



Central Hudson Gas & Electric Company
Residential Appliance
Recycling Program

Phase II Process Evaluation · December 2011
Revision December 2012

Prepared by:
Applied Energy Group
1377 Motor Parkway, Suite 401 · Islandia, NY 11749
Tel (631) 434-1414 · Fax (631) 434-1212
www.appliedenergygroup.com

Abstract

Central Hudson Gas and Electric, a regulated transmission and distribution utility serving gas and electric customers in New York State's Mid-Hudson River Valley, retained Applied Energy Group to conduct a process evaluation of its Residential Appliance Recycling Program.

The Appliance Recycling Program offers customers a \$50 rebate to recycle their primary or secondary inefficient refrigerators or freezers. The program also offers customers a \$50 to \$100 rebate to purchase a new ENERGY STAR qualified room air conditioner if they recycle their current room air conditioner.

To arrive at the final recommendations of the process evaluation, AEG conducted interviews with Central Hudson program staff, the third-party program implementer and participating customers. AEG also reviewed program materials, updated the program logic model and assessed Central Hudson's program tracking methods and databases. The results of the analysis, along with key findings and recommendations for program improvements, are included in this report.

Copyright © Applied Energy Group, Inc. All rights reserved.

Table of Contents

Executive Summary..... i

1. Introduction 1

 1.1 Process Evaluation Approach..... 1

 1.1.1 Program Materials and Data Review 1

 1.1.2 Program Tracking and Database Review 1

 1.1.3 Program Logic Model 1

 1.1.4 Central Hudson Staff Interview 2

 1.1.5 Third-Party Implementer Interview 2

 1.1.6 Participating Customer Surveys 2

 1.2 Report Outline..... 3

2. Program Description 3

 2.1 Program Logic Model 4

 2.1.1 Activities and Outputs..... 6

 2.2 Outcomes..... 8

 2.3 External Factors 9

3. Program Performance..... 9

 3.1 Characteristics of Appliances Picked-Up by Sears Logistics..... 13

 3.2 What Customers Might Have Done in Absence of the Program 15

4. Program Marketing..... 15

 4.1 Central Hudson Marketing Activities 15

 4.2 How Participants Learned About the Program 17

5. Tracking Systems..... 18

6. Program Satisfaction 19

7. Opportunities for Program Improvement 20

8. Findings, Conclusions, and Recommendations..... 21

 8.1 Program Findings 21

 8.1.1 Program Performance..... 21

 8.1.2 Program Marketing..... 22

 8.1.3 Data Tracking 22

 8.1.4 Program Satisfaction..... 22

 8.2 Recommendations 22

 8.2.1 Conduct a Residential Appliance Saturation Survey and Market Potential Study..... 22

 8.2.2 Continue to Market Program as Part of SavingsCentral Brand..... 23

 8.2.3 Hold an Annual Room Air Conditioner Recycling Event..... 23

 8.2.4 Track Detailed Room Air Conditioner Data..... 23

 8.2.5 Review Additional Residential Appliance Rebate Program Offerings..... 23

 8.2.6 Explore the Cost Savings Potential and Other Possible Benefits of Increasing Online
Registration..... 23

 8.2.7 Partner with the U.S. Environmental Protection Agency 24

Appendix A. Interview Guide for Implementation Contractor 25

Appendix B. Program Participant Interview Guide 26

List of Tables

Table ES1 Program Goals and Budget..... i
 Table ES2 Total Units Collected, as of October 1, 2011..... ii
 Table 1 Program Rebates by Appliance Type..... 4
 Table 2 Program Goals and Budget 4
 Table 3 Total Units Collected, as of October 1, 2011..... 9
 Table 4 Total Room Air Conditioners Collected for Recycling, as of October 1, 2011..... 10
 Table 5 Room Air Conditioners Collected by Month, 2010 and 2011 11
 Table 6 ENERGY STAR Room Air Conditioners Rebated, 2010 and 2011..... 11
 Table 7 Reasons for Cancellation, 2010 and 2011 12
 Table 8 Recycled Refrigerator Models in 2010 and 2011, n=5,510 14
 Table 9 Recycled Freezer Models in 2010 and 2011, n=5,510..... 14
 Table 10 Cubic Feet of Recycled Units in 2010 and 2011, n=5,510 14
 Table 11 Outreach and Events 16
 Table 12 ARCA Awareness Report, January 2010 through October 2011, n=5,748..... 18
 Table 13 Participant Satisfaction with Program, n=99 19

List of Figures

Figure 1 Central Hudson Residential Appliance Recycling Program Logic Model 5
 Figure 2 Length of Time between Appliance Recycle and Receiving Rebate, n=93 8
 Figure 3 Refrigerators and Freezers Collected by Month, as of October 1, 2011 10
 Figure 4 Room Air Conditioners Collected by Month, as of October 1, 2011 10
 Figure 5 Actual Cumulative Ex Ante Energy Savings versus Cumulative Target Savings 13
 Figure 6 Age of Appliance Picked-Up by Sears Logistics in 2010 and 2011, n=5,510 14
 Figure 7 Likelihood of Customer Recycling the Appliance without the Utility Rebate, n=100..... 15
 Figure 8 How Customers First Learned of the Program, n=102..... 17
 Figure 9 Additional Sources of Customer Awareness, n=22..... 17
 Figure 10 Motivation for Participation, n=100 20
 Figure 11 Reasons Participants Would Recommend the Program, n=100..... 20
 Figure 12 Participants Suggestions for Program Improvements, n=100 21

Executive Summary

Applied Energy Group, Inc (“AEG”) was retained by Central Hudson Gas & Electric (“Central Hudson” or “Company”) to conduct a process evaluation of its Residential Appliance Recycling Program.

The Appliance Recycling Program, launched on June 21, 2010, incentivizes households to recycle their primary or secondary, inefficient refrigerators or freezers and replace their room air conditioning units with new ENERGY STAR models. The program offers residential customers a \$50 incentive to recycle their old, working refrigerators and freezers and a \$50 to \$100 rebate to purchase a new ENERGY STAR qualified room air conditioner when they recycle their old room air conditioner. Refrigerators and freezers are removed from the customer’s premises by the Appliance Recycling Centers of America (“ARCA”), the third-party program implementation contractor, and ARCA’s subcontractor, Sears Logistics.

AEG designed the 2010 – 2011 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 third-party program implementer;
- Conducted surveys with participating customers; and
- Accompanied implementer staff on a ride-along.

Program Accomplishments

The New York Department of Public Service (“DPS”) approved a \$1.779 million program budget for 2010-2011, with a cumulative ex ante program energy savings goal of 3,896 MWh.

Table ES1 Program Goals and Budget

	2010	2011
Annual Energy Savings Goal (MWh)	1,670	2,226
Program and Administration Costs	\$724,307	\$965,743
Measurement and Verification Costs	\$38,121	\$50,829
Total Budget	\$762,429	\$1,016,571

As of October 1, 2011, participation in the Residential Appliance Recycling Program was at 70 percent of 2010 participation. In 2010, 3,819 customers recycled an appliance. In 2011, 2,693 customers recycled an appliance. Table ES2 provides the total units collected in 2010 and 2011

Table ES2 Total Units Collected, as of October 1, 2011

Appliance	2010	2011	Total
Room Air Conditioner	915	208	1,123
Freezer	690	527	1,217
Refrigerator	2,214	1,958	4,172
Total	3,819	2,693	6,512

From June 2010 through October 2011, the Residential Appliance Recycling Program acquired an estimated 6,502 MWh of annual ex ante electric savings, or approximately 66 percent above the 2010-2011 program goal of 3,896 MWh. The energy savings estimates were derived from the *New York Technical Manual*.¹ An impact analysis to determine actual energy and demand savings achieved through the program will be completed in 2013.

Summary of Key Findings

Program Performance

As of October 2011, 6,512 appliances have been recycled, 64 percent were refrigerator, 19 percent freezers and 17 percent room air conditioners. Other key findings include:

- 11 percent of room air conditioners recycled were picked-up by Sears Logistics;
- In 2010 and 2011, 663 participant appliance pick-up appointments were cancelled.
- In the absence of the program, 42 percent of participating customers would have been “very likely” to recycle the appliance(s), almost 30 percent of participating customers would have been “very unlikely” to recycle the appliance(s).
- Based on the participant survey, refrigerators and/or freezers were being used in 84 percent of residences prior to being recycled.

Program Marketing

The program is driven by Central Hudson’s aggressive and creative advertising and community outreach, which includes bill inserts, print and electronic advertisements, television and radio, media and community events, and direct mail. According to the survey AEG administered to participating customers, 35 percent of participants learned about the programs from a Central Hudson bill insert, followed by newspaper advertisements (16 percent), ARCA (12 percent) and word of mouth (11 percent).

Data Tracking

ARCA tracks the number of units that have been billed to Central Hudson and the number of units pending pick-up by Sears Logistics. ARCA also tracks room air conditioner rebate invoices monthly. The room air conditioner data tracked includes the number of rebates processed, broken out by through-the-wall and window units, rejected rebates and the total rebated amount. ARCA and Sears Logistics collect the detailed data described above for room air conditioners. ARCA and Sears Logistics collect refrigerator and/or freezer scheduling process data as well as the following data:

¹ New York Evaluation Advisory Contractor Team and TecMarket Works. (October 2010). New York Standard Approach for Estimating Energy Savings from Energy Efficiency Programs. Prepared for the New York Department of Public Service.

- Unit type (refrigerator, freezer and/or air conditioner).
- Unit location in the home.
- Unit details, including brand, model, color, size (cubic feet), amps, defrost type and age.
- Primary or secondary unit

Room air conditioner data on units dropped-off at a Sears' retailer are often not complete.

Program Satisfaction

Overall, participants are highly satisfied with the Residential Appliance Recycling program and would recommend the program to others (98 percent). Customers are strongly motivated by the opportunity to save money and energy. According to the customer survey, 24 percent of customers participated in the program because they had an opportunity to save money, 28 percent needed a new refrigerator and/or freezer, and 27 percent wanted to save energy.

Thirty-two (32) percent of participants feel that the program is good the way it is and did not have suggestions for improvements. Recommendations for program improvements included more publicity/advertising (25 percent) and offering financial incentives for additional appliances (12 percent), such as clothes washers, clothes dryers, dishwashers, hot water heaters and stoves.

