

# **The Massachusetts Appliance Turn-in Program-Participant Survey Results**

***FINAL***

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**Submitted to:**

**National Grid, NSTAR Electric, Cape Light Compact, Western  
Massachusetts Electric Company**

**Submitted by:**

**NMR Group, Inc.**

# Massachusetts Appliance Turn-in Program-Participant Survey Results

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## Executive Summary

This report summarizes the results of the evaluation of the Massachusetts Appliance Turn-in Program for 2009 and 2010. Evaluation activities consisted of participant telephone surveys and in-depth interviews with program staff and implementation contractors conducted by NMR Group, Inc.

## Findings

The Massachusetts Appliance Turn-in program collects and recycles working refrigerators and stand-alone freezers that are being used as second units from residential customers. The primary goal of the program is to meet the unit targets for collection to achieve energy savings in a cost effective manner; recycling is a secondary goal.

JACO is a turn-key implementation contractor, providing program marketing, scheduling, implementation, recycling, and reporting. JACO has experience running appliance turn-in programs across the country, and the Sponsors rely on them for their expertise in this market.

## Program Goals and Collected Units

The Massachusetts Appliance Turn-in Program had an initial goal of recycling 4,550 units in 2009 and was adjusted to 10,570 units in 2010 to reflect the addition of the other Sponsors (Table 1-1). To date the program has collected and recycled over 13,000 units. National Grid and Cape Light Compact have been able to meet program goals, but NSTAR and Western Massachusetts Electric have had more difficulty. This may be due to the fact that the service areas for both have a large number of apartments and multifamily homes; these customers typically do not have spaces such as basements or garages where they can keep second refrigerators, so the pool of potential participants is smaller than in areas populated by single family homes.

**Table 1-1: Massachusetts Annual Goals and Collected Units**  
(June 2009 through December 2010; Actual through November 2010)

	Projected Units	Actual Units		
		Refrigerators	Freezers	Total
<b>2009</b>	4,550	3,852	1,344	5,196
<b>2010</b>	10,570	6,188	1,997	8,185
<b>Total</b>	15,120	10,040	3,341	13,381

## Program Satisfaction and Sources of Information

Program participants are quite satisfied with the program and the Sponsors and JACO reported no major problems with the program's launch or its on-going operation. Participants heard about the program from a variety of sources, but newspaper ads have been particularly successful in informing participants about the program. Additional findings:

- Overall, respondents were very satisfied with the program; the average rating on a scale from zero to ten was 9.6. About three out of four respondents had no recommendations to improve the program, and many of the remaining respondents recommended changes involved expanding the program in some way—offering it more often and for a longer period of time, increasing advertising and awareness of the program, and including more appliance types in the program.
- Respondents primarily learned about the program through the Sponsors' advertising efforts, particularly through ads (41%) as well as bill inserts and mailings (26%). Only 4% found out about it on the Sponsor website. Another 11% heard about the program from someone they knew.
- About three-quarters of the respondents enrolled in the program over the phone. Whether they had enrolled over the phone or online, in general they found it easy to enroll. The average ease ratings were 9.5 (phone) and 9 (online) on a scale of zero to ten. Scheduling the pick-up time was also experienced as relatively easy (average rating of 9.4); although a few respondents said that no convenient times were available.
- Many respondents were unaware of the fact that the removed appliances were recycled. About one-quarter said they did not know what happened to them, and 7% thought they were sold as used appliances or donated to the needy. Fewer than two thirds (61%) mentioned recycling when asked what happened to the appliances after they were picked up.

## Properties of Removed Appliances

Participants in the survey described the characteristics and use of the refrigerator or freezer that was removed through the program, including the appliance's age, where in the home it was located, and how it had been used before it was turned in.

- More than two-thirds (70%) of the removed refrigerators were being used as spares before they were picked up, and more than three quarters (79%) were over ten years old. About one-third (32%) of the refrigerators were over twenty years old. The freezers that were picked up tended to be older than the refrigerators: 82% were over ten years old, and about half (49%) were over twenty years old. Nearly all the appliances were in working condition, and close to two-thirds of the appliances had been plugged in all or most of the time. These results indicate that, for the most part, the appliances that were

removed through the program were in line with those targeted by the program—older, in working condition, and plugged in.

- Respondents were split on how necessary they thought it was to have a spare refrigerator or a stand-alone freezer, although for both types of appliances more respondents said it was relatively unnecessary (rating below 5 on a scale from 0 to 10) than said it was relatively necessary (rating above 5 on the same scale). Among respondents who retired refrigerators, about one out of ten thought it was “absolutely necessary” to have a spare refrigerator and about two out of ten thought it was “not at all necessary.” Among respondents who retired freezers, approximately one-quarter thought having a stand-alone freezer was “absolutely necessary” and slightly more than one-quarter thought it was “not at all necessary.” The averages of the importance ratings for the refrigerator and freezer groups were both slightly less than 5.

### **Free Ridership**

The survey asked a series of questions designed to characterize what participants would have done with the appliances (if anything) in the absence of the program.

- Free riders to the program (i.e., FRs) are participants who would have removed the appliances from electric service on their own, without any program assistance. This definition includes appliances that would have been removed from the household and disposed of or recycled and appliances that would have been kept and not used at all.
- In contrast, non-free riders (i.e., NFRs) are participants who would have continued to use the appliances and consume energy without the program. This definition includes appliances that would have been kept and used and appliances that would have been removed from a household but used elsewhere (i.e., given away or sold as used appliances).
- Possible free riders (i.e., PFRs) are participants who said “don’t know” or “refuse” to certain key questions, or whose responses did not allow us to determine their FR status.

Two methodologies were used to calculate free ridership, which yielded rates of 42% and 40% for refrigerators and 49% and 45% for freezers (Table 1-2). Both methodologies followed a similar pathway of survey questioning about likely actions in the absence of the program to assess the likelihood that participants would have removed the appliance within a year, as well as their likely future usage pattern or likely means of appliance removal.

The first method (FR1) used participants’ initial responses to these questions in the analysis. A potential drawback of this method is that these initial responses might reflect respondents’ wishes and attitudes, rather than what they actually would have done. People face a number of barriers to removing large appliances that might prevent them from removing the units despite the wish to do so.

The second methodology (FR2) introduced two likely barriers to removal in the absence of the program—the need to pay to have the appliance removed and the need to physically remove the appliance from the home. When participants considered the additional factors, some respondents who initially said they would hire a hauler subsequently said that they would not be willing to pay for a hauler to remove the appliance, and some who initially said they would take the appliance to a dump subsequently said they would not be able to physically remove the appliance from their home. Also, when respondents were asked again what they would have done with the appliance, some said they would have kept using the appliance after all. With these responses incorporated into the analysis for Method 2, free ridership rates decreased slightly for both appliance groups. The two additional questions about the impact of physical and financial barriers on the disposal decision incorporated into FR2 are realistic factors customers would have to take into account before actually disposing of the appliance. Therefore, we consider Method 2 to be a more accurate measure of free ridership than Method 1 and recommend using FR2 rates for program planning and impact analysis.

**Table 1-2: Free Ridership Rates**

	<b>Refrigerators (N=288)</b>	<b>Freezers (N=243)</b>
<b>FR1 (free riders)</b>	<b>42%</b>	<b>49%</b>
NFR1 (non-free riders)	51	47
PFR1 (possible free riders)	7	4
<b>FR2 (free riders)</b>	<b>40%</b>	<b>45%</b>
NFR2 (non-free riders)	56	51
PFR2 (possible free riders)	4	4

Free ridership among respondents who used the program to dispose of a primary unit is higher than those who disposed of a secondary unit. Table 1-3 shows FR2 rates for three subgroups within the refrigerator group: Participants who removed a primary fridge (19%), participants who removed a secondary fridge and replaced it with another fridge (16%), and participants who

removed a secondary fridge and did not replace it (65%). The FR2 rate for the primary group (48%) is substantially higher than for the secondary groups (37% overall), and the FR2 rate for the secondary/replaced group (27%) is lower than that of the secondary/non-replaced group (40%).

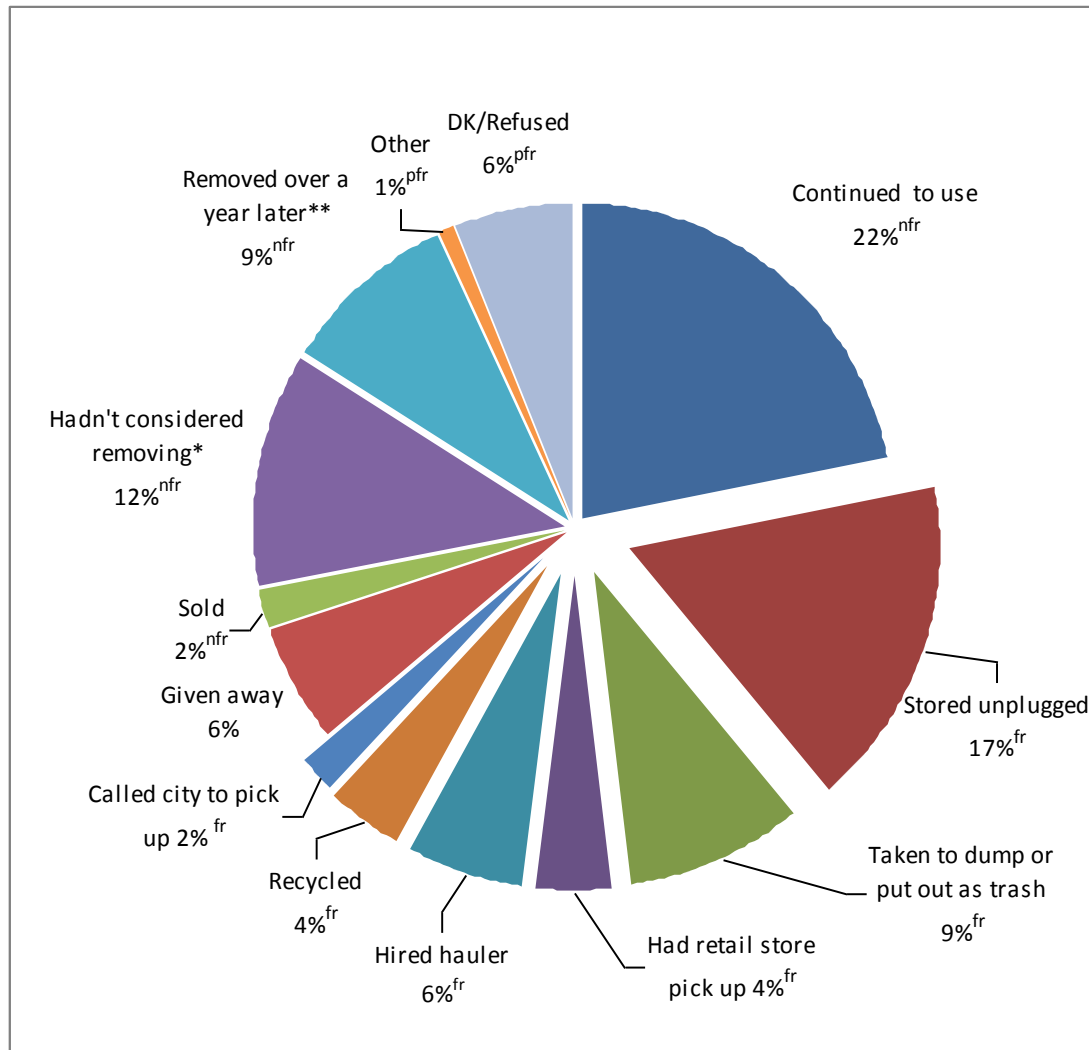
**Table 1-3: Refrigerator Free Ridership Rates by Use and Replacement**

	<b>Primary (19% of refrigerators)</b>	<b>Secondary—Replaced (16% of refrigerators)</b>	<b>Secondary—Not Replaced (65% of refrigerators)</b>
<b>FR2 (free riders)</b>	<b>48%</b>	<b>27%</b>	<b>40%</b>
NFR2 (non-free riders)	48	71	56
PFR2 (possible free riders)	4	2	4

**Disposition of Appliances in Absence of the Program**

Figure 1-1 and Figure 1-2 provide a snapshot of the actions that participants would have taken in the absence of the program.

**Figure 1-1: Likely Disposition of Refrigerators in Absence of Program**



\*Respondents who said they would remove the refrigerator without the program but hadn't considered doing so before hearing about the program.

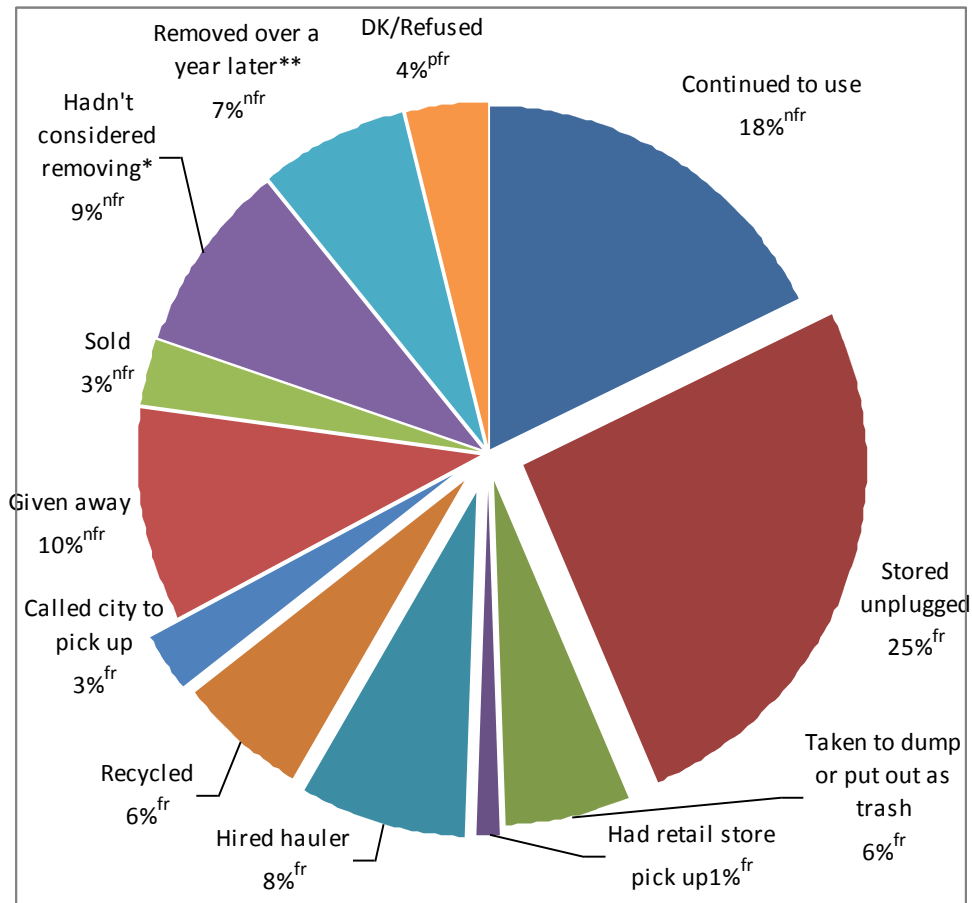
\*\*Respondents who would have gotten rid of the refrigerator in any manner more than a year after the fridge was removed by the program.

<sup>fr</sup> Respondents were considered free riders according to free ridership Method 1.

<sup>nfr</sup> Respondents were considered non-free riders according to free ridership Method 1.

<sup>pfr</sup> Respondents were considered possible free riders according to free ridership Method 1.

Figure 1-2: Likely Disposition of Freezers in Absence of Program



\*Respondents who said they would remove the freezer without the program but hadn't considered doing so before hearing about the program.

\*\*Respondents who would have gotten rid of the freezer in any manner more than a year after the freezer was removed by the program.

<sup>fr</sup> Respondents were considered free riders according to free ridership Method 1.

<sup>nfr</sup> Respondents were considered non-free riders according to free ridership Method 1.

<sup>pfr</sup> Respondents were considered possible free riders according to free ridership Method 1.

Key findings about respondents' reported intentions include:

- Roughly two out of three respondents said that they had considered getting rid of the appliance before learning about the program. However, considering doing something (particularly something that is not easy to do, like getting rid of a large appliance) is not the same as intending to do it, and is even further from actually doing it in the near future. *For the free ridership (FR) analyses, respondents who said they had not considered disposing of the appliance before hearing about the program were considered to be non-free riders (NFRs), unless they indicated in a subsequent response that they would have kept the appliance and stored it unplugged. In accordance with free ridership definitions*

*for energy efficiency programs in general, respondents who said they would have disposed of the appliance more than a year later (about two out of ten) also were determined to be NFRs.<sup>1</sup>*

- About one out of four respondents who said they would have gotten rid of the refrigerator and about one out of three who said they would have gotten rid of the freezer said that in the absence of the program they would have done so by giving it away or selling it.
- More than one out of ten respondents who would have disposed of their refrigerator or freezer said they would have had it recycled (13% and 14% respectively). One-quarter of the refrigerator group and about 16% of the freezer group said they would have disposed of it by taking it to a dump or putting it out as trash. One out of ten in the refrigerator group and fewer (6%) in the freezer group said they would have had a retail store pick it up, and slightly more than one out of six in both groups said they would have hired a hauler to take it away. *In the FR1 analysis, respondents who said they would have disposed of it in a way that would lead to its continued use by someone else by selling it or giving it away, or who said they might have kept it after all, were determined to be NFRs. Respondents who said they would have taken it to a dump, taken it out as trash, or had a third party pick it up were determined to be FRs.*
- Approximately one-quarter of respondents who said they would have gotten rid of their refrigerator and about one-third of those who said they would have gotten rid of their freezer said that moving and transporting the appliance would have prevented them from actually getting rid of it without the program. *In the FR2 analysis, respondents who said physically moving the unit would have deterred their disposal plan were determined to be NFRs if they also said in a subsequent question that they would have disposed of it in a way that would necessitate moving it themselves (e.g., taking it to a dump or recycling it).*
- About one-third of those who said they would have gotten rid of their refrigerator or their freezer claimed they would not pay anything to have it removed from their home. *In the FR2 analysis, respondents who were not willing to pay anything to have the appliance removed, if they also said in a subsequent question that they would hire a hauler to pick it up, were considered to be NFRs.*
- After respondents who initially had said they would have disposed of their freezer considered some of the factors involved in disposing of the appliance (i.e., having to physically move it, possibly having to pay to get it hauled away), respondents in the refrigerator group were significantly less likely the second time they were asked what they would have done with the appliance to say that they would have kept the appliance after all (0% versus 6%; significant at a 90% confidence level).

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<sup>1</sup>Some of the percentages shown for responses to questions about customers' intentions are based on a subset of respondents and are different than those shown in the pie charts above (Figures 1-1 and 1-2), which are based on all respondents.

- Compared to the first time the question was asked, respondents in the freezer group who initially said they would have removed the appliance were also significantly more likely to respond the second time that they would have kept the appliance after all (<1% versus 7%; significant at a 90% confidence level) and significantly less likely to say that they would have called the city to pick it up (9% versus 1%).
- Importance of Rebates—Respondents indicated that the rebates were very important to their decision to participate in the program. The average importance rating (from 0-10) was 7.7 for both the refrigerator and freezer groups. Nevertheless, 71% of the refrigerator group and 77% of the freezer group said they would have participated even without any incentive. This seemingly paradoxical result could indicate that, although the rebate was an important benefit of the program, other benefits (such as getting the appliance removed for free and with little hassle, knowing it will be recycled, etc.) might have been important enough without the rebate to merit participating. It should be noted that financial incentives can be very important in the initial consideration of a decision; however, if other benefits are also realized after the decision is made the initial influence of the rebate might be minimized in retrospect.
- Replacement and Remaining Appliances—About one out of three respondents in the refrigerator group and about two out of ten in the freezer group replaced the appliance they had turned in with another one of the same type. The majority of the replacement appliances were new (refrigerator: 79%, freezer: 89%) and for the most part had the ENERGY STAR<sup>®</sup> label (refrigerator: 87%, freezer: 82%). Thus, although many of the respondents replaced the appliance that was removed, limiting energy savings from the program, the replacements tended to be newer and more energy-efficient than the previous ones. Also, fewer than 30% of the appliances remaining in the home were over 10 years old.
- Primary versus Secondary Refrigerators— There is evidence that the 19% of participants who used the program to dispose of primary refrigerators have different motivations than those who used it to dispose of secondary refrigerators. Participants who disposed of primary units are more likely to be free riders (48%) than those who disposed of secondary units (37%). Respondents who removed primary fridges were more likely than the others to have intended to get rid of the fridge in the absence of the program, to have done so within a year of the program, and to remove it by having a retail store pick it up. In addition, the primary group was more likely than the secondary group to say that they removed the fridge because they had bought a new fridge or because the old one was not working well, and less likely to say that they participated in the program because the program would pick it up. It is likely that many of these participants who had primary fridges had another convenient option for removing the fridge—having it picked up by the retail store from which they purchased a replacement fridge, for free or for a fee. In sum, the primary refrigerator group appears to be a distinct subgroup of participants,

many of whom are relatively unlikely to have kept the removed refrigerator on the grid in the absence of the program but participated in the program instead, perhaps to obtain the \$50 incentive or to avoid paying a fee charged by the retailer.

Respondents cited a variety of reasons for participating in the program. About two out of five in the refrigerator group and about one out of three in the freezer group cited the rebate offered by the program. About one out of four respondents in the refrigerator group and about one out of three in the freezer group said they participated because they didn't need the appliance anymore. Nearly one out of five respondents in both groups noted that the program made it easy and convenient to dispose of it. More than ten percent of the refrigerator group (12%) and only 5% in the freezer group mentioned having bought a new appliance as a reason for participating. Within both groups, about one-quarter of the respondents (refrigerators: 22%; freezers: 27%) cited one or more energy- and environment-related reason (i.e., to save energy or reduce energy costs, in order to recycle, or to help the environment).

### **Spillover**

Respondents were asked a series of questions about appliances they might have purchased or retired after participating in the program as well as the impact of the program on their home's energy use.

- Ten percent had purchased at least one appliance with funding from the American Recovery and Reinvestment Act (ARRA) of 2009 rebates after participating in the Massachusetts Appliance Turn-in Program, and out of these respondents, nearly half (45%) said that the program “definitely” influenced them to make these purchases. Another 14% said the program “probably” influenced them to make these purchases.
- Eleven percent of respondents stopped using, replaced, removed, or recycled additional appliances after participating in the program. One-quarter of these respondents said that their participation in the Massachusetts Appliance Turn-in Program influenced their decision to retire the additional appliance(s).
- Half of the respondents reported that their electricity usage had decreased since participating in the program, and out of these respondents, and when these respondents were asked how satisfied they were with the reduction in usage, 72% gave a satisfaction rating of 8, 9, or 10 on a 0-10 scale.
- Less than 6% of respondents mentioned any drawbacks about having had their appliance removed. Four percent mentioned a loss of food storage space and less than one percent said that usable appliances were thrown away.

### **Non Energy Benefits**

Massachusetts Sponsors currently do not get credit for the non-energy benefits that the program creates, but they are considerable.

- The program has recovered almost two million pounds of metal, plastic, and glass; much of that is diverted from eventual disposal in landfills. Recycling the materials into new goods reduces the need to produce products from virgin materials.
- Additionally, capturing the CFCs and foam from the appliances has prevented the release of ozone depleting substances and greenhouse gases to the atmosphere.
- As the program matures, the number of units collected with CFC-based refrigerant and foam will decrease until the full stock of older units that contain CFCs reaches the end of life. At the same time, more appliances with HFC refrigerant and HCFC-based foams will be collected.

### **Demographics**

The typical participant in the Massachusetts Appliance Turn-in Program fits the profile of an “empty nester.”

- The typical participant is of retirement age or older, well educated, with a moderate to high salary, who owns and lives in a moderate- to large-sized single family detached home.
- Older and wealthier consumers are more likely than younger consumers and those with lower incomes to own (rather than rent) their homes and appliances, and can therefore make decisions about disposing of them. In addition, people who live in single family homes, rather than apartment buildings or multifamily homes, are more likely to have the space to have a second refrigerator or freezer.

This profile of participants is in line with the type of customer that JACO said is typically attracted to appliance turn-in programs—older, higher income customers, especially empty nesters who have a second refrigerator but might no longer need it because the kids have gone and they are not using the refrigerator as much anymore.

