



Central Hudson Gas & Electric Corporation

Residential Appliance Recycling 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 (“Central Hudson”) 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, working room air conditioner.

AEG designed the 2012-13 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

Summary of Key Findings

Central Hudson spent approximately 65 percent of the 2012 budget while achieving 175 percent of the savings target. Between January 1st and June 30th 2013, Central Hudson spent approximately 15 percent of the budget and achieved the 57 percent of the MWh target. In 2013, the program realized approximately 68 percent of the 2012 energy savings on a monthly basis. Based on historic participation, the program is anticipated to achieve the MWh savings target. A reporting error was identified in June/July 2014 and the participant and energy savings data corrected. Between January 1, 2012 and June 30, 2013, 4,526 appliances were recycled and 549 room air conditioners purchased through the Residential Appliance Recycling Program.

While the participants surveyed are very satisfied with the program overall and most program components, the rebate processing type and types of appliances eligible for the program had the lowest satisfaction rates.

Recommendations

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

Improve Reporting QA/QC

A reporting error was identified in June/July 2014, resulting in a correction of program participation and energy savings. The table below presents the program participation originally reported versus the revised actual. The 2013 room air conditioner units recycled and purchased were significantly underreported.

Program Participation, Original versus Actual

Year	Units Recycled				Unit Purchases	
	Wall A/C	Window A/C	Refrigerator	Freezer	Wall A/C	Window A/C
2012 Original	143	928	1,966	450	61	460
2012 Actual	160	912	1,917	440	61	462
Percent Difference	11%	-2%	-3%	-2%	n/a	0.4%
2013 Original	10	142	515	121	0	1
2013 Actual	27	295	623	152	3	23
Percent Difference	63%	52%	17%	20%	100%	96%

AEG recommends that Central Hudson work with ARCA to determine the reporting error that occurred. Upon identification of the reporting error, ARCA personnel should conduct additional QA/QC of all reporting data to ensure the error has been corrected.

Improve Program Tracking Data

The Residential Appliance Recycling Program data is tracked by ARCA/SLS, Sears' retailers and Parago. Critical data appears to be missing from the program tracking data.

- Room air conditioner unit type (window versus wall) is often missing. Unit type is needed to determine energy savings.
- Customer account numbers are often missing or do not have the correct number of digits, particularly for room air conditioners recycled or purchased. Customer eligibility is determined utilizing electric account numbers.
- The ATO number and unit type is not tracked for room air conditioners purchased.

AEG recommends that ARCA work with the sub-contractors to ensure that all necessary data is collected and tracked. Parago should track all data collected on the rebate application and 'Proof of Recycling' certificate.

Continue SavingsCentral Marketing Campaigns

According to the participant surveys, participants first became aware of the program via bill inserts, mall/store advertisements and word of mouth. 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.

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”) 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 2015.¹ 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 Appliance Recycling 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, marketing and program tracking. Section 8 describes opportunities for program improvement and Section 9 provides recommendations.

2. Program Description

The Residential Appliance Recycling Program provides collection and recycling services to Central Hudson customers in order to capture significant energy savings and environmental benefits by recycling old refrigerators, freezers, and room air conditioners.² Removing older, inefficient appliances from the grid can significantly reduce the electric load and produce 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 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

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.

² The Residential Appliance Recycling Program was approved on December 16, 2009 in order 08-E-1127.

from a customer’s home during a refrigerator or freezer pick-up, but pick-ups cannot be 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.

Table 1 Program Rebates by Appliance Type

Appliance	Rebate
Refrigerator Recycle	\$50
Freezer Recycle	\$50
ENERGY STAR® window air conditioner	\$50
ENERGY STAR® through-the-wall air conditioner	\$100

Program goals are to:

- Increase consumer awareness of the Residential Appliance Recycling Program.
- Educate customers about the benefits of recycling their inefficient appliances.
- 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 \$1,016,571 million for 2012-2015, with an annual program energy savings goal of 2,226 MWh.³

Table 2 Program Goals

	2012	2013	2014	2015
Annual Energy Savings Goal (MWh)	2,003	2,003	2,226	2,226
Recycling Participants				
Refrigerators	1,300	1,300	1,300	1,300
Freezers	350	350	350	350
Window air conditioners	300	300	300	300
Through-the-wall air conditioners	100	100	100	100

Table 3 Program Budget⁴

	2012	2013	2014	2015
Administration	\$70,000	\$70,000	\$70,000	\$70,000
Program Marketing	\$100,000	\$100,000	\$100,000	\$100,000
Incentives	\$325,825	\$325,825	\$320,743	\$320,743
Implementation	\$373,343	\$373,343	\$475,000	\$475,000
Evaluation	\$45,746	\$45,746	\$50,828	\$50,828
Total Budget	\$914,914	\$914,914	\$1,016,571	\$1,016,571

Central Hudson is an active participant on the Energy Efficiency Program Administrator Collaborative with NYSERDA 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 Central Hudson Gas & Electric Corp. Energy Efficiency Program Portfolio Implementation, Marketing, Outreach & Education Plan Authorized Programs for 2012 – 2015. Revision August 2013.

⁴ The 2012 budget reflects an October 2012 approved transfer of 10% of the budget from the Appliance Recycling Program to the Residential Electric HVAC Program (letter from Floyd Barwig).

3. 2011 Process Evaluation Recommendations

AEG conducted a process evaluation of Central Hudson's 2010 and 2011 Appliance Recycling Program. Recommendations and Central Hudson's actions, in response to the recommendations, are listed below.

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 to Market Program as Part of SavingsCentral Brand

Recommendation: Central Hudson should continue to aggressively promote the 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.

Central Hudson Action: SavingsCentral has and will continue to be aggressively promoted and easily accessible to customers.

Hold an Annual Room Air Conditioner Recycling Event

Recommendation: Central Hudson's room air conditioner kick-off event held Memorial Day weekend 2010 was very successful, accounting for 58 percent of units recycled that year. AEG recommends that Central Hudson hold an annual room air conditioner recycling event in the spring at multiple Sears' retailers to encourage increased program participation.

Central Hudson Action: Central Hudson will be holding an air conditioner recycling turn-in event during Memorial Day weekend 2013 at multiple Sears' stores around our service territory.

Track Detailed Room Air Conditioner Data

Recommendation: AEG recommends 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.

Central Hudson Action: ARCA tracks whether the unit is a window or through-the-wall unit. ARCA tracks these units when dropped off at Sears, picked up at the home, or at any AC turn in event.

Review Additional Residential Appliance Rebate Program Offerings

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

Central Hudson Action: Central Hudson plans to investigate offering rebates for other appliances.

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

Recommendation: 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.

Central Hudson Action: Central Hudson has not explored the cost-benefit of online registration versus the call center. This option can be explored towards the tail end of the contract expiration date.

Partner with the U.S. Environmental Protection Agency

Recommendation: AEG recommends that Central Hudson explore joining the U.S. Environmental Protection Agency's Responsible Appliance Disposal ("RAD") Program. The RAD program publicly recognizes member achievements, provides resources for members and may help partners meet voluntary commitments/pledges to reduce greenhouse gas emissions.

Central Hudson Action: Central Hudson is currently not a member of RAD but will explore in the future.

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:

- Does the program implementer have sufficient resources to effectively implement the program?
- Is the program achieving participation and energy savings goals?
- What marketing/promotional efforts resonate with customers?
- Is the tracking system effective for documenting and reporting program progress?
- Are customers 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?

To arrive at the final recommendations in this report, AEG undertook the following activities:

Program Materials and Data Review

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,⁵ 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.

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 ARCA's program tracking and reporting as well as 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 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, Appliance Recycling Centers of America ("ARCA") is responsible for logistical support associated with removing and recycling the appliances as well as processing room air conditioner rebate applications. ARCA utilizes multiple subcontractors:

- *Sears Logistics ("SLS")*. Removes appliances from the customer's residence.
- *Sears' retailers*. Serves as a collection point, providing a location for customers to drop-off room air conditioners
- *Customer Elation*. Handles new participant calls and general inquires. As of January 2014, Customer Elation handles all Customer Service calls.
- *Parago, Inc. ("Parago")*. Processes customer incentives and room air conditioner rebate applications.

AEG interviewed ARCA in September 2013. The interview provided information on program implementation, scheduling, appliance pick-up procedures, marketing, tracking methods, subcontractors and barriers to increased participation. An interview guide for the third-party implementer interview can be found in Appendix A.

Participating Customer Surveys

AEG administered two 10 to 12 minute telephone surveys to a sample of program participants to assess program experience and awareness, customer satisfaction, barriers to participation and areas for potential program improvement. The survey guides, one for refrigerator/freezers and one for room air conditioners, can be found in Appendix B.

⁵ Central Hudson Gas & Electric Corporation. March 30, 2013. Energy Management Survey – 2013. Prepared by Opinion Research Specialists, LLC.

ARCA originally provided data for 4,275 appliances recycled and 522 room air conditioners purchased between January 1, 2012 and June 30, 2013. A reporting error was identified in June/July 2014; the corrected participant data included 4,526 appliances recycled and 549 room air conditioners purchased between January 1, 2012 and June 30, 2013. Detailed customer data, including customer name, account number and telephone number, were provided for recycled refrigerators and freezers.

