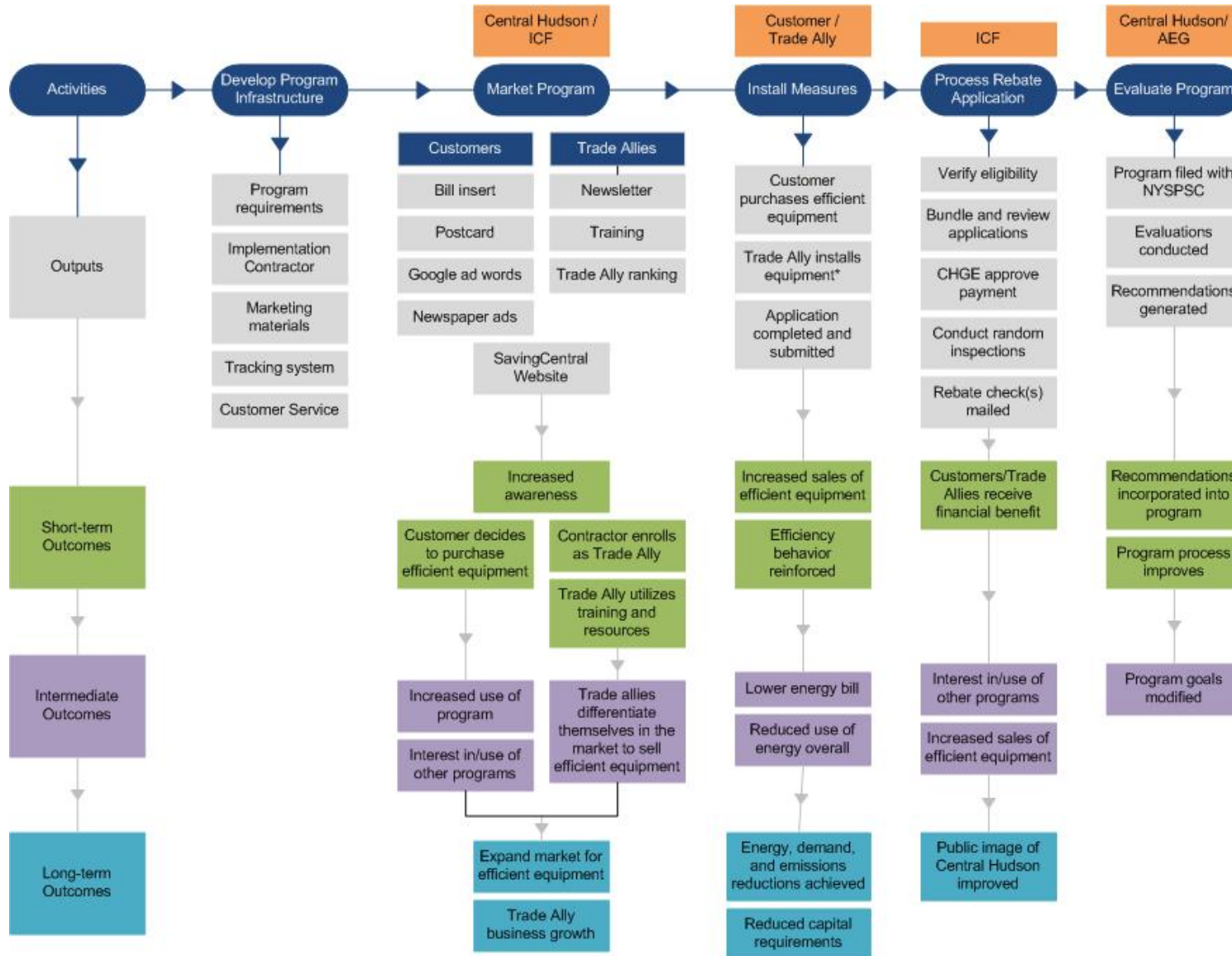
Trade Ally Interviews

AEG held two focus groups with nine individuals representing seven Trade Allies and administered a five minute telephone survey to an additional 10 Trade Allies to assess their experience with the program, customer satisfaction and potential areas for program improvements. The focus group provided anecdotal information regarding the Central Hudson program. A survey guide can be found in Appendix C and the focus group guide in Appendix D.

5. Program Flow

The *New York State Process Evaluation Protocols* requires that a process evaluation assess program flow. Logic models are graphic representations of a program and its processes. Logic models make the program's assumptions explicit, showing the causal relationships or linkages among the problem or situation the program is designed to address, the intervention (inputs and outputs), and program impact (short, medium and long-term outcomes). Logic models also serve to identify handoffs of processes and relationships that are critical to the program's performance.

Figure 1 Program Logic Model



* Customers may self-install heat pump water heaters

5.1 Program Activities

The program activities and their corresponding outputs help to establish linkages between the situation the program is designed to address and the program's intended outcomes.

Develop Program Infrastructure

Activities include gathering market knowledge, setting program goals, designing the program, developing marketing tactics, and establishing an operating structure. The Residential Electric HVAC Program was launched on May 18, 2009. Central Hudson designed the program and established program goals. Central Hudson utilizes a third-party implementation contractor to deliver the program, recruit Trade Allies, process rebates, track program progress, assist with marketing and manage a customer call center. As of July 1, 2012, ICF has been the program implementation contractor. Prior to ICF, Honeywell was the implementation contractor.

A Customer Service line is operated Monday through Friday. The calls are received by a CHGE toll-free number and routed to an ICF Customer Service Representative ("CSR") through a phone tree.

Market Program

Central Hudson markets the program to residential customers, HVAC contractors and HVAC distributors as part of the SavingsCentral brand. ICF assisted CHGE in developing targeted marketing tactics. Marketing activities to customers include, but are not limited to, bill inserts, postcards, and Google ad words. Electric heat pump water heaters are also advertised in Sears' retail stores and via social media.

ICF does not actively recruit HVAC contractors. However, contractors may submit the Trade Ally Participating Contractor Agreement to participate in the programs. ICF promotes the program to Trade Allies via monthly newsletters and training events. ICF provides education and training on:

- Central Hudson programs, including qualifying measures, verification of efficiency levels through the Air Conditioning, Heating and Refrigeration Institute ("AHRI") and application submittal.
- How to use energy efficiency as a sales tool.
- New and emerging technologies supported by the program.

Install Measures

The customer purchases qualifying energy efficient equipment and has it installed by a Trade Ally. Customers may self-install a heat pump water heater. BPI-certified Trade Allies may perform a quality installation on a central air conditioner or central air source heat pump system. The Trade Ally completes the rebate application and gathers the required supporting documentation, typically including a dated sales receipt, AHRI certificate and/or Manufacturer's specification sheet, and a work scope description (air/duct sealing only). BPI-certified Trade Allies that perform a quality installation must also submit BPI certification documentation and ACCA Manual J documentation.

The completed application is submitted one of two ways:

- 1) The customer or Trade Ally mails a hard copy of the application and supporting documentation to ICF's rebate processing center in Virginia.
- 2) The Trade Ally enters the application data into VisionDSM via an online portal and uploads the supporting documentation and customer-signed Terms and Conditions.

According to ICF, approximately 40-50 percent of Trade Allies utilize the online portal to submit applications.

Process Rebate Application

A participant record is created in VisionDSM to verify customer eligibility and track participation. All documents, such as the supporting documentation, are converted to PDF and uploaded to the participant record. ICF verifies participant eligibility, matching the participant address and account number against a database of eligible customers provided by Central Hudson. The Central Hudson database is uploaded to a secure FTP site and updated in VisionDSM every two weeks. If the account cannot be verified, ICF notifies Central Hudson. ICF verifies the participant VisionDSM record to ensure the equipment qualifies for a rebate.

Every two weeks, the applications are bundled into a batch and reviewed by ICF Customer Service and ICF's Management Team. The batch and an invoice are sent to Central Hudson for approval. Upon approval, ICF issues incentive checks to customers and Trade Allies and is reimbursed by Central Hudson within 30 days. According to ICF,

On average, it takes 3 to 4 weeks to process an application.

ICF inspects the first four projects completed by a new Trade Ally and then a random 10 percent of Trade Ally projects thereafter. All heat pump water heater self-installation projects are inspected. The ICF Inspector runs a monthly report in VisionDSM to determine the number of projects completed by Trade Ally. If a participant is selected for inspection, the participant's VisionDSM record is flagged and the rebate is not issued. ICF schedules an appointment with the participant. The ICF Inspector visually inspects the work completed, gathers information on customer satisfaction, and matches the equipment serial and model number to the application data. Inspection findings are uploaded into the participant VisionDSM record and the rebate issued.

Evaluate Program

Evaluation activities include process, market and impact studies. Once evaluations are conducted, recommendations for program improvements are generated for Central Hudson and fed back into program design. Central Hudson is responsible for program filings with the New York DPS.

5.2 Outcomes

Outcomes are the result of program partners and target audiences responding to the outputs of the program. There are short-term, intermediate, and long-term outcomes of the program.

Short-term Outcomes

When the program is marketed and promoted, customers, contractors and HVAC distributors may become aware of and interested in the Residential Electric HVAC Program. Customers and contractors may become knowledgeable about the benefits of installing high efficiency cooling and heating systems. If contractors have the tools and resources needed to effectively market and promote the program, customers may choose to install efficient equipment. The program may lead to an increase in the number of quality installations performed.

Intermediate Outcomes

Intermediate outcomes may include increased use of the program by customers and contractors, interest in and use of other Central Hudson efficiency programs, increase in the number of contractors marketing high efficiency equipment to customers, and reduced household energy consumption.

Long-term Outcomes

The long-term outcomes may include energy savings for Central Hudson, reduced utility emissions, market expansion for contractors that sell energy efficient equipment, and improved public image of Central Hudson as a utility that responds to customer needs and is considerate of environmental issues.

5.3 External Factors

There are a variety of factors outside the control of Central Hudson and ICF that may influence the program. Documenting these factors help improve program planning by identifying important program partners, the part(s) of the issue the program can realistically influence, which evaluation measures will accurately reflect project outcomes, and other needs that must be met to address this issue.

- Changes in political priorities (e.g. codes and standards, state and local regulations, federal policies, perceptions of energy and climate change)
- Weather and associated impacts on customer actions and energy bills
- Economy and associated impacts on customer actions
- Energy prices and regulation
- Changes in utility rate structures
- Perceptions in the value of energy efficiency
- Competing interests among demand side customers
- Competition among contractors and HVAC distributors
- Cost, performance and availability of efficient technologies

5.4 Market Barriers

HVAC contractors play an important role in this program by encouraging customers to make energy efficient upgrades. Contractors are often the primary source of information and the first point of contact for customers in need of HVAC equipment. Therefore, it is critical that contractors have accurate and up-to-date information about the benefits of installing energy efficient equipment and are able to effectively communicate these benefits to customers.

Key barriers to achieving greater market penetration and quality installations include:

- Lowest bid quotes typically drive the HVAC equipment sales industry. Customers are often price-sensitive, especially during a weak economy. Contractors often lack the resources and tools to effectively educate the customers on the benefits of high efficiency equipment.
- Lack of consumer awareness. The majority of equipment sales take place in the replacement market where consumers need to make quick decisions.
- Lack of consumer knowledge of what constitutes a “quality installation.” Consumers are unaware of what constitutes a quality installation or which contractors provide quality services.

Central Hudson's program tries to address these barriers through a combination of education, training, and financial incentives to customers and Trade Allies. This approach helps build customer support for

high efficiency equipment while educating and providing tools to the contractors to market and install high efficiency systems.

6. Residential Appliance Saturation Survey

Central Hudson engaged AEG to conduct a Residential Appliance Saturation Survey (“RASS”). The RASS, completed in March 2013, identified the type, age and efficiency level of appliances and HVAC equipment currently being used by households within Central Hudson’s territory. Opinion Research Specialists, LLC of Springfield, Missouri conducted the data collection and analysis. A total of 1,129 mail questionnaires were completed, for a response rate of 33% and a margin of error of +/- 3% at a 95% confidence interval.