## Recommendations

The program seems to be quite successful, with high satisfaction ratings, customer suggestions to continue and expand the program, and evidence that most of the retired appliances were older, working, and in use before removal. Nevertheless, the findings summarized above suggest that improvements can be made to some aspects of the program in order to increase participation and the resulting energy savings and to reduce the few problems experienced by participants. The Sponsors and JACO are proactive about addressing issues as they arise and have already started to work on some of these areas:

- *Target missed appointments*—About one-third of the scheduled pick-up appointments were cancelled or no-shows. The idea of removing an extra refrigerator or freezer resonated on some level with people who went through the effort of scheduling an appointment but cancelled or missed the pick-up time. Some of these customers may have reconsidered their decision and have found a need that justifies keeping the appliance; others may have forgotten or been too busy to keep the appointment. JACO said that it intends to increase outreach to these customers through post cards, phone calls, and emails in another attempt to reschedule. The point is not to harass these customers, but to facilitate the process for them to participate. The program already offers Saturday pick-ups and choices for pick-up times based on schedule and geography, but additional effort should be made to give these customers priority for pick-up times that might include Saturdays, early mornings, or evenings, next day pick-up, or small, one to two hour windows for pick-up times. Messaging with these customers should reinforce their good decision making for initiating the removal and recycling of an appliance through the program.
- *Adjust goals to reflect demographics of the residential customer base for each Sponsor*—Program goals were based in part on the number of residential customer accounts from each Sponsor and JACO's ability to collect units from 1% to 2% of the customer base per year in other programs. While this rule of thumb seems to be sufficient for National Grid and Cape Light Compact, both NSTAR and Western Massachusetts Electric have had trouble meeting the initial unit goals. This may be due to the fact that these service areas have a large number of apartments and multifamily homes and residents typically do not have areas where they can keep second refrigerators, such as basements or garages. Adjusting the goals of the program to reflect the pool of single family homes may result in more realistic targets for these Sponsors.
- *Weigh the value of removing primary refrigerators*—The Massachusetts Appliance Turn-in Program requires that removed refrigerators be secondary, not primary, refrigerators. Nevertheless, about one in five (19%) of the respondents in the refrigerator group reported that they had used the removed appliance as the primary fridge in their home. The Sponsors should weigh the value of removing primary refrigerators and consider either reducing the number of primary fridges removed by the program by reinforcing the

requirement (e.g., in marketing materials and verification of eligibility) or, alternatively, opening up the program to include primary fridges, as does the parallel program in Rhode Island. There are several advantages and disadvantages of accepting primary refrigerators. Relevant points to consider in this decision include the following:

- The program ensures that the refrigerators don't end up on the secondary market and that they are properly recycled.
- Participants who remove primary fridges through the program appear to be more likely than those who remove secondary fridges to get rid of the fridge in the absence of the program, as reflected in their higher free ridership rates. However, some customers might decide to replace their older primary fridges with new ones in part *because of* the opportunity to receive \$50 to have their old fridge removed.
- Nearly all the primary fridges that were removed were replaced, versus fewer than one in five of the secondary fridges. The savings of participants who replace their removed appliance with a new one are less than those who do not replace them, although the replacement appliances, on average, will be newer and more energy-efficient than the old ones that are removed. Replaced primary fridges were more likely than replaced secondary fridges to be new.
- Accepting primary fridges will help achieve program goals for number of appliances removed, particularly in more urban areas with smaller homes and fewer secondary appliances, and would allow opportunities to partner with appliance retailers in marketing for the program (see next recommendation).
- *Increase marketing to new appliance buyers*—As the Massachusetts Appliance Turn-in Program targets secondary refrigerators that will not be replaced, and its requirements exclude primary refrigerators, marketing activity has not targeted appliances that will be or have been recently replaced. However, participants who replaced their secondary refrigerators contribute substantial savings to the program. They contribute savings due to the difference in efficiency between the old and the new refrigerator, and the FR rate for those who replaced the appliance (38% overall, including primary fridges) is slightly lower than that for those who did not replace the refrigerator (40%). The program should provide outreach to new appliance buyers, particularly if the Sponsors in one or more areas decide to allow customers with primary fridges to participate:
  - Retailers that sell new appliances are a way to reach customers who likely are reaching a decision point about what to do with an appliance about to be replaced. Messaging to new appliance buyers should communicate that even though it is a good idea to reuse or repurpose many household items, the right thing to do with older, inefficient refrigerators and appliances is to take them off the grid completely and to recycle them.

- All of the Sponsors' material that promotes purchases of ENERGY STAR refrigerators and freezers should also present information about the Massachusetts Appliance Turn-in Program, so customers have information about an easy option to remove and recycle an older, inefficient appliance.
- Younger participants (under 55 years) are more likely than older participants to have turned in a refrigerator after recently buying a new primary refrigerator (59% for under 55 versus 41% for over).
- *Make participants more informed about the program*—A few respondents thought the program was selling the removed appliances or giving them to the needy; others didn't know why the appliance had to be plugged in or running before the scheduled pick-up or why it had to be in working condition.
  - The program should emphasize that the primary goal of the program is to save energy and reduce demand on the electric grid by removing older, less efficient refrigerators and freezers. The program helps customers get rid of the appliances before they might do so on their own. Reductions in energy bills and the participation incentive are additional bonuses for customers.
  - It should also be emphasized that appliances will be recycled in a way that is less harmful to the environment than other disposal options. They will not be sold, donated to charity, or disposed of in a landfill.
  - The collection team should leave information with the customer thanking them for their participation and letting them know their decision to participate was a good one. Emphasize the cost savings, energy savings, and environmental benefits of removing and recycling the appliance. When the rebate check is sent, the messaging should be repeated.
- *Continue promoting the program through existing channels*—Advertising efforts through local newspapers and media has been the most effective means for reaching customers; more participants heard about the program through paid media than any other source. The Sponsors' communications network to customers through bill inserts, notations on bills, newsletters, and emails should continue to be used to promote the program on a continuous basis, or when a quick boost in participation is desired. Promotions through schools and community groups and options for rebate donations to these groups help to promote the program and provide a community service.
  - School promotions may be particularly appropriate for younger customers with children in school. Younger participants (under 55 years) were more likely to turn in a refrigerator they were going to replace or had recently replaced, and to have signed up for the program online, than their older counterparts.

- Also, although few respondents first learned about the program on the Sponsor website, the younger group was more likely than those 55 years and older to find out about the program on the internet (11% versus 3%) and to enroll online (40% versus 14%), showing that they did seek out the program information and enrollment opportunity on the internet and that more online advertising might be fruitful for this younger subset of participants.
- *Let viral marketing work for the program.*—Word-of-mouth has been an effective means for participants to learn about the program. A previous recommendation was to make participants more informed about the program; invite those participants to tell their friends and neighbors about the program.
- *Reinforce the idea of saving energy and buying product with the ENERGY STAR label*—About one-third of the participants who removed a refrigerator through the program and 18% of those who removed a freezer replaced the appliance after it was picked up. Tell participants how much energy and money they saved by getting rid of their inefficient model and will continue to save if they do not replace the appliance. If they must replace the appliance, encourage them to consider the more efficient ENERGY STAR labeled units.
- *Promote the non-energy benefits too*—Messages about recycling and the environment resonate with Massachusetts customers. Reducing dependence on foreign oil through energy efficiency also resonates with many people, particularly with older participants. Younger participants (under 55 years) were more likely than older ones to cite recycling or helping the environment (15% versus 10%) as a reason for participating. Emphasize the good work accomplished through the program's recycling component and the environmental benefits of the program.
  - Emphasize that ninety-five percent of the components are recycled. Metal, glass, and plastic from the collected appliances is reclaimed and reused for other purposes. Foam insulation is incinerated at a waste to energy plant, producing energy rather using it. Materials have been diverted from landfills. Plus appliances collected through the program are disposed of in a way that prevents the release of ozone depleting substances and greenhouse gases to the atmosphere.
  - Adjust language in marketing materials on the website and elsewhere to reflect Massachusetts specific accomplishments. Over 13,000 units have been taken off the grid in Massachusetts; now the program has a track record of its own that tells a compelling story about savings and the environmental benefits of the program.

## 1 Methodology

The NMR Group completed a total of 500 telephone surveys with residential customers who participated in the Massachusetts Appliance Turn-in Program from June 2009 through July 2010. The participant survey was conducted from August 19 through August 25, 2010; each interview took 15 to 20 minutes to complete. A total of 288 surveys were completed with participants who had turned in a refrigerator, 243 surveys were completed participants who had turned in a freezer, and 31 surveys were completed with participants who had turned in both types of appliance. This achieved a margin of error of 4.8% for refrigerators and 5.1% for freezers and an overall margin of error of 3.6% at a 90% confidence level.

Participants in the program were allowed to turn in up to two appliances per year (i.e., two refrigerators, two freezers, or one refrigerator plus one freezer). All survey data are weighted to represent the number of appliances by type (refrigerator only, freezer only, or both) turned in through the program. Program data shows that approximately 73% of the appliances turned in are refrigerators and 27% are freezers (about 5% turned in both).<sup>2</sup>The weighting scheme helps to reflect the opinions of customers according to the type of appliance that they were focused on in the survey. Respondents who had turned in two appliances of the same type were directed in the survey to focus on just one of the appliances (randomly identified by the interviewer in the survey by color, pick-up location, and manufacturing model) and those who had turned in both appliance types were asked about both the refrigerator and the freezer. When presenting results, all results are weighted, while the sample sizes are unweighted.

The evaluation effort also included in-depth interviews conducted by telephone during September 2010 with program staff from National Grid, NSTAR, Western Massachusetts Electric Co., and Cape Light Compact. We also interviewed the Program Development Manager and the Northeast Regional Manager with JACO Environmental (JACO), the contractor who handles all aspects of program implementation. The discussions covered various aspects of program design, marketing, program delivery, data tracking, and quality control. This effort included a review of documentation from the program that details program tracking milestones. Throughout this report where there is overlap of topic areas, we present findings from the in-depth interviews with the relevant survey findings.

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<sup>2</sup> Based on program records June 2009 through July 2010.

## 2 Program Description

The Massachusetts Appliance Turn-in Program is administered as a regional initiative through the Northeast Energy Efficiency Partnerships by National Grid, NSTAR Electric, Western Massachusetts Electric Company, and the Cape Light Compact in Massachusetts; National Grid also offers a similar program through the regional initiative to its residential customers in Rhode Island. National Grid launched the refrigerator and freezer collection and recycling program for its residential customers in Massachusetts in the spring of 2009, and the other Massachusetts Sponsors launched the program in April 2010. JACO Environmental, Inc. was secured as a contractor to run the program in a three year contract. JACO handles all aspects of program implementation, including assistance with the marketing, scheduling, pick-up services, and recycling. From June 2009 through October 2010, the program recycled 13,381 units.<sup>3</sup> Due to slow initial response, the customer rebate incentive was raised from \$30 to \$50 in September 2009 and has remained at that level since.

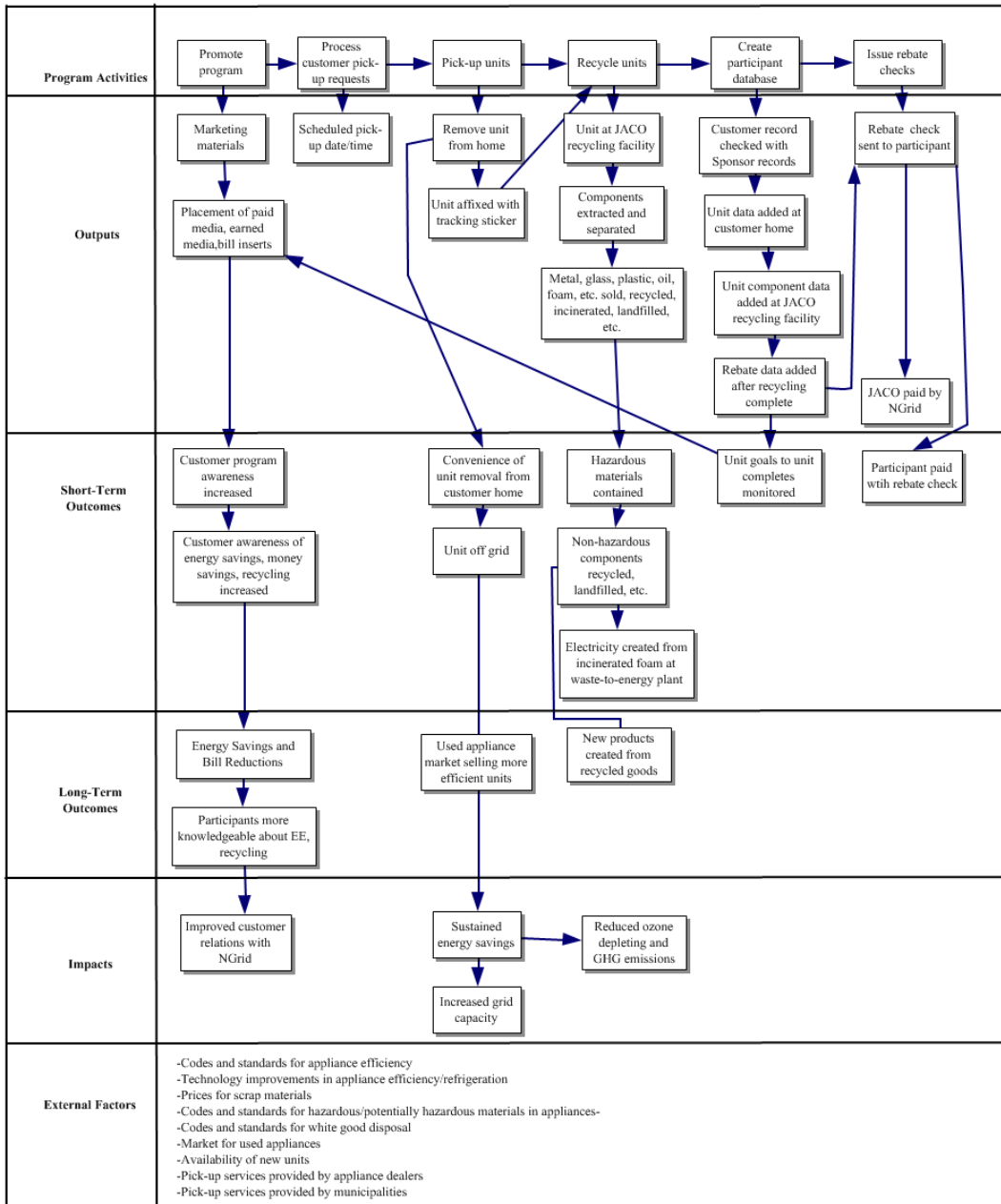
### 2.1 Program Logic Model

Figure 2-1 shows the general logic model for the Massachusetts Appliance Turn-in Program. The model outlines the program activities and traces the outputs that are produced from those activities. The sequences of short- and long-term outcomes are identified, ultimately leading to the program impacts. Program impacts include sustained energy savings, increased capacity of the electric grid, reduced ozone depleting and greenhouse gas emissions, and better customer relations. There are a number of external factors, mainly in the form of regulatory changes, technology developments, and market forces that could influence the outcomes of the program or the activities that are chosen for program implementation.

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<sup>3</sup> Compiled from program summaries received from JACO, June 2009 through November 2010.

Figure 2-1: General Program Logic Model



## 2.2 Program Oversight

JACO's Northeast Regional Manager is responsible for managing programs across five states, including Massachusetts and Rhode Island. The Northeast Regional Manager estimated that he spends about 20% of his time on each state, but the time that is spent on a program at any given time is situation dependent. The responsibilities of the Northeast Regional Manager include working with the client, fulfilling contractual obligations, maintaining communications, managing program promotion and marketing, and providing customer service. The manager in this position is new to JACO in 2010 and has assumed responsibilities that were formerly held by the Program Development Manager, who still maintains oversight of operations on the east coast; during the transition the two managers have worked closely together.

National Grid began delivering the program to customers in January 2009 and the other Massachusetts Sponsors started in April 2010; as such National Grid guided JACO with most of the issues related to program start-up in Massachusetts. The Program Administrator (PA) at National Grid is responsible for the implementation of multiple programs in both Rhode Island and Massachusetts. This program provides large energy savings for National Grid and is more marketing intensive than other programs. In addition, given the fact that program implementation requires being in customer homes, the program requires strict attention to maintaining a high level of customer satisfaction. The management demands for this program vary depending on the needs of the program at any particular time. Routine management typically includes monitoring program milestones through tracking updates from JACO, while more intensive focus is required during a marketing push or trouble-shooting a customer issue with JACO.

The PA at NSTAR reported that the program has demanded much oversight during the late summer and fall of 2010 due to the fact that the program was not meeting its unit goals in NSTAR service territory. Much of this time has been spent on marketing activities. The PA's at Cape Light Compact and Western Massachusetts Electric spend a small amount of time administering the program to customers; administrative tasks are typically focused on providing customers with information about the program through events, the website, phone number, and word of mouth.

## 2.3 Program Goals

Sponsors reported that the primary goal of the program is to meet the unit targets to achieve energy savings in a cost effective manner; recycling is a secondary goal. Closely associated with meeting program goals, internally the PA's are also focused on marketing activities that will allow those unit goals to be achieved and educate the customer about the energy and cost of using an extra appliance in the home. Given that the program must enter customer homes for pick-ups, a high level of customer satisfaction also is important in the program delivery. The Massachusetts Appliance Turn-in Program has recycled a total of 13,381 units since 2009 (Table 2-1).

**Table 2-1: Massachusetts Annual Goals and Collected Units**  
 (Actual June 2009 through November 2010)

		<b>2009</b>	<b>2010*</b>	<b>2011</b>	<b>2012</b>
<b>National Grid</b>	<b>Projected Units</b>	5,000	5,000	7,000	6,000
	<b>Actual Units</b>	5,196	5,009	N/A	N/A
<b>NSTAR</b>	<b>Projected Units</b>	N/A	5,000	7,000	6,000
	<b>Actual Units</b>	N/A	2,701	N/A	N/A
<b>WMeco</b>	<b>Projected Units</b>	N/A	520	560	890
	<b>Actual Units</b>	N/A	256	N/A	N/A
<b>Cape Light Compact</b>	<b>Projected Units</b>	N/A	200	200	200
	<b>Actual Units</b>	N/A	219	N/A	N/A
<b>Total</b>	<b>Actual Units</b>	<b>5,196</b>	<b>8,185</b>	N/A	N/A

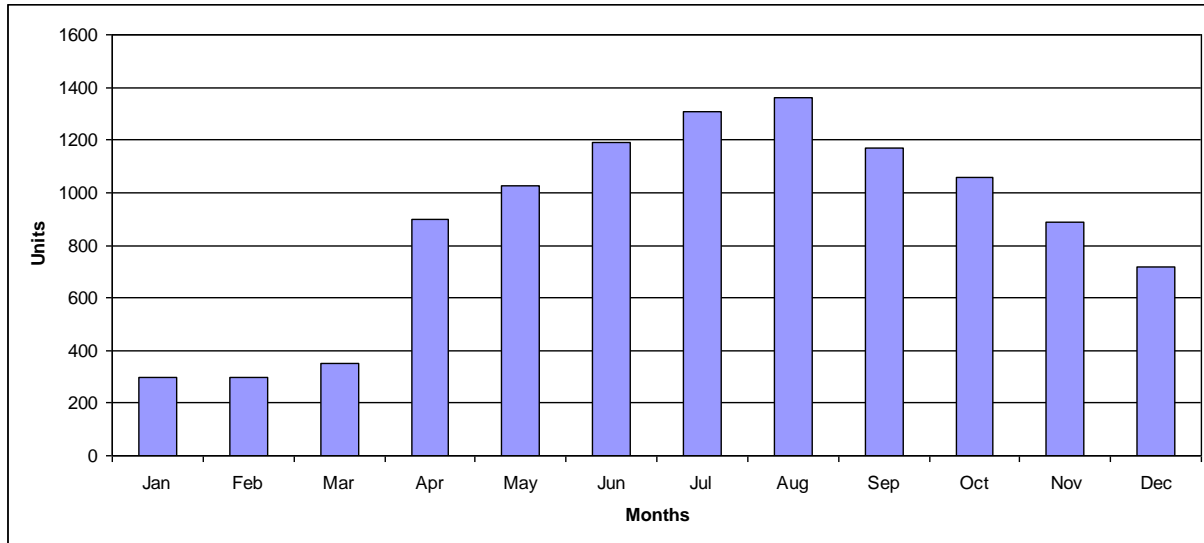
\*Actuals for 2010 reflect January through November.

**2.3.1 Project Flow**

Figure 2-2 shows JACO’s projection of the flow of unit pick-ups over the course of the year, allowing for seasonal factors that impact pick-up rates. The program predicts that the peak demand for the program occurs in the summer, with demand dropping in fall and winter months, coinciding with the holiday times and events (Thanksgiving, Christmas, New Year’s, Super Bowl) when consumers are more reluctant to give up a second unit. Demand tends to increase again in the spring.

Projected demand is also influenced by the course of the program over time. As a program begins, JACO typically sees strong demand from consumers who were ready for an opportunity to remove an extra appliance and the early program adopters; demand typically wanes as the program matures.

Figure 2-2: Projected Monthly Volume Goals for 2010



JACO monitors the targeted number of unit pick-ups with actual pick-ups and adjusts program management to stimulate or suppress demand as necessary. JACO explained that if a program were approaching a maximum target, the sponsor could add more funding, scale back advertising, or start a wait list for interested customers; slower demand requires more marketing or other tactics, which was the case when National Grid launched the program in Massachusetts and remains an issue for NSTAR and Western Massachusetts Electric. JACO said that after program participation picked up in National Grid territory, they remain aware of not oversubscribing so they can keep up with demand and keep the flow of pick-ups moving so that they can stay on goal.

JACO uses a metric that it terms the “Annual Harvest Rate” (AHR) to describe the number of unit pick-ups per households in a particular area. *“We consider that we are harvesting refrigerators, if you will. We run programs in 27 states and 250 utility service territories, so we can map lots of programs. A full scale program is a unit from 1% of the customer base per year; some programs harvest 2% per year. The Massachusetts harvest rate is below 1% per year,”* but JACO noted that it is optimistic that the program will be on track to meet its overall goals. In addition, the Massachusetts Appliance Turn-in Program only accepts appliances being used as second units, whereas many other programs around the country—the parallel National Grid program run in Rhode Island included—collect any refrigerator or freezer that customers want to surrender.

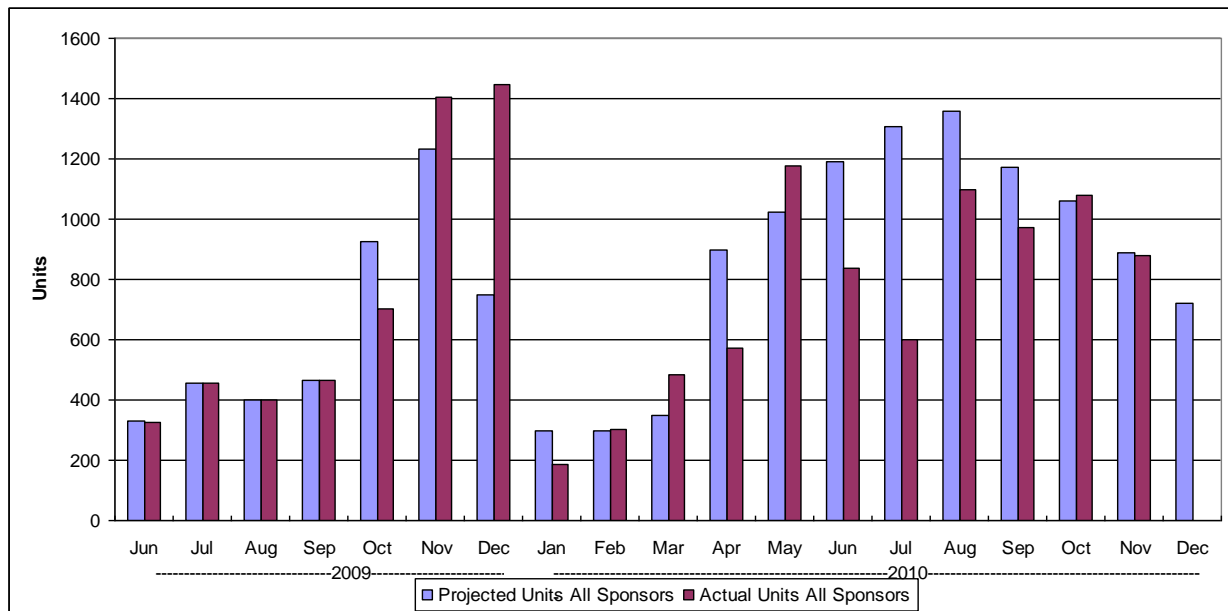
The Massachusetts Turn-in Program started slowly with National Grid, but participation picked up and National Grid should meet its projected goals for 2010. Cape Light Compact reported that it should be able to meet its modest 200 unit goal for 2010. However, both NSTAR and Western Massachusetts Electric reported that customer response has been slow and they do not anticipate meeting their unit goals for 2010. The program did not start unit April 2010, so they lost one

quarter of 2010, without adjusting the annual goal. It is possible that other factors such as the newness of the program, unrealistic goals, and misallocated or insufficient marketing efforts also may have contributed to a slow customer response for the year. Perhaps even more importantly, both NSTAR and Western Massachusetts Electric service areas have a large number of apartments and multifamily homes; these customers typically do not have areas where they can keep second refrigerators, such as basements or garages, so the pool of potential participants is smaller than in areas populated by single family homes.

As noted, the start-up period for National Grid was slow, but participation levels improved after they adjusted rebate levels, took a more active role in customizing marketing activities for their service area, and customers became more aware of the benefits of removing a second appliance. The program increased the incentive rebate level from \$30 to \$50 in September 2009 to increase participation. Figure 2-3 shows the number of recycled units jumped in the last quarter of 2009 after the increase, but the program did not sustain that level of demand in the winter months that followed. By April 2010, the other Sponsors in Massachusetts launched the program in their service areas and after an initial jump in May, participation did not meet projections for the summer. National Grid and Cape Light Compact have met their goals for 2010, but as of November 2010, NSTAR and Western Massachusetts Electric have met just over half of their goal for the year.

**Figure 2-3: Projected and Actual Monthly Unit Volumes**

(Projected June 2009 through December 2010; Actual June 2009 through November 2010)



JACO said that they think that the program in Massachusetts can run for a long time. Right now the average age of refrigerators in turned in to the program is 27 years old and 30 years old for

freezers.<sup>4</sup> The average age of refrigerators will be getting younger over time, but JACO reported that it is still trying to get through a population of refrigerators from 1983 to 1995. The Sponsors agreed that the program will likely deliver savings for the foreseeable future.

## 2.4 Interaction with Other Programs

The Appliance Turn-in program does not operate directly in conjunction with any other programs that the Sponsors offer, but some of the Sponsors have marketed the program to participants in their other programs. The existing programs offered by the Sponsors that deal with appliances are focused on primary units—either rebates for purchases of a new refrigerator or freezer, or rebates for purchases of a new unit combined with removal of the displaced unit; only the Appliance Turn-in Program explicitly addresses the removal of secondary appliances. Sponsors note that there are opportunities for cross-marketing within programs and that customers may utilize some programs in tandem. For example, customers can receive a \$50 rebate for the purchase of a new ENERGY STAR qualified refrigerator or freezer from a participating retailer. If the displaced unit is transferred for use as a secondary unit, customers can use the Appliance Turn-in Program to have it removed from their home. Participants in the home energy audit program can receive a \$150 incentive for the purchase of a new ENERGY STAR qualified refrigerator if they surrender an eligible inefficient refrigerator (primary unit), as determined through an audit metering assessment. Eligible low-income customers can receive a new ENERGY STAR refrigerator through the low-income audit program. NSTAR noted that it is exploring how to include information about the Appliance Turn-in Program in the events geared to low-income customers. Western Massachusetts Electric said that if auditors from the home energy audit program note a second unit in the home, they will inform customers about the Appliance Turn-in Program and provide Program marketing materials.