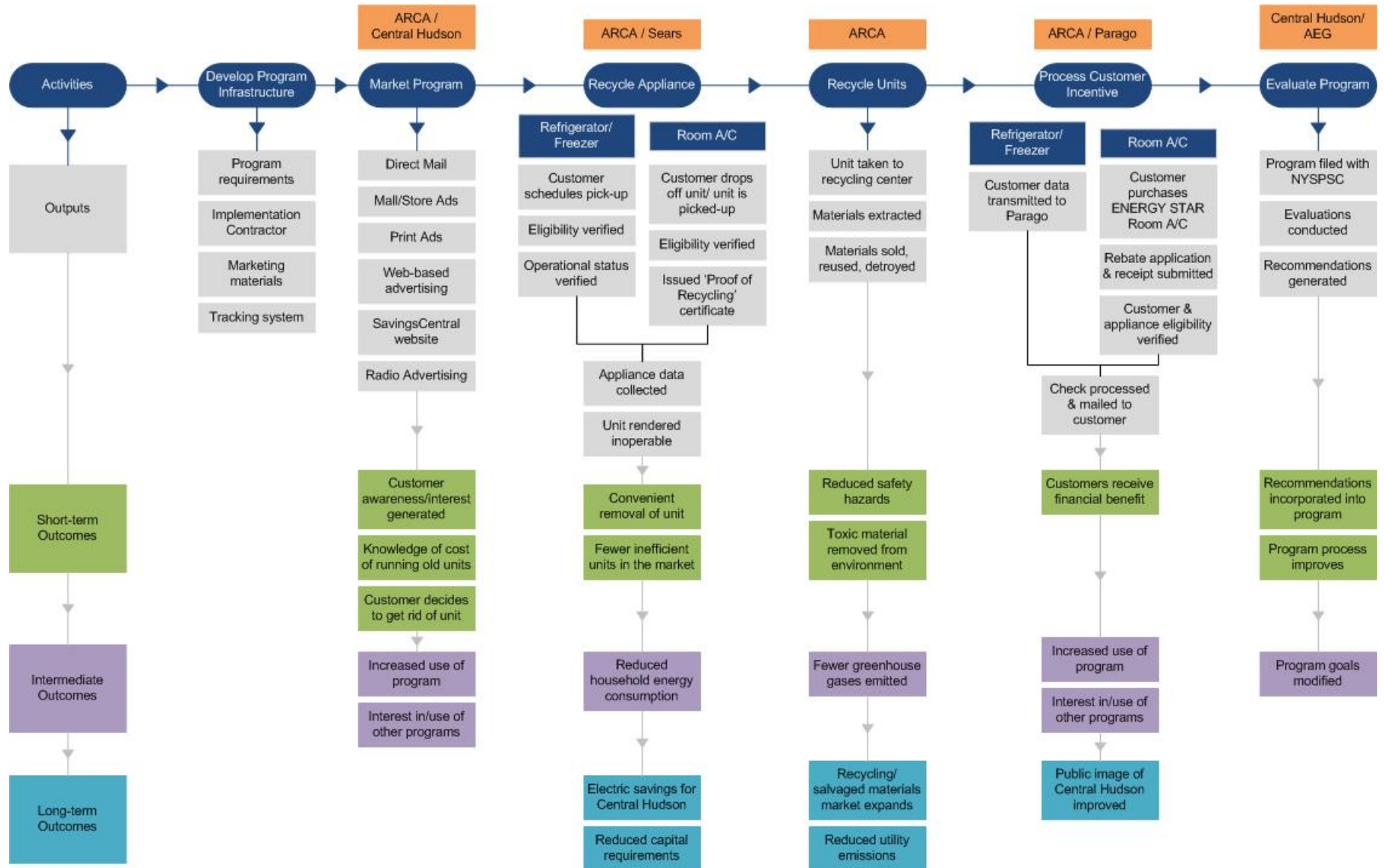
The participant telephone survey was developed and issued prior to the identification of the reporting error. Therefore, the sample drawn for the participant survey was based upon the initial data provided. However, the performance data presented throughout the report is based upon the corrected data.

AEG scrubbed the original 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 3,859 unique electric accounts. AEG calculated the sample sizes at a 90 percent confidence interval with an error margin of +/-10 percent. The sample sizes were calculated at 67 for the refrigerator/freezer survey and 60 for the room air conditioner survey. 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-seven (67) refrigerator/freezer and 60 room air conditioner surveys were completed.

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



5.1 Program Activities

The Residential Appliance Recycling Program has six main activities that differ slightly depending on whether the appliance recycled is a refrigerator/freezer or a room air conditioner.

Develop Program Infrastructure

Activities included gathering market knowledge, setting program goals, designing the program, developing marketing tactics, and establishing an operating structure. The Residential Appliance Recycling Program was launched on June 21, 2010. Central Hudson designed the program and established program goals. Central Hudson utilizes a third-party implementation contractor, ARCA, to provide turn-key service including marketing, program implementation and data tracking.

ARCA's Appliance Turn-In Order ("ATO") System is utilized to schedule appliance pick-up appointments, verify customer eligibility, track participant data and coordinate customer service. A Central Hudson database of eligible customers is appended to the ATO system to verify customer eligibility. The database is provided to ARCA on a monthly basis and includes customer name, address, phone number, email address and electric account number. Every appliance recycled is provided a unique ATO number.

Customer Service operates Monday through Friday between 8 a.m. and 11 p.m. Eastern Standard Time and Saturday 10 a.m. to 9 p.m. Eastern Standard Time. An ARCA Customer Service Representative ("CSR") handles current and pending participants. A 3rd party provider, Customer Elation, handles new customer calls and general inquires.⁶ Every customer service call is assigned a Customer Data File, which includes customer information such as phone number, email address and electric account number.

Market Program

Central Hudson markets the program to residential customers as part of the SavingsCentral brand. Marketing activities included bill inserts, print and online advertisements, postcards and social media.

Refrigerator/Freezer Recycling

Customers schedule an appointment to have their refrigerator and/or freezer picked-up either online or via the customer service toll-free number.

- **Customer Service.** When a customer calls ARCA's toll-free number to schedule a pick-up, a CSR accesses the ATO System via a Java platform and verifies the customer's name, address and electric account number against the Central Hudson database. If the account is not immediately verified, ARCA sends a request to Central Hudson to verify the account. The CSR verifies appliance eligibility, reminding the customer that the refrigerator/freezer must be 10 to 30 cubic feet, operational and easily accessible, and schedules a pick-up time.
- **Online.** Customers can access the online scheduling website from Central Hudson's SavingsCentral website. The customer enters their electric account number, which is verified against the Central Hudson database. If the account number cannot be verified, the customer is prompted to call Customer Service. Once the account is verified, the customer is presented with scheduling options and chooses a date and time for pickup.

⁶ As of January 2014, Customer Elation will handle all Customer Service calls.

According to ARCA, approximately 80 percent of customers schedule an appointment via the customer service toll-free number.⁷

The pick-up is scheduled for a two-hour window, Monday through Saturday between 7:30 a.m. and 6:00 p.m. The available dates correspond to a predetermined schedule for routing in specific geographic areas. Based on appointments, two to five trucks are put in operation, each holding up to 25 appliances. Each appliance is issued an ATO number at the time the appointment is scheduled.

ARCA transmits the order to SLS, the sub-contractor responsible for picking up units from the customer's home. The customer receives two reminder calls about the appointment, one the day before the scheduled pickup and one immediately before the pickup. If the customer does not answer the phone, SLS leaves a message and assumes that the appointment is still convenient for the customer. If the customer is not home for the scheduled appointment, SLS labels the customer 'pending.' ARCA makes three attempts to reschedule, after which the customer account is referred to Central Hudson staff.

When SLS arrives at the customer's home for the scheduled pickup, the appliance data is recorded. The operational status of the appliance is verified and the customer signs an order form and is provided a receipt before the unit is removed from the home. Units that are not operational cannot be removed and are not eligible for a Central Hudson incentive.

Based on ARCA's required procedures, SLS takes a number of steps to ensure that the appliances removed are never returned to the grid. SLS cuts the power cord, breaks the temperature control with a hammer and permanently labels the unit with the ATO tracking number to verify processing before placing it on the truck for transport to a temporary location nearby, known as the Hub.

Room Air Conditioner Recycling

A customer may recycle a room air conditioner in one of two ways:

1. Bring the unit to one of three participating Sears' retailers; or
2. SLS removes the unit during a scheduled refrigerator/freezer pick-up. A pick-up is not scheduled for room air conditioners only.

According to survey respondents (n=59), 86 percent of program participants drop off the room air conditioner at a Sears' retailer.

The Sears' retailer serves as a collection point, providing a location for customers to drop-off the room air conditioners. When dropping off a unit at a Sears' retailer, a sales associate accesses an ARCA web portal to create an ATO number and verify customer eligibility utilizing the customer's zip code and last name (reverse lookup in the Central Hudson database via the ARCA web portal).

Each room air conditioner is assigned an ATO number and the customer issued a 'Proof of Recycling' certificate. A customer that purchases a new ENERGY STAR® room air conditioner between May 15th and September 15th can obtain a rebate application from the Sears' retailer or the SavingsCentral website. Customers that purchase an ENERGY STAR® qualified room air conditioner must submit the application with the 'Proof of Recycling' certificate within 60-days of September 15th.

⁷ This was verified by the refrigerator/freezer survey respondents (n=64).

Recycle Appliances

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. To ensure all appliances are recycled, each ATO number is verified and matched with ARCA's records at the recycling center.

Process Customer Incentive

Customer incentives are processed by Parago, a rebate processor managed by ARCA.

- **Refrigerator/Freezers.** ARCA's Business Operations department audits the appliance data and cross-references the ATO number with the customer account number. Audited customer data (name, address and incentive amount) is transmitted to Parago.
- **Room Air Conditioners.** Rebate applications are submitted directly to Parago. Parago verifies customer eligibility based on the Central Hudson database and appliance eligibility based on the application and documentation submitted. Parago updates ARCA weekly on application status.

Parago issues Central Hudson-branded incentive checks to participants. ARCA invoices Central Hudson on a monthly basis for services rendered, marketing and customer incentives.

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.

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 may become aware of and interested in the Residential Appliance Recycling Program. Other outcomes include the convenient removal of the appliance from the customer's home, increased sales of ENERGY STAR appliances, and fewer inefficient units in the market.

Intermediate Outcomes

Intermediate outcomes may include increased use of the program, use of other Central Hudson efficiency programs, reduced household energy consumption and fewer greenhouse gases emitted.

Long-term Outcomes

The long-term outcomes 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.

5.3 External Factors

There are a variety of factors outside the control of Central Hudson and ARCA 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.