The majority of Central Hudson residential customers utilize room air conditioners as their main cooling system (57 percent), followed by central air conditioning at 32 percent. The majority of central air conditioners are 6 to 10 years old (34 percent), followed by 11 to 15 years old (24 percent) and greater than 15 years old (17 percent).

Figure 2 Main Cooling System

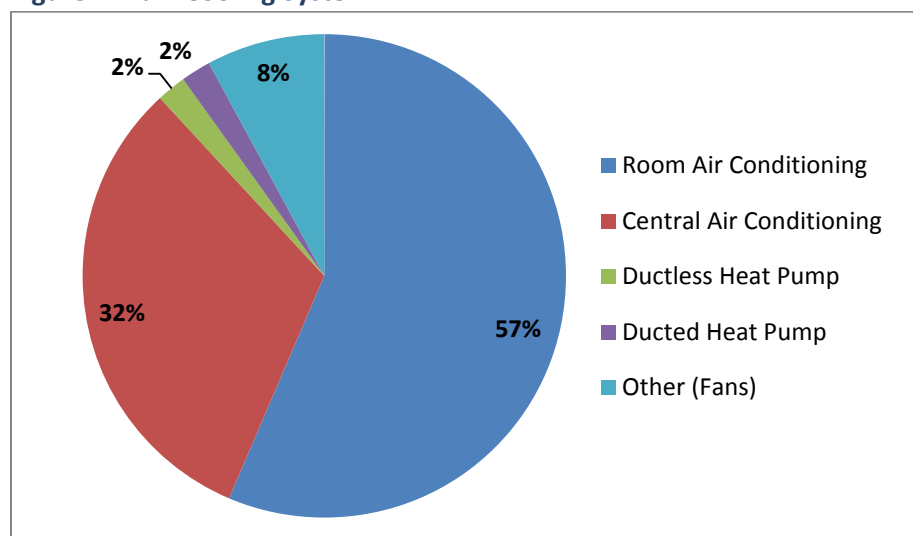
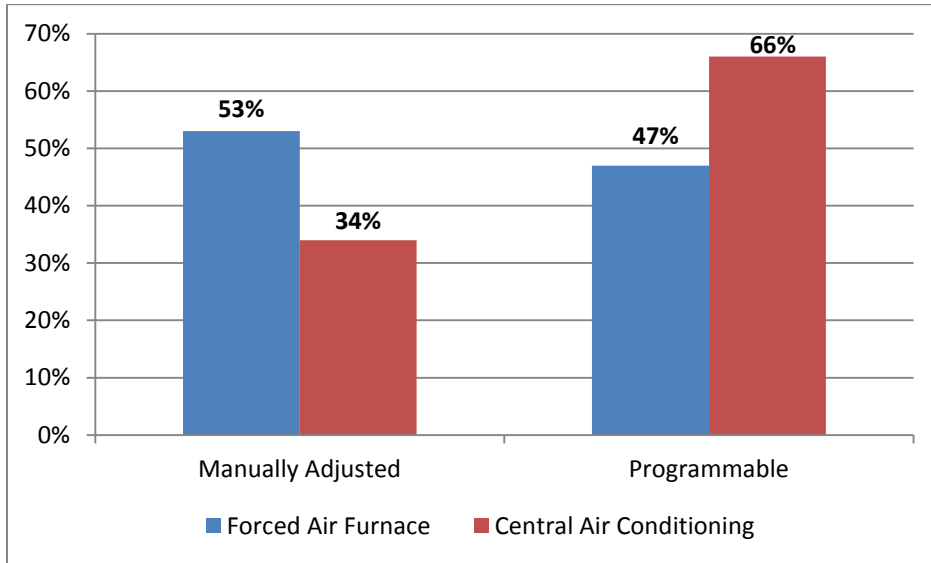


Table 4 Cooling System Age

| System Type | < 3 Years | 3-5 Years | 6-10 Years | 11-15 Years | > 15 Years |
|---------------------------|-----------|-----------|------------|-------------|------------|
| Total Cooling System | 15% | 28% | 29% | 15% | 13% |
| Room Air Conditioning | 18% | 36% | 27% | 10% | 9% |
| Central Air Conditioning | 10% | 15% | 34% | 24% | 17% |
| Ductless Heat Pump (n=18) | 33% | 39% | 11% | 11% | 6% |
| Ducted Heat Pump (n=17) | 12% | 32% | 12% | 12% | 32% |

Sixty-six (66) percent of homeowners with central air conditioning have a programmable thermostat. The remaining 34 percent use a manually adjusted thermostat.

Figure 3 Type of Thermostat



The majority of residential customers use fuel oil to heat their water (39 percent), followed by electricity (28 percent) and natural gas (22 percent). Electric hot water heaters are typically less than 10 years old. However, approximately 25 percent of electric hot water heaters are greater than 10 years old.

Figure 4 Main Water Heating Fuel

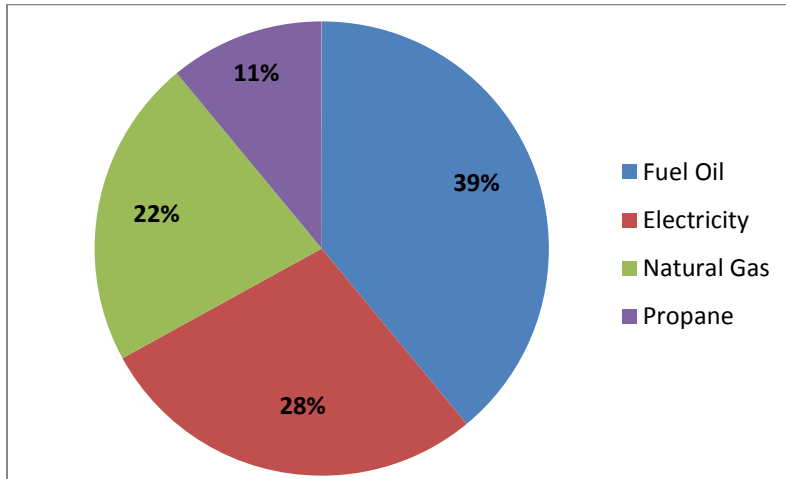
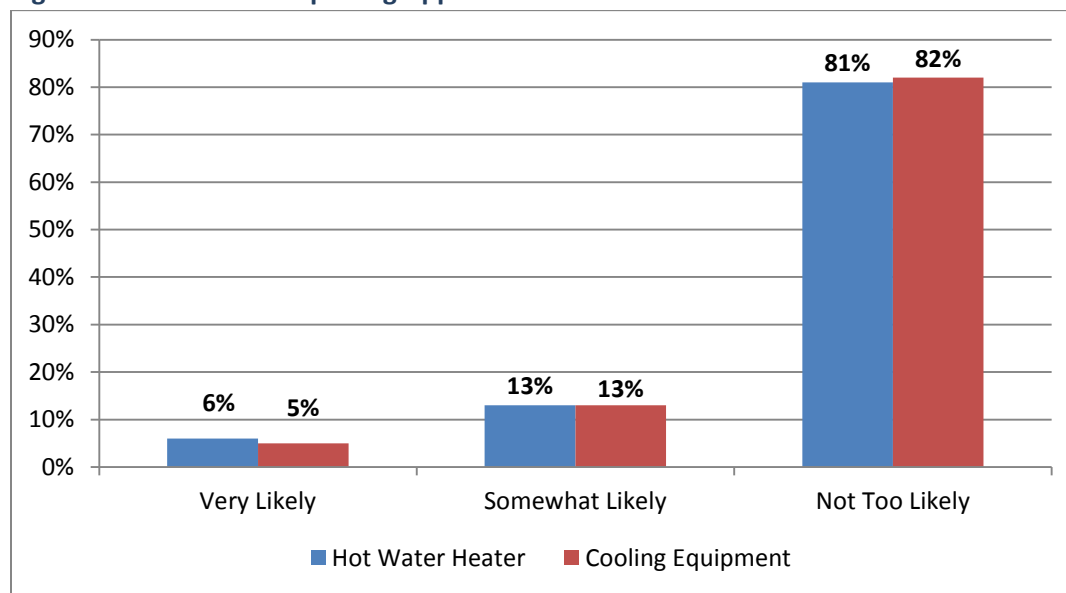


Table 5 Hot Water Heater Age

| System Type | < 3 Years | 3-5 Years | 6-10 Years | 11-15 Years | > 15 Years |
|------------------|-----------|-----------|------------|-------------|------------|
| All | 15% | 22% | 30% | 16% | 17% |
| Electricity | 22% | 23% | 29% | 14% | 12% |
| Natural Gas | 13% | 29% | 33% | 14% | 11% |
| Propane | 15% | 23% | 32% | 14% | 16% |
| Other (Fuel Oil) | 9% | 18% | 28% | 21% | 24% |

Residential customers noted that they are not likely to replace their hot water heater or cooling system within the next two years.

Figure 5 Likelihood of Replacing Appliance in the Next Two Years



7. Process Evaluation Findings

This section provides key process evaluation findings, including marketing, program performance, Trade Ally participation and program tracking.

7.1 Program Marketing

The Residential Electric HVAC Program is marketed to residential customers through direct mail, web advertising and the SavingsCentral Trade Allies. Central Hudson determines the marketing tactics and ICF assists with design and development. In 2012 and 2013, Central Hudson marketed the program through the following:

- **SavingsCentral Website.** Central Hudson's SavingsCentral website contains detailed information on customer rebates, the Trade Ally participation agreement and Trade Ally resources.
- **Bill Inserts.** Six energy efficiency bill inserts were included in customer bills throughout the year.
- **Postcards.** Postcards were sent to eligible customers promoting heat pump water heaters, central air conditioners and heat pumps. One postcard promoted the Residential Electric HVAC and Residential Natural Gas HVAC Programs as well as the Silver and Gold Trade Allies.
- **Google Ad Words.** Central Hudson paid to have SavingsCentral appear first when a customer near Central Hudson's service territory searched for specific key words, such as 'heat pump water heater' or 'efficient HVAC.' The advertisements were paid on a 'per click' basis.
- **Social media.** Central Hudson utilized Facebook and Twitter to promote heat pump water heater sales.
- **Sears Advertisement.** Central Hudson utilized store ads to promote heat pump water heaters.

Figure 6 Sears Heat Pump Water Heater Ad



There are more than 300 SavingsCentral Trade Allies participating in the Residential Electric HVAC Program, Residential Natural Gas HVAC Program and Commercial Natural Gas Program. SavingsCentral Trade Allies are listed on Central Hudson’s webpage and can be sorted by Company Name, City, County, Rank and BPI Certification.⁵ In early 2012, Central Hudson and Honeywell developed a ranking system to promote active SavingsCentral Trade Allies. Central Hudson distinguishes Trade Allies who demonstrate a serious commitment to program based on the number of projects completed, the number of training events attended, BPI Accreditation or Chamber of Commerce membership, and customer satisfaction. The ranking system and list of participating Trade Allies is updated on the SavingsCentral website every month. ICF provides a list of updates to Central Hudson’s corporate office to implement.

Figure 7 Trade Ally Ranking System



⁵ See <http://www.savingscentral.com/tradeallies/index.htm>

Silver and Gold Trade Allies received the following rewards:

- **Postcard.** In 2012 and 2013, Central Hudson issued a postcard to 40,000+ residential customers promoting the Residential Electric HVAC and Residential Natural Gas HVAC Programs. The back of the postcard listed the Silver and Gold Trade Allies and their contact information.
- **Newspaper Advertisement.** Gold Trade Allies received \$500 towards the cost of a one-time co-branded newspaper advertisement in a local, daily newspaper. The ad had to mention at least one SavingsCentral rebate and be approved by Central Hudson staff.

ICF issued a monthly newsletter, *Trade Ally News*, to participating SavingsCentral Trade Allies. The newsletter, submitted via e-blast and mail, provided information on program changes, safety notices, upcoming events and trainings, and co-hosting trainings in addition to other topics.