The state of Massachusetts also received funding from the American Recovery and Reinvestment Act (ARRA) of 2009 and approximately \$6.2 million was available in April 2010 to consumers purchasing selected ENERGY STAR appliances, including \$200 rebates for refrigerators and \$50 rebates for freezers through the Mass Save Great Appliance Exchange.<sup>5</sup> The Mass Save Great Appliance Exchange required retailers to provide removal and recycling services for older units at the time of purchase.

Sponsors noted that participation in any of these programs does not preclude participation in the Massachusetts Appliance Turn-in Program, which is focused on the removal of second refrigerators and freezers from customer homes. However, there does not seem to be any obvious overlap of the program with other programs offered by Sponsors that would cause double counting of energy savings.

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<sup>4</sup> Based on JACO program records January 2009 through November 2010.

<sup>5</sup> Mass Save Great Appliance Exchange website (<http://www.masssave.com/residential/lighting-and-appliances/get-the-facts/the-great-appliance-exchange.aspx>) Accessed November 2010.

Given that the Massachusetts Appliance Turn-in Program is focused on removing second refrigerators off the grid entirely and is not an appliance replacement program, Sponsors noted that it would be difficult to engage retailers or manufacturers in promotion partnerships. The parallel Appliance Turn-in Program in Rhode Island accepts any working units, not just secondary units, and as such has expanded its marketing reach to include retailers who can promote the program along with sales of more efficient refrigerators and freezers. Massachusetts Sponsors noted that they have concern about the savings profile if the program opens up to primary units because they want to take units off the grid entirely, not replace units.

## **2.5 Program Delivery**

JACO administers all aspects of program delivery from scheduling to pick-up to recycling. In the in-depth interviews JACO and Sponsors described the processes for program scheduling, procedures for pick-up, rescheduling appointments, issuing rebate payments, and quality control.

### **2.5.1 Program Scheduling**

Customers initiate their participation in the program by calling a toll-free telephone number or signing up on-line (through links to JACO from the Sponsors web sites, [www.coolturnin.com](http://www.coolturnin.com), and [myenergystar.com](http://myenergystar.com)). All scheduling is administered by JACO. Customers provide contact information and details about the appliance such as appliance type, size (measuring guidelines are provided), and unit location in home. Customers also must confirm that the unit is in working order. Typically the customer has a choice of a selection of dates to choose an appointment time.

### **2.5.2 Procedures for Pick-up**

The day before an appointment, the JACO call center phones the customer to confirm the appointment and provide a window timeframe (usually a few hours) for when the pick-up will take place. The day of the pick-up, if the crew is behind schedule, they call the customer to let them know that they will be late. At the house, the crew introduces themselves and provides identification; they also have uniformed shirts and the truck is tagged with signage. In the home, the crew locates the refrigerator and confirms that the unit is properly sized (10 to 30 cubic feet), is plugged in and is in working order, and that there is a clear pathway for removal. Crews are not allowed to move furniture or remove doors or railings for the pick-up. Sponsors and JACO noted that obstructions have prevented removals in some homes, so they have tried to better communicate the need for a clear pathway to customers. In a convenient, safe area the pick-up team cuts the power cord, disables the temperature controls, damages the seal, and marks up the side of the appliance as a means to let the customer know that JACO will not resell the appliance. A bar code sticker is affixed to the unit so it can be tracked through the recycling process. The crew has an electronic, handheld device that they use to record both information about the appliance on-site and the customer signature as a final sign-off.

### 2.5.3 Procedures for Rescheduling Appointments

JACO said that the initial drop-out rate for the program is about 33%, including cancellations and no-shows (the crew shows up for a scheduled pick-up, but the customer is not home). JACO has procedures in place that reduce the drop-out rate to around 15%, but for rough planning purposes, the program estimates that 20% of scheduled units will not be picked up.

If there is a cancellation and the JACO crew notes it in the electronic device carried on the truck, there is an attempt to reschedule the pick-up. If the customer is a no-show, JACO puts a flyer on the door to say that they were there; they take a time-stamped picture of the house to prove they were there; and the call center calls the customer back to reschedule. The crew often includes their cell phone number on the door hanger, so that if they have just missed the customer, they can return and complete the pick-up that day. On occasion, the JACO crew has not been able to find an address, even with the assistance from a GPS system and maps; this has occurred mostly in rural areas and the crew tries to call the customer to locate the address. According to JACO, *“We do everything possible to keep customers in the system, but you can imagine when you make an appointment a week out and people are working or doing whatever, that there are a significant number of no-shows. And then there are a lot of customers who reschedule because something came up. We have systems to try to capture them when we are there and then capture them after the fact.”*

JACO said that it will be taking a more aggressive approach to go after cancelled orders. Cancelled orders represent a “warm” list of prospective participants. These individuals have already expressed an interest in removing the appliance, but may need more assistance to carry through with the turn-in. JACO said it plans to contact the cancellations through post cards, phone calls, and emails.

### 2.5.4 Quality Control

In the in-depth interviews, the Sponsors and JACO described the criteria that they used for accepting appliances through the Massachusetts Appliance Turn-in Program. The Massachusetts program accepts only secondary refrigerators and freezers. Units must be working condition and must meet the size restrictions. This criterion is more restrictive than the parallel program run by National Grid in Rhode Island that accepts both primary and secondary units, and allows the Rhode Island Appliance Turn-in Program to set more aggressive turn-in goals per customer.

To verify that the program is serving only its customers, the Sponsors provide JACO with a customer list that is updated regularly. When a customer requests a pick-up, JACO verifies the account status by customer by name and address. If JACO cannot immediately confirm that the request is from a Sponsor customer, they contact the appropriate Sponsor to verify the account. JACO and the Sponsors said that they can verify most cases, but if not the scheduled pick-up will be cancelled.

JACO makes an appointment reminder call to each customer a day or two prior to pick-up. During the call, JACO confirms some of the information collected during the enrollment process

such as the size and working condition of the unit and that someone over 18 years of age will be at the home during the pick-up. JACO also reminds the customer that all units must be clean, plugged in, and running. They also remind the customer that a clear pathway must exist for the appliance removal because the crew is not permitted to move furniture or other obstructions.

The Massachusetts Appliance Turn-in program accepts only second refrigerators, but JACO and the Sponsors acknowledge that beyond taking the customer at their word, there is no way for them to confirm that the unit being picked up was being used as a second appliance. JACO noted that *“we never take the last refrigerator out of a house.”* It is possible that the unit being picked up was recently replaced by a newer model. Even if this is the case, removing the unit from the home through the program permanently prevents it from being used ever again.

The Sponsors explained that the size restriction limiting refrigerators to units between 10 and 30 cubic feet is designed to prohibit both the turn-in of smaller units that typically do not consume large amounts of electricity (and so have smaller energy savings) and larger commercial-sized units that may require different collection and recycling processes. Units must also be in working order at the time of pick-up to provide some assurance that the units are being taken off the grid. If the unit is not plugged in when the JACO pick-up team arrives, JACO said that the crew will plug the unit in to verify that it is in working condition. According to program protocol, if the unit does not meet the size requirements or is not in working order, JACO will not pick it up. In other markets JACO said that they will pick-up non-working units for recycling, but the Massachusetts requirements that are focused on energy savings do not allow that.

The Massachusetts Turn-in Program currently allows for two appliances to be picked up per customer each year. JACO’s tracking system allows them to know if someone has made a request previously and they will block the pick-up of any additional units in a given year. This restriction should prohibit customers from using the program as a “dumping” ground for units they may have on-site but that are likely not in use. One Sponsor noted that they would consider requests for pick-up of more than two appliances for a particular account on a case-by-case basis because they want to encourage removing all inefficient appliances from the grid. NMR’s review of the participant database revealed no evidence that customers were using the program to turn in more units than the program allows. In the review, NMR noted that a few customers (less than 1%) had arranged for more than two appliance pick-ups; these appear either to be cases where the customer is a landlord or caretaker for more than one property or cases where the customer had arranged for pick-ups in separate years (2009 and 2010) and so fell within the program guidelines.

## 2.6 Recycling

National Grid reviewed the recycling procedures with JACO when the contract was issued and advises them on procedural questions as they arise; since joining the program in 2010, the other Sponsors also have contributed as necessary. Since the opening of the Franklin, MA recycling facility, most of the Sponsors have toured and monitored the recycling operation.

As units are collected from customer homes, JACO affixes bar code labels for identification and tracks the status of units through the recycling process. All units are delivered to JACO's Franklin, MA facility where the components of refrigerators and freezers are systematically taken apart along an assembly (or de-manufacturing) line. Materials that are hazardous or potentially hazardous, such as oil, chlorofluorocarbon (CFC) or hydrochlorofluorocarbon (HCFC) gases,<sup>6</sup> and polychlorinated biphenyl (PCB) or mercury containing switches and relays, are removed. Liquids are transferred to drums, and the oil is separated from Freon. According to JACO, the oil is recycled and can be reused as mineral oil and the Freon is destroyed. Metals, glass, and plastic are stripped from the unit and recycled. As Table 2-2 shows, according to an analysis of program records from June 2009 through November 2010, each unit collected in Massachusetts contains about 100 pounds of metal, which is sold to scrap metal dealers. The tempered glass (about two pounds per unit) can be reused as aggregate in concrete mixtures, filler in potting soils, and various other purposes. Plastic (about 20 pounds per unit) can be recycled into various consumer goods. Foam insulation is removed with a reciprocating saw and bagged. Because the foam may contain CFCs (units built before 2005 may have used CFCs as a blowing agent in the foam), the bags are taken to a waste to energy plant and incinerated at high temperature, yielding about 7 kWh per unit.

The component weights found in the Massachusetts program records are less than those that are presented in some of the program marketing materials, such as the [www.coolturnin.com](http://www.coolturnin.com) website, which states: "The average 10 year old refrigerator contains about 160 pounds of steel, 75 pounds of plastic and 10 pounds of glass." Now the program has a track record of its own and does not need to rely on average statistics about how much material is diverted from landfills.

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<sup>6</sup> Refrigerators and freezers that were manufactured before 1995 typically contained CFCs or Freon as a refrigerant. CFC's and HCFC's were also used as a blowing agent in foams that were used as insulation in refrigerators and freezers manufactured before 2005. CFC's and HCFC's are ozone depleting substances that destroy the protective ozone layer above the earth and greenhouse gases that contribute to global climate change if released to the environment.

**Table 2-2: Components of a Typical Refrigerator/Freezer Recycled through Program in Massachusetts**

Component	MA Average Amount per Unit (from JACO)	Hazardous?	MA Disposal Disposition
Metal	100 pounds	No	Sold as scrap metal, recycled into other goods
Plastic	20 pounds	No	Recycled into other goods
Glass	2 pounds	No	Recycled into other goods
Oil	10 ounces	May be contaminated	Program filters out CFCs, oil can be recycled
Foam insulation	8 pounds	May contain CFC-11, HCFC-14b	Program isolates and incinerates at waste-to-energy facility
Freon	9 ounces	May contain CFC-12, HCFC-141b, HFC-134a	Program collects and destroys

Sources: JACO program records, June 2009 through November 2010 and EPA RAD program ([http://www.epa.gov/ozone/partnerships/rad/downloads/RAD\\_2009\\_Annual\\_Report.pdf](http://www.epa.gov/ozone/partnerships/rad/downloads/RAD_2009_Annual_Report.pdf))

While the U.S. EPA guidelines<sup>7</sup> require that refrigerants (CFCs) be recovered from refrigerators and freezers before the final disposal of the unit, and that waste such as mercury, used oil, and PCBs be properly managed and stored, the guidelines do not regulate other aspects of appliance recycling, such as the handling of foam containing CFCs. JACO is a partner in the voluntary U.S. EPA Responsible Appliance Disposal (RAD) program<sup>8</sup>, however, and follows the RAD program guidelines for proper recovery and disposal of refrigerant, foam, mercury, PCB's, and used oil from the appliances in its Franklin, MA facility, as described above. Through JACO, the Massachusetts Appliance Turn-in Program therefore recycles appliances to a level that exceeds the mandatory EPA standards.

Describing the consequences of failing to follow these RAD guidelines, JACO explained, *“Typically in the U.S., the fluids would be removed and the shell of the refrigerator would be*

<sup>7</sup> Section 608 Refrigerant Recycling Rule of the Clean Air Act of 1990, U.S. Environmental Protection Agency (EPA), Office of Air and Radiation, Stratospheric Protection Division, August, 1995. <http://www.epa.gov/ozone/title6/608/> (Accessed October 2010)

<sup>8</sup> The RAD Program is a voluntary program sponsored by the U.S. Environmental Protection Agency that is designed to provide guidance for utilities and other interested parties to encourage the retirement of old, inefficient refrigerated appliances and to recycle/dispose of the units using best environmental practices. Program partners document proper recovery and treatment of refrigerant, foam, mercury, PCBs and used oil. Source U.S. EPA Responsible Appliance Disposal Program, [http://www.epa.gov/ozone/partnerships/rad/downloads/RAD\\_Guidance\\_Web\\_Doc.pdf](http://www.epa.gov/ozone/partnerships/rad/downloads/RAD_Guidance_Web_Doc.pdf) (Accessed September 2010)

*shredded at a scrap yard and the gases and the foam would be released partially when they are shredded and the rest would leech out at the landfill.”*

In total, JACO estimated that 95% of the materials in the units that it collects for the Massachusetts Appliance Turn-in Program are recycled. Only the rubber gasket around the door and fiber insulation in the door are sent to a landfill. Being RAD compliant, incinerating some of the materials at a waste-to-energy facility to generate electricity and recycling the vast majority of the materials in the appliances differentiates the Massachusetts Appliance Turn-in Program from other options that might be available to consumers.

The Massachusetts Appliance Turn-in Program does not claim credit for any of the non-energy impacts of recycling the appliances. However, as Table 2-3 shows, the program has recovered almost two million pounds of metal, plastic, and glass; much of which is diverted from eventual disposal in landfills. Recycling the materials into new goods reduces the need to produce products from virgin materials. Additionally, capturing the CFCs from the appliances has prevented the release of ozone depleting substances and greenhouse gases to the atmosphere. As the program matures, the number of units collected with CFC-based refrigerant and foam will decrease until the full stock of older units that contain CFCs reaches the end of life. At the same time, more appliances with HFC refrigerant and HCFC-based foams will be collected. The program has used some messaging about the benefits of recycling in its marketing materials and on the program website portals. The environmental benefits associated with recycling older appliances appeal to some participants (see Table 6-3 and Table 6-4), but are not the primary motivation for participation.

**Table 2-3: Total Materials Recycled by Program**  
(June 2009 through November 2010, refrigerators and freezers)

<b>Component</b>	<b>Total Pounds Recycled (unless otherwise noted)</b>
Metal	1,341,192
Plastic	267,620
Glass	20,072
Oil	994 (gallons)
Foam insulation	111,232
Freon	7,134
Electricity produced at waste-to-energy incinerator	779 (MWh)

## 2.7 Program Data

JACO described the way that program data is collected and maintained throughout the pick-up and recycling process. The customer and appliance data collected by the JACO pick-up crew is initially populated by customer lists provided by the Sponsors. When a customer calls in or signs up online, JACO creates an order. Throughout the pick-up, recycling process, and issuing of the rebate check, more data is added to each customer order record. By the end of the process, about 60 fields have been created, which include details such as the date the customer signed up, their contact information, pick-up date, appliance model, make, size, and details about the components that were recycled, and the day and amount of the check that was issued. JACO typically provides the Sponsors with two types of data: order data, which contain all the customer information, and unit data, which contain details about the appliances collected. JACO sends a data extract along with the monthly invoicing to the clients.

### 2.7.1 Dashboard

JACO uses an online interface called Dashboard to communicate program activity to clients. Data is updated every eight to twelve hours. Dashboard shows customer pick-up requests, scheduled pick-ups, and completed pick-ups. It includes graphs, charts, and various statistics about the appliances that have been processed through the program.

National Grid said that it uses Dashboard on a regular basis for quick updates on the program status. They said it is particularly useful when they are monitoring goals in relation to marketing efforts because program demand is sensitive to marketing.

While Dashboard provides National Grid with current information about the program status, National Grid asked JACO to provide an additional spreadsheet with more detail about trending and projections for the marketing efforts, scheduled pick-ups, and completes. JACO was able to accommodate this need.

## 2.8 Program Resources

Resources devoted to the program appeared to be adequate from the Sponsors' and JACO's perspective. One Sponsor noted that during busy periods JACO has had to work very hard to keep up, but the addition of JACO's Northeast Regional Manager has improved that situation, and the fact that he is local is also seen as a plus. JACO said that they currently have an appropriate level of resources to meet the needs of the Massachusetts Appliance Turn-in Program. Twenty-three full-time equivalent employees are shared among the JACO programs across New England: Eight full-time equivalent positions at the warehouse, two at the Call Center, eight field staff (four two-person crews), and between four and twelve management personnel depending on current need.

## 2.9 Program Marketing

As a turn-key provider for the Massachusetts Appliance Program, JACO, through a marketing subcontractor, is responsible for the primary marketing activities used to promote the program. JACO designs the marketing plan, develops creative print materials, places ads, and organizes events. Some of the Sponsors supplement the effort with their in-house resources and have developed their own marketing materials and promotion activities customized for their service areas because they feel that JACO's efforts have not been sufficient to attract the customers needed to meet their unit goals. As one Sponsor noted *"They charge on a per unit basis for marketing, but it is a catch-22; don't have enough marketing money to do more because do not have enough units yet, but you can't get enough units until you do more marketing."*

JACO reported that it uses three major strategies for marketing: bill inserts, earned media, and paid media. The Sponsors and JACO reported noticeable increases in pick-up requests when the program is promoted in monthly customer bills. Sponsors also reported similar success with email blasts to customers.

NSTAR in an effort to boost its lagging unit goals, supplemented JACO's marketing efforts with bill inserts and text messaging on customer bills, an email campaign over a two week period in July/August to 140,000 customers; this is where they saw the biggest demand in requests. They also placed messaging on the telephone answering service for inbound calls, which advertises the program when callers are put on hold. In September and October they sent a direct mail piece to 800 customers who had participated in the energy audit program and who have a second refrigerator (this information was collected as part of the audit).

Marketing through earned media includes social networking and public relations (PR) events. JACO typically organizes a PR event at the launch of a new program and then once per year. For the launch of the program in 2009, JACO picked up a unit from a National Grid customer and took it to JACO's new recycling facility in Franklin, MA. The media was invited to cover the event. One Sponsor noted that for the PR events to succeed the event needs to tell a compelling story and they haven't found that story yet with refrigerators. *"With the torchiere turn-in, it was lighting the curtains on fire, frying an egg...with the air conditioner turn-ins it was the breaking down of units and lines of cars lined up with units in their trunks."*

The Sponsors also initiated their own PR events and earned media initiatives with the assistance of JACO. NSTAR hosted a public relations event in a customer home to commemorate the 1,500<sup>th</sup> pick-up in their service area in August 2010, but the event did not garner as much media attention as they had hoped. NSTAR also contacted some towns and cities in their service area and have sent them marketing pieces to place in their town halls/offices. National Grid organized school events that draw attention to the program through an interactive display with a turned-in refrigerator that students can paint and by inviting customers to make a charitable donation of their \$50 rebate directly to the school if they recycle a refrigerator or freezer through the program. About ten schools in National Grid territory in Massachusetts have held school events and promote the idea of school fund-raising through donations of the rebate. National Grid

customers in Massachusetts have the option to designate their \$50 incentive directly to a selection of schools from the on-line sign-up interface. Other Sponsors are considering how to engage schools in their service areas too, using the incentive donation as a marketing tool. One Sponsor said that the given their modest goals for the program, that marketing strategy might not work for them.

National Grid also partnered with the U.S. Environmental Protection Agency (EPA) in October 2009 by hosting the EPA ENERGY STAR campaign tour. The tour promoted energy efficiency in the home and featured appliance turn-ins as a way for customers to save money and energy. National Grid participated in a fall 2010 Rotary Street Painting Festival in Providence, RI by having two retired refrigerators available for people to paint and educating customers about the program.

Paid media efforts by JACO include local newspaper ads and advertorials (paid placement of ads that look like news articles), direct mail (ValPak mailer with a double sided four-color insert that had a 46% statewide penetration), and digital ads (Table 2-4). JACO described the digital effort as paid media that is “*geo-targeted, meaning zip code based search engine optimization. When you go in and search on Yahoo and Google and for certain key words you will find the program... [on] banner ads for certain areas.*”

Cape Light Compact noted that the newspaper ads work very well in their area and they would like to see more promotion at the statewide level, with all the Sponsors contributing to the effort to get the word out. NSTAR adjusted the placement of newspaper advertising after considering the demographics of its service area. A large chunk of NSTAR’s service area is in Boston and the surrounding cities, where there are a lot of multifamily homes and people do not have a basement or garage—household areas where second refrigerators are typically kept. Originally they had placed ads in the Boston Globe (mid-April through June), but they noticed that the effort did not seem to impact requests for pick-ups, so in July they shifted the advertising to community newspapers and a subset of the Boston Globe distribution that services communities outside of the city, where single family homes are more prevalent.

**Table 2-4: Promotion Activity in Massachusetts (2010)**

Activity	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov
Bill inserts/messaging	Various months throughout year									
Email blasts	Various months throughout year									
Telephone messaging	Various months throughout year									
Digital Media—Pay per Click Campaign	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Direct Mail--ValPak		✓								
Newspaper ads	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Special events							✓		✓	
Community outreach	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Sponsors noted that customers seem to respond to the fact that it is easy for them to participate in the program and that they do not have to purchase anything and get money back. Marketing messages from the program emphasize saving energy and money, with a focus on the high cost of running a second refrigerator (up to \$150 a year), the ease of having the program pick it up for free, and that the customer will receive a \$50 rebate. Secondary messages note the environmental benefits of keeping the materials out of landfills and recycling the materials into new products.

National Grid initiated the program in 2009, but customer response was slower than anticipated. One way they stimulated demand was to increase the rebate amount from \$30 to \$50 in September 2009 and the other Sponsors in Massachusetts adopted the higher incentive level when they joined the program in April 2010. Bill inserts and messaging on customer communications also helped and is a marketing tactic adopted by other Sponsors. Sponsors noted that the marketing effort requires regular monitoring; statewide campaigns by JACO have been effective, but local pushes within each service area have been necessary to boost customer participation. NSTAR reported that it has been more aggressive about supplementing JACO's effort, due to a slow customer response. As noted, they initiated additional email contact, bill inserts, and targeted mailings to customers.

### 3 Program Information Sources and Enrollment

Survey respondents were asked how they first became aware of the program (Table 3-1). As they might have heard of the program from more than once source, respondents had the opportunity to give multiple responses. Sponsor advertisements were a key source of information, with more than four out of ten respondents (41%) learning of the program through the on-going newspaper advertisements or the TV ads that were used at the initial launch of the program, about one out of four (25%) through a bill insert or mailing, and 4% through the Sponsors’ websites. About one out of ten respondents (11%) said they found out about the program through word of mouth. Fewer than one out of twenty respondents reported learning about it at a store (i.e., from a store flyer or at an appliance retailer).

**Table 3-1: How Participants Found Out About the Program**

<b>How did you first find out about this program? (Multiple response)</b>	
<i>Sample size</i>	500
Utility/Sponsor advertising in newspaper, TV	41%
Bill insert/ mailing from utility/Sponsor	26%
Co-worker, family, or friend	11%
Internet-unspecified	6%
Utility/Sponsor website	4%
Appliance retailer/dealer	2%
Store flyer	2%
Other	2%
Don’t know/refused	7%

As shown in Table 3-2, when asked what they think happens to the appliances after they are removed from their homes, about one-quarter of respondents (23%) said that they did not know. About six out of ten (61%) knew that the appliances are recycled and about two out of ten (19%) knew that hazardous materials within the appliances are disposed of. Fewer than one out of ten respondents (6%) thought the appliances were re-used (re-sold or donated to the needy), and another 6% thought they were simply trashed.

**Table 3-2: What Participants Believe Happens After Pick-up**

<b>What do you think happens to appliances after they are picked up by the program? (Multiple response)</b>	
<i>Sample size</i>	500
Appliance is recycled	61%
Hazardous materials (CFCs, refrigerants, Freon) within appliance are disposed of	19%
Appliance is sold for reuse	6%
Appliance is trashed	6%
Appliance is destroyed	1%
Appliance is dismantled	3%
Appliance is sold for scrap metal or parts	1%
Appliance is donated to the needy	1%
Don't know/refused	23%

Nearly three-quarters (72%) of the respondents said they enrolled in the program over the phone, and about two of ten (21%) said they enrolled online (Table 3-3).

**Table 3-3: How Participants Enrolled in Program**

<b>Method of enrollment</b>	
<i>Sample size</i>	500
Over the phone	72%
Online	21
Both	1
Don't know/refused	6

On the whole, respondents found it to be easy to enroll in the program, whether they reported enrolling by phone or online (Table 3-4). On a scale of 0 (“extremely difficult”) to 10 (“extremely easy”), about two-thirds (65%) of respondents who enrolled over the phone, and over three-quarters (78%) who enrolled online, gave a rating of 9 or 10. Eighty-six percent of respondents who enrolled both over the phone and online, or who said “don’t know” or “refused” to method of enrollment, gave one of these two highest ratings (Table 3-5). Only 5% of respondents, 4% of whom had enrolled online and 1% of whom enrolled over the phone, thought enrolling was difficult, giving a rating of 3 or less. When asked to describe specific difficulties with enrolling, one respondent who signed up online said that the site was confusing, and another said that signing up online “didn’t work at all.” One respondent who signed up on the phone complained that it was difficult to hear the person on the other line; the other phone respondent who named a specific difficulty was “*put on hold for a long time.*”

**Table 3-4: Ease of Program Enrollment by Phone and Online**

(Base: respondents who reported enrolling over the phone, or online)

Level of Ease	Enrolled Over Phone	Enrolled Online
<i>Sample size</i>	368	106
Average	9.5	9.0
0 “Extremely difficult”	0%	3%
1	0	0
2	1	1
3	<1	0
4	0	0
5	1	1
6	<1	3
7	1	8
8	4	13
9	8	18
10 “Extremely easy”	57	60

**Table 3-5: Ease of Program Enrollment**

(Base: respondents who said they enrolled both on the phone and online, or who answered “don’t know” or “refused” to method of enrollment)

<b>Level of Ease</b>	<b>Enrolled Both Over Phone and Online*</b>
<i>Sample size</i>	31
Average	9.5
0 “Extremely difficult”	0%
1	0
2	0
3	0
4	0
5	4
6	0
7	4
8	6
9	13
10 “Extremely easy”	73

\*Also includes respondents who said “don’t know” or “refused” to the previous question.