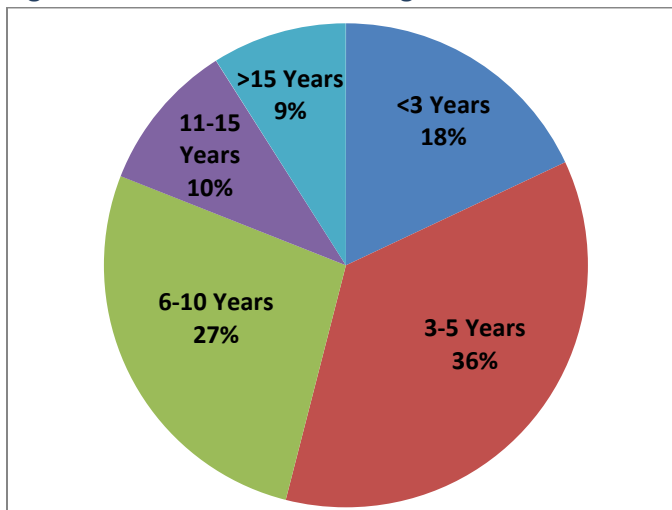
- Price of recovered materials
- Changes in recycling technologies
- Used refrigerator market
- New appliance dealer credit policies
- New appliance dealer delivery and pickup practices
- Improvements in refrigeration technology
- Federal appliance regulation/ENERGY STAR
- State energy policies/efficiency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

6. Residential Appliance Saturation Survey

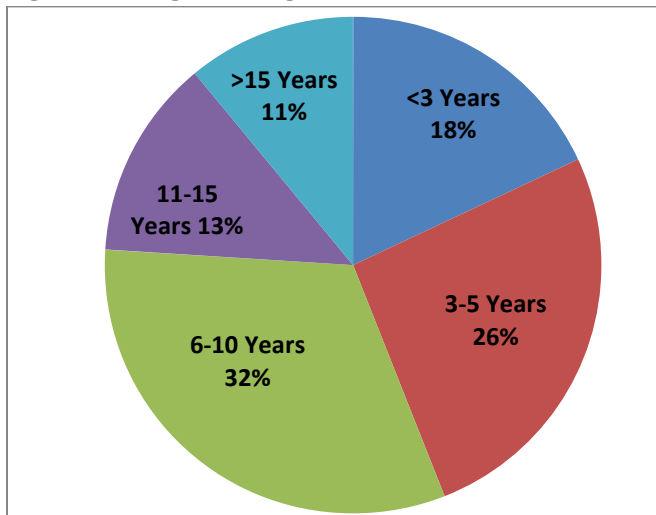
Central Hudson engaged AEG to conduct a Residential Appliance Saturation Survey (“RASS”). The RASS, completed in March 2013, identified the type, age and efficiency level of appliances and HVAC equipment currently being used by households within Central Hudson’s territory. Opinion Research Specialists, 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.

Approximately 57 percent of customers use room air conditioners as their main cooling system. Of these, 19 percent of units are over 11 years old.

Figure 2 Room Air Conditioner Age



Seventy-five (75) percent of customers own one refrigerator and 25 percent own two or more. Thirty (30) percent of customers own one detached freezer and 2 percent own two or more. Twenty-four (24) percent of refrigerators are over 11 years old.

Figure 3 Refrigerator Age

7. Process Evaluation Findings

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

7.1 Program Marketing

The Residential Appliance Recycling Program is driven by Central Hudson's aggressive and creative advertising. ARCA and Central Hudson work collaboratively to market the program. ARCA tracks all marketing activities and analyzes the marketing campaigns to determine the return on investment and plan for future campaigns. In 2012 and 2013, the program was marketed to homeowners through:

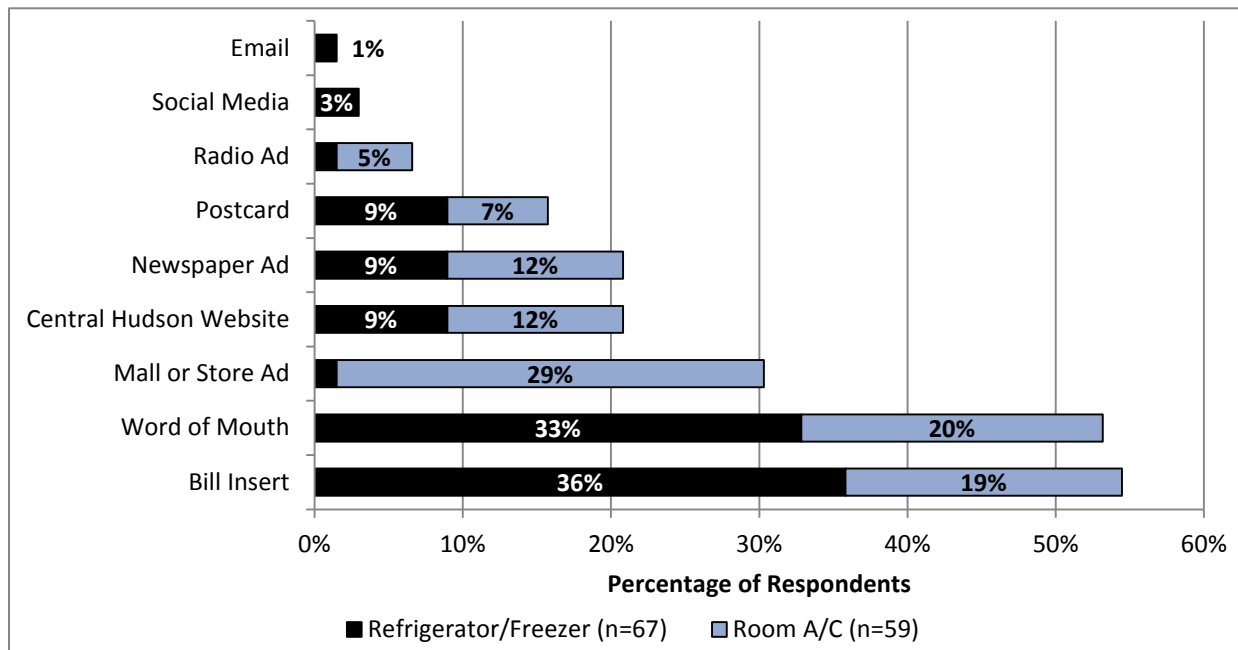
- **SavingsCentral Website.** Central Hudson's SavingsCentral website provided program information, potential bill savings, scheduling a refrigerator/freezer pick-up and room air conditioner drop-off locations.
- **Direct Mail.** Bill inserts and targeted postcard mailings based on customer zip codes.
- **Mall/Store Advertisements.** Door clings and posters at mall entrances and large back-lit blades in mall walkways. Advertisements were placed above gas pumps at gas stations in Central Hudson's service territory.
- **Google Ad Words.** Central Hudson paid to have the SavingsCentral website appear first when a customer near Central Hudson's service territory searches for specific key words, such as 'appliance recycling.' The advertisements were paid on a 'per click' basis.
- **Social media.** Facebook and Twitter posts were handled and monitored by Central Hudson's Corporate Communications Department.
- **Print Advertisements** in local newspapers.
- **Radio Advertising** on local FM and internet radio stations (e.g. Pandora).
- **Email Blasts.** ARCA sent email blasts to Central Hudson's residential customers as well as purchased 3rd party lists.

Figure 4 Mall Advertisement



According to the participant surveys, participants that recycled a refrigerator/freezer first became aware of the program via bill insert (36 percent) and word of mouth (33 percent) while participants that recycled a room air conditioner first became aware of the program via the mall/store advertisement (29 percent) and word of mouth (20 percent). Few respondents reported finding about the program through social media, radio advertisements or email.

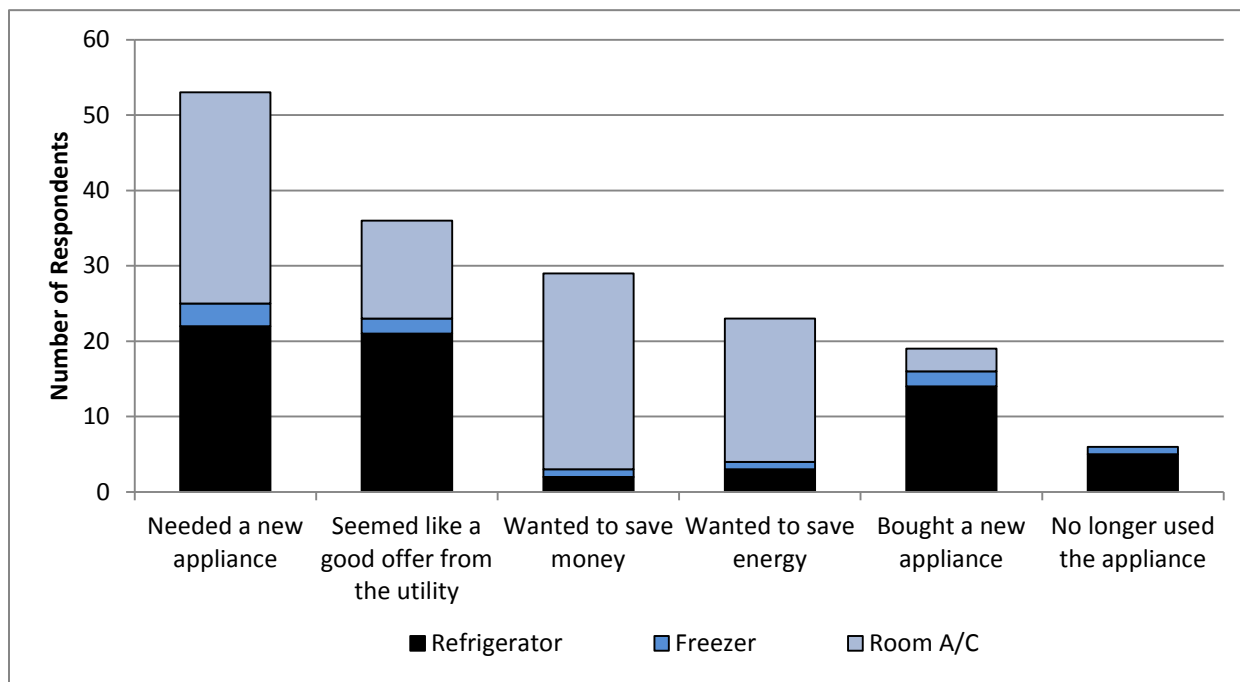
Figure 5 Participant Program Awareness



The majority of respondents reported that needing a new appliance was the primary reason for participating in the program. Respondents also participated because the program seemed like a good

deal and the participants wanted to save money and energy. A number of participants that recycled a refrigerator noted that they participated in the program because they had bought a new appliance.

Figure 6 Participant Motivations



7.2 Program Performance

The Residential Appliance Recycling Program was launched on June 21, 2010. As third-party implementation contractor, ARCA is responsible for logistical support associated with removing and recycling the appliances as well as processing room air conditioner rebate applications. ARCA utilizes multiple subcontractors to optimally implement the program:

- **SLS.** Removes appliances from the customer’s residence.⁸
- **Sears’ retailers.** Serves as a collection point, providing a location for the customers to drop-off room air conditioners
- **Customer Elation.** Provides Customer Service.
- **Parago.** Processes customer incentives and room air conditioner rebate applications.

ARCA communicates with Central Hudson staff on a bi-weekly or monthly basis, depending on appliance volume, marketing events or issues. ARCA communicates with its subcontractors frequently, communicating with SLS on a daily basis and receiving weekly updates from Parago. ARCA’s Director of Operations is responsible for ensuring SLS employees comply with safety and Human Resource guidelines. SLS conducts thorough background checks on employees, including criminal background and driving record. SLS employees are provided badges to properly identify themselves to customers.