Recommendations

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

Conduct a Residential Appliance Saturation Survey and Market Potential Study

Appliance recycling programs in the Northeast and Midwest that hit their first year goals reported increased difficulty at meeting goals in the subsequent years of the program. Additional or higher rebates, more community outreach and increased advertising have been used to sustain program savings in other utilities.²

AEG recommends that, within the next year, Central Hudson conduct a Residential Appliance Saturation Survey ("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 potential for the Appliance Recycling Program. Using the results from the RASS, a Market Potential Study should be completed that quantifies the quantity and targeted end uses where savings can be realized.

Continue to Market Program as Part of SavingsCentral Brand

Central Hudson promotes their energy efficiency programs through the SavingsCentral brand. Central Hudson should continue to aggressively promote the Residential Appliance Recycling Program under the SavingsCentral brand and inform customers of Central Hudson's other energy efficiency programs by providing clear and accessible information to customers on how Central Hudson can help them save money and energy.

² Findings are based on July 2011 interviews with program managers at Efficiency Vermont, National Grid, NSTAR Electric, Public Service of New Hampshire, AEP, Con Edison and DTE Energy.

Hold an Annual Room Air Conditioner Recycling Event

Central Hudson's room air conditioner kick-off event held Memorial Day weekend 2010 was very successful. The event accounts for 58 percent of all room air conditioner's recycled in 2010. As of October 2011, the number of room air conditioners recycled was 208 as compared to the 915 units recycled in 2010. We recommend that Central Hudson hold an annual room air conditioner recycling event in the spring at multiple Sears' retailers to encourage increased program participation.

Track Detailed Room Air Conditioner Data

We recommend that ARCA track detailed room air conditioner data, for the recycled units and new ENERGY STAR units, to better understand persistence and types of units customer purchase. The detailed data tracked for units picked-up by Sears Logistics is often not completed for units dropped-off at Sears' retailers. This data should be collected, including unit efficiency, brand, model and size.

Review Additional Residential Appliance Rebate Program Offerings

Program participants recommended offering rebates for other appliances, including clothes washers, clothes dryers, dishwashers, hot water heaters and stoves. We recommend that Central Hudson evaluate the cost-effectiveness of providing rebates for other ENERGY STAR appliances.

Explore the Cost Savings Potential and Other Possible Benefits of Increasing Online Registration

ARCA would like to focus on increasing the number of customers that register online versus the call center. However, Central Hudson's current contract with ARCA is based on a flat fee, regardless of whether the customer registers via the call center or online. Therefore, Central Hudson would not benefit from any cost savings realized from increasing customer online registration under the current contract.

AEG recommends exploring the cost savings potential of identifying and addressing the barriers to customer online registration, dependent upon Central Hudson being able to modify the contract with ARCA so that they can fully realize any cost savings.

Partner with the U.S. Environmental Protection Agency

AEG recommends that Central Hudson explore joining the U.S. Environmental Protection Agency's Responsible Appliance Disposal ("RAD") Program. The voluntary partnership program protects the ozone layer and reduces emissions of greenhouse gases by recovering ozone-depleting chemicals from old refrigerators, freezers, window air conditioners and dehumidifiers. The RAD program publicly recognizes member achievements, provides resources for members and may help partners meet voluntary commitments/pledges to reduce greenhouse gas emissions.

1. Introduction

Applied Energy Group, Inc (“AEG”) was retained by Central Hudson Gas & Electric (“Central Hudson” or “Company”) to conduct a process evaluation of its Residential Appliance Recycling 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% by 2015.³

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.

The Appliance Recycling Program, launched on June 21, 2010, incentivizes households to recycle their primary or secondary, inefficient refrigerators or freezers and replace their room air conditioning units with new ENERGY STAR models. The program offers residential customers a \$50 incentive to recycle their old, working refrigerators and freezers and a \$50 to \$100 rebate to purchase a new ENERGY STAR qualified room air conditioner when they recycle their old room air conditioner.

1.1 Process Evaluation Approach

AEG designed the 2010 – 2011 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. Impact estimates are not a part of this evaluation. However, some estimates of the impacts have been provided in the report. To arrive at the final recommendations in this report, AEG undertook the following research activities.

1.1.1 Program Materials and Data Review

AEG reviewed current program documents and processes for this analysis including the program logic model, marketing activities, program implementation plan, 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 its energy savings goals.

1.1.2 Program Tracking and Database Review

AEG reviewed current program tracking and reporting, including the monthly reports provided by the third-party implementer, summarizing appliances collected, rebated, billed and pending pick-ups.

1.1.3 Program Logic Model

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 and program inputs.

³ 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.

1.1.4 Central Hudson Staff Interview

AEG conducted a comprehensive, group interview with Central Hudson program staff in June 2011 to get staff impressions of program performance, marketing and customer awareness, and opportunities for program improvements. Individual interviews with program staff, as well as informal discussions around program performance, were conducted between June and August 2011. The individual interviews focused on program design and delivery issues, program performance, potential areas of improvements and overall program effectiveness.

1.1.5 Third-Party Implementer Interview

The Residential Appliance Recycling Program is implemented by a third-party contractor, Appliance Recycling Centers of America ("ARCA"). ARCA assisted Central Hudson staff with program design and marketing and is responsible for logistical support associated with removing and recycling the appliances ARCA. ARCA utilizes two subcontractors:

1. Sears Logistics. Picks-up the appliances from the customer's home and verifies appliance operational status.
2. Sears' retailers. Serves as a collection point, providing a location for the customers to drop-off inefficient room air conditioners

AEG interviewed ARCA in September 2011. The interview provided information on program implementation activities, scheduling, program data and tracking methods, the relationship between the program implementation contractor and subcontractors and barriers to increased participation. AEG obtained detailed information on appliance pick-up procedures and program performance during the first year of the program. An interview guide for the third-party implementer interview can be found in Appendix A.

AEG accompanied Sears Logistics, on three refrigerator/freezer pick-up appointments in October 2011. The ride-along provided information on the appliance pick-up processes and procedures.

1.1.6 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. The participating customer survey guide can be found in Appendix B.

Between May 21, 2010 and July 2, 2011, 5,417 appliances were recycled with the Residential Appliance Recycling Program. Central Hudson provided data for all 5,417 appliances recycled, including customer name, account number and telephone number. AEG scrubbed the data to remove duplicate Central Hudson account numbers and participant addresses from the list, thereby accounting for customers that recycled more than one appliance. The scrubbed data included 3,881 unique electric accounts. AEG calculated the sample size at a 90 percent confidence interval with an error margin of +/-10 percent. The sample size was calculated at 100. 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.

One hundred (100) surveys were completed out of 292 phone calls, for a 35 percent response rate.

1.2 Report Outline

This report describes the key findings from the Residential Appliance Recycling Program process evaluation and provides recommendations for program improvement. Section 2 provides a description of the program and program logic model. Section 3 presents the program performance and the characteristics of the refrigerator, freezers and/or room air conditioners picked-up by Sears Logistics. Sections 4 and 5 discuss program marketing and tracking, respectively. Sections 6 and 7 describe program satisfaction and the opportunities for program improvement. Finally, Section 8 discusses the evaluation findings and provides recommendations for program improvement.

2. Program Description

The Residential Appliance Recycling Program was launched on June 21, 2010 to encourage households to recycle their primary or secondary, inefficient refrigerators or freezers and replace their room air conditioning units with new ENERGY STAR models.⁴ Removing older, inefficient appliances from the grid can significantly reduce the electric load and produce energy and environmental benefits.

The program offers residential customers \$50 to recycle their old, working refrigerators and freezers. To participate, the customer must be a Central Hudson customer and the appliance must be picked-up at a Central Hudson electric service address. Additionally, the refrigerator or freezer must be in working condition (cooling) and be between 10 and 30 cubic feet in size. Each participating household is limited to the pick-up and removal of two refrigerators or freezers. There are no age restrictions on the appliances and the appliance may be the customer's primary or secondary unit.

Through-the-wall air conditioners and window air conditioners are eligible for a \$100 and \$50 rebate, respectively, with the purchase of a new ENERGY STAR qualified model during the summer months (June to September). To receive the rebate, customers must bring their old, working room air conditioners to a Sears' retailer for recycling and obtain a 'Proof of Recycling' certificate to submit with the rebate application. Customers are limited to four rebates per Central Hudson electric account.

Refrigerators and freezers are removed from the customer's premises by the Appliance Recycling Centers of America ("ARCA"), the third-party program implementation contractor, and ARCA's subcontractor, Sears Logistics. Sears Logistics may remove working, inefficient room air conditioners from a customer's home during a refrigerator or freezer pick-up, but pick-ups are not scheduled for room air conditioners only. All recycled units are taken to a recycling center in Philadelphia, where units are de-manufactured and recycled in an environmentally safe manner.

⁴ The Residential Appliance Recycling Program was approved on December 16, 2009 in order 08-E-1127.

Table 1 Program Rebates by Appliance Type

Appliance	Rebate
Refrigerator	\$50
Freezer	\$50
Window air conditioner	\$50
Through-the-wall air conditioner	\$100

The program targets residential households with old, inefficient refrigerators, freezers and room air conditioners. Program goals are to:

- Increase consumer awareness of the Residential Appliance Recycling Program.
- Educate customers about the benefits of recycling their inefficient appliances.
- Increase customer awareness of the SavingsCentral brand.
- Reduce household energy consumption.
- Influence consumer behavior by encouraging residential customers to avoid replacing their second refrigerator or freezer after it is recycled.

The New York Department of Public Service (“DPS”) approved a budget of \$1.779 million for 2010-2011, with a cumulative ex ante program energy savings goal of 3,896 MWh.