In general, respondents also found it easy to schedule a time for their appliances to be picked up by the program (Table 3-6). The average difficulty rating was 9.4 (on a scale from 0 to 10), with 84% giving a rating of nine or ten. Very few respondents (1% total) gave a rating of less than five. These respondents said that the program had no convenient times available to schedule a pickup.

**Table 3-6: Ease of Scheduling Time for Pick-up**

<b>Level of Ease</b>	
<i>Sample size</i>	500
Average	9.4
0 “Extremely difficult”	0%
1	<1
2	<1
3	0
4	<1
5	3
6	1
7	2
8	9
9	10
10 “Extremely easy”	74

Respondents were asked if they had any recommendations for improving the program in the future (Table 3-7). Approximately one out of four respondents (24%) recommended some type of improvement. Most of the recommendations involved expanding the program in some way, such as creating more awareness of the program, offering a larger incentive, and expanding the program to include other appliances. Other respondents reported problems with the haulers that they thought should be resolved, such as lack of courtesy as well as insufficient training and knowledge.

**Table 3-7: Recommendations for Improving Program in Future**

<b>Recommendation (Multiple response)</b>	
<i>Sample size</i>	500
No recommendations	76%
More advertising/publicity	7%
Larger incentive	5%
Expand program to other appliances	3%
Faster process/Turnaround	2%
Offer program more often and for longer	1%
Improve haulers (more professional/knowledgeable)	1%
More clarity and information*	1%
Show up on time/schedule a more precise time for pick-up	1%
Don't require customer to be home	1%
Improve online services	1%
Other**	4%

\*Information requested includes why the appliance has to be plugged in, what happens to the pieces of the appliance, and how many fridges/freezers are allowed to be removed.

\*\* "Other" responses included not requiring appliance to be plugged in before pick-up and offer weekend and evening pick-up times.

#### 4 Properties of Removed Appliances

Respondents who had a refrigerator removed were asked whether it had been their primary refrigerator, secondary refrigerator, or was not currently being used (Table 4-1). Seventy percent of the respondents were using the refrigerator as a spare. About two out of ten (19%) reported that it was their primary refrigerator and about one out of ten (11%) said it was not being used. Participants who retired freezers were not asked this question because it was presumed that stand-alone freezers are generally used for extra storage in addition to their primary refrigerator/freezer.

**Table 4-1: Use of Removed Refrigerators**

<b>Use of Removed Refrigerator</b>	
<i>Sample size</i>	288
Used as primary/main	19%
Used as secondary/spare	70
Not being used	11

When asked how old the appliance was before it was removed, over three quarters (79%) of respondents who had retired refrigerators said that it was over ten years old, with about one in three (32%) reporting that it was over twenty years old (Table 4-2). As shown in Table 4-3, The freezers that were picked up tended to be older than the refrigerators: 82% of respondents who had retired freezers said that it was over ten years old, and approximately half (49%) said it was twenty years or older. Only 1%-2% in each group said the appliance was five years old or newer.

**Table 4-2: Age of Removed Refrigerators**

<b>Age of Removed Refrigerator</b>	
<i>Sample size</i>	288
0 to 5 years old	1%
6 to 10 years old	17
11 to 15 years old	27
16 to 20 years old	20
More than 20 years old	32
Don't know/refused	5

**Table 4-3: Age of Removed Freezers**

<b>Age of Removed Freezer</b>	
<i>Sample size</i>	243
0 to 5 years old	2%
6 to 10 years old	12
11 to 15 years old	15
16 to 20 years old	18
More than 20 years old	49
Don't know/refused	5

Respondents who had a secondary refrigerator removed were asked how long they had used it as a spare (Table 4-4). Nearly six out of ten (57%) said they had used it as a secondary refrigerator for ten or fewer years, and about one-third (37%) for over ten years. One in ten had used it that way for over twenty years.

**Table 4-4: Length of Use for Secondary Refrigerators**

(Base: respondents who removed secondary refrigerator)

<b>How long had you been using the refrigerator as a secondary refrigerator when you decided to get rid of it?</b>	
<i>Sample size</i>	197
0-2 years	10%
3-5 years	19
6-10 years	28
11-15 years	15
16-20 years	12
>20 years	10
Don't know/refused	6

Respondents were asked how often in the year before the appliance was picked up that it was plugged in (Table 4-5 and Table 4-6). The majority of respondents in both groups (67% for refrigerators; 61% for freezers) said it was plugged in all or most of the time. However, 10% of respondents with refrigerators and 17% of respondents with freezers said it was never plugged in.

**Table 4-5: Amount of Time Refrigerator Plugged in**

(Base: Respondents who had a secondary or unused refrigerator picked up)

<b>In the year prior to getting rid of the refrigerator, how often did you have the refrigerator plugged in?</b>	
<i>Sample size</i>	231
All the time	56%
Most of the time	11
Occasionally	23
Never	10

**Table 4-6: Amount of Time Freezer Plugged In**

<b>In the year prior to getting rid of the freezer, how often did you have the freezer plugged in?</b>	
<i>Sample size</i>	243
All the time	48%
Most of the time	13
Occasionally	21
Never	17
Don't know/refused	<1

Respondents whose freezers had been plugged in at least occasionally were asked how long they had been using it before it was removed (Table 4-7). About six out of ten (62%) of these respondents had been using it for over ten years, and about one out of four (24%) had been using it for over twenty years. Nearly ten percent (8%) said they did not know how long they had been using it or chose not to answer the question.

**Table 4-7: Length of Use for Freezer**

(Base: respondents who answered that the freezer was plugged in at least occasionally)

<b>Approximately how long had you been using the freezer when you decided to get rid of it?</b>	
<i>Sample size</i>	200
0-2 years	8%
3-5 years	6
6-10 years	16
11-15 years	11
16-20 years	27
>20 years	24
Don't know/refused	8

Respondents who removed a refrigerator or freezer that was not being used were asked how long it had been unused when they decided to remove it (Table 4-8 and Table 4-9). Forty percent of the refrigerator group and approximately one-quarter (27%) of the freezer group had stopped using it in the previous two years. Twenty percent of the refrigerator group and about twice that percentage in the freezer group (41%) had stopped using the appliance in the past three to five years. About ten percent of each group (11%) reported that the appliance had been unused for over ten years.

**Table 4-8: Length Out of Use for Unused Refrigerators**

(Base: respondents who removed a refrigerator that was not being used)

<b>How long had the refrigerator been unused when you decided to get rid of it?</b>	
<i>Sample size</i>	30
0-2 years	40%
3-5 years	20
6-10 years	27
11-15 years	7
16-20 years	4
Don't know/refused	3

**Table 4-9: Length Out of Use for Unused Freezers**

(Base: respondents who removed a freezer that was never plugged in)

<b>How long had the freezer been unused when you decided to get rid of it?</b>	
<i>Sample size</i>	43
0-2 years	27%
3-5 years	41
6-10 years	17
11-15 years	7
16-20 years	2
>20 years	2
Don't know/refused	4

One of the criteria for pick-up is that the unit is in working condition; if the unit is not plugged in when JACO arrives for the pick-up, the crew is directed to plug it in to confirm that the unit runs. When asked about the condition of the refrigerator or freezer that was removed, the vast majority of respondents reported that it was in working condition (Table 4-10 and Table 4-11). Few respondents (6% with refrigerators and 7% with freezers) said that it was not working or not working well. Thus, although about 12% of the appliances were not being used (i.e., were never plugged in), they were in working condition and therefore could have been used, sold, or given away if they had not been removed from the program.

**Table 4-10: Condition of Refrigerators**

<b>Was the refrigerator in working condition when you decided to have it picked up by the program?</b>	
<i>Sample size</i>	288
Yes	95%
Yes, but not that well	5
No	1
Don't know/refused	0

**Table 4-11: Condition of Freezers**

<b>Was the freezer in working condition when you decided to have it picked up by the program?</b>	
<i>Sample size</i>	246
Yes	94%
Yes, but not that well	5
No	2
Don't know/refused	0

Respondents with a secondary refrigerator or a freezer were asked how important it was to have a spare fridge or freezer for storing food and beverages on a scale from zero (“not at all necessary”) to ten (“absolutely necessary”) (Table 4-12 and Table 4-13). The responses in both groups showed a wide range of views on the appliance’s perceived importance: About one in ten respondents (12%) who removed a spare refrigerator said it was absolutely necessary, and about two in ten (19%) said it was not at all necessary. Another 18% rated its importance as a “five”.

About one-quarter (23%) of respondents who removed a freezer thought it was “absolutely necessary” and slightly more (27%) thought it was “not at all necessary.” One out of ten gave a rating of “five.” Overall, both refrigerators and freezers were judged to be of moderate importance (mean rating of 4.6 and 4.8 respectively).

**Table 4-12: Importance of Secondary Refrigerator**

(Base: Respondents with secondary or unused fridges)

<b>How important for your household food and beverage storage needs is it to have a secondary refrigerator?</b>	
<i>Sample Size</i>	202
<i>Average</i>	<b>4.6</b>
10 “Absolutely necessary”	12%
9	3
8	9
7	5
6	7
5	18
4	5
3	5
2	9
1	4
0 “Not at all necessary”	19
Don’t know/refused	2

**Table 4-13: Importance of Freezer**

(Base: Respondents who removed a freezer)

How important for your household food storage needs is it to have a stand-alone freezer?	
<i>Sample Size</i>	243
Average	4.8
10 “Absolutely necessary”	23%
9	2
8	11
7	3
6	2
5	10
4	4
3	4
2	6
1	6
0 “Not at all necessary”	27
Don’t know/refused	2

The most common place for respondents to have kept the appliance that was removed was the basement, with 63% of refrigerators and 87% of freezers in this location (Table 4-14 and Table 4-15). The second most common place for refrigerators was the kitchen (19%), matching the percent of respondents who said the refrigerator that was removed had been their primary fridge (see Table 4-1). The second most common location for spare freezers was the garage (7%).

**Table 4-14: Location of Removed Refrigerator**

Where in the house was the refrigerator located?	
<i>Sample size</i>	288
Basement	63%
Kitchen	19
Garage or shed	13
Other room in house	2
Porch	1
Laundry room	<1
Some other place	1

**Table 4-15: Location of Removed Freezer**

Where in the house was the freezer located?	
<i>Sample size</i>	243
Basement	87%
Garage	7
Kitchen	2
Laundry room	2
Some other place	<1

Over half of the respondents who had removed a refrigerator (56%) and about half who had removed a freezer (49%) had kept it in a space that was heated in the winter (Table 4-16 and Table 4-17). Respondents who had removed refrigerators were somewhat more likely than those who removed a freezer to have kept it in a space that was cooled in the summer (30% and 19% respectively). This result is not surprising, as more refrigerators than freezers were in kitchens and other rooms in the house, and fewer were in basements.

**Table 4-16: Space Heating/Cooling in Location of Removed Refrigerator**

	Is the space where the refrigerator was located heated by your heating system in the winter?	Is the space where the refrigerator was located cooled with air conditioning in the summer?
<i>Sample size</i>	288	288
Yes	56%	30%
No	43	69
Don't know/refused	1	1

**Table 4-17: Space Heating/Cooling in Location of Removed Freezer**

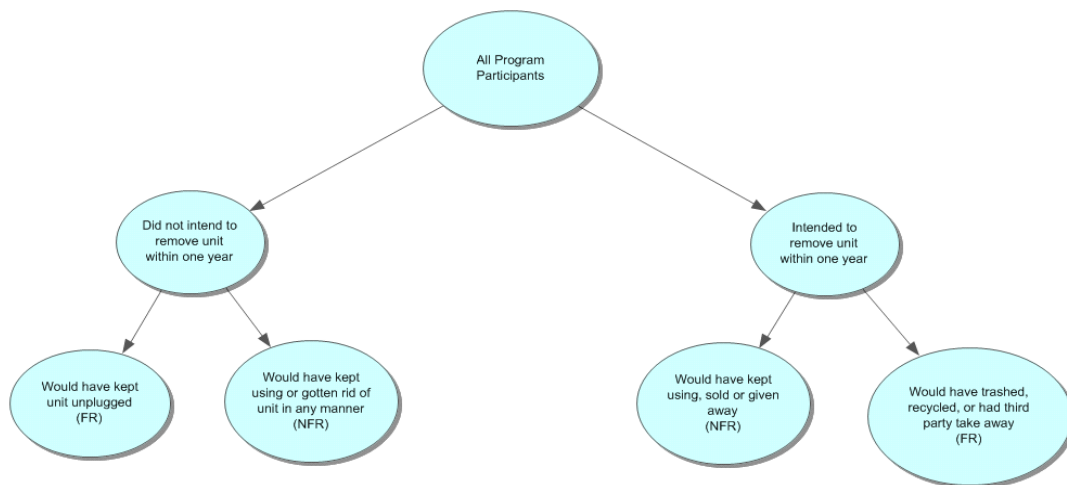
	Is the space where the freezer was located heated by your heating system in the winter?	Is the space where the freezer was located cooled with air conditioning in the summer?
<i>Sample size</i>	246	246
Yes	49%	19%
No	50	80
Don't know/refused	2	1

## 5 Free Ridership

In this section of the survey, respondents were asked questions about why they participated in the program, how important the rebate was in their decision to participate, what they would have done with the appliance in the absence of the program, and whether they had replaced the removed appliances with new ones.

Based on responses to these questions, we estimated the extent of free ridership for the program. As Figure 5-1 shows, free riders (FRs) are considered to be participants who either a) would have kept the unit unplugged in the absence of the program, or b) before learning about the program had intended to remove the appliance within one year in a manner that would not lead to its being used by someone else. Non-free riders (NFRs) are participants who either a) would have kept using the appliance, b) would have removed the appliance more than one year after the program, or c) would have removed the appliance in a manner that would lead to its use by someone else. Replacement appliances impact the energy savings of the program, but are not considered in estimating free ridership rates.

**Figure 5-1: Determination of Free Ridership Status**



### 5.1 Estimation of Free Ridership Rates

We estimated free ridership rates two different ways (FR1 and FR2) for each appliance. For the analysis of both FR1 and FR2, FR status was determined by questions about the intended disposition of appliances in absence of the program.

FR1 used participants’ initial responses to questions about the likely disposition of the appliances in the absence of the program and were estimated in the following way: Respondents who said they would have kept the appliance unplugged were considered to be freeriders (FRs). Those who would have disposed of the appliance without the program were considered to be non-free riders (NFRs) if they said they would have sold it or given it away (as the appliance would still be in use), and FRs if they said they would have recycled it, taken it to a trash dump, or had the appliance picked up by the city or by a third party (i.e., a hauler or a retail store). Respondents

who said they would have disposed of the appliance more than a year from the time it was picked up by the program were considered to be NFRs. In addition, respondents who said they had not considered removing the appliance before they heard about the program, but later said they would have either gotten rid of it without the program or that they would have kept it and continued using it, were determined to be NFRs. Respondents whose responses did not allow them to be categorized as either FR or NFR (e.g., respondents who said “don’t know” to certain questions or gave responses that didn’t clearly determine their FR or NFR status) were considered to be possible FRs (PFRs).

A potential drawback of this method is that these initial responses might reflect respondents’ wishes and attitudes, rather than what they actually would have done. The ability to physically move a large appliance and the financial costs associated with hiring a hauler or paying disposal fees are among the barriers that might prevent people from removing the units despite the wish to do so.

FR2 rates were estimated along similar principles. However, the analysis of FR2 incorporated two additional questions about the impact of physical and financial barriers on the disposal decision, allowing the analysis to more accurately capture what respondents would actually have done rather than their attitudes about what they would like to have done. One of the questions asked how much, if anything, respondents would be willing to pay a hauler or someone else to take away the appliance if the program were not available. The second question asked whether the need to physically remove the appliance would prevent them from getting rid of it. Respondents who initially said they would have gotten rid of the appliance in absence of the program were again asked, now that they had considered these additional factors involved in disposing of it, what they would have done with the appliance. These responses were used in estimating FR2 in place of the responses to the same question asked initially. In addition, respondents who said they would have hired a hauler to remove the appliance but that they would not pay to do so, or that they would have trashed or recycled the appliance but that the need to physically move the appliance would prevent them from getting rid of it, were determined to be NFRs for the FR2 analysis. Although we recommend using FR2 rates for the impact analysis, in this report we present FR1 rates as well.

## 5.2 Free Ridership Rates

As shown in Table 5-1, the initial free ridership rate (FR1) was 42% for refrigerators and 49% for freezers. Among the refrigerator group, 51% were non-free riders (NFR) and 7% were possible free riders (PFRs); among the freezer group 47% were NFRs and 4% were PFRs.

When respondents who initially said they would have gotten rid of the appliance were asked again what they would have done, after considering additional factors, their responses changed slightly. When these new responses were incorporated into the analysis, FR2 rates for the refrigerators and freezers dropped to 40% and 45%, respectively.

**Table 5-1: Free Ridership Rates**

	Refrigerators ( <i>N</i> =288)	Freezers ( <i>N</i> =243)
<b>FR1 (free riders)</b>	<b>42%</b>	<b>49%</b>
NFR1 (non-free riders)	51	47
PFR1 (possible free riders)	7	4
<b>FR2 (free riders)</b>	<b>40%</b>	<b>45%</b>
NFR2 (non-free riders)	56	51
PFR2 (possible free riders)	4	4

Table 5-2 through Table 5-5 provide a more detailed illustration of the FR1 analysis for refrigerators and freezers, showing the questions that were used to determine FR status, the responses that determined respondents to be FR or NFR, and the percent of respondents with each response.

**Table 5-2: Refrigerators—FR1 Responses**

(Base: Respondents who had refrigerators removed through program)

Survey question	Free Riders		Non-Free Riders	
	Response	N=288	Response	N=288
<i>What would have done with refrigerator without program?</i>	Kept unplugged	17%	Kept and continued using	22%
	Trashed or recycled; picked up by city or 3 <sup>rd</sup> party	25%	Sold or given it away	8%
<i>Had considered removing refrigerator before heard about program?</i>	Yes	*	No	12%
<i>When would have removed refrigerator without program?</i>	Less than one year later	*	More than one year later	9%
<b>Total**</b>	<b>Refrigerator FR1</b>	<b>42%</b>	<b>Refrigerator NFR1</b>	<b>51%</b>

\*The FR status of respondents who gave this response was determined by the question asking what they would have done with the fridge without the program.

\*\*Possible free riders (7%) are respondents who said “don’t know” or “refuse” when asked what they would have done with the fridge, or whose intended action did not clearly determine their FR status.

**Table 5-3: Freezers—FR1 Responses**

(Base: Respondents who had freezers removed through program)

Survey question	Free Riders		Non-Free Riders	
	Response	N=243	Response	N=243
<i>What would have done with freezer without program?</i>	Kept unplugged	25%	Kept and continued using	18%
	Trashed or recycled; picked up by city or 3 <sup>rd</sup> party	24%	Sold or given it away	13%
<i>Had considered removing freezer before program?</i>	Yes	*	No	9%
<i>When would have removed freezer without program?</i>	Less than one year later	*	More than one year later	7%
<b>Total**</b>	<b>Freezer FR1</b>	<b>49%</b>	<b>Freezer NFR1</b>	<b>47%</b>

\*The FR status of respondents who gave this response was determined by the question asking what they would have done with the fridge without the program.

\*\*Possible free riders (4%) are respondents who said “don’t know” or “refuse” when asked what they would have done with the fridge, or whose intended action did not clearly determine their FR status.

**Table 5-4: Refrigerators—FR2 Responses**

(Base: Respondents who had refrigerators removed through program)

Survey question	Free Riders		Non-Free Riders	
	Response	N=288	Response	N=288
<i>What would have done with refrigerator without program?</i>	Kept unplugged	17%	Kept and continued using	22%
	Trashed or recycled; picked up by city or 3 <sup>rd</sup> party	*	Sold or given it away	*
<i>Had considered removing refrigerator before program?</i>	Yes	*	No	14%
<i>When would have removed refrigerator without program?</i>	Less than one year later	*	More than one year later	9%
<i>What would have done with refrigerator without program (considering additional factors)</i>	Trash or recycled; picked up by city or 3 <sup>rd</sup> party	23%	Kept, sold, or given away	9%
<i>Would physically moving refrigerator prevent from removing?</i>	No	**	Yes (for respondents who would have trashed or recycled refrigerator)	2%
<i>How much would be willing to pay hauler?</i>	\$0-100	**	Nothing (for respondents who would have hired hauler)	0%
<b>Total***</b>	<b>Refrigerator FR2</b>	<b>40%</b>	<b>Refrigerator NFR2</b>	<b>56%</b>

\*The FR status of respondents who gave this response was determined by subsequent questions.

\*\* The FR status of respondents who gave this response to this question was determined by previous questions.

\*\*\*Possible free riders (4%) are respondents who said “don’t know” or “refuse” when asked what they would have done with the fridge, or whose intended action did not clearly determine their FR status.

**Table 5-5: Freezers—FR2 Responses**

(Base: Respondents who had freezers removed through program)

Survey question	Free Riders		Non-Free Riders	
	Response	N=243	Response	N=243
<i>What would have done with freezer without program?</i>	Kept unplugged	26%	Kept and continued using	18%
	Trashed or recycled; picked up by city or 3 <sup>rd</sup> party	*	Sold or given away	*
<i>Had considered removing freezer before program?</i>	Yes	*	No	9%
<i>When would have removed freezer without program?</i>	Less than one year later	*	More than one year later	7%
<i>What would have done with freezer without program (considering additional factors)</i>	Trash or recycled; picked up by city or 3 <sup>rd</sup> party	19%	Kept, sold, or given away	13%
<i>Would physically moving freezer prevent from removing?</i>	No	**	Yes (for respondents who would have trashed or recycled freezer)	3%
<i>How much would be willing to pay hauler?</i>	\$0-100	**	Nothing (for respondents who would have hired hauler)	1%
<b>Total</b>	<b>Freezer FR2</b>	<b>45%</b>	<b>Freezer NFR2</b>	<b>51%</b>

\*The FR status of respondents who gave this response to this question was determined by subsequent questions.

\*\* The FR status of respondents who gave this response to this question was determined by previous questions.

\*\*\*Possible free riders (4%) were respondents who said “don’t know” or “refuse” when asked what they would have done with the fridge, or whose intended action did not clearly determine their FR status.

## 6 Program Influence

Table 6-1 through Table 6-46 show the results of survey questions asking respondents why they participated in the program, how important the rebate was in their decision to participate, what they would have done with the appliance in the absence of the program, and whether they had replaced the removed appliances with new ones. Many of these questions were used to assess free ridership.

### 6.1 Likely Outcome of Appliances in Absence of Program

Respondents were asked if they had already considered getting rid of the refrigerator or freezer before they heard about the program. Slightly more than six out of ten in the refrigerator group (63%) and about seven out of ten in the freezer group (69%) agreed that they had considered removing the appliance. *For the FR analyses, respondents who said they had not considered disposing of the appliance before hearing about the program were considered to be NFRs, unless they indicated in a subsequent response that they would have kept the appliance and stored it unplugged.*

**Table 6-1: Whether Participants Had Considered Disposing of Refrigerator**

Had you already considered disposing of the refrigerator before you heard about the Appliance Turn-in Program?	
<i>Sample size</i>	288
Yes	63%
No	35
Don't know/refused	2

**Table 6-2: Whether Participants Had Considered Disposing of Freezer**

Had you already considered disposing of the freezer before you heard about the Appliance Turn-in Program?	
<i>Sample size</i>	243
Yes	69%
No	31
Don't know/refused	<1

Respondents were also asked why they decided to dispose of their refrigerator or freezer. As Table 6-3 and Table 6-4 show, the most frequently cited reason within the refrigerator group, and the second most frequently cited reason within the freezer group, was the incentive (refrigerators 40%; freezers 30%). The second most frequently cited reason within the refrigerator group for participating in the program, and the most frequently cited reason within the freezer group, was no longer needing it or no longer using the appliance, with one-quarter of the refrigerator group and over one-third (36%) of the freezer group citing this reason. Within both groups, about one-

quarter of the respondents (refrigerators 24%; freezers 27%) cited one or more energy- and environment-related reason (i.e., to save energy or reduce energy costs, in order to recycle, or to help the environment).

In the in-depth interview, JACO said that they do not specifically ask customers why they participate in the program. However, anecdotally they hear about the reasons that customers participate from other programs that they manage. Ease of participation (“*I want to get rid of a unit*”), energy savings, financial savings (including the \$50 incentive and the longer term savings on their electricity bill), and environmental savings (various components that are removed and recycled help the environment) are among the main reasons that JACO cited as motivation for participation. The Sponsors similarly agreed that customers are attracted to the program for the convenience it offers for easy appliance removal and the opportunity to both save money through the electricity bill savings and the \$50 rebate check.