A reporting error was identified in June/July 2014, resulting in a correction of program participation and energy savings. The table below presents the program participation originally reported versus the

⁸ SLS will be replaced by a new subcontractor in 2014.

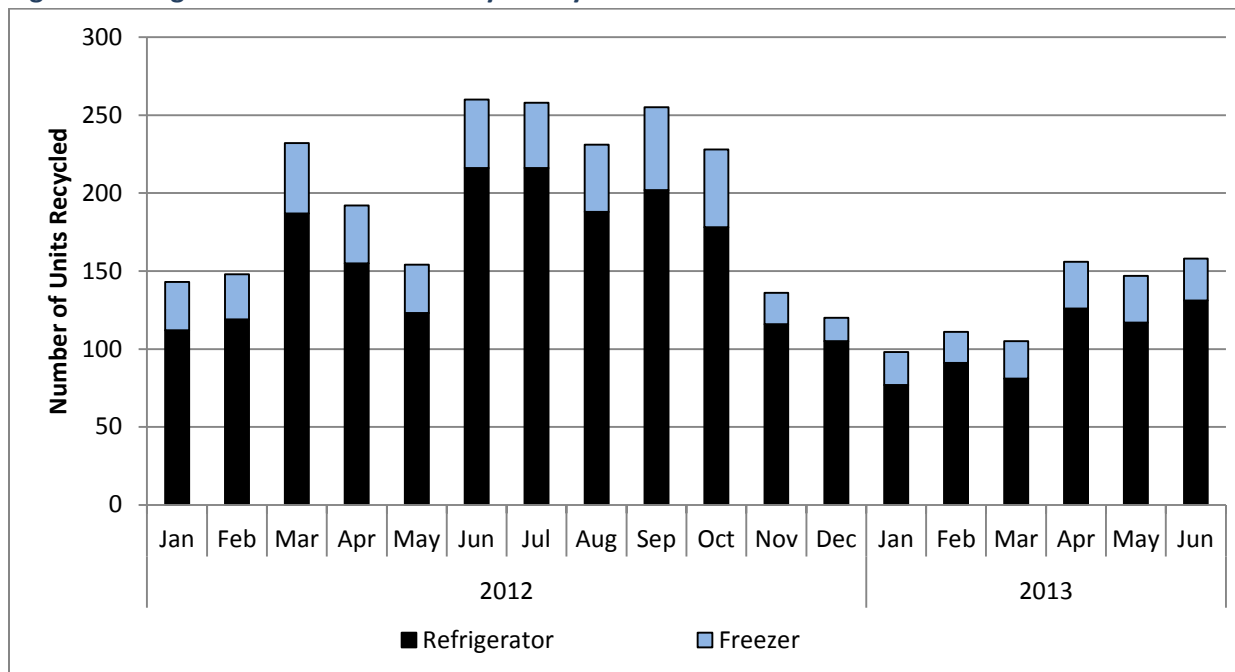
revised actual. As shown, the 2013 room air conditioner units recycled and purchased were significantly underreported. The remainder of the program performance discussion refers only to the revised data.

Table 4 Program Participation, Original versus Actual

Year	Units Recycled				Unit Purchases	
	Wall A/C	Window A/C	Refrigerator	Freezer	Wall A/C	Window A/C
2012 Original	143	928	1,966	450	61	460
2012 Actual	160	912	1,917	440	61	462
Percent Difference	11%	-2%	-3%	-2%	n/a	0.4%
2013 Original	10	142	515	121	0	1
2013 Actual	27	295	623	152	3	23
Percent Difference	63%	52%	17%	20%	100%	96%

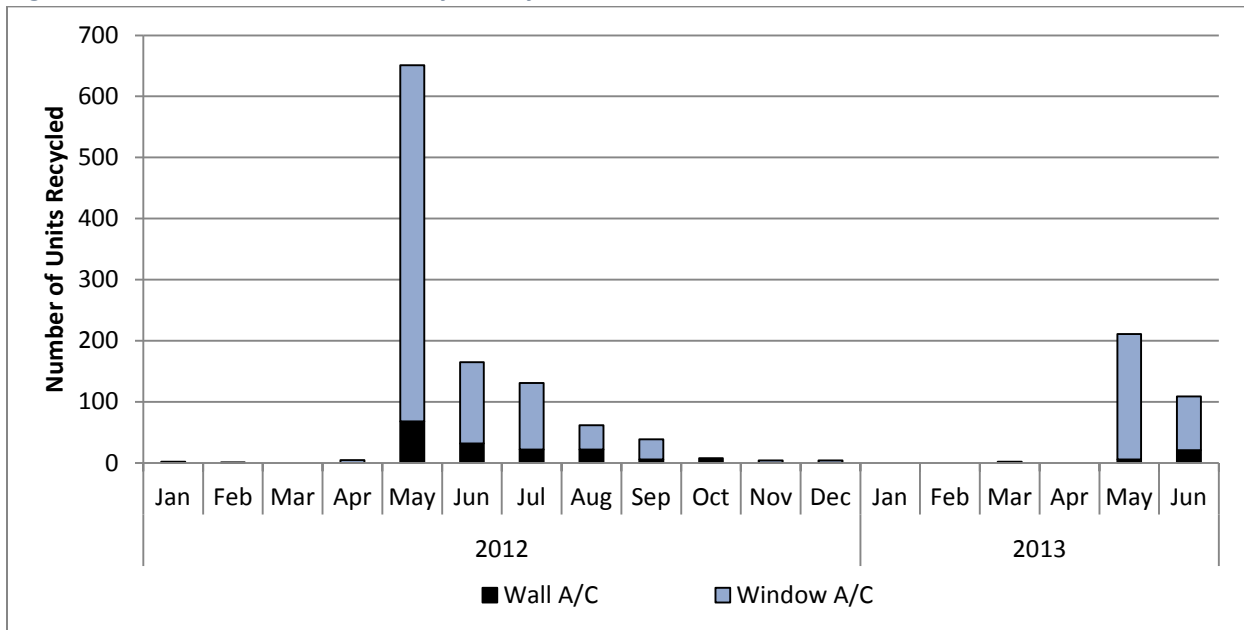
The Residential Appliance Recycling Program recycled 4,526 appliances and rebated 549 room air conditioners between January 1, 2012 and June 30, 2013. A total of 2,867 households recycled 3,132 refrigerators and freezers.⁹ Refrigerator and freezer recycling were highest in the summer and early fall months, dropping between November and March. Room air conditioner recycling was also highest in the summer months. Between January 1 and June 30, 2013, the program realized approximately 62 percent of the monthly 2012 participation.

Figure 7 Refrigerators and Freezers Recycled by Month



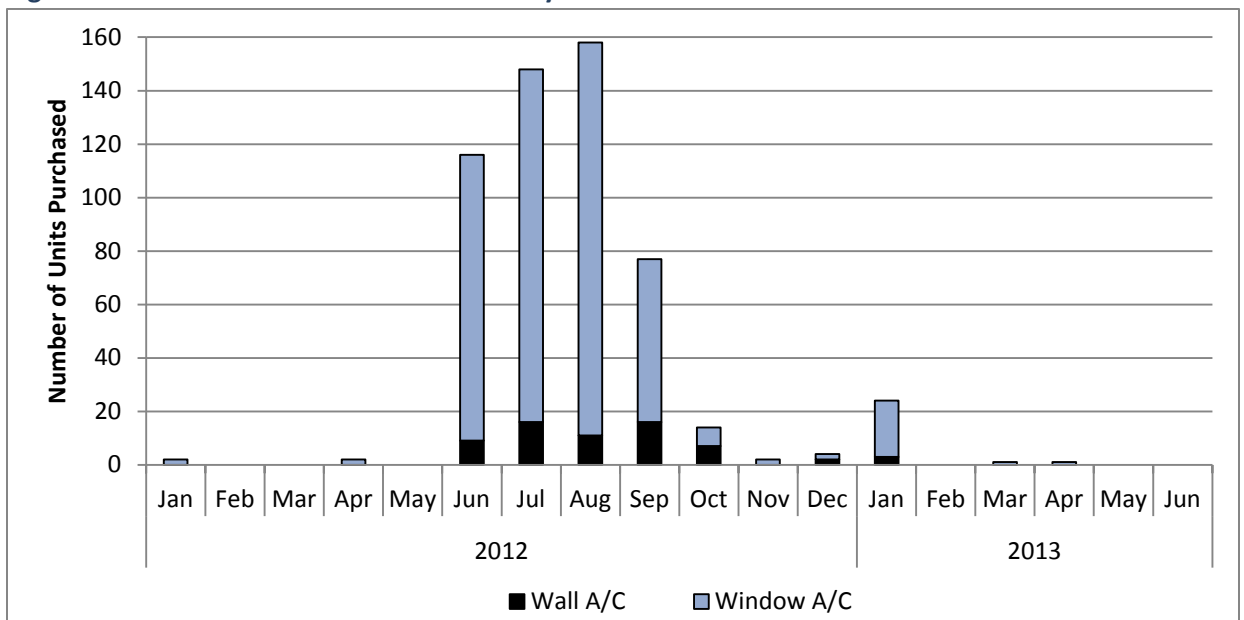
⁹ The revised data did not provide detailed customer information for recycled and/or purchased room air conditioners.

Figure 8 Room Air Conditioners Recycled by Month



Customers that purchase an ENERGY STAR® qualified room air conditioner must submit the application with the 'Proof of Recycling' certificate within 60-days of September 15th. As shown in the figure below, a few customers submitted the rebate application after the deadline. However, the majority of participants submitted their rebate application between June and September. Approximately 87 percent of room air conditioners recycled and purchased were wall units.

Figure 9 Room Air Conditioners Purchased by Month



The program achieved 175 percent of the 2012 savings target and 57 percent of the 2013 savings target as of June 30, 2013. In 2013, the program realized approximately 68 percent of the 2012 energy savings

on a monthly basis. Based on historic participation, the program is anticipated to achieve the MWh savings target.