SavingsCentral Trade Allies received education and training throughout the year:

- **HVAC Distributors.** ICF cultivated relationships with 9 to 10 HVAC Distributors throughout Central Hudson's service territory. ICF co-hosted events on new equipment offerings and eligible equipment supported by the program. Events were typically held during the off-season.
- **SUNY Ulster.** ICF partnered with SUNY Ulster in early 2013 to provide small business training one to two times per month.⁶ ICF promoted the programs to participating Trade Allies via a monthly newsletter. The events provided technical and non-technical training on items such as emerging technologies, building performance and development coordination.
- **ICF Training.** ICF and Central Hudson provided training on the Central Hudson program, including qualifying measures, the online application tool and program changes. Trade Allies recommended training topics.

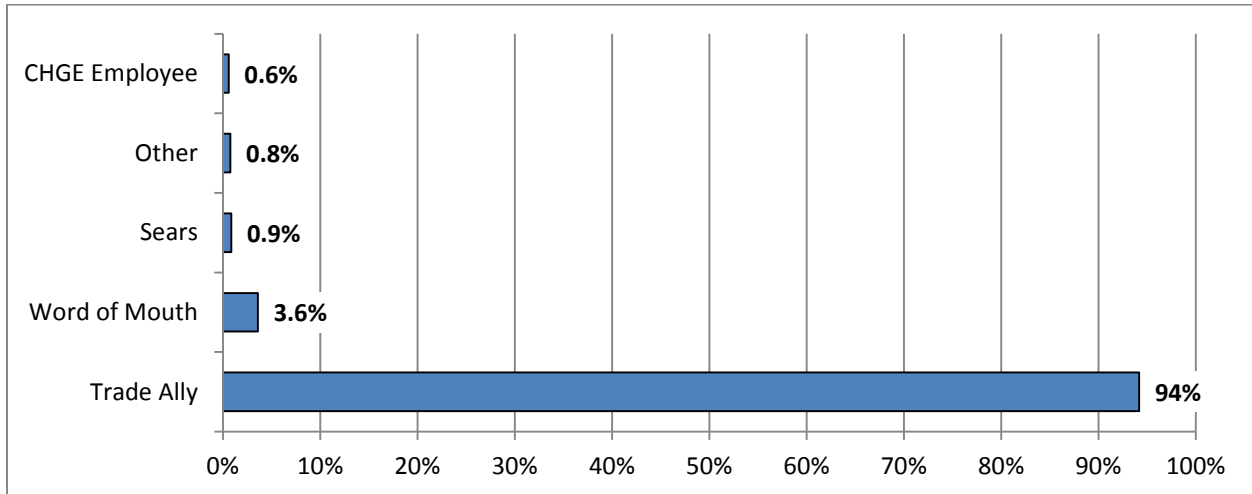
Trade Allies also have access to resources on the SavingsCentral website, including:

- Trade Ally Participating Contractor Agreement
- Past issues of the Trade Ally *Trade Ally News* newsletter
- Link to AHRI for appliance efficiency ratings
- SavingsCentral logo and SavingsCentral Trade Ally logo for Trade Ally websites and printed materials (mailers, flyers or newspaper advertisements)
- List of Participating Trade Allies
- Rebate Forms
- Building Performance Institute ("BPI") training

⁶ Target Trade Allies with less than seven employees.

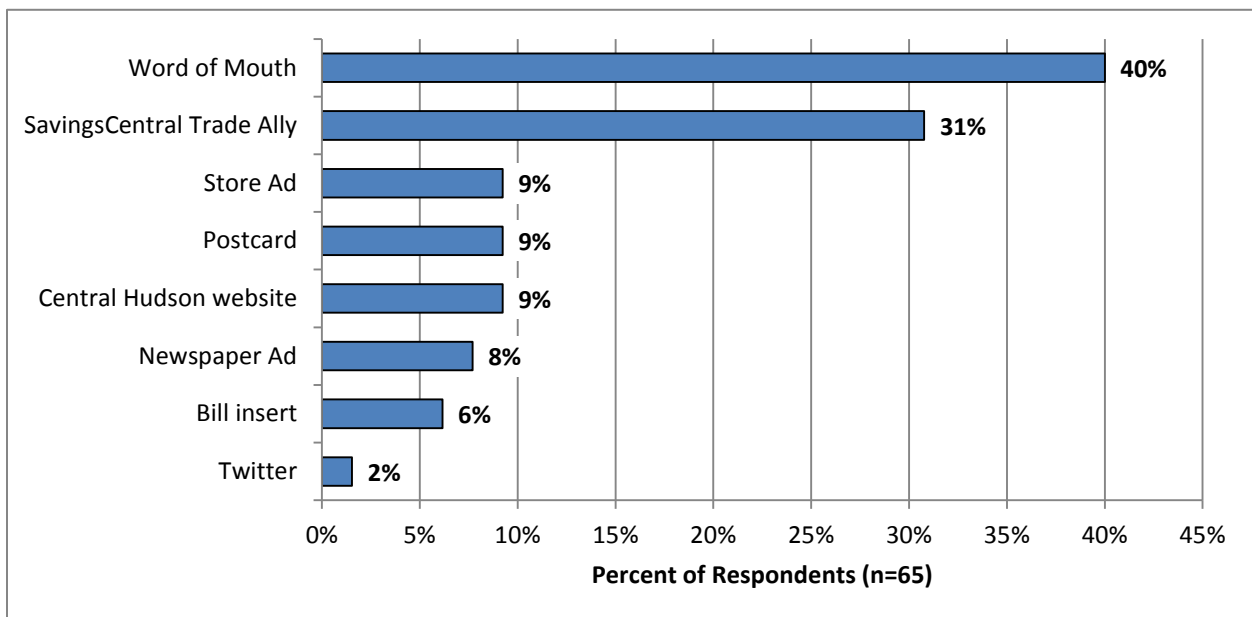
The participant application includes a question regarding how customers heard about the Residential Electric HVAC Program. Of the 53 percent of participants that responded to the question, the majority of participants learned about the program from a SavingsCentral Trade Ally.

Figure 8 Residential Electric HVAC Referral Type from Program Application



According to the participant survey, participants first became aware of the program via word of mouth (40 percent) and the SavingsCentral Trade Ally (31 percent). Respondents also reported hearing about the program through other promotional materials such as store ads, postcards, the Central Hudson website, newspaper ads, and bill inserts. Few respondents reported finding about the program through social media such as Twitter.

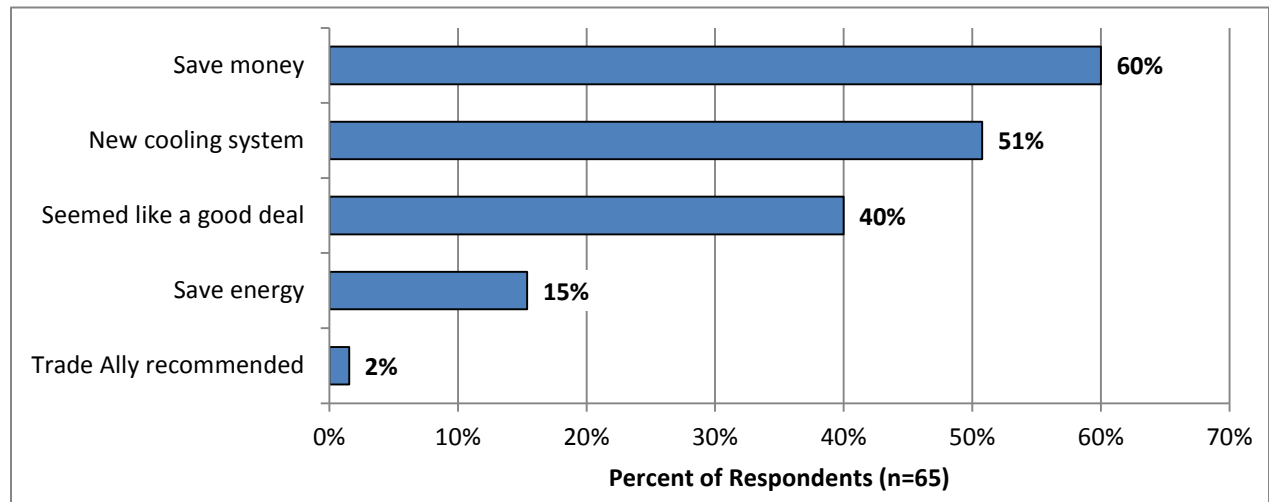
Figure 9 Participant Program Awareness



The majority of respondents reported that bill savings (60 percent) and the need for a new cooling system (51 percent) were among the primary reasons for participating in the program. Respondents also

participated because the program seemed like a good deal. Energy savings and the Trade Ally recommendation were less popular reasons for participating.

Figure 10 Participant Motivations



Only 11 percent of respondents reported that they were aware of other energy efficiency programs offered by Central Hudson, including the Residential Appliance Recycling, the Residential Natural Gas HVAC, and the Home Energy Comparison Report programs.

7.2 Program Performance

The Residential Electric HVAC Program was launched on May 18, 2009 and implemented by Honeywell until ICF took over on July 1, 2012. Central Hudson and ICF staff held weekly conference calls. Since the transition, the following changes have been made to the program:

- **Revised Rebate Application.** In Spring 2013, ICF combined the rebate application for the Residential Electric HVAC and Residential Natural Gas HVAC Programs. The combined application is simpler for Trade Allies to complete and ICF to track.
- **Online Rebate Application.** As of 2012, Trade Allies have the option of entering application information directly into VisionDSM via an online platform. The online tool allows Trade Allies to receive instant feedback if there are any errors or missing data and reduces ICF's level of effort to transcribe data from hard-copy applications. The Trade Allies can access submitted applications and view the status of the application processing.
- **Rebate Processing.** Upon Central Hudson approval of application batches, ICF issues incentives to customers. ICF is reimbursed by Central Hudson within 30 days.

Central Hudson exceeded the 2012 budget and MWh savings target while achieving 75 percent of the participation goal. Between January 1, 2013 and June 30, 2013, Central Hudson spent approximately 50 percent of the budget and achieved the MWh target while achieving 33 percent of the participation goal.

Table 6 Program Budget versus Expenditures

| | 2012 | | | 2013 | | |
|---------------------|------------------|--------------------|-------------|------------------|---------------------------|------------|
| | Budget | Expenditures | % Spent | Budget | Expenditures (Jan - June) | % Spent |
| Administration | \$71,638 | \$67,213 | 94% | \$76,063 | \$15,429 | 20% |
| Marketing | \$40,831 | \$36,006 | 88% | \$44,825 | \$5,152 | 11% |
| Trade Ally Training | \$50,127 | \$40,548 | 81% | \$34,705 | \$13,862 | 40% |
| Incentives | \$500,716 | \$595,500 | 119% | \$457,541 | \$226,250 | 49% |
| Implementation | \$238,345 | \$290,855 | 122% | \$165,141 | \$138,341 | 84% |
| Evaluation | \$47,456 | \$27,973 | 59% | \$61,856 | \$16,765 | 27% |
| Total Budget | \$949,113 | \$1,058,095 | 111% | \$840,131 | \$415,799 | 49% |