**Table 6-3: Why Participants Decided to Dispose of Refrigerator**

<b>Why did you decide to get rid of the refrigerator through the Appliance Turn-in Program? (Multiple Response)</b>	
<i>Sample size</i>	288
Rebate/incentive	40%
Didn't need/use it any more	25%
Easy/convenient to turn it in	18%
Bought new refrigerator	12%
They would pick it up	10%
Save energy/electricity	8%
Old unit was not working well	8%
Better for the environment	5%
Reduce energy/electricity costs	6%
Wanted to recycle	5%
Cost too much to have it picked up	3%
Remodeling/expanding	2%
Did not want to pay disposal fee at dump/recycling center	2%
Just moved/moving soon	1%
Fridge was taking up too much space	1%
Seemed like a good program	1%
Rebate went to a local school	1%
Other	<1%

**Table 6-4: Why Participants Decided to Dispose of Freezer**

<b>Why did you decide to get rid of the freezer through the Appliance Turn-in Program? (Multiple Response)</b>	
<i>Sample size</i>	243
Didn't need/use it anymore	36%
Rebate/incentive	30%
Easy/convenient to turn it in	17%
They would pick it up	16%
Save energy/electricity	8%
Reduce energy/electricity costs	8%
Wanted to recycle	7%
Bought new freezer	5%
Old unit was not working well	5%
Cost too much to have it picked up	5%
Better for the environment	4%
Seemed like a good program	2%
Appliance took up too much space	2%
Other	2%
Remodeling/expanding	1%
Did not want to pay disposal fee at dump/recycling center	1%
Moving soon/just moved	1%
Don't know/Refused	1%

Respondents were asked what they would have done with the appliance if the program had not been available. Nearly six out of ten in each group (59% of those who removed refrigerators and 56% who removed freezers) said they would have gotten rid of it in some way (Table 6-5 and Table 6-6).

**Table 6-5: Action in Absence of the Program—Refrigerators**

<b>If the Appliance Turn-in Program had not been available to you, what would you most likely have done with your refrigerator?</b>	
<i>Sample size</i>	288
Gotten rid of it in any manner	59%
Kept it	37
Don't know/refused	4

**Table 6-6: Action in Absence of the Program—Freezers**

<b>If the Appliance Turn-in Program had not been available to you, what would you most likely have done with your freezer?</b>	
<i>Sample size</i>	243
Got rid of it in any manner	56%
Kept it	42
Don't know/refused	2

Respondents who said they would have kept the appliance in the absence of the program (refrigerators: 37%, freezers: 42%) were asked whether they would have continued to use it, stored it unplugged, or done something else with it. As Table 6-7 shows, over half (56%) of respondents who would have kept their refrigerator through the program said that they would have continued to use it and 42% said they would have stored it unplugged. Table 6-8 shows that among those who would have kept their freezer, slightly less than forty percent (38%) would have continued to use it and over half would have stored it unplugged (57%). One percent of each group would have used it to store non-food items. *In the FR analysis, respondents who would have continued to use the appliance were considered to be NFRs, whereas those who would have stored the appliance unplugged were considered to be FRs.*

**Table 6-7: Outcome for Refrigerators Kept in Absence of Program**

(Base: Respondents who indicated that they would have kept the refrigerator in the absence of the program)

<b>If the Appliance Turn-in Program had not been available to you, what would you have done with the refrigerator?</b>	
<i>Sample size</i>	127
Continued to use it	56%
Stored it unplugged	42
Don't know/refused	1

**Table 6-8: Outcome for Freezers Kept in Absence of Program**

(Base: Respondents who indicated that they would have kept the freezer in the absence of the program)

<b>If the Appliance Turn-in Program had not been available to you, what would you have done with the freezer?</b>	
<i>Sample size</i>	107
Continued to use it	38%
Stored it unplugged	57
Used it to store non-food items	1
Don't know/refused	3

Nearly three out of four (72%) of the respondents who would have gotten rid of their refrigerators or freezers said they would have disposed of the appliance within a year of when

they had it removed by the program (Table 6-9 and Table 6-10). *In the FR analysis, respondents who said they would have disposed of the appliance more than a year later (refrigerators: 15%, freezers: 19%) were determined to be NFRs.*

**Table 6-9: Refrigerators—Timing of Disposal in Absence of the Program**

(Base: respondents who answered that they would have gotten rid of the refrigerator in the absence of the program)

<b>If the Appliance Turn-in Program had not been available, how soon do you think you would you have gotten rid of your refrigerator?</b>	
<i>Sample size</i>	179
Within a year of when the program took it	72%
More than a year later	18
Don't know/refused	10

**Table 6-10: Freezers—Timing of Disposal in Absence of the Program**

(Base: respondents who answered that they would have gotten rid of the freezer in the absence of the program)

<b>If the Appliance Turn-in Program had not been available, how soon do you think you would you have gotten rid of your freezer?</b>	
<i>Sample size</i>	143
Within a year of when the program took it	72%
More than a year later	20
Don't know/refused	8

Respondents who said they would have gotten rid of the appliance were asked how they would have disposed of it. One-quarter of the refrigerator group (Table 6-11), and 16% of the freezer group (Table 6-12), said they would have taken it to a dump or put it out as trash. Seventeen percent of the refrigerator group and about one out of four (24%) in the freezer group said they would have given it away. Ten percent of the refrigerator group and somewhat fewer in the freezer group (6%) said they would have had a retail store pick it up. Close to two out of ten in both groups (16% for refrigerators; 18% for freezers) said they would have hired a hauler to take it away. More than one out of ten respondents who would have disposed of their refrigerator or freezer said they would have had it recycled (13% and 14% respectively). Fewer than one out of ten (7%) in each group said they would have sold the appliance. *In the FRI analysis, respondents who said they would have disposed of it in a way that would lead to its continued use by someone else by selling it or giving it away, or who said they might have kept it after all, were determined to be NFRs. Respondents who said they would have taken it to a dump, taken it out as trash, or had a third party pick it up were determined to be FRs.*

**Table 6-11: Refrigerator—Method of Disposal in Absence of the Program**

(Base: respondents who answered that they would have gotten rid of the refrigerator in the absence of the program)

<b>If the Appliance Turn-in Program had not been available to you, what would you have done to get rid of the refrigerator?</b>	
<i>Sample size</i>	179
Taken it to a garbage dump or put out as trash	25%
Given it away for free	17
Hired hauler to take it away	16
Recycled it	13
Had a retail store pick it up	10
Sold it	7
Called the city to pick it up	5
Other	3
Don't know/refused	5

**Table 6-12: Freezer—Method of Disposal in Absence of the Program**

(Base: respondents who answered that they would have gotten rid of the freezer in the absence of the program)

<b>If the Appliance Turn-in Program had not been available to you, what would you have done to get rid of the freezer?</b>	
<i>Sample size</i>	143
Given it away for free	24%
Hired hauler to take it away	18
Taken it to a garbage dump or put out as trash	16
Recycled it	14
Called the city to take it away	9
Sold it	7
Had a retail store come and pick it up	6
Kept it	<1
Don't know/refused	6

Out of the respondents who said they would have had a retail store or a hauler pick up the appliance, nearly one out of four (22%) in the refrigerator group and nearly one out of three (30%) in the freezer group said they thought it probably would have been recycled. One out of ten in the refrigerator group and fewer in the freezer group (6%) thought it would have been sent to a garbage dump. Forty percent of the refrigerator group and slightly more in the freezer group (43%) did not know what would happen to the appliance (Table 6-13 and Table 6-14).

**Table 6-13: Ultimate Outcome for Refrigerators Picked Up by Hauler or Retailer**

(Base: respondents who answered that they would have “hired hauler to take it away,” “had a retail store come and pick it up,” or “other” when asked how they would have gotten rid of the refrigerator in the absence of the program)

<b>As far as you know, would the refrigerator have been recycled, sold for scrap, or sent to a garbage dump?</b>	
<i>Sample size</i>	68
Recycled	22%
Sold as scrap	22
Sent to garbage dump	10
Sold as a used appliance	3
Other	3
Don't know/refused	40

**Table 6-14: Ultimate Outcome for Freezers Picked Up by Hauler or Retailer**

(Base: respondents who answered that they would have “hired hauler to take it away,” “had a retail store come and pick it up,” or “other” when asked how they would have gotten rid of the freezer in the absence of the program)

<b>As far as you know, would the freezer have been recycled, sold for scrap, or sent to a garbage dump?</b>	
<i>Sample size</i>	56
Recycled	30%
Sold as scrap	16
Sent to garbage dump	6
Other	6
Don't know/refused	43

Out of the very few respondents who said they would have sold the appliance in the absence of the program, the vast majority of the refrigerator group (83%) and two-thirds of the freezer group said they would have sold it to a friend or family member. The remaining respondents in the refrigerator group (16%) said they would have sold it to whoever wanted to buy it. In the freezer group, nearly two out of ten (17%) said they would sell it to a used appliance dealer and about one out of ten (9%) said they would have sold it on an internet marketplace, such as Craigslist (Table 6-15 and Table 6-16).

**Table 6-15: Ultimate Outcome for Refrigerators Sold**

(Base: respondents who answered that they would have sold the refrigerator in the absence of the program)

<b>Would you have sold the refrigerator to a private party, to a used appliance dealer, or someone else?</b>	
<i>Sample size</i>	12
Private party, such as a friend or family member	83%
Anyone who wanted it	16

**Table 6-16: Ultimate Outcome for Freezers Sold**

(Base: respondents who answered that they would have sold the freezer in the absence of the program)

<b>Would you have sold the freezer to a private party, to a used appliance dealer, or someone else?</b>	
<i>Sample size</i>	10
Private party, such as a friend or family member	66%
Used appliance dealer	17
Sold on an Internet site, such as Craig’s List	9
Don’t know/refused	9

As Table 6-17 and Table 6-18 show, somewhat less than half (45%) of respondents who would have given their refrigerator away, and a somewhat larger percent (57%) of respondents who would have given their freezer away, said they would have given it to a friend or family member. Approximately two out of ten (19%) in the refrigerator group and approximately one-quarter (26%) of the freezer group would have given it to charity.

**Table 6-17: Ultimate Outcome for Refrigerators Given Away**

(Base: respondents who answered that they would have given the refrigerator away for free in the absence of the program)

<b>Who would you have given the refrigerator to?</b>	
<i>Sample size</i>	31
Given it to a private party, such as a friend or family member	45%
Given it to a charity, such as Goodwill Industries or a church	19
Put it on the curb with a 'Free' sign on it	10
Anyone who wanted it/anyone who would take it	10
Given it away on an Internet site, such as Craig's List	3
Don't know/refused	13

**Table 6-18: Ultimate Outcome for Freezers Given Away**

(Base: respondents who answered that they would have given the freezer away for free in the absence of the program)

<b>Who would you have given the freezer to?</b>	
<i>Sample size</i>	34
Given it to a private party (e.g., friend, co-worker or family member)	57%
Given it to a charity, such as Goodwill Industries or a church	26
Put it on the curb with a 'Free' sign on it	5
Given it away on an Internet site, such as Craig's List	7
Other	2
Don't know/refused	2

About half of the respondents who said they would have recycled their appliance said they would have done so by taking it to a recycling center (refrigerators: 52%; freezers: 45%). About one out of four said they would have put it out for pick-up (refrigerators: 22%; freezers: 27%). Nearly one out of four in the refrigerator group (22%) and only about one out of ten (12%) in the freezer group said they would have hired someone to take it to recycle it (Table 6-19 and Table 6-20).

**Table 6-19: Method of Recycling**

(Base: respondents who answered that they would have recycled the refrigerator in the absence of the program)

<b>How would you have recycled the refrigerator?</b>	
<i>Sample size</i>	23
Take it to a recycling center	52%
Hired someone to take it	22
Put it out for pick-up	22
Don't know/refused	4

**Table 6-20: Method of Recycling**

(Base: respondents who answered that they would have recycled the freezer in the absence of the program)

<b>How would you have recycled the freezer?</b>	
<i>Sample size</i>	21
Take it to a recycling center	45%
Put it out for pick-up	27
Hired someone to take it	12
Had a retailer take it	4
Posted it on a web recycle group (i.e., give away)	4
Don't know/refused	5

Respondents who had previously said they would have gotten rid of their appliance in the absence of the program were asked if the need to physically move the appliance out of their house and transport it would have prevented them from getting rid of it. Approximately one-quarter (24%) of respondents who said they would have gotten rid of their refrigerator and approximately one-third (34%) of those who said they would have gotten rid of their freezer agreed that moving and transporting the appliance would have prevented them from actually getting rid of it (Table 6-21 and Table 6-22). *In the FR2 analysis, these respondents (giving a “yes” response) were determined to be NFRs if they also said in a subsequent question that they would have put it out as trash or taken it to a garbage dump.*

**Table 6-21: Impact of Moving/Transporting Refrigerator in Absence of Program**

(Base: respondents who answered “gotten rid of it in any manner” when asked what they would have done with the refrigerator in absence of program)

<b>If the Appliance Turn-in Program had not been available, would the need to physically move the refrigerator out of your house and/or transport it have prevented you from getting rid of it?</b>	
<i>Sample size</i>	179
Yes	24%
No	68
Maybe	7
Don't know/refused	1

**Table 6-22: Impact of Moving/Transporting Freezer in Absence of Program**

(Base: respondents who answered “gotten rid of it in any manner” when asked what they would have done with the freezer in absence of program)

<b>If the Appliance Turn-in Program had not been available, would the need to physically move the freezer out of your house and/or transport it have prevented you from getting rid of it?</b>	
<i>Sample size</i>	143
Yes	34%
No	58
Maybe	6
Don't know/refused	1

The respondents who said that they would have gotten rid of their appliance in any manner were asked how much (if anything) they would have been willing to pay for someone to remove the appliance from their home. Nearly one out of three (31% for both the refrigerator and freezer groups) said they would not pay anything to have it removed (Table 6-23 and Table 6-24). *In the FR2 analysis, these respondents who were not willing to pay anything to have the appliance removed were considered to be NFRs if they said in a subsequent question that they would have hired a hauler to remove it.*

About one-third of the refrigerator group (35%) and about one-quarter of the freezer group (24%) said they would have paid a maximum of 25 dollars. Fifteen percent of the refrigerator group and 24% of the freezer group said that 50 dollars was the maximum amount they would pay. One out of ten in the freezer group and slightly fewer in the refrigerator group (7%) claimed they would have paid more than that amount. One hundred dollars was the maximum any respondent said they would pay.

**Table 6-23: Amount Willing to Pay to Remove Refrigerator**

(Base: respondents who answered “gotten rid of it in any manner” when asked what they would have done with the refrigerator in absence of program)

<b>If the Appliance Turn-in Program had not been available, how much, if anything, would you have been willing to pay your city, town, or someone else to remove or recycle your refrigerator for you?</b>	
<i>Sample size</i>	179
\$0	31%
\$1-25	35
\$26-50	15
\$51-75	2
\$76-100	5
Don't know/refused	12

**Table 6-24: Amount Willing to Pay to Remove Freezer**

(Base: respondents who answered “gotten rid of it in any manner” when asked what they would have done with the freezer in absence of program)

<b>If the Appliance Turn-in Program had not been available, how much, if anything, would you have been willing to pay your city, town, or someone else to remove or recycle your freezer for you?</b>	
<i>Sample size</i>	143
\$0	31%
\$1-25	24
\$26-50	24
\$51-75	2
\$75-100	8
Don't know/refused	13

\*Significant at a 90% confidence level

The same respondents were again asked, now that they had thought about some of the factors involved in disposing of the appliance (i.e., having to physically move it and possibly having to pay to get it hauled away), what they would have done with the appliance in the absence of the program. Table 6-25 shows that compared to the first time the question was asked, respondents in the refrigerator group were significantly more likely the second time to say that they would

have kept the refrigerator (0% versus 6%), but percentages for the other means of disposing of the appliance were similar after considering additional factors to those before considering them.

Table 6-26 shows that compared to the first time the question was asked, respondents in the freezer group were somewhat more likely to respond the second time that they would have taken it to the dump or put it out as trash (16% the first time versus 23% the second time), although this difference is not statistically significant. They were significantly less likely the second time than the first time to say that they would have called the city to take it away (9% versus 1%). Like the refrigerator group, the freezer group was significantly more likely the second time to say that they would have kept the appliance after all (<1% versus 7%). (In the analysis of FR2, respondents who said they would have kept, sold or given away the appliance were determined to be NFRs; those who said they would have trashed it, recycled it, or had it removed by a third party were determined to be FRs.)

**Table 6-25: Refrigerators—Action in Absence of Program after Considering Additional Factors**

(Base: respondents who answered “gotten rid of it in any manner” when asked what they would have done with the refrigerator in absence of program)

<b>Now that you have considered some of the additional factors involved with getting rid of the refrigerator, what would you have most likely done with the refrigerator had you not disposed of it through the Appliance Turn-in Program and received the \$50 rebate?</b>	
<i>Sample size</i>	176
Taken it to a garbage dump or put out as trash	26%
Given it away for free	18
Hired hauler to take it away	16
Recycled it	12
Had a retail store come and pick it up	7
Sold it	7
Kept it	6*
Call city to take it away	5
Other	1
Don't know/refused	3

\*Significant at a 90% confidence level

**Table 6-26: Freezers—Action in Absence of Program after Considering Additional Factors**

(Base: respondents who answered “gotten rid of it in any manner” when asked what they would have done with the refrigerator in absence of program)

<b>Now that you have considered some of the additional factors involved with getting rid of the stand-alone freezer, what would you have most likely done with the freezer had you not disposed of it through the Appliance Turn-in Program and received the \$50 rebate?</b>	
<i>Sample size</i>	143
Taken it to a garbage dump or put out as trash	23%
Given it away for free	21
Hired hauler to take it away	17
Recycled it	13
Kept it	7*
Sold it	6
Had a retail store come and pick it up	4
Called the city/town to pick it up	1*
Other	1
Don't know/refused	1

\*Significant at a 90% confidence level.

Respondents who indicated in the previous question that they would have had the appliance picked up by a hauler or a retail store were asked what they thought would happen to the appliance after it was picked up. Almost half of each group said “don’t know.” Over one-quarter (27%) of the refrigerator group and over one-third (36%) of the freezer group thought the appliance would be recycled, and about one-quarter of the refrigerator group (26%) and nearly two out of ten (17%) in the freezer group believed it would end up in a garbage dump or would be sold for scrap (Table 6-27 and Table 6-28).

**Table 6-27: Ultimate Outcome for Refrigerators Picked Up by Hauler or Retailer**

(Base: respondents who answered that they would have “hired hauler”, “had a retail store pick it up”, or “other” when asked how they would have gotten rid of the refrigerator in absence of the program after considering additional factors)

<b>As far as you know, would the refrigerator have been recycled, sold for scrap, or sent to a garbage dump?</b>	
<i>Sample size</i>	56
Recycled	27%
Sold as scrap	21
Sent to garbage dump	5
Sold as a used appliance	2
Don't know/refused	43

**Table 6-28: Ultimate Outcome for Freezers Picked Up by Hauler or Retailer**

(Base: respondents who answered that they would have “hired hauler”, “had a retail store pick it up”, or “other” when asked how they would have gotten rid of the refrigerator in absence of the program after considering additional factors)

As far as you know, would the freezer have been recycled, sold for scrap, or sent to a garbage dump?	
<i>Sample size</i>	47
Recycled	36%
Sold as scrap	11
Sent to garbage dump	6
Donated	5
Don't know/refused	42

## 6.2 Appliance Rebate

JACO issues a \$50 rebate check per unit to each customer after the final salvaging of the appliance in its Franklin, MA recycling facility. A bar code sticker that is affixed to each unit at the customer site tracks the status of each unit through the recycling process.

National Grid and JACO reported in the in-depth interviews that the rebate incentive originally was \$30 per unit, but the program did not seem to get much traction at that level, so National Grid in consultation with JACO raised the incentive to \$50 per unit in September 2009. The \$50 rebate level was adopted by the other Massachusetts Sponsors as they launched the program and seems to be adequate according to JACO and the Sponsors. JACO reported that incentives are important in motivating customers, as evidenced by the increase in participation when they raised the incentive from \$30 to \$50 as an end of year push in 2009. JACO noted that when asked about the reasons why they choose to participate, customers “may not always say incentives are number one, but it does increase participation.” Participant survey results (Table 6-3 and Table 6-4) confirm the importance of the rebate in customers’ decision to participate—32% of refrigerator participants and 30% of freezer participants said that the rebate was a reason why they decided to dispose of their appliance through the program.

### 6.2.1 Survey Findings on Rebate

All respondents were asked two questions about the importance of the rebate in their decision to participate in the program: The first question asked them to rate the importance of the rebate on their decision to participate, using a scale of zero (“Not at all important”) to ten (“Extremely important”). Next, they were asked whether they would have participated in the program without the rebate check (Table 6-29 through Table 6-32). Within the refrigerator group (Table 6-29), 64% gave an importance rating of six or higher, with about half of those (34%) giving the highest rating. The mean rating was 7.7. In contrast, only 14% gave a rating of four or lower, with about half of those (6%) giving an importance rating of zero. Although the refrigerator group as a whole indicated that the rebate was important to their decision to participate, when asked whether they would have participated in the program without any incentive, more than

seven out of ten (71%) said they would have participated in the program even if no rebate had been offered and only about one out of ten (12%) said they would not have participated (Table 6-30).

Responses within the freezer group were similar (Table 6-31). Two thirds gave an importance rating of six or higher, with about half of those (33%) giving the highest rating. The mean rating was 7.7, about the same as that for the refrigerator group. Only 13% gave a rating of four or lower, with about half of those (7%) giving an importance rating of zero. As was the case with the refrigerator group, although the freezer group as a whole indicated that the rebate was important to their decision to participate, when asked whether they would have participated in the program without any incentive most of the respondents responded in the affirmative. Over three-quarters (77%) said they would have participated in the program even if no rebate had been offered; only 10% said they would not have participated without the rebate (Table 6-32).

**Table 6-29: Refrigerators—Importance of Rebate**

<b>Importance of Rebate</b>	
<i>Sample Size</i>	288
Average	7.7
10 “Extremely important”	34%
9	4
8	12
7	9
6	5
5	20
4	2
3	2
2	2
1	2
0 “Not at all important”	6
Don’t know/refused	1

**Table 6-30: Refrigerators--Participation in Absence of Rebate Check**

<b>Would you have participated in the program without the rebate check altogether?</b>	
<i>Sample size</i>	288
Yes	71%
No	12
Maybe	14
Don’t know/refused	4

**Table 6-31: Freezers--Importance of Rebate**

<b>Importance of Rebate</b>	
<i>Sample Size</i>	243
Average	7.7
10 "Extremely important"	35%
9	3
8	16
7	7
6	5
5	20
4	1
3	3
2	1
1	1
0 "Not at all important"	7
Don't know/refused	1

**Table 6-32: Freezers--Participation in Absence of Rebate Check**

<b>Would you have participated in the program without the rebate check altogether?</b>	
<i>Sample size</i>	243
Yes	77%
No	10
Maybe	11
Don't know/refused	2

The Sponsors and JACO reported that customers are told to expect the rebate check four to six weeks after the pick-up, but JACO said that the rebate often is issued in less time. *“Once the appliance is recycled through the system, it is cleared, addresses are checked and the check is mailed out. This typically takes two to three weeks. We tell customers to expect that the check may take four to six.”* According to JACO and one Sponsor, customers have followed up after the pick-up to ask when they will receive the check, but the inquiries tend to be more out of curiosity about how the process will work, rather than complaints about the timeliness of the rebate.

The survey asked participants how much time it took to receive their rebate after the appliance was picked up. About three out of four respondents in both groups (71%) reported that they received it within six weeks. About one out of ten in each group (9%) said they waited longer than six weeks before receiving the check or had not yet received it (Table 6-33 and Table 6-34).

**Table 6-33: Refrigerators--Length of Wait for Rebate Check**

After you had your appliance(s) picked-up, how long did it take to receive the rebate check from the program?	
<i>Sample size</i>	288
Less than 4 weeks	37%
4 to 6 weeks	34
7 to 8 weeks	4
More than 8 weeks	1
Have not received the rebate check yet	4
Don't know/refused	20

**Table 6-34: Freezers--Length of Wait for Rebate Check**

After you had your appliance(s) picked-up, how long did it take to receive the rebate check from the program?	
<i>Sample size</i>	246
Less than 4 weeks	37%
4 to 6 weeks	34
7 to 8 weeks	4
More than 8 weeks	1
Have not received the rebate check yet	4
Don't know/refused	20

**6.2.2 Replacement Appliance**

Approximately one-third (34%) of the respondents who removed a refrigerator and only 18% of those who removed a freezer replaced the appliance with another appliance of the same type (Table 6-35 and Table 6-36). Respondents who replaced the removed appliance were asked a series of questions about the nature and origin of the new appliance.

**Table 6-35: Replacement of Refrigerators**

Did you replace the refrigerator that you turned in through the Appliance Turn-in Program?	
<i>Sample size</i>	288
Yes	34%
No	66

**Table 6-36: Replacement of Freezers**

<b>Did you replace the freezer that you turned in through the Appliance Turn-in Program?</b>	
<i>Sample size</i>	243
Yes	18%
No	82

A large majority of the replacement refrigerators (79%) and freezers (89%) were new rather than used appliances (Table 6-37 and Table 6-38).

**Table 6-37: Replacement Refrigerators: New vs. Used**

(Base: respondents who replaced refrigerators turned in through the program)

<b>Was the replacement refrigerator new or used when you started using it as the replacement refrigerator?</b>	
<i>Sample size</i>	97
New	79%
Used	21

**Table 6-38: Replacement Freezers: New vs. Used**

(Base: respondents who replaced freezers turned in through the program)

<b>Was the replacement freezer new or used when you started using it as the replacement freezer?</b>	
<i>Sample size</i>	71
New	89%
Used	9
DK/Refused	2

Approximately one-quarter (23%) of the replacement refrigerators and approximately half (51%) of the replacement freezers were bought at Sears. Another one-quarter of the refrigerators and 13% of the freezers were from a home improvement store (i.e., Lowe’s or Home Depot), while nearly one out of ten of each appliance type was purchased from a local appliance store (Table 6-39 and Table 6-40).