Table 2 Program Goals and Budget

	2010	2011
Annual Energy Savings Goal (MWh)	1,670	2,226
Program and Administration Costs	\$724,307	\$965,743
Measurement and Verification Costs	\$38,121	\$50,829
Total Budget	\$762,429	\$1,016,571

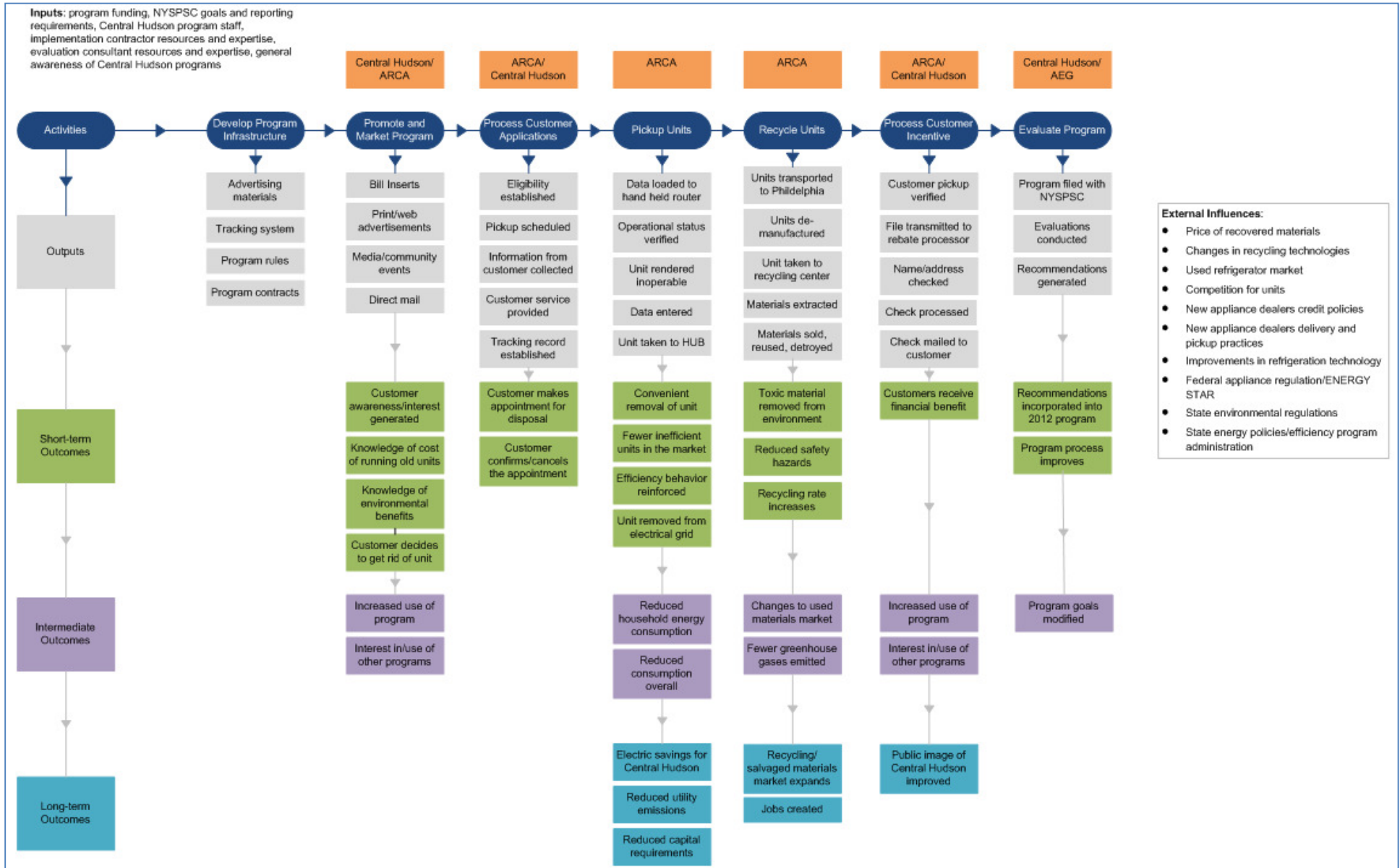
To successfully market and implement this program, Central Hudson staff work with several program partners. ARCA, Sears Logistics and Sears’ retailers are responsible for the logistical support associated with removing and recycling the appliances and ARCA provides input on program marketing. Central Hudson also works with retailers of ENERGY STAR appliances to increase program awareness.

2.1 Program Logic Model

Logic models are graphic representations of the 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.

In this logic model, the activities are oriented sequentially across the top of the page from left to right. For example, the program’s infrastructure, including its advertising materials, tracking systems, program rules, and contracts must be developed before the program can be marketed and customers recruited. The performance spectrum, or program’s theory, is oriented vertically from top to bottom.

Figure 1 Central Hudson Residential Appliance Recycling Program Logic Model



2.1.1 Activities and Outputs

The Residential Appliance Recycling Program has seven main activities that differ slightly depending on whether the appliance recycled is a refrigerator/freezer or a room air conditioner. Outputs derive directly from program activities and include the activities the program performs and the people the program reaches.

Develop Program Infrastructure

Activities include gathering market knowledge, setting program goals, designing the program, establishing program rules, developing marketing approaches and content, and establishing institutional and operating structures. As the implementation contractor, ARCA works with Central Hudson staff to design the program and develop its data tracking system. Marketing materials are developed jointly with Central Hudson staff.

Promote and Market Program

Central Hudson promotes and markets the program to residential customers as part of the SavingsCentral brand.⁵ Marketing activities include bill inserts, print and online advertisements, media and community events, and direct mail.

Process Customer Applications

ARCA manages a call center, which processes customer applications and provides customer service. Customers schedule an appointment to have their refrigerator and/or freezer picked-up either online or via the call center's toll free number.

When a customer calls the toll free number to schedule a pick-up, ARCA verifies the customer's name, address and electric account number from a Central Hudson database to ensure that the customer is eligible for the program. If the account is not immediately verified through the database (e.g. the customer provides a different address, city or zip code other than what appears on their electric bill), then ARCA will send a request to Central Hudson to verify the account.

Once customer eligibility is established, the refrigerator or freezer pick-up is scheduled for a two-hour window on the earliest possible day that is convenient for the customer. The available dates correspond to a predetermined schedule for routing in specific geographic areas.

The call center representative reminds the customer to make sure that the unit is plugged in and running the night before the pickup so the driver can verify that the unit is functional. The customer is also reminded of the 10 to 30 cubic foot size limit for recycled refrigerators and freezers and that the customer is limited to the pickup of two units per calendar year.

The process for scheduling appointments online is similar to appointments made over the telephone. Customers are directed to the website to provide their name and address so that their electric accounts can be verified with a Central Hudson database that is provided to ARCA by Central Hudson. The customer is presented with scheduling options on the screen and chooses a date and time for pickup.

⁵ Central Hudson promotes their energy efficiency programs through the SavingsCentral brand.

According to ARCA, about 20% of customers sign up online and 80% sign up through the call center.

To recycle a room air conditioner, a customer brings the unit to a Sears' retailer. The Sears' retailer serves as a collection point, providing a location for the customers to drop-off inefficient room air conditioners. Room air conditioners are not tested for their working status. The Sears' retailer issues a 'Proof of Recycling' certificate to the customer. Customers may receive a rebate application for a new ENERGY STAR qualified model from the Sears' retailer or the SavingsCentral website.

Sears Logistics may remove working, inefficient room air conditioners from a customer's home during a refrigerator or freezer pick-up, but pick-ups are not scheduled for room air conditioners only. However, Sears Logistics does not issue the 'Proof of Recycling' certificates required for customers to receive a rebate. Sears Logistics transports all collected units to the Hub.

Pick-up Refrigerators and Freezers

Sears Logistics is responsible for picking up units from a customer's home. The customer receives two reminder calls about the appointment. Sears Logistics will call the customer the day before the scheduled pickup and immediately before the pickup. If the customer does not answer the phone, Sears Logistics will leave a message and assume that the appointment is still convenient for the customer. If Sears Logistics is unable to leave a message and unable to reach the customer after two attempts, they will not pick up the appliance and the customer must call to reschedule.

When Sears Logistics arrives at the customer's home for the scheduled pickup, the operational status of the refrigerator or freezer is verified (units are plugged into an electrical outlet). Units that are not operational cannot be removed from the home and are not eligible for a Central Hudson incentive. Sears Logistics, based on ARCA's required procedures, takes a number of steps to ensure that the appliances removed are never returned to the grid. Sears Logistics cuts the power cord, breaks the temperature control with a hammer and permanently labels the unit with a tracking number to verify processing before placing it on the truck for transport to a temporary location nearby, known as the Hub. The customer signs an order form before the unit is transported for recycling.

Recycle Appliances

ARCA and Sears Logistics collect detailed appliance data on the recycled refrigerators, freezers and room air conditioners. When enough units are collected at the Hub, ARCA selects a carrier (which may or may not be Sears) to transport the appliances from the Hub to the recycling center in Philadelphia. According to ARCA,

"Per Central Hudson program specifications, at least 95% of appliance materials are recycled."

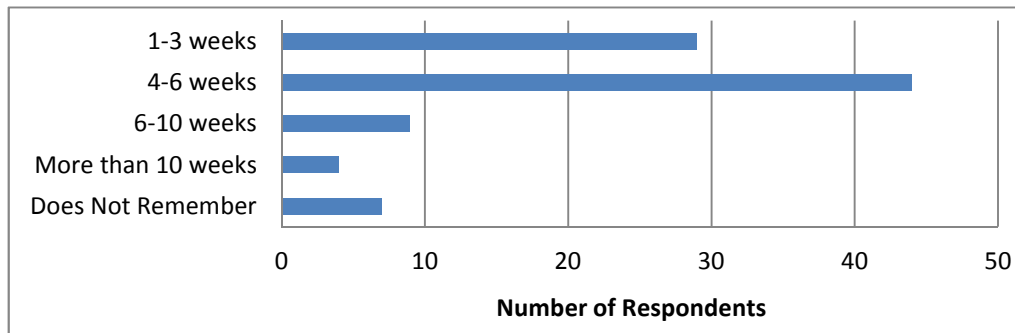
Process Customer Rebate

Customer rebates are processed through a rebate processor managed by ARCA. ARCA receives confirmation from Sears Logistics that a refrigerator and/or freezer has been recycled and the file is transmitted to the rebate processor for verification before a rebate check is issued and mailed to the customer.

ARCA receives customer rebate applications for new ENERGY STAR qualified room air conditioners. ARCA’s rebate processor verifies the eligibility of the new room air conditioner and the ‘Proof of Recycling’ certificate before a rebate check is issued and mailed to the customer.