Table 7 Program Savings Target versus Savings Achieved

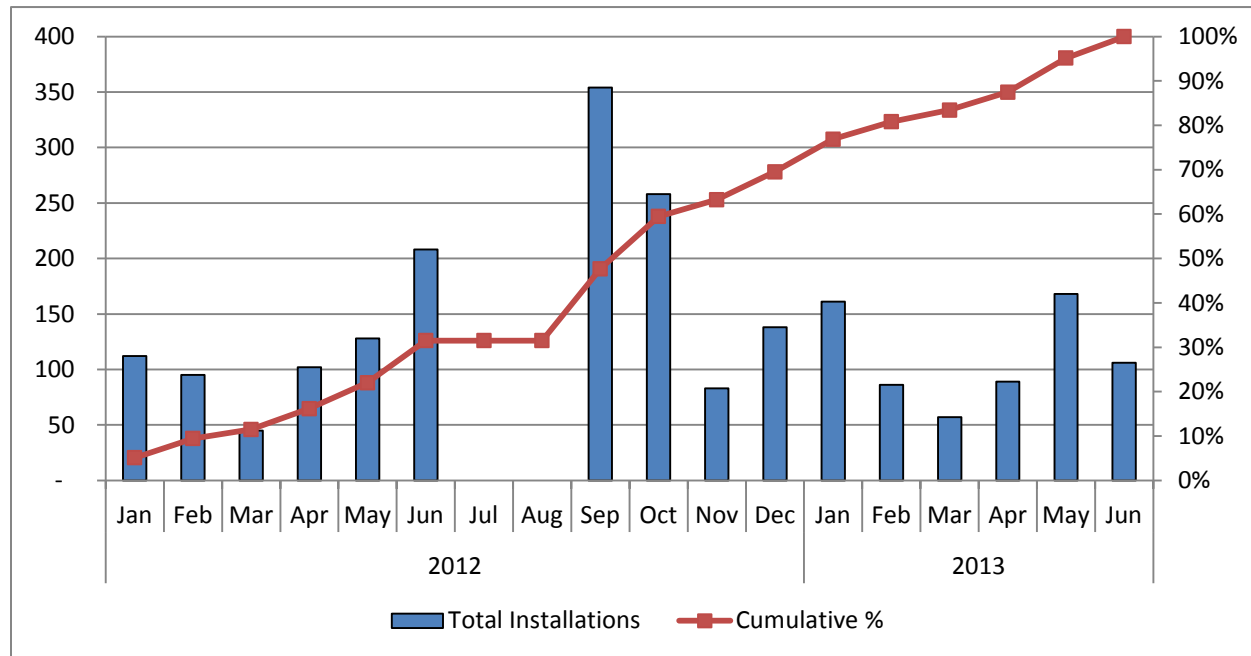
| | 2012 | 2013 (Jan - June) |
|----------------------|-------|-------------------|
| MWh Savings Target | 951 | 434 |
| MWh Savings Achieved | 1,420 | 450 |
| % Achieved | 149% | 104% |

Table 8 Participation Goals versus Actual

| | 2012 | | | 2013 | | |
|---------------------------------|--------------|--------------|------------|--------------|---------------------|------------|
| | Goal | Actual | % Achieved | Goal | Actual (Jan - June) | % Achieved |
| Central Air Conditioner | 500 | 370 | 74% | 500 | 98 | 20% |
| Central Air Source Heat Pump | 500 | 472 | 94% | 500 | 203 | 41% |
| ECM Fan | 225 | 104 | 46% | 225 | 87 | 39% |
| Electric Heat Pump Water Heater | 150 | 203 | 135% | 150 | 80 | 53% |
| Programmable Thermostat | 600 | 367 | 61% | 600 | 125 | 21% |
| Duct/Air Sealing | 40 | 7 | 18% | 40 | 74 | 185% |
| Total Participation | 2,015 | 1,523 | 76% | 2,015 | 667 | 33% |

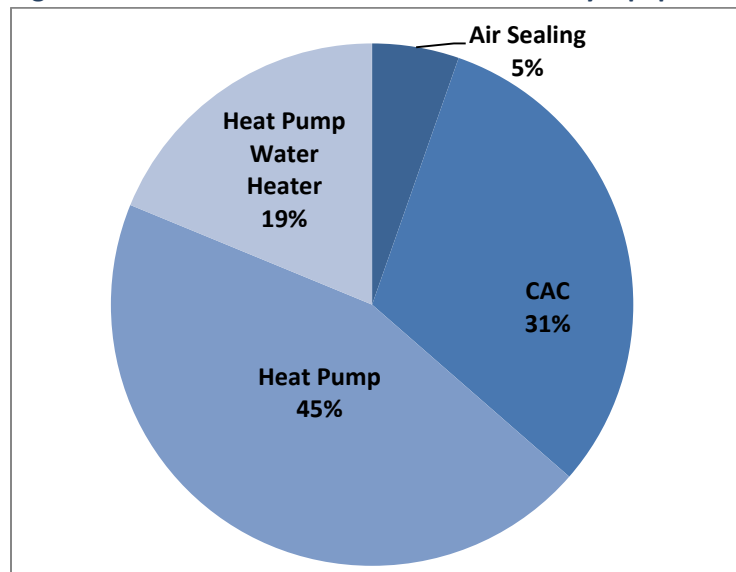
Between January 1, 2012 and June 30, 2013, 1,346 customers participated in the Residential Electric HVAC Program and 2,190 measures were rebated. Nine percent of customers who participated in the Electric HVAC Program also participated in the Natural Gas HVAC Program. The program experienced significant activity during the spring and summer months of 2012 and tapered slowly as the program moved into 2013, suggesting a consistent seasonal trend in program activity.

Figure 11 Total Electric HVAC Measure Installations by Month⁷



Central air source heat pumps and central air conditioners were the most popular measures, accounting for 45 and 31 percent of the total measures purchased and installed, respectively.

Figure 12 Residential Electric HVAC Measures by Equipment Type



The program offers two tiers of central air conditioners and heat pumps based on nameplate efficiency.

- Nearly 9 out of 10 central air conditioners rebated were a SEER ≥16, EER ≥13.0
- Heat pumps were evenly split between SEER ≥15, EER ≥12.0, HSPF ≥8.5 and SEER ≥16, EER ≥13.0, HSPF ≥9.0

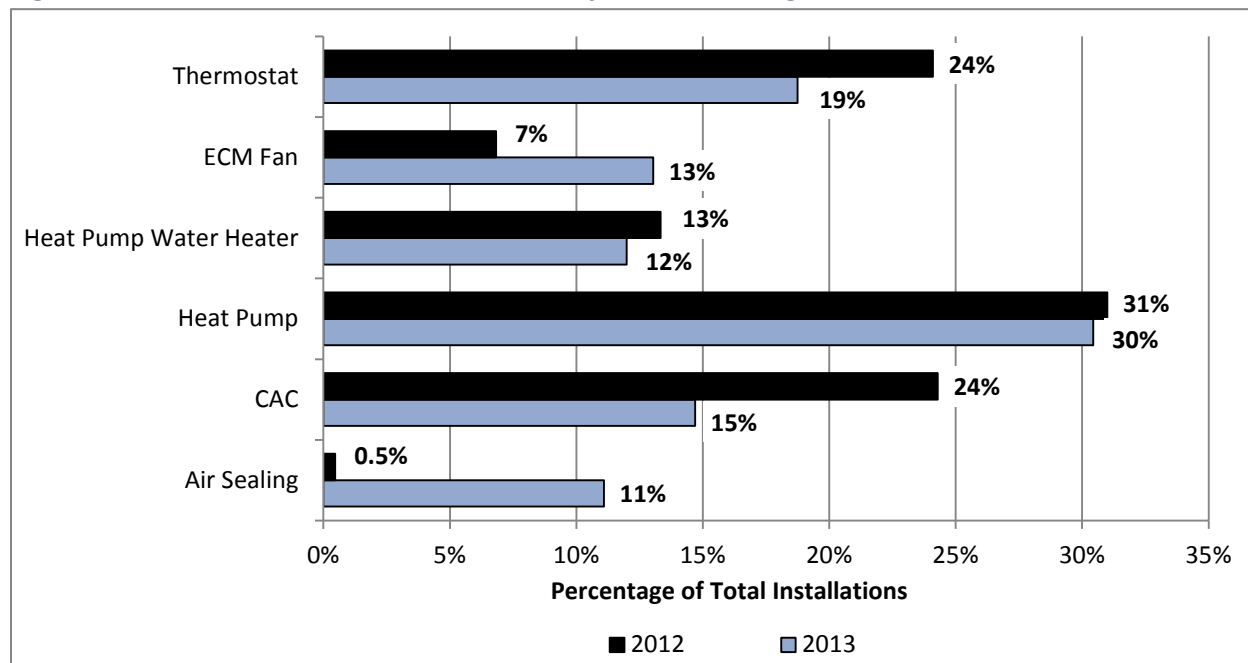
⁷ There was a time lag in July and August 2012 during the Implementation Contractor transition.

Programmable thermostat and ECM fan incentives were offered to participants installing qualified heating and cooling systems. Forty-three (43) percent of participants that installed a central air conditioner or heat pump also installed a programmable thermostat. Fifty-four (54) percent of participants that installed a furnace also installed an ECM furnace fan and 11 percent of participants that installed a heat pump also installed an ECM heat pump fan. Of the programmable thermostats and ECM fans installed, there were a few that were not installed with qualifying heating or cooling system, per program requirements.

- Nine (9) percent of thermostats rebated through the Residential Electric HVAC and Residential Natural Gas HVAC Programs were not installed with a qualifying heating or cooling system.
- Twelve (12) percent of ECM fans rebated were not installed with a qualifying heat pump or furnace.

As of June 30, 2013, Central Hudson saw a significant increase in the number of air sealing projects rebated. One contractor accounted for 85 percent of the air sealing projects completed in 2013. The percentage of ECM fans rebated also increased in 2013. Central air conditioner and thermostat installations decreased as a percentage of total installations in 2013. However, central air conditioner installations tended to increase in the summer months and the figure below presents data through June 30, 2013. The percentage of SEER ≥16, EER ≥13.0 central air conditioner installations increased, comprising 93 percent of central air conditioners installed in 2013, up from 87 percent in 2012.

Figure 13 Electric HVAC Measure Installations by Year, Percentage of Total



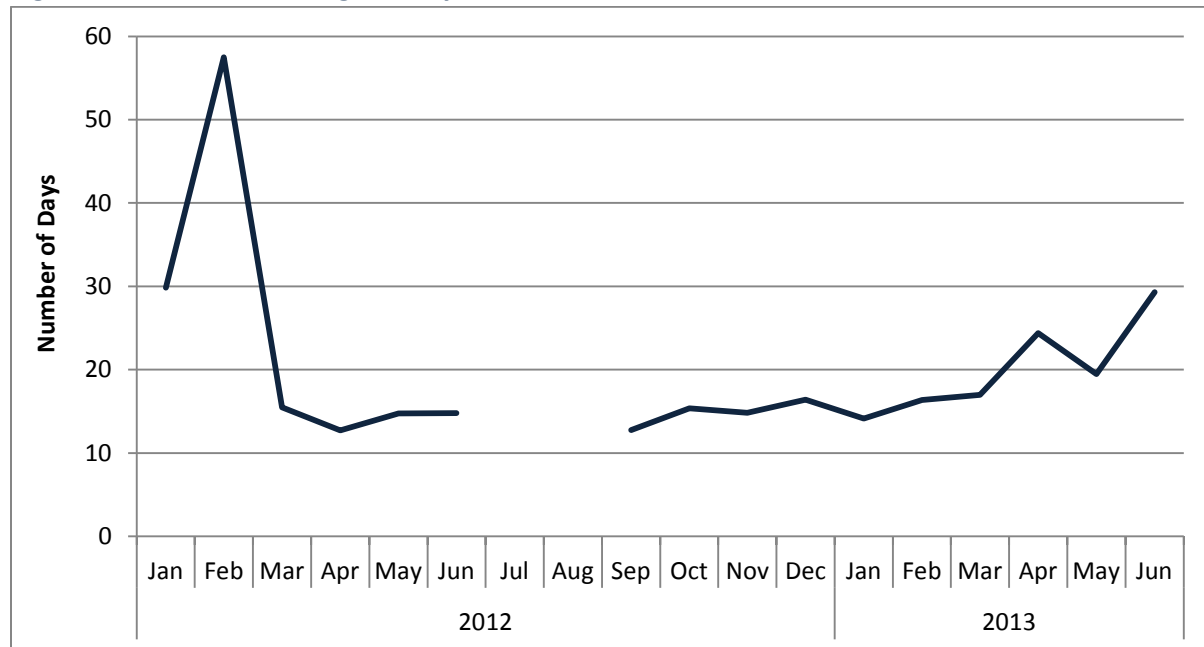
The majority of participants surveyed (68 percent) reported that the HVAC equipment rebated through the program was added to their residence. Twenty-three (23) percent of respondents reported replacing failed equipment and 9 percent reported replacing operating equipment.