**Table 6-39: Where Replacement Refrigerators Were Obtained**

(Base: respondents that replaced refrigerators turned in through the program)

Where did you get the replacement refrigerator?	
<i>Sample size</i>	97
Sears	23%
Friend/relative/other private party (used appliance)	16
Lowe’s	14
Home Depot	9
Local appliance store	8
Got new main/primary refrigerator and now using the older one as spare/secondary refrigerator	3
Wal-Mart	3
Best Buy	2
Manufacturer (e.g., GE National)	2
Costco	1
Bernie’s	1
BJ’s	1
Craigslist	1
Other	9
Don’t know/refused	8

**Table 6-40: Where Replacement Freezers Were Obtained**

(Base: respondents that replaced freezers turned in through the program)

Where did you get the replacement freezer?	
<i>Sample size</i>	47
Sears	51%
Lowe’s	11
Local appliance store	9
Friend/relative	9
Costco	5
Home Depot	2
Sam’s Club	2
Target	2
Don’t know/refused	9

For the most part, the replacement appliances (87% of refrigerators and 82% of freezers) were ENERGY STAR labeled (Table 6-41 and Table 6-42). About one in ten respondents who replaced the removed appliance said they didn’t know whether the new one had the ENERGY STAR label.

**Table 6-41: Replacement Refrigerators with ENERGY STAR Label**

(Base: respondents who replaced refrigerators turned in through the program)

Does your replacement refrigerator have the ENERGY STAR label?	
<i>Sample size</i>	97
Yes	87%
No	11
Don’t know	2

**Table 6-42: Replacement Freezers with ENERGY STAR Label**

(Base: respondents who replaced freezers turned in through the program)

Does your replacement freezer have the ENERGY STAR label?	
<i>Sample size</i>	47
Yes	82%
No	11
Don’t know/refused	7

### 6.2.3 Remaining Refrigerators/Freezers

Respondents were asked how many appliances of the type that was removed through the program were currently in their home (Table 6-43 and Table 6-44). Nearly three out of four in the fridge group (72%) had one remaining fridge and about one out of four (26%) had two remaining fridges. Among the freezer group, nearly three out of four (72%) had no remaining stand-alone freezers, and about one out of four (24%) had one.

**Table 6-43: Refrigerators Remaining in Home after Program**

How many refrigerators are currently in use in your home after you removed a refrigerator through the program?	
<i>Sample size</i>	288
1	72%
2	26
3	1
6	1

**Table 6-44: Freezers Remaining in Home after Program**

How many stand-alone freezers are currently in use in your home?	
<i>Sample size</i>	243
0	72%
1	24
2	3
10	2

Respondents with at least one remaining appliance of the type removed through the program were asked to give the age of the remaining appliances (Table 6-45 and Table 6-46). About half of the remaining fridges were five years old or newer, and about one out of three were six to ten years old. Nearly two out of ten were eleven years or older. About half of the remaining freezers were five years old or newer and fewer than one out of three was eleven years or older.

**Table 6-45: Age of Remaining Refrigerators after Program**

(Base: respondents with one or more refrigerators remaining after the program)

Years of age	First Refrigerator	Second Refrigerator	Third Refrigerator
<i>Sample size</i>	288	80	5
0 to 5 years old	47%	63%	60%
6 to 10 years old	30	25	20
11 to 15 years old	10	10	21
16 to 20 years old	6	1	0
More than 20 years old	5	0	0
Don't know/refused	3	1	0

**Table 6-46: Age of Remaining Freezers after Program**

Years of age	First Freezer	Second Freezer	Third Freezer
<i>Sample size</i>	76	11	2
0 to 5 years old	60%	27%	0%
6 to 10 years old	11	26	50
11 to 15 years old	8	7	0
16 to 20 years old	2	7	0
More than 20 years old	18	19	50
Don't know/refused	1	14	0

## 7 Primary versus Secondary Refrigerators—Free Ridership and Program Influence

The program requires that removed refrigerators have been used as secondary, not primary fridges. Nevertheless, as shown in Table 7-1 nearly two out of ten respondents (19%) in the refrigerator group removed a primary fridge. To gauge whether respondents who had used the removed refrigerator as a primary fridge (the “primary group”) differed from those who had used it as a secondary fridge (the “secondary group”)—in terms of free ridership and the influence of the program on their disposition of the appliance—selected analyses were performed for the two groups Table 7-2 through Table 7-10 show the results of these analyses. The general picture that emerges from these results is that the primary group largely comprises participants who were likely to have had another convenient option besides the program for removing the fridge—having it removed by the retailer from whom they purchased the new fridge—and in the absence of the program they were willing and able to make use of that option.

Table 7-1 shows that those who used the program to dispose of a primary refrigerator were more likely to be free riders than those who disposed of a secondary unit. The FR2<sup>9</sup> rate for the Primary group (48%) is substantially higher than for the Secondary group as a whole (37% overall), and the FR2 rate for the Secondary/Replaced group (27%) is lower than for the Secondary/Not replaced group (40%).

**Table 7-1: Refrigerator Free Ridership Rates by Use and Replacement**

	<b>Primary (19% of refrigerators)</b>	<b>Secondary—Replaced (16% of refrigerators)</b>	<b>Secondary—Not Replaced (65% of refrigerators)</b>
<b>FR2 (free riders)</b>	<b>48%</b>	<b>27%</b>	<b>40%</b>
NFR2 (non-free riders)	48	71	56
PFR2 (possible free riders)	4	2	4

As shown in Table 7-2, the primary group was more likely than the secondary group to say that they removed the fridge through the program because they bought a new fridge (27% versus 8%) and because the old one was not working well (16% versus 6%), and less likely to have used the program because they didn’t need or use the unit anymore (16% versus 27%) and because the program would pick it up (5% versus 11%). Since retailers often haul away the old fridge when a new one is purchased, it is likely that many of the primary group had the option of having a retailer remove it (for free or for a fee), but used the program instead.

<sup>9</sup> We used free ridership Method 2 for these analyses because, for reasons explained in Section 5 of this report, we believe this method more accurately measures respondents’ actions in absence of the program than does Method 1.

**Table 7-2: Why Participants Decided to Participate in Program**

<b>Why did you decide to get rid of the refrigerator through the Appliance Turn-in Program? (Multiple Response)</b>	<b>Overall</b>	<b>Primary (19%)</b>	<b>Secondary (81%)</b>
<i>Sample size</i>	288	56	232
Rebate/incentive	40%	36%	41%
Didn't need/use it any more	25%	16%	27%
Easy/convenient to turn it in	18%	16%	19%
Bought new refrigerator	12%	27%	8%
Old unit was not working well	8%	16%	6%
Better for the environment	5%	4%	5%
They would pick it up	10%	5%	11%
Wanted to recycle	5%	2%	5%
Reduce energy/electricity costs	6%	5%	7%
Save energy/electricity	8%	4%	8%
Cost too much to have it picked up	3%	5%	2%
Remodeling/expanding	2%	4%	1%
Did not want to pay disposal fee at dump/recycling center	2%	--	2%
Other	3%	1%	3%

Table 7-3 and Table 7-4 show that the primary group was also more likely to say that they would have gotten rid of the fridge in the absence of the program (68% versus 57%), and of those who would have gotten rid of it, they were more likely to have done so within a year of the program (84% versus 68%).

**Table 7-3: Action in Absence of the Program—Refrigerators**

<b>If the Appliance Turn-in Program had not been available to you, what would you most likely have done with your refrigerator?</b>	<b>Overall</b>	<b>Primary (19%)</b>	<b>Secondary (81%)</b>
<i>Sample size</i>	288	56	232
Gotten rid of it in any manner	59%	68%	57%
Kept it	37	21	40
(Continued to use it)	(21)	(15)	(22)
(Stored it unplugged)	(13)	(6)	(18)
Don't know/refused	4	11	3

**Table 7-4: Refrigerators—Timing of Disposal in Absence of the Program**

(Base: respondents who answered that they would have gotten rid of the refrigerator in the absence of the program)

<b>If the Appliance Turn-in Program had not been available, how soon do you think you would you have gotten rid of your refrigerator?</b>	<b>Overall</b>	<b>Primary (19%)</b>	<b>Secondary (81%)</b>
<i>Sample size</i>	179	43	136
Within a year of when the program took it	72%	84%	68%
More than a year later	18	5	23
Don't know/refused	10	12	9

As shown in Table 7-5, out of the respondents who said they would have gotten rid of the fridge in the absence of the program, the primary group was more likely than the secondary group to say they would have done so through a retail store (23% versus 5%) and less likely to have hired a hauler to take it away (9% versus 18%), although the two groups were equally likely to have been willing to pay a hauler some amount of money to haul it away (about 60%; Table 7-6). Responses to the same question, asked after additional factors were considered, show a similar pattern (Table 7-7).

**Table 7-5: Refrigerators—Method of Disposal in Absence of the Program**

(Base: respondents that answered that they would have gotten rid of the refrigerator in the absence of the program)

<b>If the Appliance Turn-in Program had not been available to you, what would you have done to get rid of the refrigerator?</b>	<b>Overall</b>	<b>Primary (19%)</b>	<b>Secondary (81%)</b>
<i>Sample size</i>	179	43	136
Taken it to a garbage dump or put out as trash	25%	28%	24%
Had a retail store pick it up	10	23	5
Hired hauler to take it away	16	9	18
Given it away for free	17	14	18
Recycled it	13	9	14
Called the city to pick it up	5	2	5
Sold it	7	7	7
Other	3	--	4
Don't know/refused	5	7	4

**Table 7-6: Amount Willing to Pay to Remove Refrigerator**

(Base: respondents who answered “gotten rid of it in any manner” when asked what they would have done with the refrigerator in absence of program)

<b>If the Appliance Turn-in Program had not been available, how much, if anything, would you have been willing to pay your city, town, or someone else to remove or recycle your refrigerator for you?</b>	<b>Overall</b>	<b>Primary (19%)</b>	<b>Secondary (81%)</b>
<i>Sample size</i>	179	43	136
Nothing	31%	30%	31%
Would pay some amount	57	58	57
Don't know/refused	12	12	11

**Table 7-7: Refrigerators—Action in Absence of Program after Considering Additional Factors**

(Base: respondents who answered “gotten rid of it in any manner” when asked what they would have done with the refrigerator in absence of program)

<b>Now that you have considered some of the additional factors involved with getting rid of the refrigerator, what would you have most likely done with the refrigerator had you not disposed of it through the Appliance Turn-in Program and received the \$50 rebate?</b>	<b>Overall</b>	<b>Primary (19%)</b>	<b>Secondary (81%)</b>
<i>Sample size</i>	179	43	136
Taken it to a garbage dump or put out as trash	26%	30%	23%
Given it away for free	18	16	18
Had a retail store come and pick it up	7	17	5
Recycled it	12	7	14
Call city to take it away	5	5	4
Sold it	7	2	8
Hired hauler to take it away	16	3	18
Kept it	6	9	5
Other	1	--	1
Don't know/refused	3	2	4

As Table 7-8 through Table 7-10 show, not surprisingly, the primary group was far more likely to have replaced the fridge (95% versus 19%), and out of respondents in both groups who replaced it, the primary group was more likely to have replaced it with a new (as opposed to a used) fridge (85% versus 73%) with an ENERGY STAR label (89% versus 84%).

**Table 7-8: Replacement of Refrigerators**

<b>Did you replace the refrigerator that you turned in through the Appliance Turn-in Program?</b>	<b>Overall</b>	<b>Primary (19%)</b>	<b>Secondary (81%)</b>
<i>Sample size</i>	288	56	232
Yes	34%	95%	19%
No	66	5	81

**Table 7-9: Refrigerators: New vs. Used**

(Base: respondents who replaced refrigerators turned in through the program)

<b>Was the replacement refrigerator new or used when you started using it as the replacement refrigerator?</b>	<b>Overall</b>	<b>Primary (19%)</b>	<b>Secondary (81%)</b>
<i>Sample size</i>	97	53	44
New	79%	85%	73%
Used	21	15	27

**Table 7-10: Replacement Refrigerators with ENERGY STAR Label**

(Base: respondents who replaced refrigerators turned in through the program)

<b>Does your replacement refrigerator have the ENERGY STAR label?</b>	<b>Overall</b>	<b>Primary (19%)</b>	<b>Secondary (81%)</b>
<i>Sample size</i>	97	53	44
Yes	87%	89%	84%
No	11	9	14
Don't know	2	2	2

### 8 Spillover—Influence of Program on Subsequent Actions

The state of Massachusetts received funding from the American Recovery and Reinvestment Act (ARRA) of 2009 and distributed rebates to in April 2010 to consumers purchasing selected ENERGY STAR heating and kitchen appliances, including \$200 rebates for refrigerators and \$50 rebates for freezers; a re-launch of the program commenced in July 2010 to distribute funding not previously claimed. Respondents were asked whether they had used ARRA Rebates to buy new appliances during the spring or summer of 2010 (Table8-1 and Table 8-2). Of the 10% of respondents who had bought at least one appliance with the ARRA Rebates, about half (52%) purchased a refrigerator, 15% purchased a freezer, about one-quarter (26%) purchased a dishwasher, and less than one in ten (7%) purchased a water heater.<sup>10</sup> None of these respondents bought more than one type of appliance.

**Table8-1: Use of ARRA Rebates to Purchase New Appliances**

<b>Did you use the ARRA rebates to purchase any new appliances recently?</b>	
<i>Sample size</i>	500
Yes	10%
No	88
Tried to, but could not get through/Program closed out	1
Tried to, but they told my application was rejected/I wasn't eligible	<1
Don't know/refused	2

**Table 8-2: Type of New Appliances Purchased Using ARRA Rebates**

(Base: respondents who used ARRA rebates to purchase new appliances)

<b>What new appliances did you buy using the ARRA rebates?</b>	
<i>Sample size</i>	52
Refrigerator	52%
Freezer	15%
Dishwasher	26%
Water heater	7%
Boiler or furnace	1%
Don't know/refused	3%

<sup>10</sup> Water heaters were not rebated through the Mass Save Great Appliance Exchange Program with ARRA funding.

Nearly half (45%) of the respondents who purchased appliances using ARRA rebates said that the Appliance Turn-in Program “definitely” influenced them to apply for the rebates and another 14% said that it “probably” influenced their decision (Table 8-3). Approximately one-quarter (26%) said that the Program “probably” or “definitely” did *not* influence their decision.

**Table 8-3: Influence of Program to Apply for ARRA Rebates**

(Base: respondents who used ARRA rebates to purchase new appliances)

<b>Did your participation in the Appliance Turn-in Program influence your decision to apply for the ARRA Rebates?</b>	
<i>Sample size</i>	52
Definitely yes	45%
Probably yes	14
Maybe	7
Probably not	7
Definitely not	19
Don't know/refused	9

Respondents were asked whether they replaced, removed, recycled, or stopped using any additional appliances after participating in the program (Table 8-4). One out of ten respondents reported retiring at least one additional appliance. Appliances retired include dishwashers, clothes washers, stoves, water heaters, and heating systems, and both central and room air conditioners.

**Table 8-4: Additional Appliances Retired Following Program Participation**

<b>After participating in the Appliance Turn-in Program, did you replace, remove, recycle, or stop using any of the following additional major appliances in your home that you did not receive a rebate for? (Multiple response)</b>	
<i>Sample size</i>	502
Dishwasher	5%
Clothes washer	3%
Stove	3%
Water heater	2%
Heating system	2%
Room air conditioners	1%
Central air conditioners	1%
Dehumidifier	1%
Microwave	1%
None	87%
Don't know/refused	2%

Respondents who retired at least one appliance since the program were asked whether their participation in the Appliance Turn-in Program had influenced their decision to do so (Table 8-5). One out of four of these respondents said the program had “probably” or “definitely” influenced the subsequent retirement of the appliance, whereas seven out of ten said the program “probably” or “definitely” had no influence.

**Table 8-5: Influence of Program on Additional Appliance Retirements**

(Base: Respondents who retired at least one additional major appliance without a rebate after participating in the program)

<b>Did your participation in the Appliance Turn-in Program influence your decision to retire any of these appliances?</b>	
<i>Sample size</i>	48
Definitely yes	20%
Probably yes	5
Maybe	1
Probably not	8
Definitely not	62
Don't know/refused	4

Responses to the survey questions about the influence of the Appliance Turn-in Program on subsequent appliance purchases through ARRA and on additional appliance retirements indicate that the spillover effects of the program are minimal. Six percent of respondents were influenced by the program to purchase energy efficient appliances through ARRA, and only 2% were influenced by the program to retire additional appliances.

## 8.1 Program Satisfaction

The survey asked participants several questions to assess program satisfaction and impressions about the impact of the program on their electricity usage. It also asked participants to identify any drawbacks to participation. In the in-depth interviews, the Sponsors and JACO discussed their overall impressions of program satisfaction, including what was good about the program and areas for improvement.

### 8.1.1 Participant Satisfaction

Respondents were very satisfied with the program overall (Table 8-6).

**Table 8-6: Satisfaction with Program Overall**

<b>Satisfaction with Program Overall</b>	
<i>Sample Size</i>	500
Average	9.6
10 “Extremely satisfied”	78%
9	12
8	7
7	9
6	<1
5	1
4	0
3	0
2	<1
1	0
0 “Extremely dissatisfied”	0
Don’t know/refused	0

The survey asked respondents whether they had noticed any change in their electricity use since the program (Table 8-7). One half of the respondents said that it had decreased and about one-quarter (27%) said it was about the same. Seventeen percent didn't know whether it had changed.

**Table 8-7: Impact of Program on Electricity Usage**

Would you say that your electricity usage has decreased or increased after participating in the Appliance Turn-in Program?	
<i>Sample size</i>	500
Decreased a lot	11%
Decreased a little	39
Stayed about the same	27
Increased a little	4
Increased a lot	3
Don't know	17

Respondents who reported a decrease in their electricity use were asked to rate their satisfaction with the change on a scale of zero (“extremely dissatisfied”) to ten (“extremely satisfied”) (Table 8-8). The average satisfaction rating was 8.4, with 47% giving the top rating of “10.” Only 6% were dissatisfied with the savings (i.e., gave a rating of lower than five).

**Table 8-8: Satisfaction with Electricity Savings**

(Base: respondents that indicated that electricity usage had decreased)

Satisfaction with Electricity Savings	
<i>Sample Size</i>	249
Average	8.4
10 “Extremely satisfied”	47%
9	6
8	19
7	6
6	6
5	12
4	2
3	2
2	1
1	0
0 “Extremely dissatisfied”	1

The survey asked respondents to report any drawbacks they experienced from removing the appliance through the program (Table 8-9). The vast majority (92%) said they experienced no drawbacks. It is interesting to note that few respondents (4%) considered loss of storage space to be a drawback and very few respondents (<1%) mentioned the potential drawback of knowing that their usable appliance was thrown away.

**Table 8-9: Program Drawbacks**

<b>What, if any, potential drawbacks have you experienced from removing your appliances through the Appliance Turn-in Program?</b>	
<i>Sample size</i>	500
No drawbacks	92%
Loss of food storage space	4%
Usable appliances are thrown away	<1%
Other	1%
Don't know/refused	2%

**8.1.2 Sponsor and Contractor Perspective on Program Benefits**

In the in-depth interviews, the Sponsors and JACO were asked to comment on the benefits and drawbacks of program design and delivery. Sponsors noted that the program provides a service to customers that makes the removal of refrigerators and freezers possible and convenient for customers that could not or would not get rid of them on their own. Customers do not have to purchase anything to participate. All customers need to do is initiate the appointment and make sure that the JACO team has access for removing the unit. In addition, customers get the rebate, the energy savings, and a good feeling knowing the units are recycled.

Sponsors noted that a benefit of the program design is that it is a turn-key program, with all aspects of program marketing, scheduling, implementation, recycling, and reporting done by JACO. Sponsors said that JACO has experience running appliance turn-in programs across the country and it relies on them for their expertise in this market. JACO said that its turn-key service to Sponsors and its expertise in delivering similar programs across the country has provided Sponsors with the ability to deliver the program—including marketing, pick-up, recycling, and program management relatively easily.

Sponsors and JACO noted that the Dashboard interface provides the clients with access to program information on an as needed basis. JACO also sends a data extract along with the monthly invoicing to each Sponsor.

JACO indicated that their customer service is strong and that they deliver the energy savings to Sponsors, while providing a benefit from the recycling service. JACO noted that because their contract with National Grid is performance based, it is in their interest to keep the flow of

participants in the program strong and consistent. JACO charges the Sponsors only after a unit has been collected and recycled. The bill includes all marketing, implementation, and recycling.

### **8.1.3 Areas for Program Improvement**

When asked to comment on program delivery, the Sponsors said that JACO does a good job delivering the program, but they felt it has been necessary to augment JACO's marketing effort. Sponsors have created their own outreach activities and also have worked with JACO to modify marketing language and make adjustments to the flow of marketing materials to manage the demand of turn-in requests by service area. Sponsors have requested small tweaks to other aspects of program delivery and said that JACO has been responsive to their needs. For example, National Grid in consultation with JACO raised the rebate levels from \$30 to \$50 in September 2009 to increase customer interest in the program after a slow start. JACO and the Sponsors have been more attentive to the need to clearly communicate with customers about the pick-up procedures and in particular have made additional effort to inform customers that the appliances must be accessible to the pick-up crew; some customers mistakenly assumed that JACO would move furniture, take off doors or railings, etc. to remove the appliances from the homes. Because the JACO pick-up crew has personal interaction with every participating customer and much of the program delivery takes place in customer homes, the Sponsors said that they always are aware of the need to provide good customer service. JACO has also customized the data reporting to address information needs for Sponsors.

Both JACO and Sponsors commented in general about the barriers to participation. Both JACO and the Sponsors agreed that some benefit or convenience is lost when customers give up the second refrigerator or freezer; Sponsors said that some customers have scheduled appointments, and then cancelled because they reconsidered the value of having a second unit in the household. Sponsors commented on two timing issues related to JACO's customer service. The first issue involved customers being put on hold for a long period of time when they called to arrange for a pick-up. The second issue involved reducing the pick-up window timeframe so customers could have a more accurate estimate of their pick-up appointment time. JACO has been responsive to both issues. JACO reported that it added more personnel during busier hours to answer calls and it acknowledged that sometimes it is difficult for crews to have an accurate estimate of the timeframe that they will arrive for the pick-up. JACO said that they want to reduce the four hour window for arrival of the crew on any scheduled pick-up day. Also, while the wait for an appointment is a week or two, ideally they would also like to make that timeframe shorter.

JACO noted that the need to have someone 18 years or older in the household at the time of pick-up can be another barrier, particularly if the customer must take time off from work. To alleviate this issue, JACO said that it offers Saturday pick-ups and gives customers a window of time that they will show up, but sometimes it is difficult for JACO to have an accurate estimate of that timeframe.

## 9 Demographics

The in-depth interviews asked respondents to describe the types of customers that the program serves and the telephone survey asked respondents a series of standard questions to categorize participant demographics. Results of selected demographic characteristics are presented with the Massachusetts state estimates from the American Community Survey (ACS).<sup>11</sup>

### 9.1 Targeted Customer Groups

Sponsors reported that the Massachusetts Appliance Turn-in Program is open to all residential customers, with no specific demographic targets. Based on its experience delivering the program in different areas across the country, JACO reports that the program has a “*sweet spot*” and typically attracts older, higher income customers, especially empty nesters who have a second refrigerator but no longer need it because the kids have gone and they are not using the refrigerator as much anymore. One of the primary reasons why NSTAR and Western Massachusetts Electric may have seen a slower response in its service territory compared to the response by other Sponsors in Massachusetts is that they have a higher population of multifamily and apartment dwellers, living arrangements that often do not have the space for a second refrigerator.

Participant survey demographics presented in Table 9-1 through Table 9-8 confirm that a majority (62%) of program participants is 55 years of age or older and 59% has a household size of just one or two people. Many are retired (46%). The vast majority live in a single family, detached home (86%) that they own (94%).

The approximately one-quarter of respondents who were under 55 years of age have somewhat different characteristics from the three-quarters who are 55 or older, and thus might be considered a separate sub-group of participants. They tend to be more highly educated than the older group, with over half (58%) holding a college or graduate/professional degree compared to three out of ten (31%) for the older group. Not surprisingly, they also tend to have higher incomes and larger-sized households compared to the older group, with a smaller percentage of households with one or two people and a greater percentage of households with three or four people.

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<sup>11</sup> U.S. Census Bureau, 2005-2009 American Community Survey, 5 Year Estimates. [http://www.factfinder.census.gov/servlet/ADPTable?\\_bm=y&-geo\\_id=04000US25&-qr\\_name=ACS\\_2009\\_5YR\\_G00\\_DP5YR2&-ds\\_name=&-lang=en&-redoLog=false](http://www.factfinder.census.gov/servlet/ADPTable?_bm=y&-geo_id=04000US25&-qr_name=ACS_2009_5YR_G00_DP5YR2&-ds_name=&-lang=en&-redoLog=false) (Accessed 5-3-11).

## 9.2 Demographic Characteristics of Survey Participants

The large majority of respondents live in a single-family detached home that they own (Table 9-1 and Table 9-2).

**Table 9-1: Type of Home**

Type of Home	
<i>Sample size</i>	500
Single-family detached house	86%
Single-family attached house (townhouse, row house, or duplex)	7
Apartment building with 2-4 units	5
Apartment building with 5 or more units	1
Mobile home or house trailer	<1
Other	<1
Don't know/refused	2

**Table 9-2: Ownership of Home**

Tenure	
<i>Sample size</i>	500
Own	94%
Rent/lease	3
Occupied without payment of rent	<1
Don't know/refused	3

When respondents were asked the size of their home, more than one out of four respondents (28%) reported that it was between 2,000 and 3,499 square feet, as shown in Table 9-3. Ten percent said their home was less than 1,400 square feet and 6% said that it was 3,500 square feet or larger. Four out of ten respondents (39%) didn't know the size or chose not to answer the question.

**Table 9-3: Size of Home**

Square Feet	
<i>Sample size</i>	500
Less than 1,400	10%
1,400 - 1,999	18
2,000 - 2,499	13
2,500 - 3,499	15
3,500 – 3,900	2
4,000 - 4,999	3
5,000 or more	1
Don't know/refused	39

Nearly one out of four respondents (22%) reported having six rooms in their house (Table 9-4). Another 21% had seven rooms and nearly one out of three (32%) had eight or more rooms.

**Table 9-4: Number of Rooms in Home Excluding Bathrooms**

Number of rooms	
<i>Sample size</i>	500
1	0%
2	1
3	1
4	2
5	14
6	22
7	21
8	17
9	6
10 or more	9
Don't know/refused	8

The great majority (90%) of respondents graduated from high school (Table 9-5). Thirty-one percent have an Associates or Bachelor’s degree and nearly two out of ten (18%) have a graduate or professional degree.