Table 5 Program Savings Target versus Savings Achieved

	2012	2013 (Jan - June)
MWh Savings Target	2,003	2,003
MWh Savings Achieved	3,478	1,135
% Achieved	174%	57%

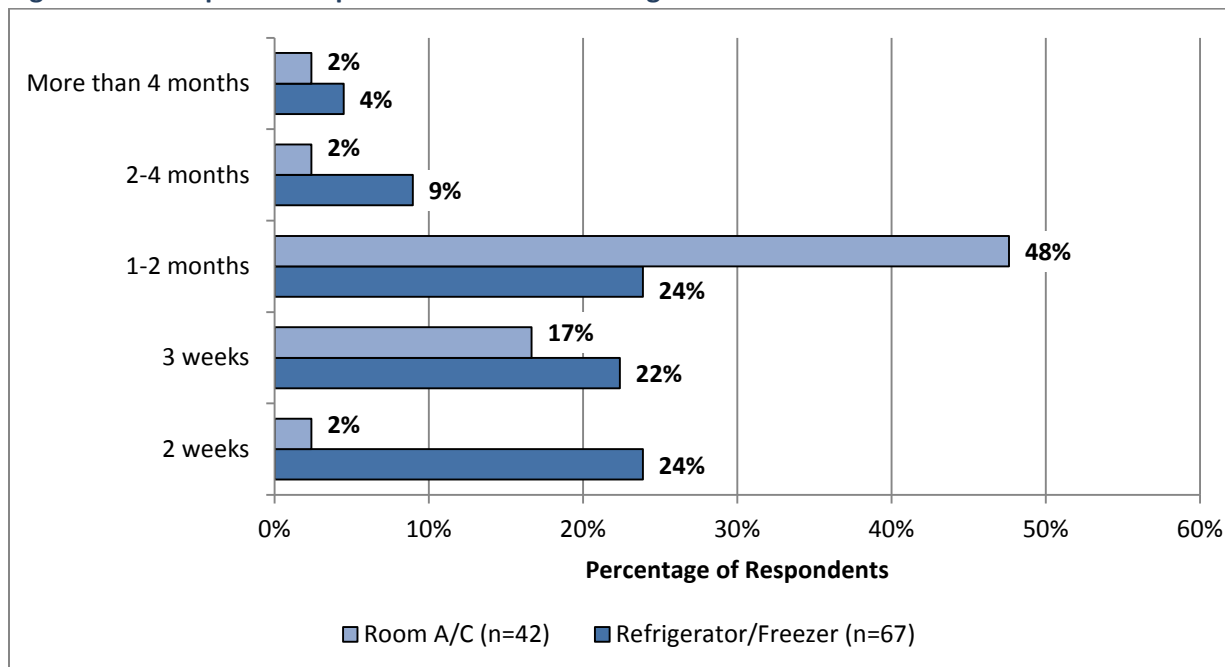
Central Hudson spent approximately 65 percent of the 2012 budget and 15 percent of the 2013 budget between January 1 and June 30, 2013. Program expenditures have typically followed participation, increasing during the summer months (see Figures 7 and 8). Therefore, program expenditures between July 1 and December 31, 2013 may total more than the \$162,183 spent between January 1 and June 30, 2013.

Table 6 Program Budget versus Expenditures

	2012			2013		
	Budget	Expenditures	% Spent	Budget	Expenditures (Jan - June)	% Spent
Administration	\$70,000	\$73,323	105%	\$66,737	\$40,835	61%
Marketing	\$100,000	\$85,513	86%	\$114,487	\$13,942	12%
Incentives	\$325,825	\$149,900	46%	\$496,668	\$31,850	6%
Implementation	\$373,343	\$242,206	65%	\$504,480	\$56,101	11%
Evaluation	\$45,746	\$27,082	59%	\$69,492	\$19,455	28%
Total Budget	\$914,914	\$578,024	63%	\$1,251,864	\$162,183	13%

According to survey respondents, it typically took less than 2 months to receive the rebate after the appliance was recycled / room air conditioner application submitted.

Figure 10 Participant Perception of Rebate Processing Duration



Fifty (50) percent of participants surveyed noted that the appliance recycled was in fair condition. The majority of participants that recycled a room air conditioner (90 percent) or refrigerator (60 percent) obtained a new appliance to replace the unit recycled. Almost all customers that purchased a new refrigerator or freezer purchased an ENERGY STAR® rated appliance.

Figure 11 Condition of Recycled Appliance

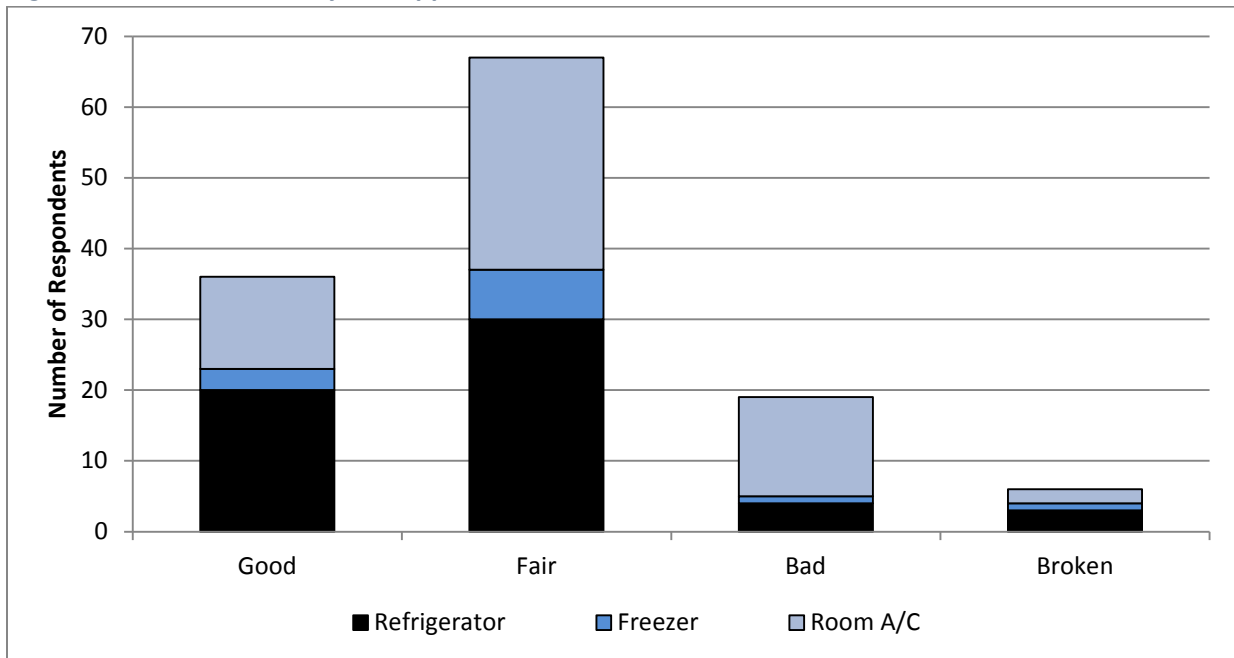
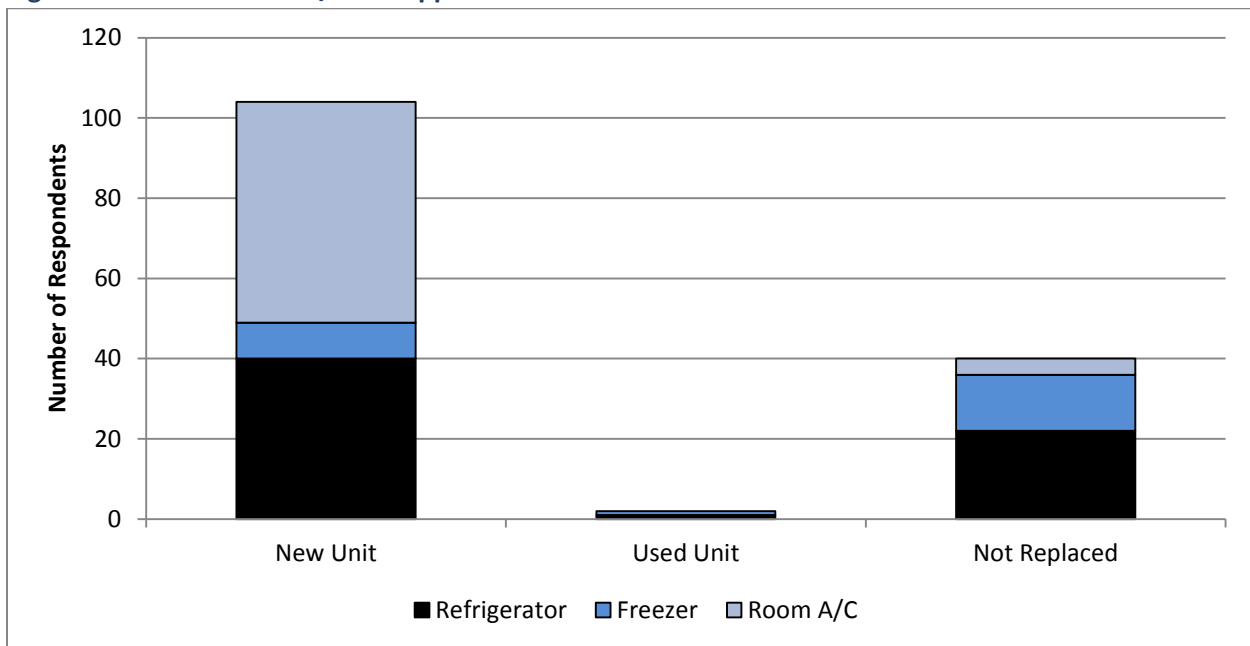


Figure 12 Number of New/Used Appliances Obtained



Ninety-one (91) percent of survey respondents noted that the refrigerator and/or freezer was plugged in year round. The majority of room air conditioners (70 percent) were plugged in for 3 to 6 months out of the year although 12 percent were not plugged in at all during the year. According to survey

respondents, the room air conditioners were utilized primarily in the evening (58 percent) and at night (24 percent).