Table 9 Equipment Replacement Type

| Equipment | Add | Replace Operating | Replace Failed |
|------------------------------|------------|-------------------|----------------|
| Central Air Conditioner | 23% | 6% | 11% |
| Central Air Source Heat Pump | 45% | 4% | 11% |
| Total | 68% | 9% | 23% |

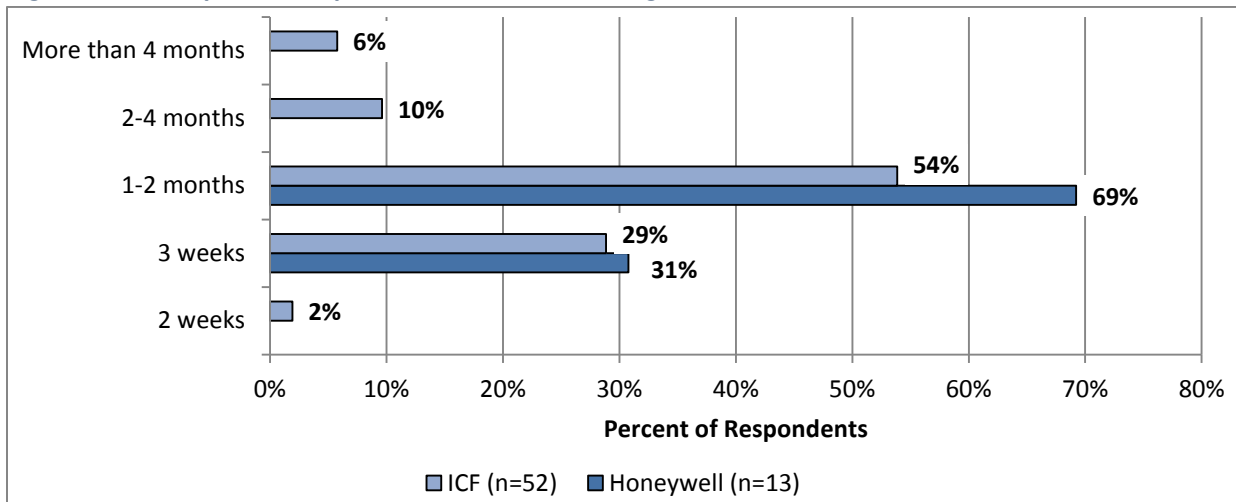
As a result of the transition from Honeywell to ICF, customer applications were not processed in July and August 2012. There was an overall downward trend in the average rebate processing time for Honeywell, particularly in the months before ICF took over. Although there is an overall upward trend in the average rebate processing time for ICF, the rebate processing times are consistently lower than those for Honeywell. The figure below presents the number of days between date on the participant application and the date the rebate check was issued.

Figure 14 Rebate Processing Time by Month



A number of Trade Allies noted that rebate processing times improved with ICF as the implementation contractor. The majority of participants surveyed reported that it took 1-2 months to receive the rebate after the equipment was installed. The majority of participants surveyed reported that it took less than 2 months to receive the rebate.

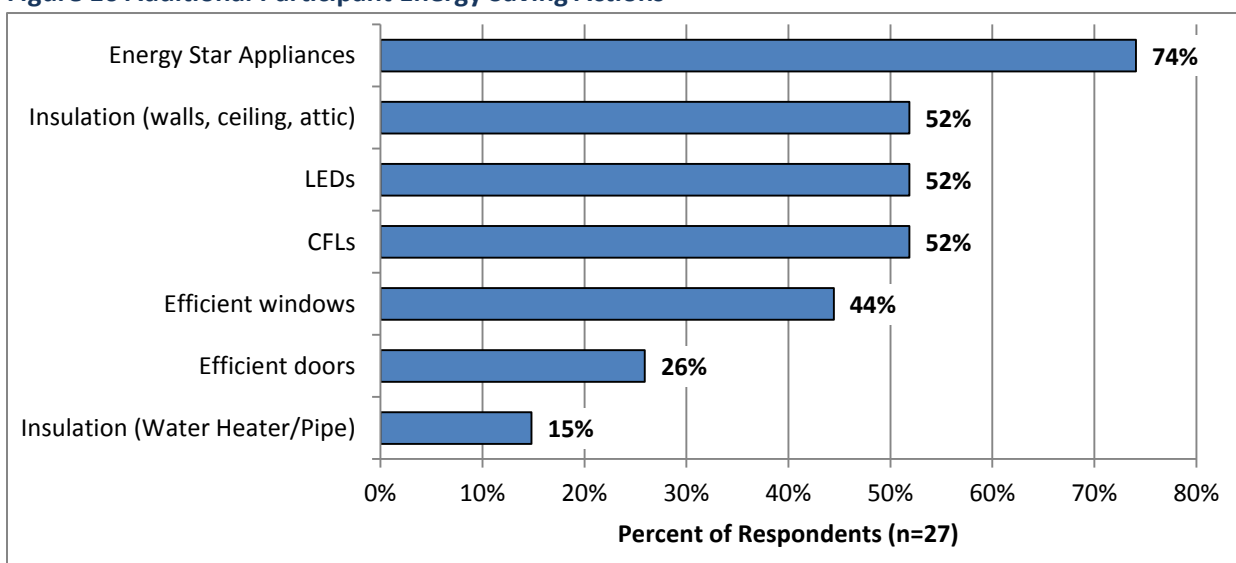
Figure 15 Participant Perception of Rebate Processing Duration



Approximately 25 percent of customers surveyed reported that they were planning to install the efficient measures within three months of participating in the program. Central air conditioners and air source heat pumps were the most commonly rebated measures that respondents would have installed without a Central Hudson incentive.

Forty-two (42) percent of customers surveyed reported that participating in the Residential Electric HVAC Program motivated them to take additional steps to reduce their household energy usage. Participants engaged in a variety of energy saving actions, but most commonly purchased Energy Star appliances (74 percent), installed insulation (52 percent) and installed efficient lighting (52 percent).

Figure 16 Additional Participant Energy Saving Actions



7.3 Trade Ally Participation

Currently, there are 354 Trade Allies listed on the SavingsCentral website as eligible to install equipment through Central Hudson’s Residential Electric HVAC, Residential Natural Gas HVAC and Commercial Natural Gas Programs. Fifty-four (54) percent of the Trade Allies participated in at least one of the programs in 2012 and 2013. Six (6) percent of SavingsCentral Trade Allies participated in each the Residential Electric HVAC, Residential Natural Gas HVAC and Commercial Natural Gas Programs.

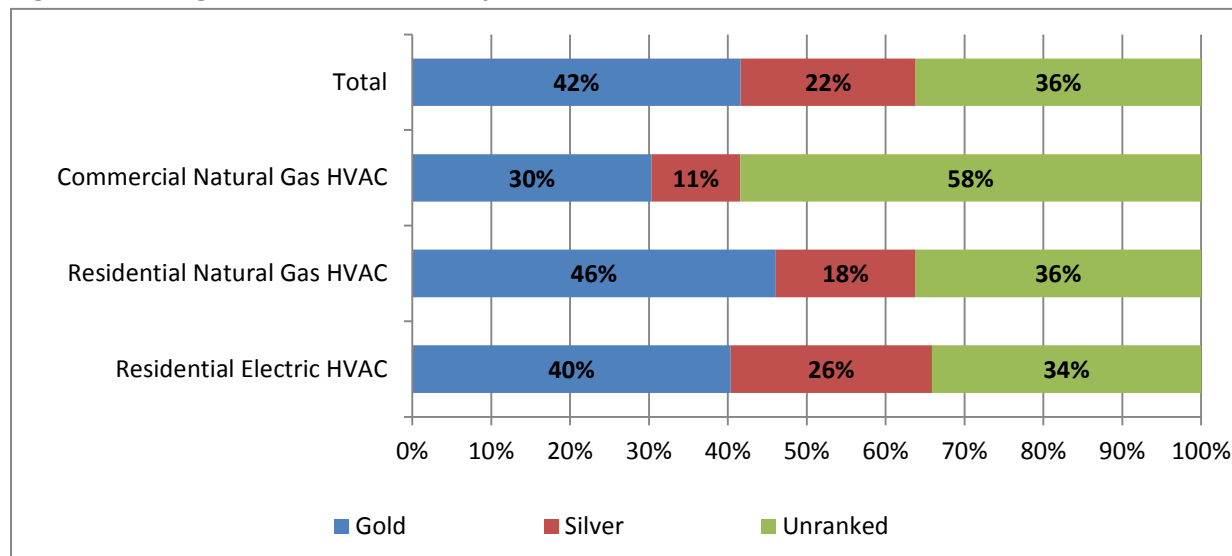
A total of 3,446 measures were installed through Central Hudson’s Residential Electric HVAC, Residential Natural Gas HVAC and Commercial Natural Gas Programs. Ninety-one (91) percent of the measures were installed by a SavingsCentral Trade Ally, 3 percent were installed by non-participating HVAC Contractors⁸ and 5 percent were self-installed heat pump water heaters.⁹

Table 10 Total HVAC Measure Installation and Participation

| | HVAC Contractors | Total Measures Installed |
|---------------------------------------|------------------|--------------------------|
| SavingsCentral Trade Ally | 192 | 3,123 |
| Non-Participating Trade Ally | 26 | 95 |
| Self-Installed Heat Pump Water Heater | 1 | 174 |
| Unknown | 1 | 54 |
| Total | 220 | 3,446 |

Gold SavingsCentral Trade Allies completed 42 percent of all installations and Silver completed 22 percent of all installations. More than 50 percent of Residential Electric HVAC and Residential Natural Gas HVAC Program installations were completed by Silver and Gold ranked SavingsCentral Trade Allies.

Figure 17 SavingsCentral Trade Allies by Rank



Of the 2,190 measures installed in through the Residential Electric HVAC Program, 89 percent were installed by SavingsCentral Trade Allies, 3 percent by non-participating HVAC Contractors, and 8 percent were self-installed heat pump water heaters. More than 50 percent of installations were completed by

⁸ Non-participating HVAC Contractors are not listed on SavingsCentral as eligible to participate in the programs.

⁹ Two percent of measures were installed by unknown persons, due to a lack of information.

Gold and Silver SavingsCentral Trade Allies. Additionally, BPI certified SavingsCentral Trade Allies completed 30 percent of installations.

Table 11 Residential Electric HVAC Program HVAC Contractors and Measures

| | HVAC Contractors | Total Measures Installed |
|---------------------------------------|------------------|--------------------------|
| SavingsCentral Trade Ally | 161 | 1,940 |
| Non-Participating Trade Ally | 14 | 61 |
| Self-Installed Heat Pump Water Heater | 1 | 174 |
| Unknown | 1 | 15 |
| Total | 177 | 2,190 |

7.4 Tracking System

Central Hudson and ICF hold weekly conference calls to discuss the status of the Commercial Natural Gas Process Program. Central Hudson submits a monthly, quarterly and annual scorecard report to the New York DPS with each program’s progress to-date, including participation, energy savings and budget.

VisionDSM™ is a proprietary DSM/DR tracking system created and managed by AEG. VisionDSM enables utilities to rapidly deploy energy efficiency and demand reduction programs while securely managing efficient workflow, data, and access. The platform provides management functions around all program and portfolio components, including application intake, utility integration, analytics and reporting, customer service support (including online customer portal for self-service), and EM&V.

ICF utilizes VisionDSM for all DSM/DR clients. Central Hudson has read-only capabilities and receives the following on a weekly basis:

- Residential Gas Fuel Switch Report
- Residential Gas Measures Summary Production Charts Report
- Residential Gas Measures Summary Production Data Report
- Hear About Program Report
- Heat Pump Water Heater Report
- Residential Invoice Report

VisionDSM provides an audit trail of each person that updates a project entry. The system captures supporting documentation, such as the Manufacturer’s specification sheet, and validates the measures against external lists (i.e. AHRI).