ARCA conducts weekly audits through its audit processing system to ensure that rebates are correctly filed and processed. The processor also performs auditing to eliminate duplicates, incomplete, and/or invalid submissions before checks are issued and sent to customers. Generally, it takes between four and six weeks for the customer to receive the rebate.

Figure 2 Length of Time between Appliance Recycle and Receiving Rebate, n=93



Evaluate Program

Evaluation activities include process 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.

2.2 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 may become aware of and interested in the Residential Appliance Recycling Program. They may also become knowledgeable about the environmental issues and costs associated with running older appliances.

Other short-term outcomes include the convenient removal of the appliance from the customer’s home, recycling of the appliance, and the financial benefit the customer receives by participating in the program. The program may lead to increased sales of ENERGY STAR models, fewer inefficient units in the market, an increase in the recycling rate of older appliances and a customer commitment to energy efficiency.

Intermediate Outcomes

Intermediate outcomes of the program may include increased use of the program by customers, interest in, and use of, other Central Hudson efficiency programs, reduced household energy consumption, changes to the used materials market, and fewer greenhouse gases emitted.

Long-term Outcomes

The long-term outcomes of the program may include energy savings for Central Hudson, reduced utility emissions, improvement in the public image of Central Hudson as a utility that responds to customer needs and is considerate of environmental issues, and an expanded recycling market that has the potential to create jobs.

2.3 External Factors

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

- Price of recovered materials
- Changes in recycling technologies
- Used refrigerator market
- New appliance dealers credit policies
- New appliance dealers delivery and pickup practices
- Improvements in refrigeration technology
- Federal appliance regulation/ENERGY STAR
- State energy policies/efficiency program administration

3. Program Performance

As of October 1, 2011, the Residential Appliance Recycling Program has recycled 6,512 appliances, 64 percent were refrigerators, 19 percent freezers and 17 percent room air conditioners. Of the air conditioners collected, 1,002 were dropped off at a Sears’ retailer and 121 were picked up by Sears Logistics. Sears Logistics picked-up 5,510 appliances from 4,969 participants. Four hundred ninety-nine (499) participants recycled more than one appliance, 35 percent of which were refrigerators, 43 percent freezers and 22 percent room air conditioners.

Refrigerator and freezer pick-ups were highest during the first months of the program, in the summer and fall of 2010. Pick-ups tapered off during the winter but began increasing in late spring 2011. Consistent with the rebate requirements, room air conditioner drop-offs are almost solely in the summer and post-summer months.

Table 3 Total Units Collected, as of October 1, 2011

Appliance	2010	2011	Total	Percentage of Total
Room Air Conditioner	915	208	1,123	17%
Freezer	690	527	1,217	19%
Refrigerator	2,214	1,958	4,172	64%
Total	3,819	2,693	6,512	100%

Table 4 Total Room Air Conditioners Collected for Recycling, as of October 1, 2011

	2010	2011	Total	Percentage of Total
Units Picked Up by Sears Logistics	73	48	121	11%
Units Dropped Off at Sears' Retailer	842	160	1,002	89%
Total	915	208	1,123	100%

Figure 3 Refrigerators and Freezers Collected by Month, as of October 1, 2011

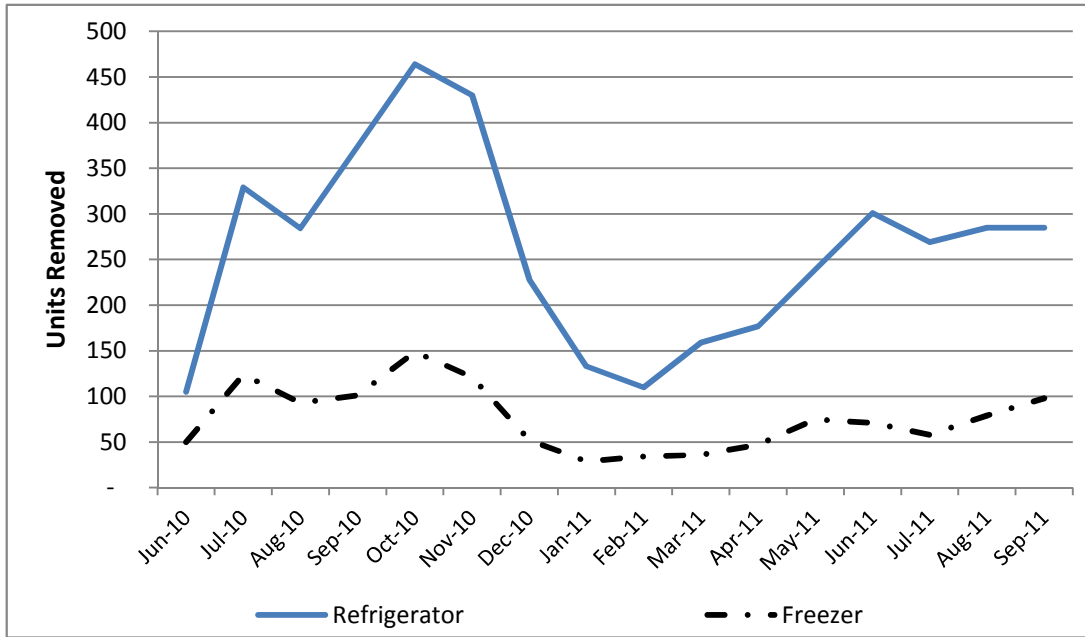


Figure 4 Room Air Conditioners Collected by Month, as of October 1, 2011

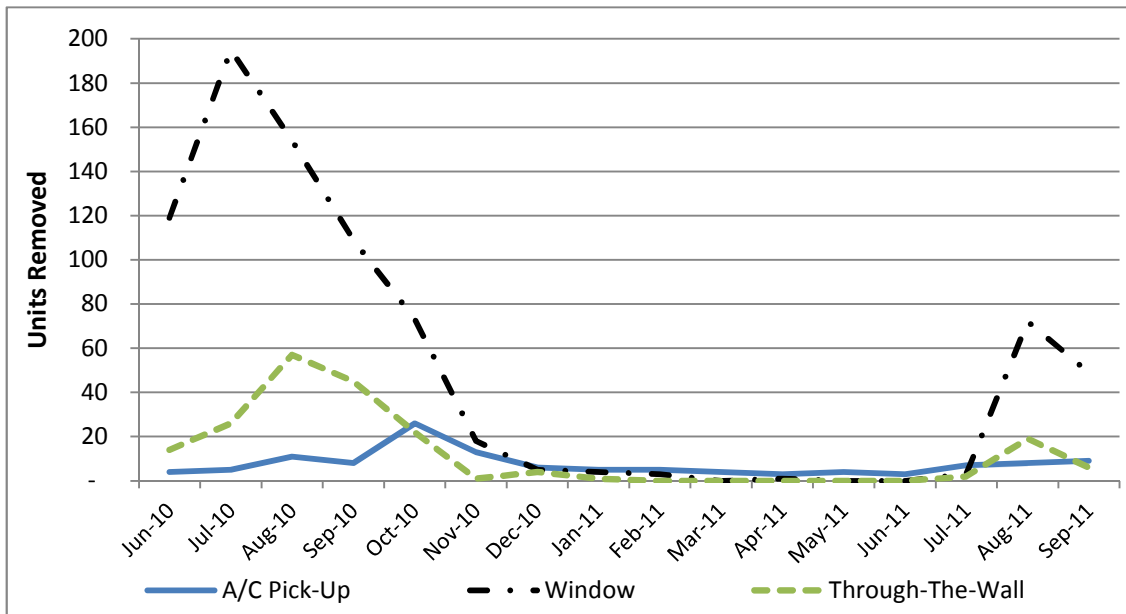


Table 5 Room Air Conditioners Collected by Month, 2010 and 2011

Date	Window A/C	Through-the-Wall A/C	A/C Pick-Up
Jun-12	4	119	14
Jul-12	5	195	26
Aug-12	11	154	57
Sep-12	8	109	45
Oct-12	26	73	22
Nov-12	13	18	1
Dec-12	6	5	4
Jan-12	5	4	1
Feb-12	5	3	0
Mar-12	4	0	0
Apr-12	3	1	0
May-12	4	0	0
Jun-12	3	0	0
Jul-12	7	3	2
Aug-12	8	72	19
Sep-12	9	49	6

Participants that dropped-off a room air conditioner at a Sears' retailer received a \$50 rebate for purchasing an ENERGY STAR window air conditioner or a \$100 rebate for purchasing an ENERGY STAR through-the-wall air conditioner. In 2010 and 2011, participants purchased 1,002 ENERGY STAR air conditioners, 805 window air conditioners and 197 through-the-wall air conditioners.

Table 6 ENERGY STAR Room Air Conditioners Rebated, 2010 and 2011

	Window A/C	Through-The-Wall A/C
2010	\$33,650	\$16,900
2011	\$6,600	\$2,800
Total	\$40,250	\$19,700

A total of 663 participant appliance pick-up appointments were cancelled in 2010 and 2011. Cancellations were based on a combination of customer cancellations, appliances not being eligible for pick-up and donation, and other unique reasons. Almost half of all cancellations were due to the customer choosing to keep the unit.