**Table 9-5: Highest Level of Education**

Degree attained	RDD Survey	MA ACS
<i>Sample size</i>	500	4,416,135*
Less than ninth grade	1%	5% <sup>†</sup>
Ninth to twelfth grade, no diploma	1	7 <sup>†</sup>
High school graduate (includes GED)	18	27 <sup>†</sup>
Technical or trade school graduate	4	n/a
Some college, no degree	19	16 <sup>†</sup>
Associates degree	11	8 <sup>†</sup>
Bachelor’s degree	20	22
Graduate or professional degree	18	16
Don’t know/refused	9	--

\*Population 25 years and over

<sup>†</sup>Statistically different at the 90% confidence level.

More than four out of ten respondents (42%) have a two-person household (Table 9-6). Another 17% live alone and about one-third (32%) have a household of three or more people.

**Table 9-6: Household Size**

Number of people living in home	RDD Survey	MA ACS
<i>Sample size</i>	500	2,465,654
1	17%	29% <sup>†</sup>
2	42	32 <sup>†</sup>
3	13	16 <sup>†</sup>
4	12	15 <sup>†</sup>
5	5	6
6 or more	2	3
Don’t know/refused	7	--

<sup>†</sup>Statistically different at the 90% confidence level.

The majority (62%) of respondents was 55 years or older and only 12% were under 45 years (Table 9-7).

**Table 9-7: Age**

Age of respondent	RDD Survey	MA ACS
<i>Sample size</i>	500	4,857,420
18 to 24	<1%	9% <sup>†</sup>
25 to 34	2	17 <sup>†</sup>
35 to 44	9	20 <sup>†</sup>
45 to 54	15	20 <sup>†</sup>
55 to 64	20	15 <sup>†</sup>
65 or over	42	18 <sup>†</sup>
Don't know/refused	11	-

<sup>†</sup>Statistically different at the 90% confidence level.

Nearly half (46%) of the respondents are retired, and one-third are employed full-time (Table 9-8).

**Table 9-8: Head of Household Employment Status**

Employment status	
<i>Sample size</i>	500
Employed full-time	33%
Self-employed full-time	3
Employed part-time	4
Self-employed part-time	1
Temporarily unemployed	2
Not employed	3
Retired	46
Don't know/refused	12

Nearly all the respondents who gave a valid response pay their electric bills directly to the electric company (Table 9-9).

**Table 9-9: Method of Electric Bill Payment**

Do you pay your electric bill directly to your electric company, or is your electricity included in your rent or condo fee?	
<i>Sample size</i>	500
Pay directly to electric company	92%
Electricity included in rent or condo fee	1
Paid for in some other way	<1
Don't know/refused	7

Nearly all the respondents who gave a valid response speak English as the primary language in their home, and only 3% have a household member who is Hispanic or Latino (Table 9-10). The vast majority of respondents who chose to report their race were white; very few (3%) reported any other race or ethnicity (Table 9-11 and Table 9-12).

**Table 9-10: Primary Language Spoken in Home**

Language	
<i>Sample size</i>	500
English	94%
Mandarin	<1
Vietnamese	<1
Other	1
Refused	5

**Table 9-11: Spanish, Hispanic, or Latino**

Are any members of your household Spanish, Hispanic, or Latino?	
<i>Sample size</i>	500
Yes	3%
No	90
Don't know/refused	7

**Table 9-12: Race and Ethnicity**

Race and Ethnicity	
<i>Sample size</i>	500
White	88%
Black or African American	1
Chinese	1
Vietnamese	<1
Other	1
Don't know/refused	10

Half of the respondents chose not to report their household income (Table 9-13). Out of those who chose to report it, about half make \$49,000 or less and about two out of ten make \$100,000 or more.

**Table 9-13: Household Income**

(Base: All RDD respondents who provided an estimate of their income)

Household income	RDD Survey	MA ACS
<i>Sample size</i>	500	2,465,654
\$9,999 or less	5	7% <sup>†</sup>
\$10,000 to \$14,999	4	5
\$15,000 to \$19,999	4	4
\$20,000 to \$29,999	10	8
\$30,000 to \$39,999	12	8 <sup>†</sup>
\$40,000 to \$49,999	13	8 <sup>†</sup>
\$50,000 to \$74,999	19	17
\$75,000 to \$99,999	15	14
\$100,000 to \$149,999	11	16 <sup>†</sup>
\$150,000 or more	7	13 <sup>†</sup>
Don't know/refused (sample size)	246	--

<sup>†</sup>Statistically different at the 90% confidence level.

Women made up the majority (56%) of the respondents (Table 9-14).

**Table 9-14: Gender**

<i>Sample size</i>	500
Female	56%
Male	44

## **Appendix: Participant Survey Instrument**



**Participant Survey**  
**2009-10 MA/RI Appliance Turn-In Program**

**NMR will cross-reference by telephone number to make sure same respondents not called in lighting survey currently being conducted.**

**SCREENING QUESTIONS**

Could I speak with [INSERT NAME]?

1. Yes [GO TO INTRODUCTION]
2. No [SAY “Perhaps you can help me anyway.” GO TO INTRODUCTION]

Hello, my name is \_\_\_\_\_ I am calling on behalf of:

[Choose sample: MA or RI]

[IF MA] The Massachusetts ENERGY STAR Appliance Turn-In Program. [If respondents ask, say: “The group of sponsors includes National Grid, NSTAR [SAY “N-star”] Electric, Cape Light Compact, and Western Massachusetts Electric Company.”]

[IF RI] The Rhode Island Second Refrigerator/Freezer Recycling Turn-In Program with National Grid.

[ALL] We are calling customers who used the program to remove and recycle refrigerators and freezers during 2009 or 2010. Are you the person who was most involved and familiar with the decision to have your old refrigerator or freezer picked up and recycled through the program?

[IF NO, ASK TO SPEAK TO THE APPROPRIATE PERSON: “May I please speak to the person who knows the most about having the appliance picked up?”]

[IF APPROPRIATE PERSON] We are trying to get feedback from customers about the appliance turn-in program to make the program better. Your responses will be kept

strictly confidential—that is, your name will not be associated with any of your responses. **[IF NECESSARY, OFFER THE CONTACT NAME FROM BELOW AS THE PERSON TO CONTACT WITH ANY QUESTIONS ABOUT THE VALIDITY OF THE RESEARCH.]**

<b>Massachusetts Sponsors</b>		
Philip Moffit	Cape Light Compact	508-744-1279
Angela Li	National Grid (NGrid/Mass. Electric)	781-901-1568
Gail Azulay	NSTAR Electric	781-441-8024
Gene Fry	Western Massachusetts Electric Company (WMECO/Northeast Utilities)	860-832-4802
<b>Rhode Island Sponsor</b>		
Wendy Todd	National Grid (NGrid)	781-907-2232

This survey will take about 15 minutes of your time. Would that be okay?

[IF REFUSE, ASK] “Can we schedule a more convenient time for you to conduct this survey?”

[SCHEDULED, IF NECESSARY, FOR: \_\_\_\_\_]

#### Notes for interviewer

**[Timing.** This survey should take about 15 or 20 minutes. If now is not a good time, we can set up a more convenient call back time]

**[Who are you?** I am from ISA, a survey data collection firm, calling on behalf of NMR Group, Inc. based in Somerville, MA]

**[Why are you doing this study?** We are calling customers who had refrigerators and freezers picked up and recycled through the program to better understand how customers used the program.]

**[Sales concern.** I am not selling anything. We are just asking for feedback about your experience with the program.]

## Verification and Recall

V1. Our records indicate that your household participated in the [INSERT (Massachusetts or Rhode Island) FROM SAMPLE] Appliance Recycling Turn-In program, which removed and recycled up to two refrigerators or freezers from your home and paid you a \$50 rebate for participating. Our records indicate that you had the program remove:

[INSERT NUMBER FROM VARIABLE “RF” IN THE SAMPLE] refrigerator(s) (and)

[INSERT NUMBER FROM VARIABLE “FZ” IN THE SAMPLE] stand-alone freezer(s)

from your home sometime during 2009 or 2010. Is this correct?

1. Yes [GO TO P1]
2. No, does not recall participating [PROBE: “Are you certain? Someone would have come to your home and picked up your old appliance to recycle it. You would have received a \$50 rebate also.”] [IF PERSIST AS NO, THANK AND TERMINATE]
3. No, different quantities (GO TO V2)
4. (Don’t know) [PROBE: “Are you certain? Someone would have come to your home and picked up your old appliance. You would have received a \$50 rebate also.”] IF PERSIST AS NO, THANK AND TERMINATE.

V2 [ASK IF V1=3] Let me clarify, I am talking about the [INSERT (Massachusetts or Rhode Island) FROM SAMPLE] ENERGY STAR Appliance Turn-In program, which removed and recycled up to two refrigerators or freezers from your home and paid you a \$50 rebate for participating. This was not a program that gave any rebates for purchases of new or replacement refrigerators or freezers.

[IF RESPONDENT NOW AGREES WITH PROGRAM RECORDS, RECODE V1=1 AND CONTINUE TO P1]

Thinking only about any appliances that were picked up through the Appliance Turn-In Program, which quantities are wrong? The number of refrigerators picked up, the number of freezers picked up, or both?

1. Number of refrigerators
2. Number of freezers
3. Both

V3. [IF V2=1 or 3] How many refrigerators were picked up through the Appliance Turn-in Program? [Record number, 98 (Don't Know) 99 Refused] \_\_\_\_\_ [IF V2 = 1 GO TO P1]

V4. [IF V2 = 2 or 3] How many stand-alone freezers were picked up through the Appliance Turn-in Program? [Record number, 98 (Don't Know) 99 Refused]\_\_\_\_\_ [GO TO P1]

## Program Information and Satisfaction [P series]

Now I would like to ask you some general questions about the Appliance turn-in program.

P1. How did you find out about this program? (DON'T READ; ALLOW MULTIPLE RESPONSE BUT DO NOT PROBE FOR MULTIPLE)

### Program Administrator Sources

1. (Bill insert/mailling from utility/Sponsor)
2. (Utility/Sponsor website)
3. (Utility/Sponsor advertising in newspaper, radio, TV)

### Retailer Sources

4. (Appliance retailer/dealer)
5. (Store flyer)
6. (Salesperson)

### Other Sources

7. (Co-worker, family, or friend)
8. (Internet—unspecified)
97. (Other [SPECIFY \_\_\_\_\_])
98. (Don't know)
99. Refused)

P2. What do you think happens to appliances after they are picked up by the program? [DON'T READ; MULTIPLE RESPONSE]

1. (It gets recycled)
2. (They get rid of the hazardous materials—CFCs, refrigerants, Freon)
3. (They trash/get rid of it)
4. (They sell it to be reused)
97. (Other [SPECIFY \_\_\_\_\_])
98. (Don't know)
99. (Refused)

[IF RESPONDENT ASKS WHAT HAPPENS READ “After the program picks up an appliance, they take it to a facility and remove all environmentally hazardous materials, such as capacitors, mercury switches and refrigerants. The remaining materials—mostly steel, along with smaller amounts of other metals, and rubber and plastic—are recycled.”]

P3. Using a scale from 0 to 10 where 0 is “extremely dissatisfied and 10 is “extremely satisfied” how would you rate your satisfaction with the program overall? [RECORD NUMBER, 98=Don't know, 99 Refused]

- P4. [IF P3 < 5] You indicated that you were dissatisfied with some aspect of the program. What are the main reasons you weren't satisfied? [DON'T READ; MULTIPLE RESPONSE]
- P5. How did you initially sign up for the program? Did you sign up over the phone with a toll free number or did you sign up online?
1. (Over the phone)
  2. (Signed up online)
  3. (Both)
  98. (Don't know)
  99. (Refused)
- P6. Using a scale from 0 to 10 where 0 is "extremely easy" and 10 is "extremely difficult" how easy or difficult was it for you to...? [RANDOMIZE ORDER OF A-C, ASKING A-C BASED ON SKIP PATTERNS; ASK D LAST]
- A. [IF P5=2 or 3] Fill out the sign-up form and sign up online
  - B. [IF P5=1 or 3] Call the program and sign up over the phone
  - C. [IF P5 GE 98] Sign up for the program
  - D. Schedule the time for the pickup
- P7A. [IF P6A > 5] Please describe any difficulties you had in signing up online. [MULTIPLE RESPONSE]
1. (Did not know appliance size/dimensions)
  2. (Site was confusing)
  3. (Technical difficulties with computer/Internet service)
  97. (Other)—[SPECIFY]
  98. (Don't know)
  99. (Refused)
- P7B. [IF P6B > 5] Please describe any difficulties you had in signing up over the phone. [MULTIPLE RESPONSE]
1. (Did not know appliance size/dimensions)
  2. (Put on hold/long wait)
  3. (Technical difficulties with automated phone system)
  97. (Other)—[SPECIFY]
  98. (Don't know)
  99. (Refused)

P7C. [IF P6C > 5] Please describe any difficulties you had in signing up for the program.  
[MULTIPLE RESPONSE]

1. (Did not know appliance size/dimensions)
2. (Site was confusing)
3. (Technical difficulties with computer/Internet service)
4. (Put on hold/long wait on telephone)
5. (Technical difficulties with automated phone system)
97. (Other)—[SPECIFY]
98. (Don't know)
99. (Refused)

P7D. [IF P6D > 5] Please describe any difficulties you had in scheduling the pick-up of your appliance(s). [MULTIPLE RESPONSE]

1. (No convenient time available)
2. (I needed to reschedule pick-up)
3. (Program rescheduled pick-up)
4. (They did not show up on time)
97. (Other)—[SPECIFY]
98. (Don't know)
99. (Refused)

P8. Please tell us if there is anything that could be done in the future to improve the program.  
(INTERVIEWER: CLARIFY RESPONSES AS NEEDED) [OPEN END, 96=NO RECOMMENDATIONS, 98=Don't know, 99=Refused]

[PROGRAMMER: EACH RESPONDENT WILL BE ASKED ABOUT ONE OR TWO APPLIANCES. NO RESPONDENT WILL BE ASKED ABOUT TWO OF THE SAME APPLIANCE (E.G., NOT TWO REFRIGERATORS).

## REFRIGERATORS [R SERIES]

[IF V1 = 1 and RF = 0 OR IF V3=0 GO TO FZ1 (FREEZERS)]

[READ IF V1 = 1 and RF = 1 OR IF V3=1], Now, I'd like you to think about the refrigerator you had removed through the program.

[READ IF V1 = 1 and RF > 1 OR IF V3>1] I know you had more than one refrigerator removed through the program. For purposes of this survey, please think about the [RANDOMLY CHOOSE ONE OF THE REFRIGERATORS FROM SAMPLE. INSERT DESCRIPTIVE FIELDS.]

[INSERT COLOR] (Unit color) unit,

With [INSERT TYPEDETAIL] (Side by side doors, Top freezer, bottom freezer)

That was manufactured by [INSERT BRANDUNITMAKE]

That was located in your [INSERT LOCPRIOR] prior to pick-up.

Keep only that one refrigerator clearly in your mind as you answer the next few questions.

RF1. Was the refrigerator removed through the program the main one used in the home, a second refrigerator that was being used at least part of the time, or a refrigerator that was not being used at all? [IF CLARIFICATION NECESSARY: "A main or primary refrigerator would typically be located in the kitchen, plugged in or "on" all the time, and used for regular household purposes. A secondary or spare refrigerator is typically located somewhere other than in the kitchen and may be plugged in or "on" all or only part of the time." [NOTE: If respondent recently bought a new refrigerator and was just waiting for the previously used one to be picked up by the program, it should be classified as "Main/Primary"]

1. Used as Main/Primary
2. Used as a Spare/Secondary
3. Not being used
98. (Don't know) [PROBE: READ CLARIFICATION AND TRY TO CLASSIFY STATUS OF REFRIGERATOR]
99. (Refused)

RF2. Approximately how old was the refrigerator you had removed through the program? Was it [READ, CHECK ONE]:

1. 0 to 5 years old
2. 6 to 10 years old
3. 11 to 15 years old
4. 16 to 20 years old
5. More than 20 years old
- 98 (Don't know) [PROBE: 'CAN YOU GIVE AN APPROXIMATE AGE?']
- 99 (Refused)

RF3. [IF RF1=2 or 98 or 99] Approximately how long had you been using the refrigerator as a secondary refrigerator when you decided to get rid of it? [RECORD]

1. Months [RECORD 1 to 11 months]
2. Years [RECORD 1 to 50 years; round to the nearest year]
98. (Don't know) [PROBE: 'CAN YOU GIVE AN APPROXIMATE LENGTH OF USE?']
99. (Refused)

RF4. [IF RF1 = 3] Approximately how long had the refrigerator been unused when you decided to get rid of it? [RECORD]

1. Months [RECORD 1 to 11 months]
2. Years [RECORD 1 to 50 years; round to the nearest year]
98. (Don't know) [PROBE: 'CAN YOU GIVE AN APPROXIMATE LENGTH OF USE?']
99. (Refused)

RF5. Was the refrigerator in working condition when you decided to have it picked up by the program?

1. Yes
2. Yes, but not that well
3. No
98. (Don't know)
99. (Refused)

RF6. [IF RF1=2 or 3, OTHERWISE GO TO RF7] In the year prior to getting rid of the refrigerator, how often did you have the refrigerator plugged in? Was it plugged in [READ, CHECK ONLY ONE]:

1. All the time
2. Most of time
3. Occasionally
4. Never [GO TO RF8]
5. (Don't know) [GO TO RF8]

RF7. [IF RF6 < 4] How important for your household food and beverage storage needs is it to have a secondary refrigerator? Answer on a scale of 0-10, where 0 is 'not at all necessary' and 10 is 'absolutely necessary.' [RECORD NUMBER, 98 don't know, 99 Refused]:

RF8. Where in the house was the refrigerator located? [RANDOMIZE AND READ 1-5, THEN 97]

1. Basement
2. Kitchen
3. Garage
4. Porch
5. Laundry room
6. Yard
97. Some other place [SPECIFY \_\_\_\_\_]
98. (Don't know)
99. (Refused)

RF9. Is the space where the refrigerator was located heated by your heating system in the winter?

1. Yes
2. No
98. (Don't know)
99. (Refused)

RF10. Is the space where the refrigerator was located cooled with air conditioning in the summer?

1. Yes
2. No
98. (Don't know)
99. (Refused)

## REFRIGERATOR FREE RIDERSHIP SECTION [RFR Series]

Please continue thinking about just that one refrigerator.

RFR1. Had you already considered disposing of the refrigerator before you heard about the [INSERT (Massachusetts or Rhode Island) FROM SAMPLE] appliance turn-in program? By dispose of, I mean getting the appliance out of your home by selling it, giving it away, having someone pick it up, or taking it to the dump or a recycling center yourself.

1. Yes
2. No
3. (Don't know)
4. (Refused)

RFR2. Why did you decide to get rid of the refrigerator through the [INSERT (Massachusetts or Rhode Island) FROM SAMPLE] appliance turn-in program? [DO NOT READ; MULTIPLE RESPONSE]

### Age/Need

1. (Old unit was not working well)
2. (Didn't need/use it any more)

### Replacing unit

3. (Bought new refrigerator)

### Housing change

4. (Remodeling/expanding)
5. (Moving soon/just moved)

### Financial

6. (Reduce energy/electricity costs)
7. (Rebate/incentive)
8. (Cost too much to have it picked up)
9. (Did not want to pay disposal fee at dump/recycling center)
10. (Reduce maintenance costs/appliance needed repairs)

### Logistical

11. (Easy/convenient to turn it in)
12. (They would pick it up)
13. (Trash collection would not accept)

### Energy/Environment

14. (Better for the environment)
15. (Wanted to recycle)
16. (Save energy/electricity)

### Other

97. (Other [SPECIFY \_\_\_\_\_])
98. (Don't know/Refused)

RFR3. If the [INSERT (Massachusetts or Rhode Island) FROM SAMPLE] appliance turn-in program had not been available to you, what would you most likely have done with your refrigerator? Would you have [READ]:

1. Gotten rid of it in any manner
2. Kept it [SKIP TO RFR11]
98. (Don't know)
99. (Refused)

[ASK IF RFR3=1 (Gotten rid of it)]

RFR4. If [INSERT (Massachusetts or Rhode Island) FROM SAMPLE] appliance turn-in program had not been available, how soon do you think you would have gotten rid of your refrigerator? Would you have gotten rid of it *within a year* of when the Program took it, *or more than a year later*?

1. Within a year of when the program took it
2. More than a year later
98. (Don't know)
99. (Refused)

RFR5. If the [INSERT (Massachusetts or Rhode Island) FROM SAMPLE] appliance turn-in program had not been available to you, what would you have done to get rid of the refrigerator? Most likely, would you have: [RANDOMIZE AND READ 1-6, THEN 7, ALLOW ONLY ONE RESPONSE ]

1. Sold it [GO TO RFR6]
2. Given it away for free [GO TO RFR7]
3. Recycled it [GO TO RFR7a]
4. Taken it to a garbage dump or put out as trash [GO TO RFR8]
5. Hired hauler to take it away [GO TO RFR5a]
6. Had a retail store come and pick it up [GO TO RFR5a]
7. Or would you have done something else? [SPECIFY]\_\_\_\_\_ ] [GO TO RFR5a]
98. (Don't know) [GO TO RFR5a]
99. (Refused)

[ASK IF RFR5=5, 6, 7, or 98 DK]

RFR5a. As far as you know, would the refrigerator have been recycled, sold for scrap, or sent to a garbage dump?

1. Recycled
2. Sold as a used appliance
3. Sold as scrap
4. Sent to garbage dump
5. (Other) [Specify]\_\_\_\_\_
98. (Don't know)
99. (Refused)

[ASK IF RFR5=1 (Sold it)]

RFR6. Would you have sold the refrigerator to a private party, to a used appliance dealer, or someone else?

1. Private party, such as a friend or family member
2. Used appliance dealer
3. Sold on an Internet site, such as Craig's List
4. Someone else, specify: \_\_\_\_\_
98. (Don't know)
99. (Refused)

[IF RFR5=1 GO TO RFR8]

[ASK IF RFR5=2 (Given it away for free)]

RFR7. Who would you have given the refrigerator to? Would you have: [READ; ALLOW ONLY ONE RESPONSE]

1. Given it to a private party, such as a friend or family member
2. Given it to a charity, such as Goodwill Industries or a church
3. Put it on the curb with a 'Free' sign on it
4. Given it away on an Internet site, such as Craig's List
5. Or would you have given it away some other way? [Specify] \_\_\_\_\_
98. (Don't know)
99. (Refused)

[ASK IF RFR5=3 (Recycled it)]

RFR7a. How would you have recycled the refrigerator? Would you have taken it to a recycling center, put it out for recycling pick-up, hired someone to take it to be recycled, or done something else?[READ; ALLOW ONLY ONE RESPONSE]

1. Take it to a recycling center
2. Put it out for pick-up
3. Hired someone to take it
4. Done something else [SPECIFY]\_\_\_\_\_
98. (Don't know)
99. (Refused)

[ASK IF RFR3=1(Would have gotten rid of unit)]

RFR8. If [INSERT (Massachusetts or Rhode Island) FROM SAMPLE] appliance turn-in program had *not* been available, would the need to physically move the refrigerator out of your house and/or transport it have prevented you from getting rid of it?

1. Yes
2. No
3. Maybe
98. (Don't know)
99. (Refused)

RFR9. If the [INSERT (Massachusetts or Rhode Island) FROM SAMPLE] appliance turn-in program had *not* been available, how much, if anything, would you have been willing to pay your city, town, or someone else to remove or recycle your refrigerator for you?

1. \$0—Would not pay any amount
2. [RECORD DOLLARS \$1 to \$999] \$\_\_\_\_\_
98. (Don't know) [PROBE: 'CAN YOU GIVE AN APPROXIMATE ESTIMATE OF HOW MUCH YOU WOULD PAY?']
99. (Refused)

RFR10. Now that you have considered some of the additional factors involved with getting rid of the refrigerator, what would you have most likely done with the refrigerator had you not disposed of it through the [INSERT (Massachusetts or Rhode Island) FROM SAMPLE] appliance turn-in program and received the \$50 rebate? [IF RESPONDENT ASKS 'WHAT FACTORS?' SAY 'THE NEED TO MOVE A BULKY APPLIANCE AND POSSIBLY PAY TO HAVE IT REMOVED.'] [READ LIST UNLESS RESPONDENT INDICATES CHOICE WITHOUT READING THE LIST]

[RANDOMIZE AND READ 1-7, THEN 8, ALLOW ONLY ONE RESPONSE ]

1. Kept it
2. Sold it
3. Given it away for free
4. Recycled it
5. Taken it to a garbage dump or put out as trash
6. Hired hauler to take it away [GO TO RFR10a]
7. Had a retail store come and pick it up [GO TO RFR10a]
8. Or would you have done something else? [SPECIFY]\_\_\_\_\_ [GO TO RFR10a]
98. (Don't know) [GO TO RFR10a]
99. (Refused)

[ASK IF RFR10=6, 7, 8, or 98 DK]

RFR10a. As far as you know, would the refrigerator have been recycled, sold for scrap, or sent to a garbage dump?

1. Recycled
2. Sold as a used appliance
3. Sold as scrap
4. Sent to garbage dump
5. (Other) [Specify]
98. (Don't know)
99. (Refused)

[ASK IF RFR3=2 OR RFR10=1(Would keep)]

RFR11. If the [INSERT (Massachusetts or Rhode Island) FROM SAMPLE] appliance turn-in program had not been available to you, what would you have done with the refrigerator? Most likely, would you have:[READ]

1. Continued to use it
2. Stored it unplugged
3. Or would you have done something else? [SPECIFY. IF RESPONSE INDICATES WOULD HAVE GOTTEN RID OF UNIT AND RFR3=2, GO BACK TO RFR3 AND CLARIFY RESPONSE, ASKING RFR4 THROUGH RFR7 IF NECESSARY]
98. (Don't know)
99. (Refused)

## REFRIGERATOR BOUNTY [RB Series]

I am now going to ask you some questions about the rebate you received for recycling this same refrigerator.