ICF collects a copy of the customer’s dated sales receipt and the AHRI Certification or Manufacturer’s specification sheet as well as the following information from the Residential Electric HVAC customer application:

- Customer Information
 - Customer name, address, email, phone number and Central Hudson account number
 - Trade Ally and phone number
 - Date of installation
 - What type of residence do you live in? (multiple choice)
 - Existing heating system type? (multiple choice)
 - Existing heating fuel? (multiple choice)
 - Does your home have central air conditioning (Y/N)?

- How did you hear about this program?
- Electric HVAC System (for each unit rebated)
 - Rebate amount
 - Equipment efficiency (SEER, EER, HSPF)
 - Manufacturer
 - Condenser model number (outside unit)
 - Condenser serial number (outdoor unit)
 - Coil Model number
 - AHRI Reference number
- Other measures. For each unit rebated, the customer must provide manufacturer, model number and serial number.
 - Programmable thermostat quantity and rebate amount
 - Water heater tank size and AHRI Reference number
 - ECM fan type (furnace/heat pump)
- Total Rebate Amount
- Manual J Performed (Y/N)

For the air/duct sealing rebate, ICF collects a copy of the customer's dated sales receipt and the work scope description in addition to collecting the following information on the customer application:

- Customer Information
 - Customer name, address, email, phone number and Central Hudson account number
 - Trade Ally and phone number
 - Date of installation
 - How did you hear about this program?
 - What type of residence do you live in? (multiple choice)
- Air/Duct Sealing
 - Test-In and Test-Out Data
 - Hours
 - Total Incentive Amount
 - Heat Type (Heat Pump/Furnace/Baseboard)
 - Does the home have central air conditioning (Y/N)?
 - Square footage of home

For the Trade Ally quality installation rebate, ICF collects a copy of the customer's dated sales receipt, Trade Ally BPI certification documentation and ACCA Manual J calculation documentation in addition to collecting the following information on the application:

- Trade Ally Information (name, address, phone number, contact, email address)
- Customer Information (name, address, date of installation, equipment installed)
- Equipment manufacturer and model number
- Quantity
- Total incentive amount

In addition to the data collected on the rebate applications, VisionDSM also tracks the following:

- Energy Savings, estimated utilizing the New York State Technical Manual
- Installation Date
- Rebate Application Date
- Application Approval Date
- Application Status
- Reason for Application Denial
- Payment Status

7.5 Quality Control/Quality Assurance

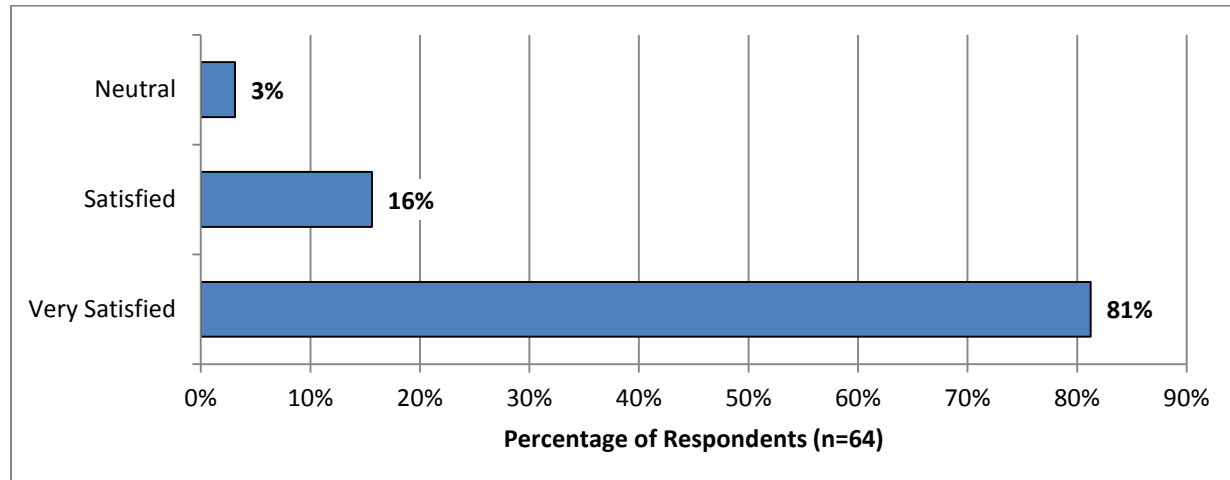
The VisionDSM customer record includes participant information, application data, notes and inspection status. All modifications to the customer record are time-stamped with the user ID. Each customer record is reviewed for customer eligibility and to ensure the equipment specifications meet the program requirements.

The purpose of the inspection process is to ensure that the equipment specified on the application is installed and operational. ICF inspects the first four projects completed by a new Trade Ally and then a random 10 percent of Trade Ally projects thereafter. All heat pump water heater self-installation projects are inspected. The ICF Inspector runs a monthly report in VisionDSM to determine the number of projects by Trade Ally. The VisionDSM records of the participants being inspected are flagged and rebates are not issued. ICF schedules an appointment with the customer. The ICF inspector visually inspects the work completed, gathers information on customer satisfaction, and matches the serial and model number of the HVAC equipment with the application data. The inspection findings are uploaded into the customer VisionDSM record and the customer rebate issued.

7.6 Program Satisfaction

AEG assessed program satisfaction through a participant survey, interviews with implementation staff and Central Hudson staff, as well as Trade Ally focus groups and surveys. Overall, all parties are very satisfied with the program. Ninety-seven (97) percent of participants surveyed noted that they were satisfied with the Residential Electric HVAC Program.

Figure 18 Participant Satisfaction, Program Overall



Central Hudson and the Trade Allies are very satisfied with ICF’s performance. Central Hudson noted that the transition to ICF was fairly smooth. Central Hudson and the Trade Allies reported that ICF is easy to work with, knowledgeable and very responsive. The two parties are particularly satisfied with the Trade Ally outreach, noting that the ICF staff is very helpful and responsive to requests for information and/or training.

As previously noted, the following changes were made to the program following the transition to ICF:

- **Revised Rebate Application.** In Spring 2013, ICF combined the rebate application for the Residential Electric HVAC and Residential Natural Gas HVAC Programs. The combined application is simpler for Trade Allies to complete and ICF to track.
- **Online Rebate Application.** As of 2012, Trade Allies have the option of entering the application information directly into VisionDSM via an online platform. The online tool allows Trade Allies to receive instant feedback if there are any errors or missing data and reduces ICF’s level of effort to transcribe data from hard-copy applications.
- **Rebate Processing.** Upon Central Hudson approval of application batches, ICF issues incentives to customers. ICF is reimbursed by Central Hudson within 30 days.

The Trade Allies interviewed reported that these changes have improved the Residential Electric HVAC Program. The online platform allows Trade Allies to access submitted applications, allowing them to view the status of a customer application. One Trade Ally requested that the Home Sealing rebate application be reviewed to determine if it can be streamlined. Currently, the application requires that the Trade Ally submit the application online and fax duplicate documents to ICF.

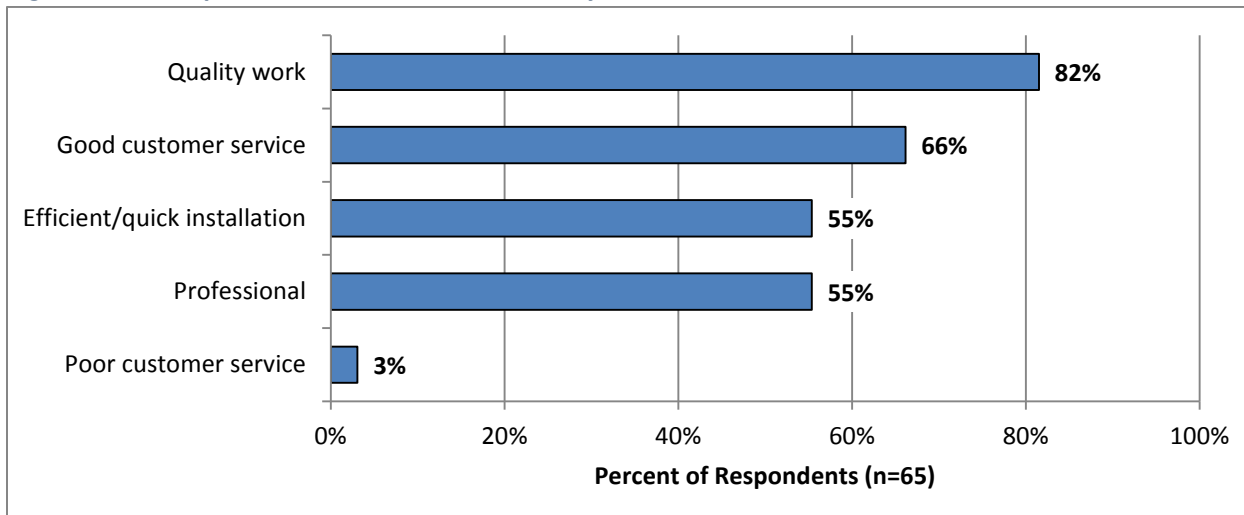
While the participants surveyed are satisfied with the program overall and most program components, the types of eligible equipment and the rebate processing time had the lowest satisfaction rates. ICF has decreased the rebate processing time since becoming the implementation contractor (see Figure 13).

Table 12 Participant Satisfaction

| | Very Satisfied | Satisfied | Neutral | Dissatisfied | Very Dissatisfied |
|--|----------------|-----------|---------|--------------|-------------------|
| Rebate application | 75% | 20% | 5% | - | - |
| Rebate processing time | 58% | 28% | 12% | - | 2% |
| Types of equipment eligible | 63% | 22% | 15% | - | - |
| Performance of the new equipment installed | 78% | 14% | 8% | - | - |

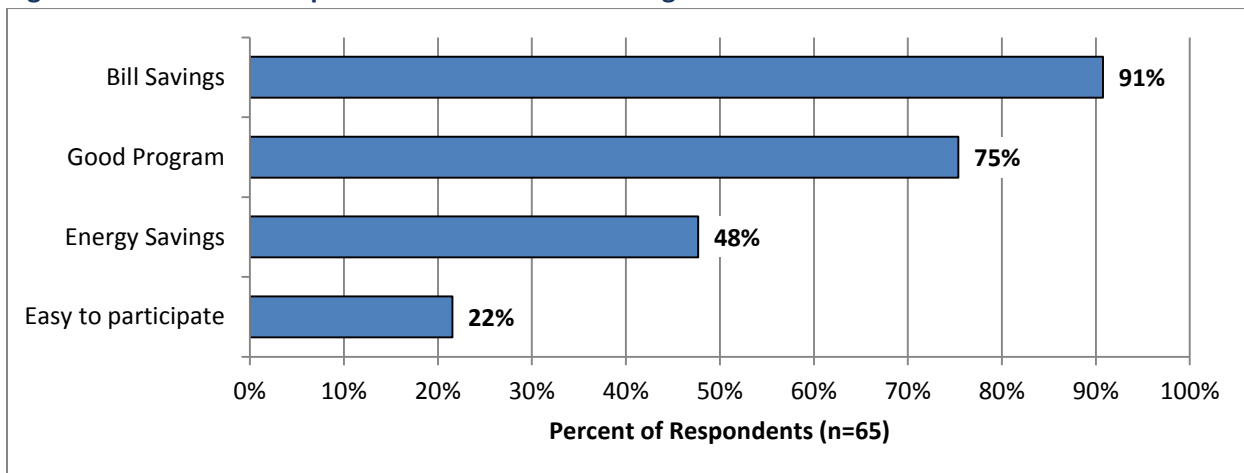
Nearly all participants surveyed (92 percent) reported that they would recommend the Trade Ally who performed the installation. Respondents were pleased with the quality of work, customer service, and professionalism displayed by the Trade Ally. Two respondents that would not recommend the Trade Ally were dissatisfied with the level of customer service.