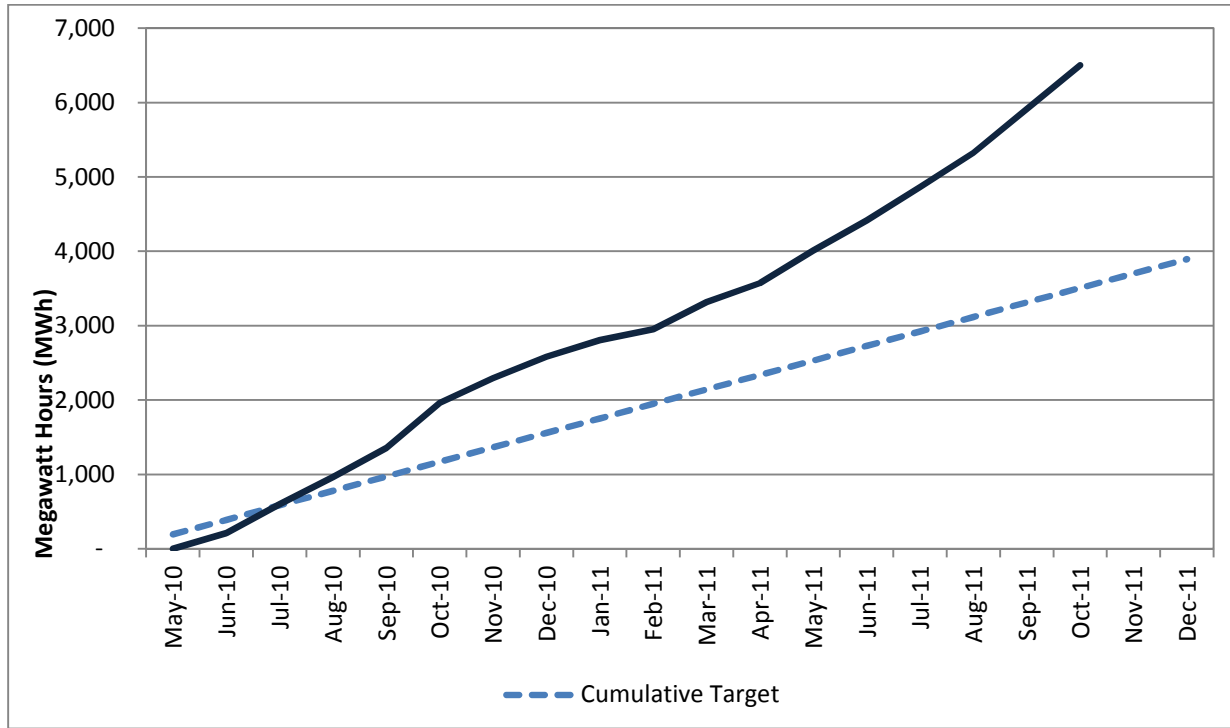
Table 7 Reasons for Cancellation, 2010 and 2011

Reason	Order Count	Unit Count	% Orders Canceled	% Units Canceled
Keeping Unit--Customer Called and Canceled	313	343	47.2%	47.1%
Unable to Contact Customer After 6 Attempts	67	76	10.1%	10.4%
Unit Given Away--Customer Called and Canceled	45	47	6.8%	6.5%
Canceled--No Reason Given	38	41	5.7%	5.6%
Unit not working - per Customer	38	42	5.7%	5.8%
Void--No Trip Made	29	32	4.4%	4.4%
Appliance Not Out	25	29	3.8%	4.0%
Customer Gave Unit Away	25	26	3.8%	3.6%
Unit Gone--Customer Called and Canceled	24	25	3.6%	3.4%
Order Not Approved by Utility	18	22	2.7%	3.0%
ARCA Error	13	15	2.0%	2.1%
Unit Gone (Unknown Destination)	11	11	1.7%	1.5%
Scheduling Conflict	4	4	0.6%	0.5%
Non-qualifying Appliance -- Too Small	4	6	0.6%	0.8%
Appliance Does Not Qualify	3	3	0.5%	0.4%
Customer Sold Unit	2	2	0.3%	0.3%
Customer Took to Landfill	2	2	0.3%	0.3%
Non-qualifying Appliance - Too Big	1	1	0.2%	0.1%
Total	663	728	100%	100%

From June 2010 through August 2011, the program acquired an estimated 6,502 MWh of annual electric savings, or 66 percent above the 2010-2011 program goal of 3,896 MWh. The energy savings estimates were derived from the *New York Technical Manual*.⁶ An impact analysis to determine actual energy and demand savings achieved through the program will be completed in 2013.

⁶ New York Evaluation Advisory Contractor Team and TecMarket Works. (October 2010). *New York Standard Approach for Estimating Energy Savings from Energy Efficiency Programs*. Prepared for the New York Department of Public Service.

Figure 5 Actual Cumulative Ex Ante Energy Savings versus Cumulative Target Savings



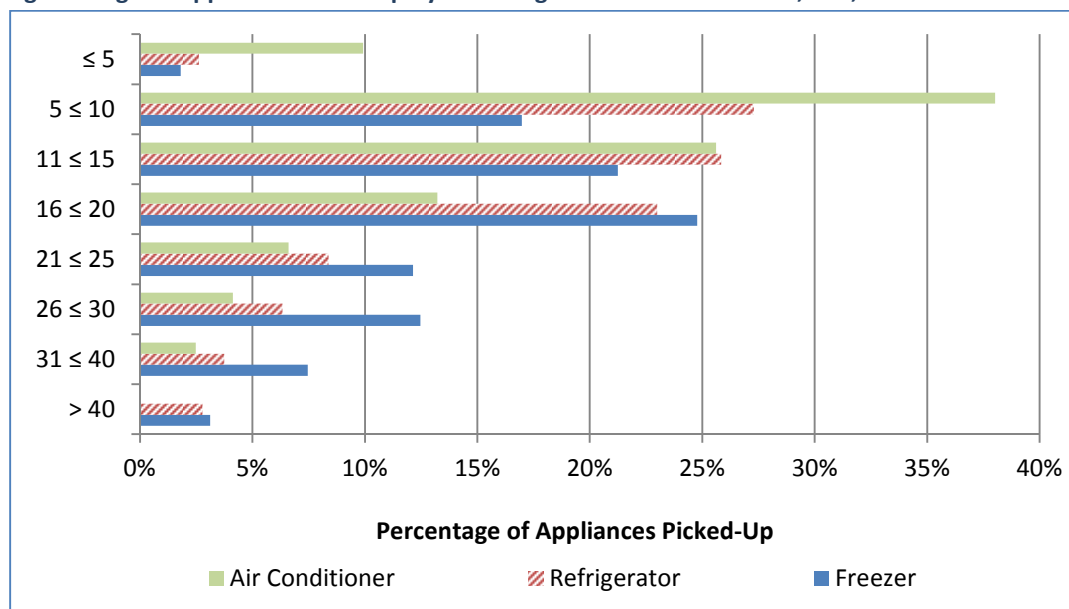
3.1 Characteristics of Appliances Picked-Up by Sears Logistics

This section presents the characteristics of the 5,510 appliances picked-up by Sears Logistics; it does not include data on units dropped-off at Sears’ retail stores.

Central Hudson collects and recycles both primary and secondary refrigerators and freezers of any age. A negligible number of appliances recycled were primary household appliances; only 1 freezer and 29 refrigerators collected in 2010 and 2011 were primary units. Based on the participant survey, 84 out of 100 refrigerators and/or freezers were being used in the home prior to recycling.

The appliance age ranged from one year to 70 years, with an average of 18 years. However, most freezers were 16 to 20 years old and most room air conditioners or refrigerators were 5 to 10 years old.

Figure 6 Age of Appliance Picked-Up by Sears Logistics in 2010 and 2011, n=5,510⁷



Of the refrigerators and freezers recycled, 85 percent of refrigerators were top-freezer models and 62 percent of freezers were chest models. Most freezers and refrigerators recycled were 16 to 20 cubic feet.

Table 8 Recycled Refrigerator Models in 2010 and 2011, n=5,510

Model	Count
Top Freezer	3,566
Side-by-Side	369
Single Door	156
Bottom Freezer	77
Chest	1
Not Sure	3

Table 9 Recycled Freezer Models in 2010 and 2011, n=5,510

Model	Count
Chest	750
Upright	464
Single Door	1
Not Sure	2

Table 10 Cubic Feet of Recycled Units in 2010 and 2011, n=5,510

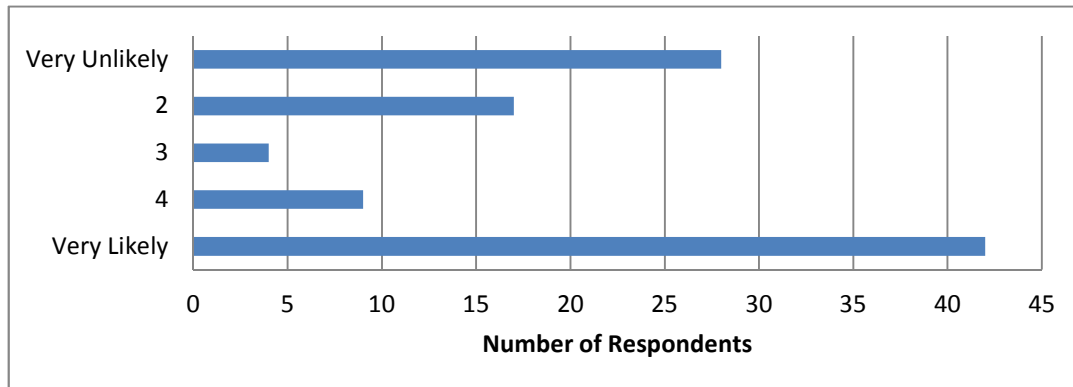
Size	Freezer	Refrigerator
No value	6	40
1 ≤ 10	62	87
11 ≤ 15	309	616
16 ≤ 20	700	2,720
21 ≤ 25	132	692
> 25	8	17

⁷ The sample size is noted by ‘n’ in the tables and figures.

3.2 What Customers Might Have Done in Absence of the Program

In the absence of the program, most customers, 42 percent, would have recycled the appliance(s). However, almost 30 percent of customers were very unlikely to recycle the appliance(s) without the Central Hudson program. An impact analysis, to be completed in 2013, will determine free ridership and spillover.

Figure 7 Likelihood of Customer Recycling the Appliance without the Utility Rebate, n=100



4. Program Marketing

The Residential Appliance Recycling Program is driven by Central Hudson’s aggressive and creative advertising and community outreach. Central Hudson contracted with ARCA to implement the program and provide for the proper disposal of all collected equipment. ARCA and Central Hudson work collaboratively to market the program.

The kick-off event for the room air conditioner recycling portion of the program was held Memorial Day weekend at a Sears in Poughkeepsie. Residential customers were able to turn in their old window or through-the-wall air conditioners and receive a ‘Proof of Recycling’ certificate that could be used to receive a rebate for a new ENERGY STAR model. A total of 529 old window or through-the-wall air conditioners were collected during the event. The event was advertised through the following:

- 30-second radio commercials and interviews.
- Advertisements at major malls.
- Advertisements in daily and weekly newspapers.
- News releases sent to all Hudson Valley media outlets.