Figure 13 Number of Months Room Air Conditioner was Plugged In (n=58)

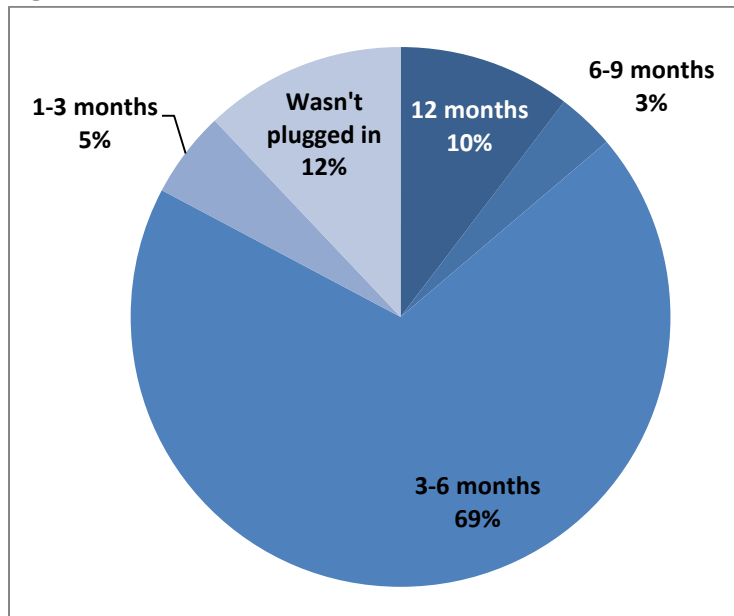
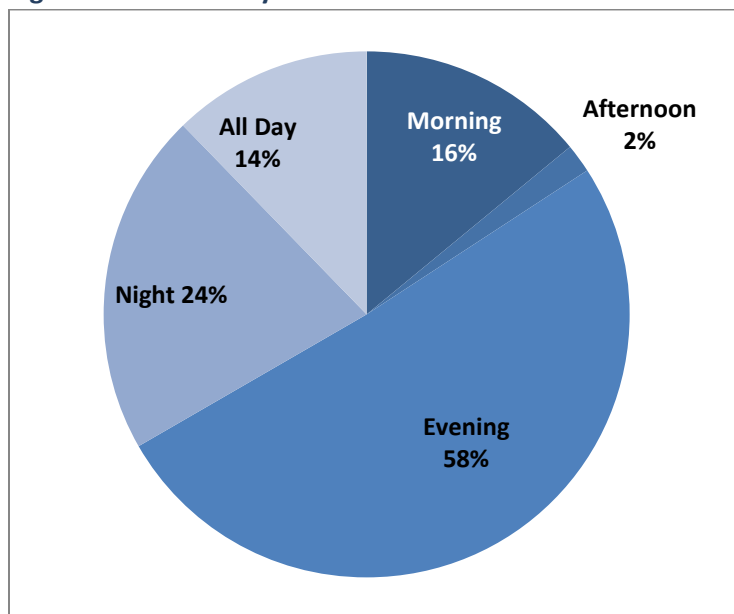


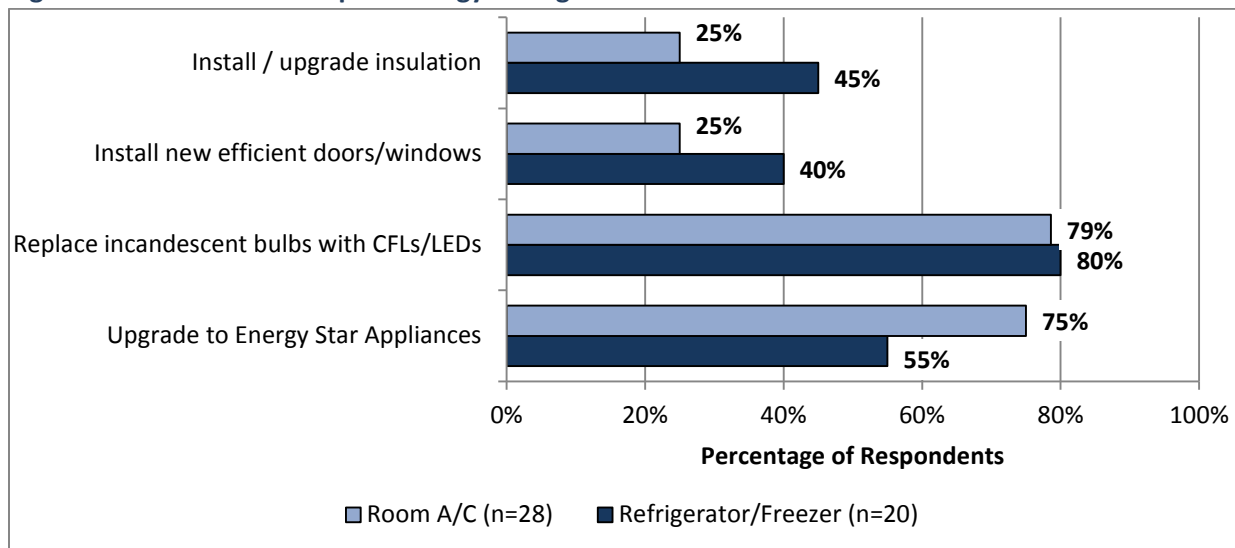
Figure 14 Time of Day the Room Air Conditioner was In Use (n=50)



Of the customers surveyed, approximately 30 percent were planning to recycle a refrigerator, 50 percent a freezer and 30 percent a room air conditioner within three months of participating in the program. Thirty (30) percent of refrigerator/freezer customers and 47 percent of room air conditioner customers surveyed reported that participating in the Residential Appliance Recycling Program motivated them to take additional steps to reduce their household energy usage. Participants engaged

in a variety of energy saving actions, most commonly purchased Energy Star appliances (74 percent), installed insulation (52 percent) and installed efficient lighting (52 percent).

Figure 15 Additional Participant Energy Saving Actions



7.3 Tracking System

The Residential Appliance Recycling Program is tracked by ARCA and Central Hudson. Central Hudson submits scorecard reports to the New York DPS with program progress to-date, including participation, energy savings and budget. ARCA creates the scorecard reports on a monthly basis, utilizing deemed energy and demand savings provided by Central Hudson.

ARCA’s proprietary ATO system servers are physically housed in a secure, off-site collection center with UPS protection (SAS 70 type II). The system is protected by a firewall and monitored for unwanted access or attacks. The internet interfaces carry Secure Socket Layer (“SSL”) registration. The list of ARCA personnel with access to the ATO system is monitored by management and audited quarterly. ARCA utilizes an SSL FTP site or PGP encryption to transfer sensitive information.

ARCA has confidentiality agreements with each sub-contractor to protect customer information. The sub-contractors have access to varying amounts of customer information:

- SLS receives general information needed to pick-up the appliance(s), such as customer name, phone number and address.
- Parago receives limited information to issue refrigerator and freezer recycling incentives, such as customer name and address. Parago processes the room air conditioner rebate applications.
- Sears retailers do not have access to customer information.
- Customer Elation CSRs have access to the ATO system to verify customer eligibility and schedule appliance pick-ups.

ARCA and SLS collect detailed appliance data on the refrigerators, freezers and room air conditioners picked-up at a customer's home. The following participant and appliance data is collected for units picked-up at the customer's home:

- Scheduling Process
 - Order Date
 - Order entry method (internet/call center)
 - Pick-Up Date
 - Cancel Date and reason for cancellation (preselected options).
 - Incentive Date
 - Status (closed/cancelled)
- Appliance Data
 - Unit type (refrigerator, freezer and/or air conditioner)
 - Unit details, including brand, color, size, model, defrost type, age, and location
- Customer Survey (collected during order entry)
 - How did you hear about the refrigerator/freezer recycling program?
 - Is the unit being picked-up used as a back-up or spare unit?¹⁰
 - Which two aspects most influenced your decision to recycle your refrigerator or freezer?
 - Caller gender
 - Are you replacing this refrigerator with a new model?
 - Approximately what year was this house built?
 - Who made the decision to recycle the refrigerator?
 - What is the age of the person who decided to recycle the appliance?

A Sears' sales associate processes room air conditioners dropped off at a Sears' retailer. The data collected for customers that drop-off a room air conditioner includes:

- Participant information and electric account number. Customer electric account numbers are not tracked for units dropped off during Central Hudson's turn-in events held a few times a year at various Sears' locations.
- Sears' location where the unit was dropped off
- Drop-off date
- Unit type (window/wall). The unit type data is often not completed.

Room air conditioner rebate applications are processed by Parago. Parago and ARCA do not transfer data on room air conditioners recycled or purchased. Rebate application data collected includes:

- Participant information, installation address, email address and electric account number
- Property type
- Unit details, including brand, model number, serial number
- Purchase details, including store where purchased, purchase price, date of purchase
- Window or Through-the-Wall
- Proof of Recycling Certificate information, including the ATO number

¹⁰ In 2012, ARCA began recording whether the refrigerator being recycled was a primary or secondary unit.

Parago provides weekly updates to ARCA regarding applications that are paid, cancelled and pending. ARCA supplies Central Hudson with monthly reports summarizing program progress. The reports track the data listed below by unit type (refrigerator, freezer, window A/C, or through-the-wall A/C) by month and year-to-date for one calendar year.

Table 7 ARCA Annual Scorecard Data

	Disqualifications	Commitments	Achievements
Gross kWh and kW Savings per Unit	x	x	x
Rebate per Unit	x	x	x
Total Gross and Net kWh and kW Savings		x	x
Total Rebates		x	x
Number of Units	x	x	x
Number of Incentives Issued			x

7.4 Quality Control/Quality Assurance

Each appliance recycled is issued a unique ATO number. The ATO number is recorded on the customer receipt, written on the appliance, and verified and matched at the recycling center in Philadelphia to ensure the unit removed from service. According to ARCA,

Less than 1% of recycled units are not received at the recycling center

If a unit is not received at the recycling center, ARCA pays the customer incentive and does not bill CHGE. ARCA audits the ATO system data quarterly and annually and periodically audits SLS to ensure data is properly tracked and recorded. Parago tracks the room air conditioner purchase data in a separate tracking system from ARCA's ATO system. Parago collects 'Proof of Recycling' certificates with the customer application, but does not track the ATO number from the units recycled. ARCA can access room air conditioner application data collected by Parago, but typically does not audit or verify the data.

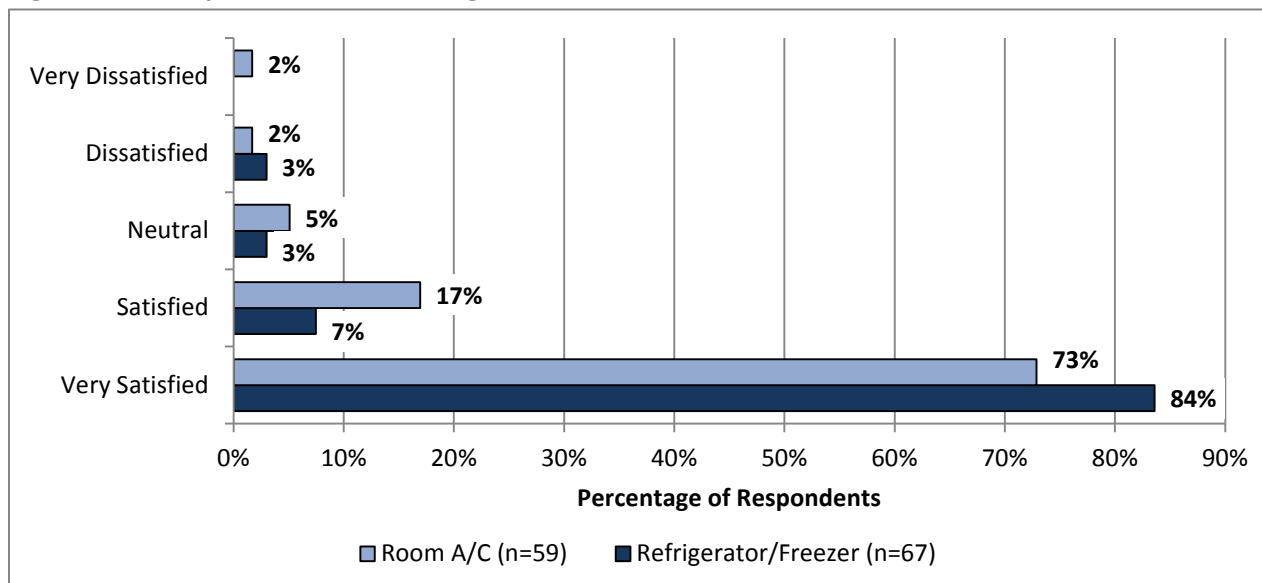
7.5 Program Satisfaction

AEG assessed program satisfaction through participant surveys and interviews with implementation staff. Overall, all parties are very satisfied with the program. Central Hudson noted that ARCA is easy to work with and customer feedback is positive. ARCA noted that Central Hudson is open to new tactics to enhance the program and increase participation. According to ARCA,

Customers are generally very satisfied with the program due to convenience and quick turnaround.