Figure 19 Participant Satisfaction with Trade Ally



All participants surveyed reported that they would recommend the program to other customers, primarily for the bill savings (91 percent). The figure below shows the key reasons participants would recommend the program.

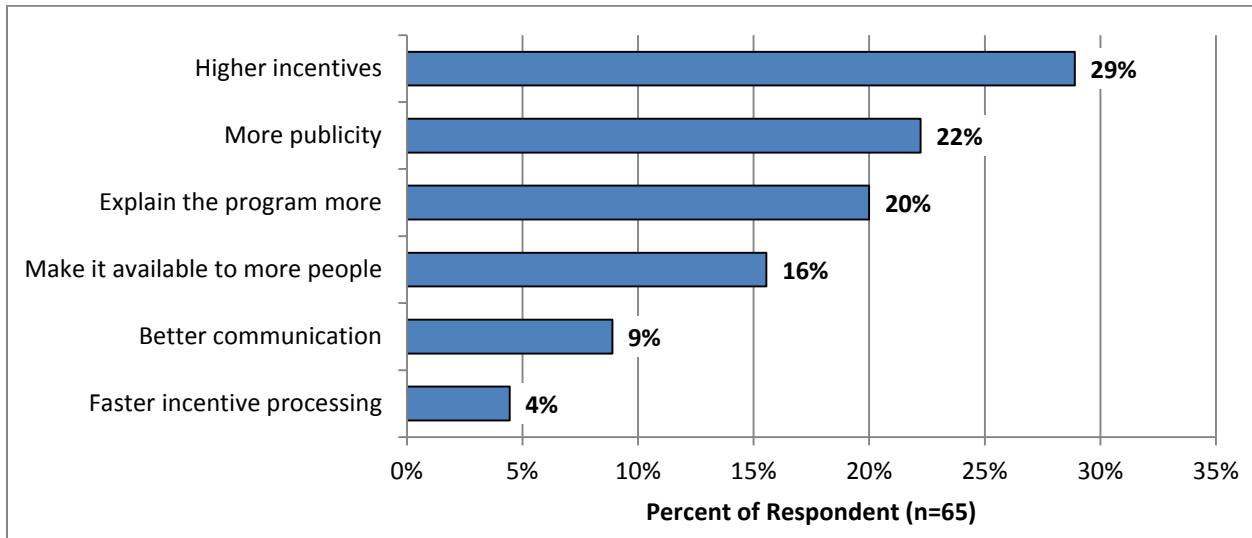
Figure 20 Reasons Participant Would Recommend Program



8. Opportunities for Improvement

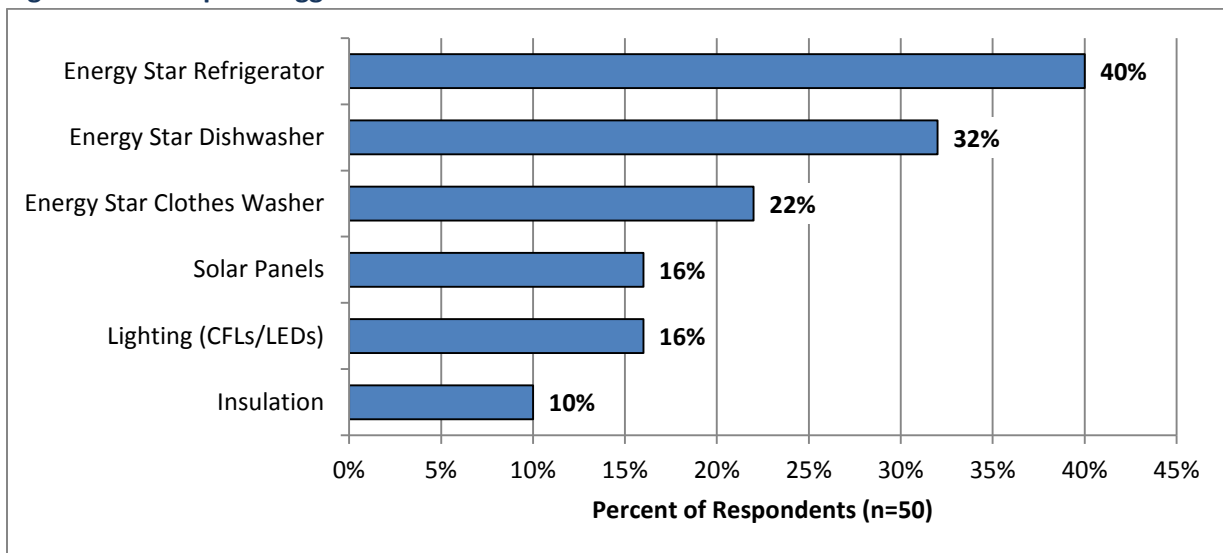
Participants surveyed were asked if they had suggestions for program improvements. The primary suggestions included higher incentives, more publicity and increased customer outreach.

Figure 21 Participant Suggested Improvements



Additionally, 77 percent of participants surveyed suggested that additional measures be included in the Central Hudson program. ENERGY STAR® appliances were among the most frequently suggested measures, including refrigerators (40 percent), dishwashers (32 percent) and clothes washers (22 percent).

Figure 22 Participant Suggested Additional Measures



The larger Trade Allies interviewed, those with a number of employees, reported that they are often able to upsell energy efficient HVAC systems to customers. The smaller Trade Allies interviewed find it more difficult to upsell energy efficient HVAC systems, particularly if the customers are unaware of the

program or cannot afford the more expensive system. Additionally, it was easier for the Trade Allies to upsell customers when the rebates were higher.

According to the Trade Allies interviewed,

Customers really don't know about Central Hudson's HVAC programs, it is up to the contractor to offer a high efficiency option.

The Trade Allies recommended that Central Hudson consider rearranging the rebates, potentially lowering the central air conditioner rebates and increasing the heat pump rebates, particularly for hybrid heat when natural gas is not available. The Trade Allies noted ductless heat pumps are very popular while geothermal is not frequently installed by customers. ICF noted that possible changes for the 2014 program included reducing the central air conditioner rebates and modifying the HVAC mini-split system requirements.

Some of the Trade Allies interviewed expressed concern regarding the list of SavingsCentral Trade Allies on the Central Hudson website. The Trade Allies noted that the list is quite long and that there may be HVAC contractors that are not upselling customers to energy efficient systems and that may not perform quality work. Additionally, Central Hudson does not require proof that the HVAC contractors have insurance or to provide references with the Participating Contractor Agreement. Trade Allies are typically not removed from the SavingsCentral website. However, the Trade Allies were asked to resubmit the Participating Contractor Agreement in January 2012 to remove any non-interested parties from the SavingsCentral website. ICF works with the Trade Allies to encourage participation, contacting Trade Allies a few times a year.

The Trade Allies interviewed reported that it is difficult to upsell a customer from HVAC to whole house air/duct sealing. Trade Allies with a focus on HVAC noted that home sealing is time consuming and reduce the number of overall jobs because staff is not available for other work. NYSERDA has a Home Performance with Energy Star® Program ("Home Performance") that provides customers incentives and financing for upgrading an existing residence's heating or cooling system, building shell, water heater, appliances and/or lighting. The Trade Allies noted that NYSERDA provides better incentives than Central Hudson but requires more paperwork. Based upon the interactions between the Trade Allies at the focus group, the Trade Allies appear to work together to provide the best service to the customers. For example, Trade Allies will recommend another company to perform work that is beyond their capability, such as air sealing.

9. Conclusions and Recommendations

The Residential Electric HVAC Program modifications in 2012 and 2013 include:

- **Revised Rebate Application.** ICF combined the rebate application for the Residential Electric and Natural Gas HVAC Programs.
- **Online Rebate Application.** Trade Allies have the option of completing the customer application in VisionDSM via an online platform rather than submitting a paper application.
- **Rebate Processing.** ICF issues incentives to customers upon Central Hudson approval of application batches and is reimbursed by Central Hudson within 30 days.

Central Hudson exceeded the 2012 budget and MWh savings target while achieving 75 percent of the participation goal. Between January 1st and June 30th, Central Hudson spent approximately 50 percent of the budget and achieved the MWh target while achieving 33 percent of the participation goal.

Between January 1, 2012 and June 30, 2013, 1,346 customers participated in the Residential Electric HVAC Program and 2,190 measures were rebated.

- Nearly 9 out of 10 central air conditioners rebated were a SEER \geq 16. Heat pumps were evenly split between SEER \geq 15 and SEER \geq 16.
- 43 percent of participants that installed a central air conditioner or heat pump also installed a programmable thermostat, 54 percent of participants that installed a furnace also installed an ECM furnace fan and 11 percent of participants that installed a heat pump also installed an ECM heat pump fan.
- More than 50 percent of installations were completed by Gold and Silver SavingsCentral Trade Allies. BPI certified SavingsCentral Trade Allies completed 30 percent of installations.

While the participants surveyed are satisfied with the program overall and most program components, the types of eligible equipment and the rebate processing time had the lowest satisfaction rates. However, ICF has decreased the rebate processing time since becoming the implementation contractor.

AEG has several recommendations on how to improve the program. These include:

Modify Trade Ally Participating Contractor Agreement

Approximately 46 percent of the SavingsCentral Trade Allies did not submit a rebate application between January 1, 2012 and June 30, 2014. The Trade Allies interviewed expressed concern regarding the list on the Central Hudson website, noting that the list is quite long and that there may be HVAC contractors that are not upselling energy efficient systems or performing quality work. Additionally, Central Hudson does not require proof that the HVAC contractors have insurance.

AEG recommends that Central Hudson and ICF consider modifying the Trade Ally Participating Contractor Agreement to (1) require proof of insurance and (2) require at least two customer references. ICF should require that all Trade Allies provide proof of insurance on an annual basis.

Continue Random Inspections of Trade Ally Projects

According to the participant survey, participants first became aware of the program via word of mouth (40 percent) and the SavingsCentral Trade Ally (31 percent). The majority of respondents reported bill savings (60 percent) and the need for a new cooling system (51 percent) among the primary reasons for participating in the program.

AEG recommends that ICF continue to inspect the first four projects completed by a new Trade Ally and a random 10 percent of Trade Ally projects. The majority of participants are made aware of the program via word of mouth or the Trade Ally. Therefore, it is crucial that customers are satisfied with the program and work completed by the Trade Ally.

Improve Application Processing QA/QC

The program requires that all work is completed by a SavingsCentral Trade Ally, except for heat pump water heaters which may be self-installed. Three (3) percent of measures rebated were installed by non-SavingsCentral Trade Allies.

Programmable thermostat and ECM fan rebates are offered to participants installing qualified heating and cooling systems. Of the programmable thermostats and ECM fans installed:

- Nine (9) percent of thermostats rebated through the Residential Electric HVAC and Residential Natural Gas HVAC Programs were not installed with a qualifying heating or cooling system.
- Twelve (12) percent of ECM fans rebated were not installed with a qualifying heat pump or furnace system.

AEG recommends that Central Hudson work with ICF to ensure the rebate processing system adheres to the requirement that systems are installed by a Trade Ally and programmable thermostats and ECM fans are installed with a qualifying heating or cooling system. The total quantity of programmable thermostats or ECM fans incentivized should not exceed the total quantity of heating and/or cooling systems installed.

Consider Modifying Equipment Incentives

The Trade Allies recommended that Central Hudson consider rearranging the rebates, potentially lowering the central air conditioner rebates and increasing the heat pump rebates. ICF noted that possible changes for the 2014 program included reducing the central air conditioner rebates and modifying the HVAC mini-split system requirements.

- Nearly 9 out of 10 central air conditioners rebated were a SEER ≥ 16 versus a SEER ≥ 15 .
- Heat pumps were evenly split between SEER ≥ 15 and SEER ≥ 16 .

AEG recommends that Central Hudson work with ICF to determine if the rebates should be modified, particularly for SEER ≥ 15 central air conditioners.