4.1 Central Hudson Marketing Activities

Central Hudson’s marketing activities include bill inserts, print and electronic advertisements, television and radio advertisements, media and community events, and direct mail.

Bill inserts and postcard advertisements promoting the program were sent to potential customer periodically in the spring and summer of 2010. In June 2011, refrigerator and freezer recycling postcards were mailed to 25,000 potential customers and room air conditioner recycling postcards were mailed to

20,000 potential customers. Refrigerator and freezer recycling advertisements were included with an envelope of coupons and mailed to 100,000 customers in November 2010 and January 2011.

Internet marketing incorporates social media and Central Hudson’s websites. Central Hudson continually updates their SavingsCentral.com website and posts Facebook and Twitter entries on community events and the participation process. All public events are posted on www.SavingsCentral.com/events.html. Central Hudson also posted web videos featuring satisfied customers on YouTube. Email blasts specifying program details and special events were sent out periodically, including to approximately 56,000 customers in May and June 2010.

Central Hudson broadcast radio commercials promoting refrigerator recycling in late 2010 and early 2011 and has aired two 30-second television commercials promoting refrigerator and freezer recycling. The two television commercials were:

- *Time to Move On* aired once during every ESPN Monday Night Football game, 100 times on Discovery, Food, Bravo, TNT and HGTV and 80 times each on the Golf Channel, CNN Headline News, Sci Fi, Spike and Weather channels. The commercial was produced by Ellenbogen Creative Media of Kingston, New York and was filmed with regional actors.
- *Lucky the Dog* began airing on cable networks in April 2011.

Refrigerator recycling advertisements were run periodically in the local daily newspapers. In 2011, Central Hudson ran two articles on appliance recycling in the quarterly Senior Times publication, which has a circulation of approximately 13,000 senior citizens.

In 2010 and 2011, Central Hudson advertised at the major malls in the Central Hudson service territory. Throughout 2010, Central Hudson tested the effectiveness of billboard advertising, purchasing billboard ads for refrigerator and freezer recycling in Ulster County.

Table 11 Outreach and Events

Date	Event	Location	Audience
May 26 to 30, 2010	A/C Turn-In Event	Poughkeepsie	Homeowners
June 6, 2010	United Way Touch-A-Truck	Rhinebeck	Homeowners
Aug. 24 to 30, 2010	Dutchess County Fair	Rhinebeck	Residential customers
Sept. 12, 2010	Taste of New Paltz	New Paltz	Residential customers
Sept. 25, 2010	Red Hook Hardscrabble Day	Red Hook	Residential customers
Feb. 9, 2011	Hudson Valley Home Matters	Poughkeepsie	Homeowners
April 19, 2011	Stewart International Airport’s Earth Day	Newburgh	Residential customers
April 27, 2011	Renewable Energy Symposium at the Cary Institute	Millbrook	Green community

Central Hudson is an active participant on the Energy Efficiency Program Administrator Collaborative (“EEPAC”) with NYSERDA and the other New York State utilities. Central Hudson has participated in numerous conference calls and meetings with the other New York State utilities to discuss program operation and structure to minimize market confusion and promote best practices. Additionally, Central Hudson is represented on the Energy Efficiency Portfolio Standard (“EEPS”) Implementation Advisory Group (“IAG”) and Evaluation Advisory Group (“EAG”) as well as various subcommittees committed to accomplishing tactical goals.

4.2 How Participants Learned About the Program

Participating customers learned about the program through multiple channels, the most frequent responses were direct mail, newspaper advertisement, ARCA/Sears and word of mouth.

Figure 8 How Customers First Learned of the Program, n=102

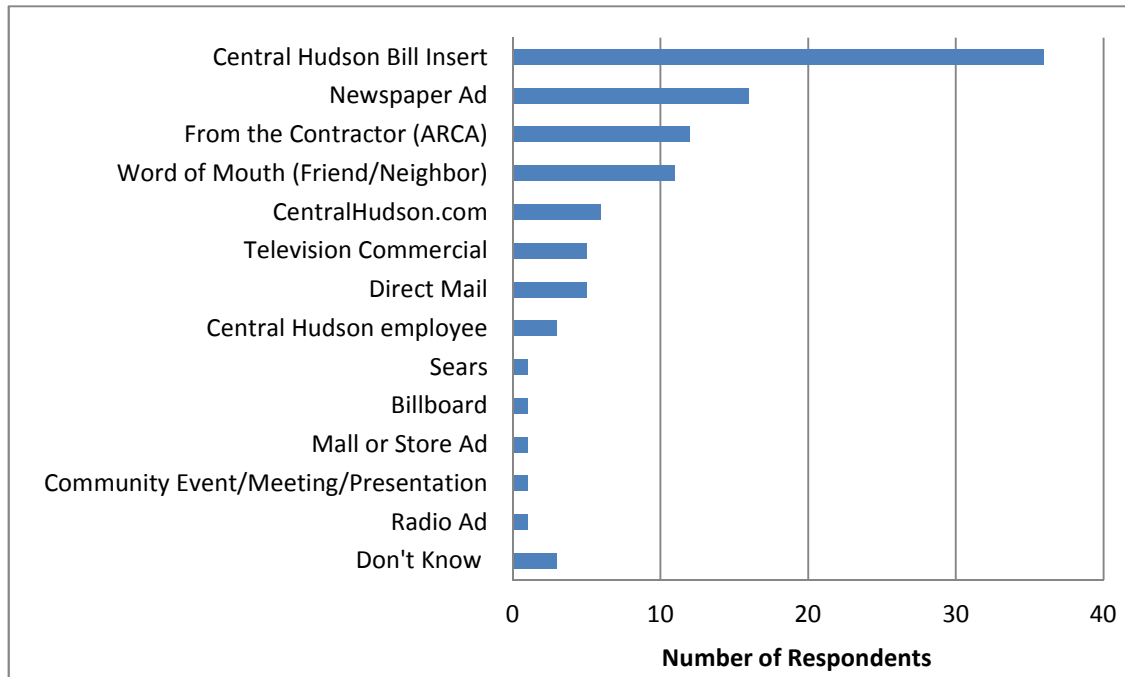


Figure 9 Additional Sources of Customer Awareness, n=22

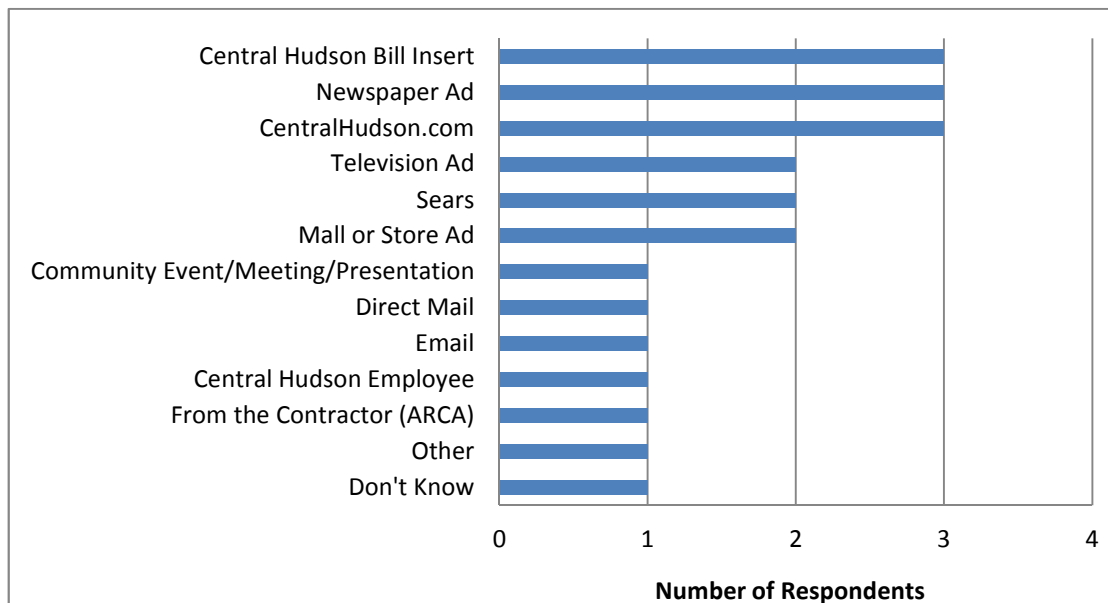


Table 12 ARCA Awareness Report, January 2010 through October 2011, n=5,748

Marketing Type	Internet Customer	Call Center Customer	Percentage of Total
Direct Mail	163	2,461	45.7%
Friend/Neighbor	77	909	17.2%
Appliance Retailer/Store	51	474	9.1%
Bill Insert	66	331	6.9%
Newspaper Ad	63	216	4.9%
Radio Advertising	40	142	3.2%
Mall Advertising	126	22	2.6%
TV/News Story	18	117	2.3%
Utility Representative	15	81	1.7%
Newsletter	13	51	1.1%
Other	22	37	1.0%
TV Commercial	25	29	0.9%
Google	7	42	0.9%
E-Mail Blast	4	38	0.7%
Valpak	10	25	0.6%
SavingsCentral	22	3	0.4%
Community Advertising/Events	8	14	0.4%
Bill Board	1	11	0.2%
Magazine Ad	1	10	0.2%
Gas Station Advertising	1	2	0.1%

5. Tracking Systems

The Residential Appliance Recycling Program is tracked by ARCA and Central Hudson. 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. The primary data tracked is:

- ARCA tracks program participation and unit data.
- Central Hudson tracks energy savings and demand, calculated based on the New York Tech Manual.

On a monthly basis, ARCA supplies Central Hudson with a report summarizing program progress and an invoice. ARCA also provides a log of customer inquiries made through the ARCA call center. Central Hudson requests additional data as needed or gleans the data from ARCA’s proprietary web-based tracking system. The data tracked differs slightly depending on whether the appliance recycled is a refrigerator/freezer or a room air conditioner.