Between 70 and 85 percent of participants surveyed noted that they were very satisfied with the Residential Appliance Recycling Program.

Figure 16 Participant Satisfaction, Program Overall



While the participants surveyed are satisfied with the program overall and most program components, the rebate processing time and appliances eligible for the program had the lowest satisfaction rates. Room air conditioner survey respondents were also somewhat dissatisfied with the rebate application.

Table 8 Participant Satisfaction, Refrigerator/Freezer (n=67)

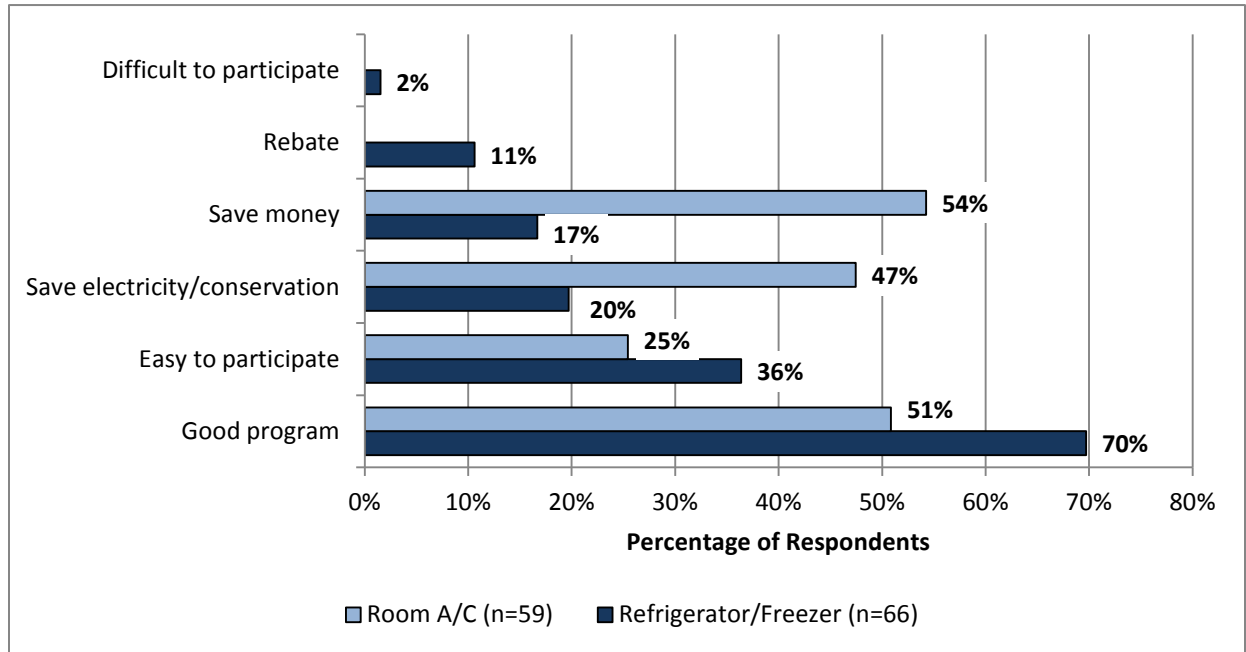
	Very Satisfied	Satisfied	Neutral	Dissatisfied	Very Dissatisfied
Enrollment process	82%	9%	7%	1%	-
Contractor who picked up the appliance	85%	10%	4%	-	-
Rebate processing time	76%	13%	4%	-	1%
Appliances eligible for the program	61%	7%	7%	3%	-

Table 9 Participant Satisfaction, Room Air Conditioner (n=59)

	Very Satisfied	Satisfied	Neutral	Dissatisfied	Very Dissatisfied
Recycling the room air conditioner	85%	12%	3%	-	-
Rebate application	59%	22%	8%	2%	7%
Rebate processing time	53%	27%	8%	-	10%
Appliances eligible for the program	42%	19%	29%	3%	5%

Nearly all participants surveyed would recommend the program to other customers (97 percent of refrigerator/freezer survey respondents and 98 percent of room air conditioner respondents). Program participants surveyed noted they would recommend the program because it is a good program, easy to participate and results in electricity and bill savings. The figure below shows the key reasons participants would recommend the program.

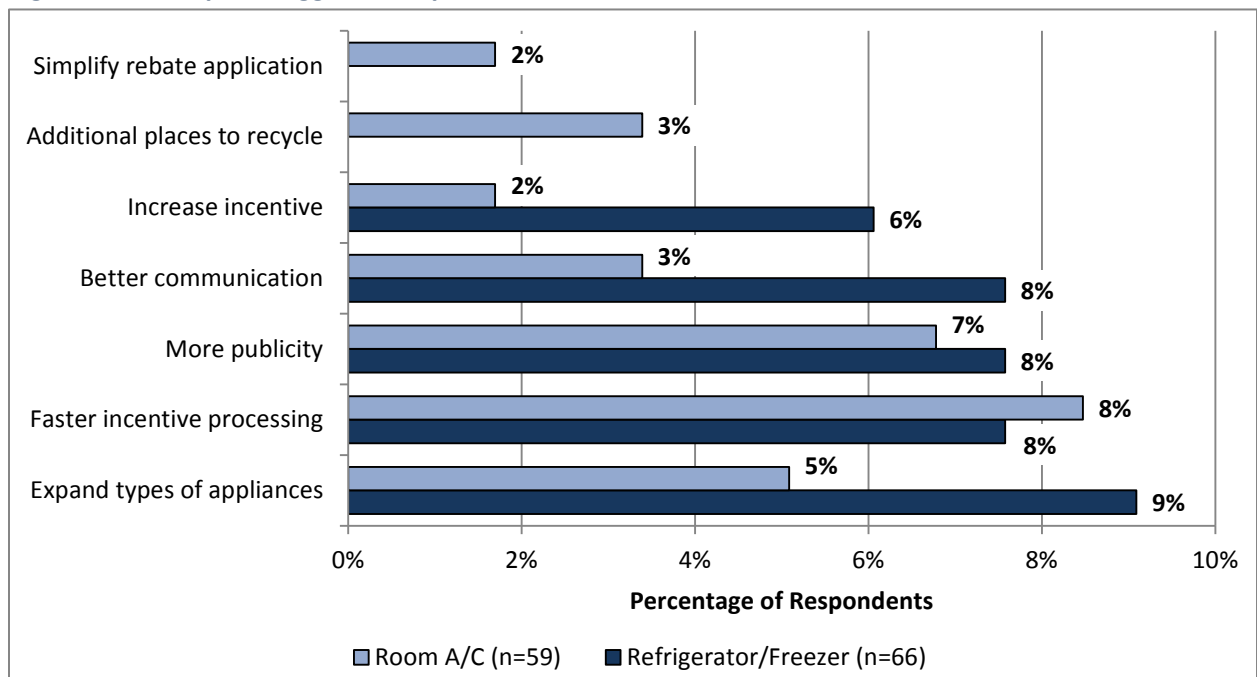
Figure 17 Reasons Participant Would Recommend Program



8. Opportunities for Program Improvement

The participants surveyed were asked if they had suggestions for program improvements. The primary suggestions included expanding the types of appliances that can be recycled, faster incentive processing, more publicity and better communication regarding program rules.

Figure 18 Participant Suggested Improvements



9. Conclusions and Recommendations

Central Hudson spent approximately 65 percent of the 2012 budget while achieving 175 percent of the savings target. Between January 1st and June 30th 2013, Central Hudson spent approximately 15 percent of the budget and achieved the 57 percent of the MWh target. In 2013, the program realized approximately 68 percent of the 2012 energy savings on a monthly basis. Based on historic participation, the program is anticipated to achieve the MWh savings target. A reporting error was identified in June/July 2014 and the participant and energy savings data corrected. Between January 1, 2012 and June 30, 2013, 4,526 appliances were recycled and 549 room air conditioners purchased through the Residential Appliance Recycling Program.

While the participants surveyed are very satisfied with the program overall and most program components, the rebate processing type and types of appliances eligible for the program had the lowest satisfaction rates.

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

Improve Reporting QA/QC

A reporting error was identified in June/July 2014, resulting in a correction of program participation and energy savings. The table below presents the program participation originally reported versus the revised actual. The 2013 room air conditioner units recycled and purchased were significantly underreported.

Table 10 Program Participation, Original versus Actual

Year	Units Recycled				Unit Purchases	
	Wall A/C	Window A/C	Refrigerator	Freezer	Wall A/C	Window A/C
2012 Original	143	928	1,966	450	61	460
2012 Actual	160	912	1,917	440	61	462
Percent Difference	11%	-2%	-3%	-2%	n/a	0.4%
2013 Original	10	142	515	121	0	1
2013 Actual	27	295	623	152	3	23
Percent Difference	63%	52%	17%	20%	100%	96%

AEG recommends that Central Hudson work with ARCA to determine the reporting error that occurred. Upon identification of the reporting error, ARCA personnel should conduct additional QA/QC of all reporting data to ensure the error has been corrected.

Improve Program Tracking Data

The Residential Appliance Recycling Program data is tracked by ARCA/SLS, Sears' retailers and Parago. Critical data appears to be missing from the program tracking data.