Remove the Central Hudson Logo from SavingsCentral Website

The Central Hudson logo is available for download on the SavingsCentral website. AEG recommends that Central Hudson remove the logo from the website to minimize access to the logo and unapproved use of the corporate logo. Participating SavingsCentral Trade Allies can request the Central Hudson logo from ICF as needed.

Consider Providing Incentives for ENERGY STAR® Appliances

Forty (40) percent of participants surveyed suggested providing incentives for ENERGY STAR® appliances. AEG recommends that Central Hudson work with ICF to determine if ENERGY STAR® appliances are cost-effective and a viable addition to Central Hudson portfolio.

Continue SavingsCentral Marketing Campaigns to Customers and Trade Allies

The majority of program participants learned about the program from a SavingsCentral Trade Ally or word of mouth. However, only 11 percent of survey respondents reported that they were aware of other programs offered by Central Hudson.

AEG recommends that ICF continue to provide clear, accessible information to participating SavingsCentral Trade Allies. Central Hudson and ICF should also continue to aggressively promote this program as part of the SavingsCentral brand and inform customers of other energy efficiency programs.

Appendix A. Implementation Contractor Interview Guide

Program Operations

1. Describe ICF's roles/responsibilities.
2. How frequently do you interact with Central Hudson staff?
3. What changes have been made to the program since 2011?
4. Who operates the customer service line?
5. What are the hours of operation/staffing for the customer service line?
6. Are any data tracked from the customer service line?

Customer Marketing

7. How is the program marketed to customers?
8. How are marketing and outreach activities tracked?
9. What marketing and outreach methods are most effective in reaching customers?

Trade Allies

10. Describe Trade Ally recruitment.
11. Do Trade Allies receive any education/training? Describe.
12. How often do you reach out to Trade Allies once they are enrolled?
13. Do Trade Allies market the program to customers? What resources are provided?

Participation Process

14. How do customers enroll?
15. How is eligibility verified? Are all HVAC systems required to receive a quality installation?
16. Who submits the rebate application?
17. Describe rebate processing.
18. What reports does CHGE have access to?
19. Describe the QA/QC policies.

Program Satisfaction/Barriers

20. Have you received any customer feedback regarding the program, satisfaction and opportunities for improvement?
21. Do you have an indication of the level of customer satisfaction with the service and quality of work provided by the Trade Allies?
22. What do you see as the biggest barriers to program participation? How could the program be improved?
23. Have you considered expanding the program to include additional measures?

Comments

Appendix B. Program Participant Survey Guide

Hello, my name is _____ and I’m calling on behalf of Central Hudson Gas & Electric. According to our records, your household participated in Central Hudson’s Residential Electric HVAC Program.

Do you recall participating in the program?

- Yes
- No (“The program provides rebates to customers that purchase and install energy efficient cooling equipment for their homes.” If they still do not remember **Terminate Interview.**)

May I ask you a few questions about your participation?

- Yes
- No (See if they agree to another date/time: If “No,” thank them for their time and exit.)

Program Participation

1. How did you first become aware of the program?

- SavingsCentral Trade Ally
- Central Hudson website
- Bill insert
- Postcard
- Twitter
- Facebook
- Store Ad
- Newspaper Ad
- Word of Mouth

2. Why did you decide to participate?

- Trade Ally recommended
- Needed a new cooling system
- Wanted to save money
- Seemed like a good deal/offer from the utility
- Wanted to save energy

3. Did you add this equipment to your residence, replace operating existing equipment, or replace failed equipment?

| | Add | Replace Operating | Replace Failed |
|------------------------------|-----|-------------------|----------------|
| Central Air Conditioner | | | |
| Central Air Source Heat Pump | | | |
| Heat Pump Water Heater | | | |
| ECM Furnace Fan | | | |

4. About how long did it take to receive the rebate from the time the equipment was installed?

- 1 week
- 2 weeks
- 3 weeks
- 1-2 months
- 2-4 months
- More than 4 months

5. Rate your satisfaction with the following program components on a five-point scale, where “5” means “Very Satisfied” and “1” means “Very Dissatisfied.” How satisfied were you with the:

| | Satisfaction |
|--|--------------|
| Rebate application | |
| Rebate processing time | |
| Types of equipment eligible for the program | |
| Performance of the new equipment installed as compared to the equipment replaced | |
| Program as a whole | |

6. Would you recommend the Trade Ally to someone else?

- Yes
- No

7. Why do you say that?

- Quality work
- Professional
- Efficient/quick installation
- Good customer service
- Did not finish on time
- Unprofessional
- Poor customer service

Free Ridership

8. Had you been planning to purchase a new *{measure}* with the EXACT SAME efficiency, within three months of participating in the program?

| | Central Air Conditioner | Heat Pump | Heat Pump Water Heater | Air Sealing |
|------------------|-------------------------|-----------|------------------------|-------------|
| Yes | | | | |
| No (skip to Q10) | | | | |

9. What factors had kept you from purchasing and installing a new *{measure}*?

| | Central Air Conditioner | Heat Pump | Heat Pump Water Heater | Air Sealing |
|--|-------------------------|-----------|------------------------|-------------|
| I did not have the money at that time | | | | |
| I wasn’t sure how long I would remain in my home | | | | |
| I wasn’t sure what type of system/brand to install | | | | |
| I was not convinced I would save more | | | | |
| I did not have a contractor I felt I could trust | | | | |

10. If Central Hudson had NOT offered the rebate, how likely is it that you would have purchased and installed *{ }* with the EXACT SAME efficiency within 3 months of participating in the program?

| | Central Air Conditioner | Heat Pump | Heat Pump Water Heater | Air Sealing |
|-------------------|-------------------------|-----------|------------------------|-------------|
| Very likely | | | | |
| Somewhat likely | | | | |
| Neutral | | | | |
| Somewhat unlikely | | | | |
| Very unlikely | | | | |

Spillover

11. As a result of your participation in the program, have you taken any other steps to reduce your energy use?

- Yes
- No (skip to Q13)

12. Have you taken the following actions?

If YES, "How much influence did the program have in this decision?"

| Action | No | Yes | Program Influence (1-4) |
|--|----|-----|-------------------------|
| Upgrade to Energy Star Appliances | | | |
| Replace incandescent light bulbs with CFL | | | |
| Replace incandescent light bulbs with LEDs | | | |
| Install new efficient doors | | | |
| Install new efficient windows | | | |
| Install / upgrade insulation (walls, ceiling, attic) | | | |
| Insulate water heater/installed pipe insulation | | | |

Barriers to Participation

13. Would you recommend this program to others?

- Yes
- No

14. Why did you say that?

- It saves electricity/we need to conserve it
- It saves money
- It's easy to do
- It's a good program
- It's time consuming
- Difficult to participate in the program

15. How could the program be improved?

- Make it available to more people
- Higher incentives
- More publicity
- Faster incentive processing
- Explain the program more
- Better communication
- No suggestions

16. What other energy efficiency products would you like Central Hudson to provide incentives for?

- CFLs
- LEDs
- Insulation
- Energy Star Refrigerator
- Energy Star Dishwasher
- Energy Star Clothes Washer

17. Are you aware of other energy efficiency programs offered by Central Hudson?

- Yes
- No (skip to Q19)

18. Which programs?

- Residential Appliance Recycling
- Residential Natural Gas HVAC
- Home Energy Comparison Reports

Customer Demographics

19. Which of the following best describes your residence?

- Single family house
- Multi-family house
- Apartment
- Townhouse

Thank you for taking the time to answer my questions!

Appendix C. Trade Ally Survey Guide

Hello. My name is _____ and I’m calling on behalf of Central Hudson Gas & Electric. We are currently conducting an evaluation of Central Hudson’s Commercial and Residential HVAC energy efficiency programs and would like to ask you a few questions about your participation as a Trade Ally.

Program Awareness

1. How did you first hear about Central Hudson’s HVAC Programs?
 - Central Hudson
 - Advertisement
 - Internet
 - SavingsCentral Website
 - Customer
2. How long have you been a Trade Ally?
3. How often do you interact with Central Hudson/ICF personnel?
 - Daily
 - Weekly
 - Monthly
 - Never

4. How satisfied are you with:

| | Very Satisfied | Satisfied | Neutral | Dissatisfied | Very Dissatisfied |
|----------------------|----------------|-----------|---------|--------------|-------------------|
| Central Hudson staff | | | | | |
| ICF staff | | | | | |

5. What is the best way to for Central Hudson/ICF to communicate program information?
 - In-person meetings
 - Email
 - Telephone

Customer Participation/Satisfaction

6. How are customers typically made aware of the HVAC programs?
 - Trade Ally
 - SavingsCentral website
 - Central Hudson
 - Advertisement
7. In your opinion, how satisfied are Central Hudson customers with the HVAC programs?
 - a. Very Satisfied
 - b. Satisfied
 - c. Neutral
 - d. Dissatisfied
 - e. Very dissatisfied
8. What is the most common feedback that customers have about the program? Please describe.
9. What barriers exist that may prevent a customer from participating in the program? Please describe.

Application/Program Tracking

10. Do you feel rebate applications are processed in a timely manner? Please describe.

11. Is there any information missing that you feel would be valuable to track? Please describe.

12. How satisfied are you with the:

| | Very Satisfied | Satisfied | Neutral | Dissatisfied | Very Dissatisfied |
|-------------------|----------------|-----------|---------|--------------|-------------------|
| Eligible measures | | | | | |
| Incentives | | | | | |
| Program Overall | | | | | |

13. What aspects of the program could be improved? How?

14. Do you have any additional comments about the program?

Appendix D. Trade Ally Focus Group Guide

Good morning and welcome. My name is _____ and I am the moderator for this morning's discussion. I am here on behalf of Central Hudson Gas & Electric to conduct a focus group to obtain feedback on the Residential & Commercial HVAC Programs.

Program Awareness and Participation

1. How did you first hear about Central Hudson's *Residential and/or Commercial HVAC Program(s)*? What made you decide to participate as a Trade Ally?
2. Do you feel you were properly informed about the *Residential and/or Commercial HVAC Program(s)* when becoming a Trade Ally?
 - a. How are you kept abreast of current program information?
 - b. Would you like to see any changes regarding how program information is communicated to you? Please describe.
3. What do you believe are the most effective aspects of the *Residential and/or Commercial HVAC Program(s)*?
4. Do you feel any changes could be made to the program to make it more attractive to customers? Please describe.
5. Describe any barriers that you've seen which cause customers not to participate in the program. How could these barriers be removed?
6. How would you describe your interaction with Central Hudson or ICF in regards to the *Residential and/or Commercial HVAC Program(s)*? What would you consider some of ICF's strongest features?

Customer Interaction

7. Describe the feedback heard from Central Hudson customers in regards to the *Residential and/or Commercial HVAC Program(s)*.
8. Describe the feedback heard from Central Hudson customers in regards to interaction with ICF.
9. Describe the type of energy efficiency measures that you installed as a result of this program?
 - a. Have you seen a noticeable increase of installation for a specific type of measure?
 - b. Have you seen a noticeable decrease of a requested measure?
10. What customer issues occur on a regular basis in regards to the program and/or installation process?
 - a. How are such issues resolved?
 - b. What would you like to see happen when the issues arise?
11. Can you describe a positive and/or negative encounter with a Central Hudson customer?

Application Processing/Program Tracking

12. Is the application easy to complete? What information is missing from the application that you would like to see included?
13. Do you feel applications are processed in a timely manner? Is payment received in a timely manner?
14. Describe any problems that arose when processing a customer application.
 - a. What were the issues?
 - b. How were the issues resolved?

15. What has customer feedback been in regards to the application process?
16. How would the application process be improved?
17. How do you monitor program participation at your company?
18. Do you ever request information from ICF or Central Hudson?
 - a. If so, what is the process for requesting information?
 - b. What type of information do you request?
 - c. How long does it take to receive this information?
 - d. Describe how the process can be improved in any way.

Closure of Discussion

19. Do you have any messages for Central Hudson or ICF?
20. How can Central Hudson, ICF, or a Trade Ally improve their image in the community?