ARCA and Sears Logistics collect detailed data from customers that arrange to recycle a refrigerator or freezer. Customer information is collected during the appointment scheduling, including the customer account number and customer awareness. Each customer is issued an order number to track program participation. ARCA and Sears Logistics collect the following participation and appliance data:

- Scheduling Process.
 - Order Date, the participant contacted ARCA to schedule an appointment.
 - Date Scheduled, the appointment scheduled.
 - Pick-Up Date, Sears Logistics picks-up the appliance.
 - Cancel Date, the participant cancelled the scheduled appointment (if applicable). If the participant cancels, the reason for cancellation is noted based on preselected options.
- Appliance Data.
 - Unit sequence number. If more than one unit is collected, the units are labeled in sequential order.
 - Unit type (refrigerator, freezer and/or air conditioner).
 - Unit location in the home.
 - Unit details, including brand, model, color, size (cubic feet), amps, defrost type and age.
 - Primary or secondary unit

In addition to the detailed data, ARCA tracks the number of units that have been billed to Central Hudson, the number of units picked-up by Sears Logistics but not billed, and the number of units pending pick-up by Sears Logistics. The data is tracked by type of appliance.

ARCA tracks rebate invoice data monthly, including the number of rebates processed, broken out by through-the-wall A/C and window A/C units, the number of rebates rejected and the total rebated amount. ARCA and Sears Logistics also collect the detailed data described above for room air conditioners. However, the data for units dropped off at a Sears’ retailer is not complete. Room air conditioner energy savings are based on the average size of units recycled, as reported by ARCA and Sears Logistics.

6. Program Satisfaction

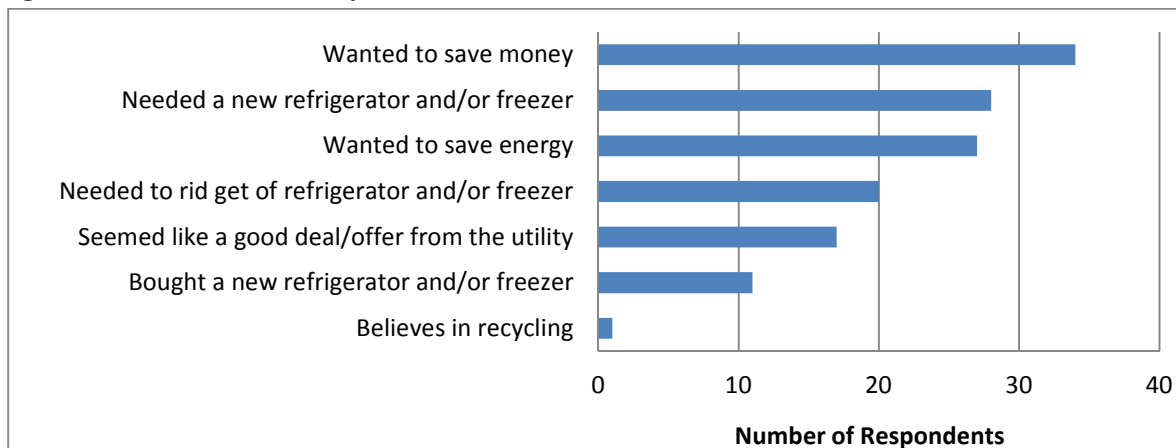
Overall, participants are very satisfied with the Residential Appliance Recycling Program. Based on the participant survey, 95 percent of participants are highly satisfied with the program.

Table 13 Participant Satisfaction with Program, n=99

Answer Options	5	4	3	2	1	Don't Know/ Refused
The handling of your request by Central Hudson	76	16	3	1	3	0
The handling of your request by the contractor that made the arrangements	78	14	2	0	2	3
Required enrollment forms and application process	66	25	3	1	1	3
The contractor who picked up the appliance(s)	70	15	1	1	1	11
The types of appliances eligible for the program	60	21	10	2	2	4

Participant motivations for recycling their refrigerator, freezer or room air conditioner varied significantly. The most common motivations were saving money, needing a new appliance and savings energy. Participants expressed interest in what happens to the appliance once it has been picked-up/dropped-off.

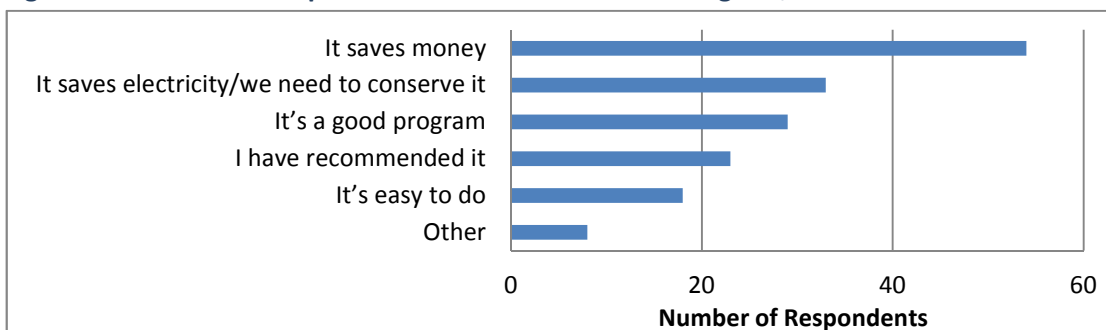
Figure 10 Motivation for Participation, n=100



Ninety-eight (98) percent of participants would recommend the program to others. As with the participant motivations for recycling their appliance, the most common reasons for recommending the program is saving money and conserving energy. Customers found that the program was a good time saver because ARCA came to their residence to remove the appliance. However, participant comments also included ‘poor customer service’ and ‘faster processing of paperwork.’

“Good way to get rid of appliances”

Figure 11 Reasons Participants Would Recommend the Program, n=100



7. Opportunities for Program Improvement

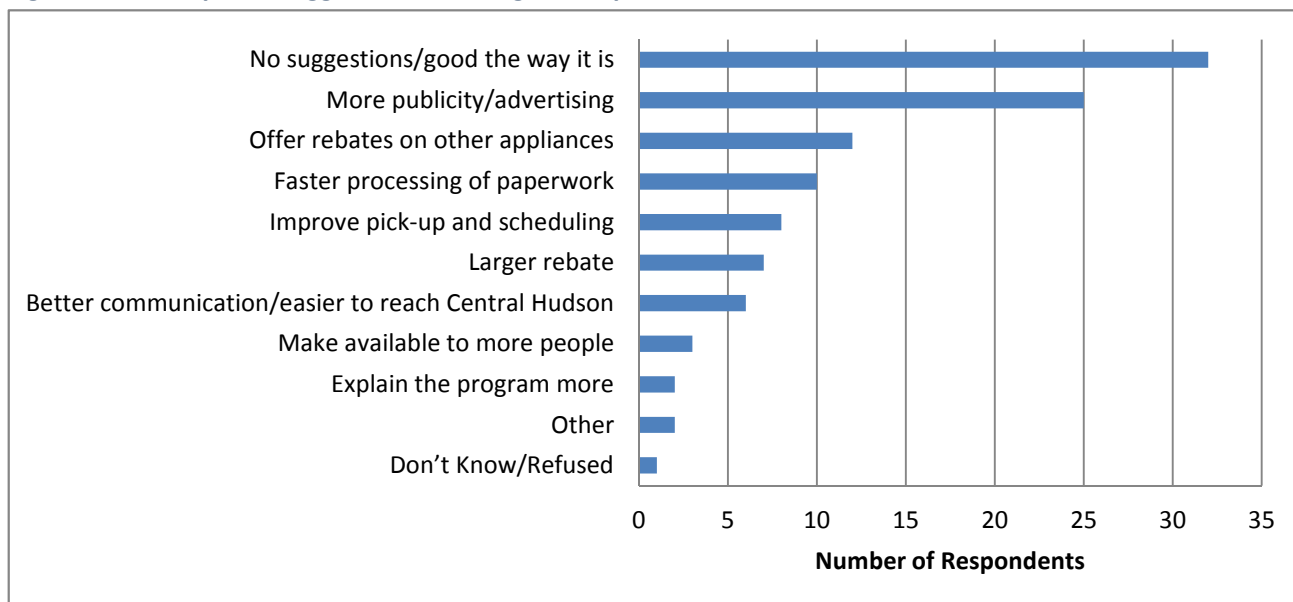
The Residential Appliance Recycling Program is a successful and effective program and participants are highly satisfied with the program. Thirty-two (32) percent of participants feel that the program is good the way it is and did not have suggestions for improvements. Participant program improvement suggestions generally involved the participation process, the following comments were provided during the telephone survey:

“Improve the timeliness of the appliance pick-up.”

“Enrollment was difficult, the paperwork was lost and it was hard to find someone to assist me with the issue.”

“Better communication with participating stores so that the Sears’ customer service department is made aware of the program.”

Figure 12 Participants Suggestions for Program Improvements, n=100



Program participants recommended offering rebates for other appliances, including clothes washers, clothes dryers, dishwashers, hot water heaters and stoves.

8. Findings, Conclusions, and Recommendations

8.1 Program Findings

From June 2010 through August 2011, the Residential Appliance Recycling Program acquired an estimated 6,502 MWh of annual electric savings, or approximately 66 percent above the 2010-2011 program goal of 3,896 MWh. The energy savings estimates were derived from the *New York Technical Manual*. An impact analysis to determine actual energy and demand savings achieved through the program will be completed in 2013.

8.1.1 Program Performance

As of October 2011, 6,512 appliances have been recycled, 64 percent were refrigerator, 19 percent freezers and 17 percent room air conditioners. Other key findings include:

- 11 percent of room air conditioners recycled were picked-up by Sears Logistics;
- In 2010 and 2011, 663 participant appliance pick-up appointments were cancelled.
- In the absence of the program, 42 percent of participating customers would have been “very likely” to recycle the appliance(s), almost 30 percent of participating customers would have been “very unlikely” to recycle the appliance(s).

- Based on the participant survey, refrigerators and/or freezers were being used in 84 percent of residences prior to being recycled.

8.1.2 Program Marketing

The program is driven by Central Hudson's aggressive and creative advertising and community outreach, which includes bill inserts, print and electronic advertisements, television and radio, media and community events, and direct mail. According to the survey AEG administered to participating customers, 35 percent of participants learned about the programs from a Central Hudson bill insert, followed by newspaper advertisements (16 percent), ARCA (12 percent) and word of mouth (11 percent).