- Room air conditioner unit type (window versus wall) is often missing. Unit type is needed to determine energy savings.
- Customer account numbers are often missing or do not have the correct number of digits, particularly for room air conditioners recycled or purchased. Customer eligibility is determined utilizing electric account numbers.
- The ATO number and unit type is not tracked for room air conditioners purchased.

AEG recommends that ARCA work with the sub-contractors to ensure that all necessary data is collected and tracked. Parago should track all data collected on the rebate application and 'Proof of Recycling' certificate.

Continue SavingsCentral Marketing Campaigns

According to the participant surveys, participants first became aware of the program via bill inserts, mall/store advertisements and word of mouth. 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.

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. ARCA Interview Guide

Program Operations

1. Describe ARCA roles/responsibilities.
2. How frequently do you interact with Central Hudson staff?
3. What changes have been made to the Appliance Recycling Program since 2012?
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?

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?

Refrigerator/Freezer Recycling

10. Explain the process of scheduling appointments.
 - a. What percentages of customers sign up via internet versus telephone?
 - b. Are there barriers to increased internet use?
11. How do you determine customer eligibility?
 - a. Are ENERGY STAR appliances eligible?
 - b. Have you considered expanding the program to include primary refrigerators?
12. Sears Logistics
 - a. How is the Sears Logistics staff managed?
 - b. What reports do you receive from Sears Logistics?
 - c. What QA/QC is performed?
13. Explain the process for picking-up refrigerators and freezers.
 - a. How many appointments are completed in a day?
 - b. What is the process if the customer is not at the home during the appointment time?

Room Air Conditioner Recycling

14. Has the program always been limited to the May 15th to September 15th period?
15. How is customer eligibility determined?
 - a. Can an ENERGY STAR appliance be recycled?
 - b. Is there a size limit on the units that can be recycled (i.e. 5,000 Btu or larger)?
16. How many recycling events are held a year? Where are they held?
17. Participating Retailers
 - a. How many retailers are participating?
 - b. How often do you communicate with the retailers?
 - c. What QA/QC is performed?
18. Have you considered expanding to additional retailers?

Program Tracking

19. Explain the recycling process.
 - a. How do you ensure that the units are not returned to the grid?
 - b. How are the recycling units sent to the recycling center?
 - c. Where are the units stored until they are sent?
 - d. How often are the units sent?
20. Explain rebate processing.
21. Please describe the current program tracking database.
 - a. What data are tracked and captured?
 - b. Who tracks energy savings and demand?
22. Please describe quality assurance/quality control procedures.

Program Satisfaction/Barriers

23. What is your perception of customer satisfaction with this program?
24. What are the barriers to increase program participation?
25. How could the program be improved?

Appendix B. Refrigerator/Freezer Participant Survey Guide

Hello, I’m _____ with Applied Energy Group. We are conducting a survey on behalf of Central Hudson Gas & Electric as part of their continual effort to improve their energy efficiency programs. According to our records, your household participated in Central Hudson’s Appliance Recycling Program. The survey should only take about 10 minutes and the information you provide will be kept confidential.

Do you recall participating in the Appliance Recycling Program?

- Yes
- No *(The program provides rebates to customers who recycle a refrigerator, freezer or room air conditioner. According to our records, your household recycled _____ {List measure rebated}. If they still do not remember **Terminate Interview.**)*

May I ask you a few questions about your participation?

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

Program Awareness

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

- Central Hudson Website
- Bill Insert
- Postcard
- Email
- Pandora Ad
- Gas Station Advertising
- Mall or Store Ad
- Newspaper Ad
- Radio Ad
- Google
- Social Media
- Word of Mouth

Participation

2. Did you enroll in the program via the Internet or telephone?

- Internet
- Telephone

3. Why did you choose to recycle your {Refrigerator/Freezer}?

	Refrigerator (1 st Unit)	Refrigerator (2 nd Unit)	Freezer (1 st Unit)	Freezer (2 nd Unit)
Bought a new appliance				
Needed a new appliance				
Wanted to save money				
Seemed like a good offer from the utility				
Wanted to save energy				
No longer used the appliance				

4. What was the condition of the {Refrigerator/Freezer} recycled?

	Refrigerator (1 st Unit)	Refrigerator (2 nd Unit)	Freezer (1 st Unit)	Freezer (2 nd Unit)
Good				
Fair				
Bad				
Broken				

5. About how long did it take to receive the rebate from the time the appliance was picked up?

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

6. 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:

	Very Satisfied	4	3	2	Very Dissatisfied
Enrollment process					
Contractor who picked up the appliance					
Rebate processing time					
Types of appliances eligible for the program					
Program as a whole					

7. How many {Refrigerators/Freezers} do you currently have in your home?

	Refrigerator	Freezer
One		
Two		
Three		

8. Have you obtained a new or used {Refrigerator/Freezer} since receiving the rebate?

	Refrigerator	Freezer
Yes, new unit		
Yes, used unit (skip to Q10)		
No (skip to Q10)		

9. Was the new appliance Energy Star rated?

	Refrigerator	Freezer
Yes		
No		

Free Ridership

10. Was the appliance plugged in year-round before you recycled it?

- Yes
- No (skip to Q12)

11. During the 12 months prior to recycling the appliance, how many months was the appliance plugged in?

	9-12 months	6-9 months	3-6 months	1-3 months	≤1 month	None
Refrigerator (1 st)						
Refrigerator (2 nd)						
Freezer (1 st)						
Freezer (2 nd)						

12. Had you been planning to recycle the appliance within three months before or after participating in the program?

	Yes	No (skip to Q14)
Refrigerator (1 st)		
Refrigerator (2 nd)		
Freezer (1 st)		
Freezer (2 nd)		

13. What factors kept you from recycling the {appliance identified in the previous question}?

	Refrigerator (1 st)	Refrigerator (2 nd)	Freezer (1 st)	Freezer (2 nd)
Weren't convinced you would save energy				
Didn't know how to recycle the appliance				
Didn't want to pay to have it picked up				
Needed to use the appliance				

14. If Central Hudson had NOT offered the rebate, how likely is it that you would have recycled the appliance within 3 months of when you did participate in the program?

	Very Unlikely	Somewhat Unlikely	Neutral	Somewhat Likely	Very Likely
Refrigerator (1 st)					
Refrigerator (2 nd)					
Freezer (1 st)					
Freezer (2 nd)					

Spillover

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

- Yes
- No (Skip to Q17)

16. Have you taken any of the following actions as a result of your participation in the program? How important was the program in the decision with 0 meaning "Not At All Important" and 5 meaning "Very Important."

Action	No	Yes	Program Influence (0-5)
Upgraded to Energy Star Appliances?			
Replaced incandescent light bulbs with CFLs or LEDs?			
Installed new efficient doors or windows?			
Installed / upgraded insulation?			

Are there any other energy savings actions you have taken?

Barriers to Participation

17. Would you recommend this program to others?

- Yes
- No

18. 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

19. How could the program be improved?

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

Demographic

20. 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. Room Air Conditioner Participant Survey Guide

Hello, I’m _____ with Applied Energy Group. We are conducting a survey on behalf of Central Hudson Gas & Electric as part of their continual effort to improve their energy efficiency programs. According to our records, your household participated in Central Hudson’s Appliance Recycling Program. The survey should only take about 10 minutes and the information you provide will be kept confidential.

Do you recall participating in the program?

- Yes
- No (“The program provides rebates to customers who recycle a refrigerator, freezer or room air conditioner.” If they still do not remember **Terminate Interview.**)

May I ask you a few questions about your participation?

- Yes
- No (See if they will 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?

- Central Hudson Website
- Bill Insert
- Postcard
- Email
- Pandora Ad
- Gas Station Advertising
- Mall or Store Ad
- Newspaper Ad
- Radio Ad
- Google
- Social Media
- Word of Mouth

2. How did you recycle the room air conditioner?

	Unit #1	Unit #2	Unit #3	Unit #4
Dropped the unit off at Sears				
Unit was picked-up at the house				

3. Why did you choose to recycle your room air conditioner?

	Unit #1	Unit #2	Unit #3	Unit #4
Bought a new room air conditioner				
Needed a new room air conditioner				
Wanted to save money				
Seemed like a good offer from the utility				
Wanted to save energy				
Installed central air conditioning				

4. What was the condition of the room air conditioner?

	Unit #1	Unit #2	Unit #3	Unit #4
Good				
Fair				
Poor				
Broken				

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:

	Very Satisfied	4	3	2	Very Dissatisfied
Recycling the room air conditioner					
Rebate application					
Rebate processing time					
Types of appliances eligible for the program					
Program as a whole					

Room A/C Replacement

6. Have you obtained a new or used room air conditioner since recycling your old unit?

	Unit #1	Unit #2	Unit #3	Unit #4
Yes, new unit				
Yes, used unit (skip to Q10)				
No (skip to Q10)				

7. Did you receive a Central Hudson incentive for the new room air conditioner?

- Yes
- No (Skip to Q9)

8. About how long did it take to receive the rebate from the time the application was submitted?

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

9. Why did you not receive a Central Hudson incentive for the new room air conditioner?

- The room air conditioner was not Energy Star qualified
- Misplaced the Proof of Recycling Certificate
- Was not aware of the incentive

Free Ridership

10. Had you been planning to recycle the appliance prior to participating in the program?

	Unit #1	Unit #2	Unit #3	Unit #4
Yes				
No (skip to Q12)				

11. What factors kept you from recycling the room air conditioner?

	Unit #1	Unit #2	Unit #3	Unit #4
You weren’t convinced you would save energy				
You didn’t know how to recycle the appliance				
You didn’t want to pay to have it picked up				
You needed to use the appliance				

12. During the 12 months prior to recycling the appliance, how many months was the appliance plugged in?

	Unit #1	Unit #2	Unit #3	Unit #4
12 months				
9 – 12 months				
6 – 9 months				
3 – 6 months				
1 – 3 months				
Less than 1 month				
Wasn’t plugged in				

13. When was the room air conditioner being used?

	Unit #1	Unit #2	Unit #3	Unit #4
Morning				
Afternoon				
Evening				
Night				

14. If Central Hudson had NOT offered the rebate, how likely is it that you would have recycled the room air conditioner within 3 months?

	Unit #1	Unit #2	Unit #3	Unit #4
Very Unlikely				
Somewhat Likely				
Neutral				
Somewhat Likely				
Very Likely				

Spillover

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

- Yes
- No (Skip to Q17)

16. 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)
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			

Are there any other energy savings actions you have taken?

Barriers to Participation

17. Would you recommend this program to others?

- Yes
- No

18. 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

19. How could the program be improved?

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

Customer Demographics

20. 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!