RB1. How important was the rebate money in your decision to recycle the refrigerator? Please use a scale from 0 to 10, where 0 is 'not at all important' and 10 is 'extremely important.' [RECORD NUMBER, 98 Don't know, 99 Refused]

RB2. Would you have participated in the program without the rebate check altogether?

1. Yes
2. No
3. (Maybe)
98. (Don't know)
99. (Refused)

RB3. After you had your appliance(s) picked-up, how long did it take to receive the rebate check from the program? Was it [ READ]:

1. Less than 4 weeks
2. Between 4 to 6 weeks
3. Between 7 to 8 weeks
4. More than 8 weeks
5. Have not received the rebate check yet
98. (Don't know)
99. (Refused)

## Replacement Refrigerator (RE Series)

- RE1. Did you replace the refrigerator that you turned in through the [INSERT (Massachusetts or Rhode Island) FROM SAMPLE] appliance turn-in program?
1. Yes
  2. No [GO TO RRF1]
  98. (Don't know) [GO TO RRF1]
  99. (Refused) [GO TO RRF1]
- RE2. Was the replacement refrigerator new or used when you started using it as the replacement refrigerator?
1. New
  2. Used
  98. (Don't know)
  99. (Refused)
- RE3. Where did you get the replacement refrigerator? [DON'T READ]
1. (Sears)
  2. (Home Depot)
  3. (Best Buy)
  4. (Lowe's)
  5. (Bernie's)
  6. (Wal-Mart)
  7. (Target)
  8. (Sam's Club)
  9. (Costco)
  10. (BJ's)
  11. (Yard/garage sale)
  12. (Friend/relative)
  13. (Got new main/primary refrigerator and now using the older one as spare/secondary refrigerator)
  14. Internet [SPECIFY site name/address\_\_\_\_\_]
  97. (Other [SPECIFY \_\_\_\_\_])
  98. (Don't know)
  99. (Refused)
- RE4. Does your replacement refrigerator have the ENERGY STAR label? There would usually be a blue and white sticker on the appliance that says "ENERGY STAR."
1. Yes
  2. No
  98. (Don't know)
  99. (Refused)

## REMAINING REFRIGERATORS (RRF SERIES)

RRF1. How many refrigerators are currently in use in your home after you removed a refrigerator through the program?

[RECORD NUMBER]\_\_\_\_\_ [RECORD NUMBER, 98 Don't know, 99 Refused] [IF 0 GO TO FZ1 (Freezer Series)].

RRF2a through RRF2c. [FOR EACH REFRIGERATOR, ASK "Approximately how old is your refrigerator." [IF MORE THAN ONE REFRIGERATOR, ASK ABOUT UP TO THREE REFRIGERATORS INSERTING "first", "second," or "third" BEFORE "refrigerator" AS APPROPRIATE.]

1. 0 to 5 years old
2. 6 to 10 years old
3. 11 to 15 years old
4. 16 to 20 years old
5. More than 20 years old

98. (Don't know) [PROBE: 'CAN YOU GIVE AN APPROXIMATE AGE?']

99. (Refused)

**FREEZER [FZ SERIES]**

[IF V1 = 1 and FZ > 0 OR IF V4>0 (had freezer removed) ASK FZ SERIES, OTHERWISE SKIP TO SO1 (Spillover Series)]

[READ IF V1 = 1 and FZ = 1 OR IF V4=1] Now, I'd like you to think about the stand-alone freezer you had removed through the program.

[READ IF V1 = 1 and FZ > 1 OR IF V4>1] I know you had more than one stand-alone freezer removed through the program. For purposes of this survey, please think about the [RANDOMLY CHOOSE ONE OF THE FREEZERS FROM SAMPLE. INSERT DESCRIPTIVE FIELDS.]

[INSERT COLOR] (Unit color) unit,

That was manufactured by [INSERT BRANDUNITMAKE]

That was located in your [INSERT LOCPRIOR] prior to pick-up.

Keep only that one stand-alone freezer clearly in your mind as you answer the next few questions.

FZ1. In the year prior to getting rid of the freezer, how often did you have the freezer plugged in? Was it plugged in [READ, CHECK ONLY ONE]:

1. All the time
2. Most of time
3. Occasionally
4. Never
98. (Don't know)
99. (Refused)

FZ2. Approximately how old was the freezer you had removed through the program? Was it [READ, CHECK ONE]:

1. 0 to 5 years old
2. 6 to 10 years old
3. 11 to 15 years old
4. 16 to 20 years old
5. More than 20 years old
98. (Don't know) [PROBE: 'CAN YOU GIVE AN APPROXIMATE AGE?']
99. (Refused)

FZ3. Was the freezer in working condition when you decided to have it picked up by the program?

1. Yes
2. Yes, but not that well
3. No
98. (Don't know)
99. (Refused)

FZ4. [IF FZ1 = 4 (Never used)] Approximately how long had the freezer been unused when you decided to get rid of it? [RECORD]

1. Months [RECORD 1 to 11 months]
2. Years [RECORD 1 to 50 years; round to the nearest year]
98. (Don't know) [PROBE: 'CAN YOU GIVE AN APPROXIMATE LENGTH OF USE?']
99. (Refused)

[IF FZ1=4 GO TO FFR1 -Freezer Free Rider Series]

FZ5. [IF FZ1 NE 4 (Used at least occasionally or DK/Ref)] Approximately how long had you been using the freezer when you decided to get rid of it? [RECORD]

1. Months [RECORD 1 to 11 months]
2. Years [RECORD 1 to 50 years, round to the nearest year]
98. (Don't know) [PROBE: 'CAN YOU GIVE AN APPROXIMATE TIME OF USE?']
99. (Refused)

FZ6. How important for your household food storage needs is it to have a stand-alone freezer? Answer on a scale of 0-10, where 0 is 'not at all necessary' and 10 is 'absolutely necessary.' [RECORD NUMBER, 98 don't know, 99 Refused]:

FZ7. Where in the house was the freezer located? [RANDOMIZE AND READ 1-5, THEN 97]

1. Basement
2. Kitchen
3. Garage
4. Porch
5. Laundry room
6. Yard
97. Some other place [SPECIFY \_\_\_\_\_]
98. (Don't know)
99. (Refused)

FZ8. Is the space where the freezer was located heated by your heating system in the winter?

- 1. Yes
- 2. No
- 98. (Don't know)
- 99. (Refused)

FZ9. Is the space where the freezer was located cooled with air conditioning in the summer?

- 1. Yes
- 2. No
- 98. (Don't know)
- 99. (Refused)

## **FREEZER FREE RIDERSHIP [FFR Series]**

Please continue thinking about just that one freezer.

FFR1. Had you already considered disposing of the freezer before you heard about [INSERT (Massachusetts or Rhode Island) FROM SAMPLE] appliance turn-in program? By dispose of, I mean getting the appliance out of your home by selling it, giving it away, having someone pick it up, or taking it to the dump or a recycling center yourself?

1. Yes
2. No
98. (Don't know)
99. (Refused)

FFR2. Why did you decide to get rid of the freezer through the [INSERT (Massachusetts or Rhode Island) FROM SAMPLE] appliance turn-in program? [DO NOT READ; MULTIPLE RESPONSE]

**Age/Need**

1. (Old unit was not working well)
2. (Didn't need/use it any more)

**Replacing unit**

3. (Bought new freezer)

**Housing change**

4. (Remodeling/expanding)
5. (Moving soon/just moved)

**Financial**

6. (Reduce energy/electricity costs)
7. (Rebate/incentive)
8. (Cost too much to have it picked up)
9. (Did not want to pay disposal fee at dump/recycling center)
10. (Reduce maintenance costs/appliance needed repairs)

**Logistical**

11. (Easy/convenient to turn it in)
12. (They would pick it up)
13. (Trash collection would not accept)

**Energy/Environment**

14. (Better for the environment)
15. (Wanted to recycle)
16. (Save energy/electricity)

**Other**

97. (Other [SPECIFY \_\_\_\_\_])
98. (Don't know)
99. (Refused)

FFR3. If the [INSERT (Massachusetts or Rhode Island) FROM SAMPLE] appliance turn-in program had not been available to you, what would you most likely have done with your freezer? Would you have [READ]:

1. Gotten rid of it in any manner
2. Kept it [SKIP TO FFR8]
98. (Don't know)
99. (Refused)

[ASK IF FFR3=1 (Gotten rid of it)]

FFR4. If the [INSERT (Massachusetts or Rhode Island) FROM SAMPLE] appliance turn-in program had not been available, how soon do you think you would you have gotten rid of your freezer? Would you have gotten rid of it *within a year* of when the Program took it, *or more than a year* later?

1. Within a year of when the program took it
2. More than a year later
98. (Don't know)
99. (Refused)

FFR5. If the [INSERT (Massachusetts or Rhode Island) FROM SAMPLE] appliance turn-in program had not been available to you, what would you have done to get rid of the freezer? Most likely, would you have: [RANDOMIZE AND READ 1-6, THEN 7, ALLOW ONLY ONE RESPONSE]

1. Sold it [GO TO FFR6]
2. Given it away for free [GO TO FFR7]
3. Recycled it [GO TO FFR7a]
4. Taken it to a garbage dump or put out as trash [GO TO FFR8]
5. Hired hauler to take it away [GO TO FFR5a]
6. Had a retail store come and pick it up [GO TO FFR5a]
7. Or would you have done something else? [SPECIFY]\_\_\_\_\_ [GO TO FFR5a]
98. (Don't know) [GO TO FFR5a]
99. (Refused)

[ASK IF FFR5=5, 6, 7, or 98 DK]

FFR5a. As far as you know, would the freezer have been recycled, sold for scrap, or sent to a garbage dump?

1. Recycled
2. Sold as a used appliance
3. Sold as scrap
4. Sent to garbage dump
5. (Other) [Specify]\_\_\_\_\_
98. (Don't know)
99. (Refused)

[ASK IF FFR5=1 (Sold it)]

FFR6. Would you have sold the freezer to a private party, to a used appliance dealer, or someone else?

1. Private party, such as a friend or family member
2. Used appliance dealer
3. Sold on an Internet site, such as Craig's List
4. Someone else, specify: \_\_\_\_\_
98. (Don't know)
99. (Refused)

[IF FFR5 = 1 GO TO FFR8]

[ASK IF FFR5=2 (Given it away for free)]

FFR7. Who would you have given the freezer to? Would you have: [READ; ALLOW ONLY ONE RESPONSE]

1. Given it to a private party, such as a friend or family member
2. Given it to a charity, such as Goodwill Industries or a church
3. Put it on the curb with a 'Free' sign on it
4. Given it away on an Internet site, such as Craig's List
5. Or would you have given it away some other way? [Specify] \_\_\_\_\_
98. (Don't know)
99. (Refused)

[ASK IF FFR5=3 (Recycled it)]

FFR7a. How would you have recycled the freezer? Would you have taken it to a recycling center, put it out for recycling pick-up, hired someone to take it to be recycled, or done something else?

1. Take it to a recycling center
2. Put out for pick-up
3. Hired someone to take it
4. Done something else [SPECIFY] \_\_\_\_\_
98. (Don't know)
99. (Refused)

[ASK IF FFR3=1(Would have gotten rid of unit)]

FFR8. If [INSERT (Massachusetts or Rhode Island) FROM SAMPLE] appliance turn-in program had *not* been available, would the need to physically move the freezer out of your house and/or transport it have prevented you from getting rid of it?

1. Yes
2. No
3. Maybe
98. (Don't know)
99. (Refused)

FFR9. If the [INSERT (Massachusetts or Rhode Island) FROM SAMPLE] appliance turn-in program had *not* been available, how much, if anything, would you have been willing to pay your city, town, or someone else to remove or recycle your freezer for you?

1. \$0—Would not pay any amount
2. [RECORD DOLLARS \$1 to \$999] \$\_\_\_\_\_
98. (Don't know) [PROBE: 'CAN YOU GIVE AN APPROXIMATE ESTIMATE OF HOW MUCH YOU WOULD PAY?']
99. (Refused)

FFR10. Now that you have considered some of the additional factors involved with getting rid of the stand-alone freezer, what would you have most likely done with the freezer had you not disposed of it through the [INSERT (Massachusetts or Rhode Island) FROM SAMPLE] appliance turn-in program and received the \$50 rebate? [IF RESPONDENT ASKS 'WHAT FACTORS?' SAY 'THE NEED TO MOVE A BULKY APPLIANCE AND POSSIBLY PAY TO HAVE IT REMOVED.'] [READ LIST UNLESS RESPONDENT INDICATES CHOICE WITHOUT READING THE LIST]

[RANDOMIZE AND READ 1-7, THEN 8, ALLOW ONLY ONE RESPONSE ]

1. Kept it
2. Sold it
3. Given it away for free
4. Recycled it
5. Taken it to a garbage dump or put out as trash
6. Hired hauler to take it away [GO TO FFR10a]
7. Had a retail store come and pick it up[GO TO FFR10a]
8. Or would you have done something else? [SPECIFY]\_\_\_\_\_ [GO TO FFR10a]
98. (Don't know) [GO TO FFR10a]
99. (Refused)

[ASK IF FFR10=6, 7, 8, or 98 DK]

FFR10a. As far as you know, would the freezer have been recycled, sold for scrap, or sent to a garbage dump?

1. Recycled
2. Sold as a used appliance
3. Sold as scrap
4. Sent to garbage dump
5. (Other) [Specify]
98. (Don't know)
99. (Refused)

[ASK IF FFR3=2 OR FFR10=1 (Would keep)]

FFR11. If the [INSERT (Massachusetts or Rhode Island) FROM SAMPLE] appliance turn-in program had not been available to you, what would you have done with the freezer? Most likely, would you have:

1. Continued to use it
2. Stored it unplugged
3. Or would you have done something else? [SPECIFY. IF RESPONSE INDICATES WOULD HAVE GOTTEN RID OF UNIT AND FFR3=2, GO BACK TO FFR3 AND CLARIFY RESPONSE, ASKING FFR4 THROUGH FFR7 IF NECESSARY]
98. (Don't know)
99. (Refused)

## Freezer Bounty Questions [FB Series]

I am now going to ask you some questions about the rebate you received for recycling this same freezer.

FB1. How important was the rebate money in your decision to recycle the freezer? Please use a scale from 0 to 10, where 0 is 'not at all important' and 10 is 'extremely important.' [RECORD NUMBER, 98 Don't know, 99 Refused]

FB2. Would you have participated in the program without the rebate check altogether?

1. (Yes)
2. (No)
3. (Maybe)
98. (Don't know)
99. (Refused)

FB3. After you had your appliance(s) picked-up, how long did it take to receive the rebate check from the program? Was it [READ]:

1. Less than 4 weeks
2. Between 4 to 6 weeks
3. Between 7 to 8 weeks
4. More than 8 weeks
5. Have not received the rebate check yet
98. (Don't know)
99. (Refused)

## Replacement Freezer Questions (FE Series)

- FE1. Did you get another freezer to replace the one you turned in through the [INSERT (Massachusetts or Rhode Island) FROM SAMPLE] appliance turn-in program?
1. Yes
  2. No [GO TO RFZ1]
  98. (Don't know) [GO TO RFZ1]
  99. (Refused) [GO TO RFZ1]
- FE2. Was the replacement freezer new or used when you started using it as the replacement freezer?
1. New
  2. Used
  98. (Don't know)
  99. (Refused)
- FE3. Where did you get the replacement freezer? [DON'T READ]
1. (Sears)
  2. (Home Depot)
  3. (Best Buy)
  4. (Lowe's)
  5. (Bernie's)
  6. (Wal-Mart)
  7. (Target)
  8. (Sam's Club)
  9. (Costco)
  10. (BJ's)
  11. (Yard/garage sale)
  12. (Friend/relative)
  13. (Got new main/primary freezer and now using the older one as spare/secondary freezer)
  14. Internet [SPECIFY site name/address\_\_\_\_\_]
  97. (Other [SPECIFY \_\_\_\_\_])
  98. (Don't know)
  99. (Refused)
- FE4. Does your replacement freezer have the ENERGY STAR label? There would usually be a blue and white sticker on the appliance that says "ENERGY STAR."
1. Yes
  2. No
  98. (Don't know)
  99. (Refused)

## REMAINING FREEZERS [RFZ SERIES]

RFZ1. How many stand-alone freezers are currently in use in your home?

[RECORD NUMBER]\_\_\_\_\_ [RECORD NUMBER, 98 Don't know, 99 Refused] [IF 0 GO TO FB3].

RBZ2a through RFZ2c. [FOR EACH FREEZER, ASK "Approximately how old is your freezer." [IF MORE THAN ONE FREEZER, ASK ABOUT UP TO THREE FREEZERS INSERTING "first", "second," or "third" BEFORE "freezer" AS APPROPRIATE.]

1. 0 to 5 years old
  2. 6 to 10 years old
  3. 11 to 15 years old
  4. 16 to 20 years old
  5. More than 20 years old
98. (Don't know) [PROBE: 'CAN YOU GIVE AN APPROXIMATE AGE?']
99. (Refused)

**SPILOVER [SO Series]**

SO1. The federal American Recovery and Reinvestment Act, also known as ARRA [SAY ‘air-ah’] funded the Cash for Appliances which paid for appliance rebates in the state during the spring and summer of 2010. [IF Rhode Island SAY ‘In Rhode Island, the program is called the Appliance Rebate Program and it is run through the Office of Energy Resources.’] Did you use the ARRA rebates to purchase any new appliances recently?

1. Yes
2. No
3. (Tried to, but could not get through/Program closed out)
4. (Tried to, but they told my application was rejected/I wasn’t eligible)
98. (Don’t know)
99. (Refused)

[ASK IF SO1=1, OTHERWISE SKIP TO SO5]

SO2. What new appliances did you buy using the ARRA rebates [RANDOMIZE AND READ A-E]:

- A. Refrigerator
  1. Yes
  2. No
  98. (Don’t know)
  99. (Refused)
- B. Freezer
  1. Yes
  2. No
  98. (Don’t know)
  99. (Refused)
- C. Dishwasher
  1. Yes
  2. No
  98. (Don’t know)
  99. (Refused)
- D. Water Heater
  1. Yes
  2. No
  98. (Don’t know)
  99. (Refused)
- E. Boiler or Furnace
  1. Yes
  2. No
  98. (Don’t know)
  99. (Refused)

SO3. Did your participation in the [INSERT (Massachusetts or Rhode Island) FROM SAMPLE] appliance turn-in program influence your decision to apply for the ARRA Rebates? [READ, ALLOW ONE RESPONSE]

1. Definitely yes
2. Probably yes
3. Maybe
4. Probably not
5. Definitely not
98. (Don't know)
99. (Refused)

SO4. [IF MONTH/YEAR FROM SAMPLE=MARCH 2010 OR LATER] Did your participation in the ARRA Rebate program influence your decision to participate in [INSERT (Massachusetts or Rhode Island) FROM SAMPLE] appliance turn-in program?

1. Definitely yes
2. Probably yes
3. Maybe
4. Probably not
5. Definitely not
98. (Don't know)
99. (Refused)

[RANDOMIZE ORDER IN WHICH SO5a-c ARE ASKED; THEN ASK SO1d last]

SO5 a-d. [INTRO TO SO5 SERIES; READ] “After participating in the [INSERT (Massachusetts or Rhode Island) FROM SAMPLE] appliance turn-in program, did you replace, remove, recycle, or stop using any additional major appliances in your home that you did **NOT** receive a rebate for? [IF YES CONTINUE; IF NO, GO TO SO3] Did you replace, remove, recycle, or stop using a ...

a. Room air conditioners

1. Yes
2. No
98. (Don't know)
99. (Refused)

b. Central air conditioner

1. Yes
2. No
98. (Don't know)
99. (Refused)

c. Dehumidifier

1. Yes
2. No
98. (Don't know)
99. (Refused)

d. Dishwasher

1. Yes
2. No
98. (Don't know)
99. (Refused)

e. Clothes Washer

1. Yes
2. No
98. (Don't know)
99. (Refused)

f. Water Heater

1. Yes
2. No
98. (Don't know)
99. (Refused)

g. Heating System

1. Yes
2. No
98. (Don't know)
99. (Refused)

h. Any other major appliances? [SPECIFY] \_\_\_\_\_

1. Yes
2. No
98. (Don't know)
99. (Refused)

- SO6. [IF ANY SO5=1, YES] Did your participation in the [INSERT (Massachusetts or Rhode Island) FROM SAMPLE] appliance turn-in program influence your decision to replace, remove, recycle, or stop using any of these appliances?
1. Definitely yes
  2. Probably yes
  3. Maybe
  4. Probably not
  5. Definitely not
  98. (Don't know)
  99. (Refused)
- SO7. Would you say that your electricity usage has decreased or increased after participating in the Appliance Turn-In program? Has it:
1. Decreased a lot
  2. Decreased a little
  3. Stayed about the same [GO TO SO9]
  4. Increased a little [GO TO SO9]
  5. Increased a lot [GO TO SO9]
  98. (Don't know) [GO TO SO9]
  99. (Refused)[GO TO SO9]
- SO8. [IF SO7=1 or 2 (Electricity usage decreased), OTHERWISE GO TO SO9] How satisfied are you with the electricity savings you have seen after participating in the Appliance Turn-In program? Please use a scale from 0 to 10 where 0 is "extremely dissatisfied" and 10 is "extremely satisfied."
- SO9. What, if any, potential drawbacks have you experienced from removing your appliances through the Appliance Turn-In program? [DON'T READ, PROBE; MULTIPLE RESPONSE]
1. (No drawbacks)
  2. (Loss of food storage space)
  3. (Loss of other storage space)
  4. (House no longer cool)
  5. (Usable appliances are thrown away)
  97. (Other SPECIFY \_\_\_\_\_)
  98. (Don't know)
  99. (Refused)

**DEMOGRAPHICS [D Series]**

D1. What type of home do you live in? Is it a . . . ?

- 1 Single-family detached house
- 2 Single-family attached house (townhouse, row house, or duplex)
- 3 Apartment building with 2-4 units
- 4 Apartment building with 5 or more units
- 5 Mobile home or house trailer
- 6 Other [SPECIFY]\_\_\_\_\_
- 98 (Don't know)
- 99 (Refused)

D2. Do you or members of your household own this home or do you rent?

1. Own
2. Rent/lease
3. Occupied without payment of rent
4. Other [SPECIFY]\_\_\_\_\_
- 98 (Don't know)
- 99 (Refused)

D3. Approximately how many square feet is your home?

1. Less than 1,400
2. 1,400 – 1,999
3. 2,000 – 2,499
4. 2,500 – 3,499
5. 3,500 – 3,999
6. 4,000 – 4,999
7. 5,000 or more
98. (Don't know)
99. (Refused)

D4. How many rooms are in your home, not counting bathrooms?

- 1. 1
- 2. 2
- 3. 3
- 4. 4
- 5. 5
- 6. 6
- 7. 7
- 8. 8
- 9. 9
- 10. 10 or more
- 98 (Don't know)
- 99 (Refused)

D5. What is the highest level of education that you have completed? [READ CATEGORIES]

- 1. Less than ninth grade
- 2. Ninth to twelfth grade, no diploma
- 3. High school graduate (Includes GED)
- 4. Technical or trade school graduate
- 5. Some college, no degree
- 6. Associates degree
- 7. Bachelor's degree
- 8. Graduate or professional degree
- 9. [Don't know]
- 98 (Don't know)
- 99 (Refused)

D6. Counting yourself, how many people live in your home?

- 1. 1
- 2. 2
- 3. 3
- 4. 4
- 5. 5
- 6. 6 or more
- 98 (Don't know)
- 99 (Refused)

D7. What is your age?

1. 18 to 24
2. 25 to 34
3. 35 to 44
4. 45 to 54
5. 55 to 64
6. 65 or over
- 98 (Don't know)
- 99 (Refused)

D8. How would you describe the head of the household's employment status? Would you say the head of household is . . . ?

- 1 Employed full-time
- 2 Self-employed full-time
- 3 Employed part-time
- 4 Self-employed part-time
- 5 Temporarily unemployed
- 6 Not employed
- 7 Retired
- 98 (Don't know)
- 99 (Refused)

D9. Do you pay your electric bill directly to your electric company, or is your electricity included in your rent or condo fee?

- 1 PAY DIRECTLY TO ELECTRIC COMPANY
- 2 ELECTRICITY INCLUDED IN RENT OR CONDO FEE
- 3 PAID FOR IN SOME OTHER WAY
- 98 (Don't know)
- 99 (Refused)

D10. Please tell me the primary language spoken in your home.

- 1 ENGLISH
- 2 SPANISH
- 3 PORTUGUESE
- 4 MANDARIN
- 5 CANTONESE
- 6 TAGALOG
- 7 KOREAN
- 8 VIETNAMESE
- 9 RUSSIAN
- 10 JAPANESE
- 11 OTHER (SPECIFY): \_\_\_\_\_
- 98 (Don't know)
- 99 (Refused)

D11. Are any members of your household Spanish, Hispanic, or Latino?

1. YES
2. NO
98. (Don't know)
99. (Refused)

D12. Is the head of the household . . . ?

[SELECT ONE RESPONSE ONLY. IF MIXED RACE OR MULTIPLE RACES, RECORD IN 'OTHER' ]

- 1 White
- 2 Black or African-American
- 3 American Indian, Native Hawaiian, or Alaska Native
- 4 Chinese
- 5 Japanese
- 6 Korean
- 7 Vietnamese
- 8 Filipino
- 9 Other (Specify): \_\_\_\_\_
- 98 (Don't know)
- 99 (Refused)

D13. Which category best describes your total household income in 2009 before taxes?  
Please stop me when I get to the appropriate category.

- 1 \$9,999 or less
- 2 \$10,000 to \$14,999
- 3 \$15,000 to \$19,999
- 4 \$20,000 to \$29,999
- 5 \$30,000 to \$39,999
- 6 \$40,000 to \$49,999
- 7 \$50,000 to \$74,999
- 8 \$75,000 to \$99,999
- 9 \$100,000 to \$149,999
- 10 \$150,000 or more
- 98 (Don't know)
- 99 (Refused)

D14. [RECORD SEX]

1. Male
2. Female