8.1.3 Data Tracking

ARCA tracks the number of units that have been billed to Central Hudson and the number of units pending pick-up by Sears Logistics. ARCA also tracks room air conditioner rebate invoices monthly, including the number of rebates processed, broken out by through-the-wall A/C and window A/C units, the number of rebates rejected and the total rebated amount. ARCA and Sears Logistics collect the detailed data described above for room air conditioners. ARCA and Sears Logistics collect refrigerator and/or freezer scheduling process data as well as the following data:

- Unit type (refrigerator, freezer and/or air conditioner).
- Unit location in the home.
- Unit details, including brand, model, color, size (cubic feet), amps, defrost type and age.
- Primary or secondary unit

Room air conditioner data on units dropped-off at a Sears' retailer are often not complete.

8.1.4 Program Satisfaction

Overall, participants are highly satisfied with the Residential Appliance Recycling and would recommend both the program to others (98 percent). Customers are strongly motivated by the opportunity to save money and energy. According to the customer survey, 24 percent of customers participated in the program because they had an opportunity to save money, 28 percent needed a new refrigerator and/or freezer, and 27 percent wanted to save energy.

Thirty-two (32) percent of participants feel that the program is good the way it is and did not have suggestions for improvements. Recommendations for program improvements included more publicity/advertising (25 percent) and offering financial incentives for additional appliances (12 percent), such as clothes washers, clothes dryers, dishwashers, hot water heaters and stoves.

8.2 Recommendations

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

8.2.1 Conduct a Residential Appliance Saturation Survey and Market Potential Study

Appliance recycling programs in the Northeast and Midwest that hit their first year goals reported increased difficulty at meeting goals in the subsequent years of the program. Additional or higher

rebates, more community outreach and increased advertising have been used to sustain program savings in other utilities.⁸

AEG recommends that, within the next year, Central Hudson conduct a Residential Appliance Saturation Survey (“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 potential for the Appliance Recycling Program. Using the results from the RASS, a Market Potential Study should be completed that quantifies the quantity and targeted end uses where savings can be realized.

8.2.2 Continue to Market Program as Part of SavingsCentral Brand

Central Hudson should continue to aggressively promote the Residential Appliance Recycling Program as part of the SavingsCentral brand and inform customers of Central Hudson’s other energy efficiency programs by providing clear and accessible information to customers on how Central Hudson can help them save money and energy.

8.2.3 Hold an Annual Room Air Conditioner Recycling Event

Central Hudson’s room air conditioner kick-off event held Memorial Day weekend 2010 was very successful. The event accounted for 58 percent of all room air conditioner’s recycled in 2010. We recommend that Central Hudson hold an annual room air conditioner recycling event in the spring at multiple Sears’ retailers to encourage increased program participation.

8.2.4 Track Detailed Room Air Conditioner Data

We recommend that ARCA track detailed room air conditioner data, for the recycled units and new ENERGY STAR units, to better understand persistence and types of units customer purchase. The detailed data tracked for units picked-up by Sears Logistics is often not completed for dropped-off at Sears’ retailers. This data should be collected, including unit efficiency, brand, model and size.

8.2.5 Review Additional Residential Appliance Rebate Program Offerings

Program participants recommended offering rebates for other appliances, including clothes washers, clothes dryers, dishwashers, hot water heaters and stoves. We recommend that Central Hudson evaluate the cost-effectiveness of providing rebates for other ENERGY STAR appliances.

8.2.6 Explore the Cost Savings Potential and Other Possible Benefits of Increasing Online Registration

ARCA would like to focus on increasing the number of customers that register online versus the call center. However, Central Hudson’s current contract with ARCA is based on a flat fee, regardless of whether the customer registers via the call center or online. Therefore, Central Hudson would not benefit from any cost savings realized from increasing customer online registration under the current contract.

⁸ Findings are based on July 2011 interviews with program managers at Efficiency Vermont, National Grid, NSTAR Electric, Public Service of New Hampshire, AEP, Con Edison and DTE Energy.

AEG recommends exploring the cost savings potential of identifying and addressing the barriers to customer online registration, dependent upon Central Hudson being able to modify the contract with ARCA so that they can fully realize any cost savings.

8.2.7 Partner with the U.S. Environmental Protection Agency

AEG recommends that Central Hudson explore joining the U.S. Environmental Protection Agency's Responsible Appliance Disposal ("RAD") Program. The voluntary partnership program protects the ozone layer and reduces emissions of greenhouse gases by recovering ozone-depleting chemicals from old refrigerators, freezers, window air conditioners and dehumidifiers. The RAD program publicly recognizes member achievements, provides resources for members and may help partners meet voluntary commitments/pledges to reduce greenhouse gas emissions.

Appendix A. Interview Guide for Implementation Contractor

- Explain the process of scheduling appointments
- How does the process differ for customers that sign up for the program online versus calling the 800 number?
- What percentages of customers apply online versus by telephone? Are there barriers to increased internet use?
- How do you determine that the customer is eligible for the program?
- Explain how you handle customer inquiries about the program.
- Explain the process for picking up refrigerators and freezers.
- How do you ensure that the units are not returned to the grid?
- Explain the refrigerator recycling process.
- Which materials are recycled or salvaged? How many organizations are involved in the recycling of units?
- How you noticed changes in the recycling market?
- Explain how customer rebates are processed.
- Explain how data are tracked and transferred between ARCA, Sears Logistics, Sears' retailers, and Central Hudson for all stages of the program. What data are collected on customers and on appliances?
- Explain the process of recycling room air conditioners. How is customer eligibility determined? What data are collected and tracked between Sears' retailers and Sears Logistics?
- What are the barriers to increased program participation?
- What can be improved?
- What is your perception of customer satisfaction with this program?

Appendix B. Program Participant Interview Guide

Hello, I'm <interviewer's first and last name> with Applied Energy Group. We are conducting a survey for Central Hudson Gas & Electric Company. This is not a sales effort, but for research purposes only. According to our records, your household participated in Central Hudson's Appliance Recycling Program. This is part of their "Home Energy SavingsCentral Program."

If the customer doesn't recall the program: "This program provides rebates to customers who recycle older, inefficient refrigerators and freezers that are in working condition."

"Were you involved with the decision to participate in this program, or is there someone else in your household who made that decision?"

Involved with/made decision 1 (CONTINUE)

Someone else decided..... 2 (ASK TO SPEAK TO THAT PERSON, REPEAT INTRO)

Is that person available? If yes, continue, if not schedule call back.

1. What kind of appliance(s) did you recycle as part of this program? (Mark all that apply)
 - a. Refrigerator
 - b. Freezer
 - c. Both
 - d. Other (please specify)

Program Awareness

2. How did you first become aware of the Appliance Recycling Program?
 - a. From the contractor that made all the arrangements (ARCA)
 - b. Central Hudson employee
 - c. Radio Ad
 - d. Email
 - e. CentralHudson.com
 - f. SavingsCentral.com
 - g. Newspaper ad
 - h. News article
 - i. Central Hudson bill insert
 - j. Direct mail
 - k. Word of mouth (friend/neighbor)
 - l. Community event/meeting/presentation
 - m. Store or mall ad
 - n. Don't Know (skip to Participation Process)
 - o. Other (please specify)
3. Were there other ways that you became aware of this program? (Mark all that apply – DO NOT READ)
 - a. From the contractor that made all the arrangements (ARCA)
 - b. Central Hudson employee
 - c. Radio Ad
 - d. Email
 - e. CentralHudson.com
 - f. SavingsCentral.com
 - g. Newspaper ad
 - h. News article

- i. Central Hudson bill insert
- j. Direct mail
- k. Word of mouth (friend/neighbor)
- l. Community event/meeting/presentation
- m. Store or mall ad
- n. Don’t Know
- o. Other (please specify)

Participation Process

Now I’d like to ask you a few questions about your participation in the program.

- 4. Which phrase best describes your current status with the program?
 - a. The pickup had been made
 - b. I am waiting for the appliance to be picked up
 - c. Don’t know/refused (DO NOT READ)
 - d. Other (please specify)
- 5. Have you received your rebate?
 - a. Yes
 - b. No
 - c. Don’t Know
- 6. About how long did the process take from the time you decided to recycle the appliance until you received rebate?
- 7. Why did you decide to participate? (Mark all that apply)
 - a. Bought a new refrigerator and/or freezer
 - b. Needed a new refrigerator and/or freezer
 - c. Wanted to save money
 - d. Seemed like a good deal/offer from the utility
 - e. Wanted to save energy
 - f. Other (please specify)

Customer Satisfaction

8. Please 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 are you with the:

Answer Options	5	4	3	2	1	Don't Know/ Refused
The handling of your request by Central Hudson						
The handling of your request by the contractor that made the arrangements						
Required enrollment forms and application process						
The contractor who picked up the appliance(s)						
The types of appliances eligible for the program						

– Comments

9. Overall, how satisfied are you with Home Energy SavingsCentral Appliance Recycling Program using the same five point scale?

Answer Options	Very Satisfied	4	3	2	Very Dissatisfied	Don't Know/Refused
Satisfaction						

Free Ridership

10. Were the refrigerator and/or freezer being used in your home before you recycled it (them)?

- a. Yes
- b. No
- c. Don’t know/refused

11. Using a scale of 1-5 with ‘5’ being ‘Very Likely’ and ‘1’ being ‘Very Unlikely,’ how likely is it that you would have recycled the appliance(s) if the utility had NOT offered the REBATE?

Answer Options	Very Likely	4	3	2	Very Unlikely	Don’t Know/Refused
Likelihood						

Barriers to Participation

12. Based on your experience with this program, would you recommend this program to others?

- a. Yes
- b. No
- c. Don’t know/refused (skip to question 14)

13. Why do you say that?

- a. It saves electricity/we need to conserve it
- b. It saves money
- c. It’s easy to do
- d. It’s a good program
- e. I have recommended it
- f. Don’t know/refused
- g. Other (please specify)

14. How could the Program be improved?

- a. Make it available to more people
- b. More publicity/advertise it
- c. Faster processing of paperwork
- d. Explain the program more
- e. Better communication/easier to reach people at Central Hudson
- f. No suggestions/good the way it is
- g. Don’t know/refused
- h. Other (please specify)

Customer Demographics

15. Is your home a: (read list)

- a. House
- b. Apartment
- c. Condominium
- d. Townhouse
- e. Don’t know/refused
- f. Other (please specify)

Thank you for taking the time to answer my questions!