

XCEL ENERGY

Colorado Refrigerator and Freezer Recycling Product: Impact and Process Evaluation Report

December 18, 2020



PRESENTED TO:

Nicholas Minderman
DSM Policy & Strategy Consultant
Xcel Energy
414 Nicollet Mall
Minneapolis, MN 55401

PRESENTED BY:

Jeremy Kraft
Project Director
EMI Consulting
807 E. Roy Street, Suite 301
Seattle, WA 98102

TABLE OF CONTENTS

EXECUTIVE SUMMARY	1
1. INTRODUCTION	1
1.1 Product Overview.....	1
1.2 Evaluation Overview.....	2
Impact Residential Energy Consumption	3
Increase Product Awareness	3
Increase Product Participation	4
Optimize Customer Experience	4
1.3 Report Organization	4
2. IMPACT FINDINGS	5
2.1 Key Impact Findings.....	5
Retrospective Net-to-Gross Ratio	6
Prospective Net-to-Gross Ratio	6
2.2 Net-to-Gross Approach	7
Free-Ridership	8
Determination of Net-to-Gross Ratio	11
2.3 Net-to-Gross Ratio Inputs	11
Appliance Fate Absent the Product	11
<i>Self-Report Data</i>	11
<i>Secondary Market Adjustment</i>	13
Free-Ridership Adjustments	14
<i>Hauling Difficulty Adjustment</i>	14
<i>Social Desirability Bias Adjustment</i>	16
<i>Acceleration Adjustment</i>	18
<i>Final Free-Ridership</i>	19
Retrospective Net-to-Gross	19
Prospective Net-To-Gross	19
3. PROCESS FINDINGS	21
3.1 Key Findings	21
3.2 Approach	22
Participating Customer Surveys	22

Nonparticipating customer Survey	23
Peer Utility Interviews	23
Secondary Market Actor Interviews	23
3.3 Detailed Findings	23
Product Awareness	24
<i>Product Awareness: Participating Customer Perspective</i>	25
<i>Product Awareness: Nonparticipating Customer Perspective</i>	26
<i>Product Awareness: Peer Utility Perspective</i>	27
<i>Product Participation: Participating Customer Perspective</i>	28
<i>Product Participation: Peer Utilities Perspective</i>	30
Customer Experience	30
<i>Customer Experience: Participating Customer Perspective</i>	30
<i>Customer Experience: Peer Utilities Perspective</i>	32
4. CONCLUSIONS AND RECOMMENDATIONS	33

LIST OF TABLES

Table 1-1. CO Refrigerator & Freezer Recycling Savings, January-December 2019 ..	2
Table 1-2. Evaluation Overview	3
Table 3-1. Process Evaluation Topics	24

LIST OF FIGURES

Figure 2-1. Free-Ridership Estimation Methodology	10
Figure 2-2. Fate of Unit Without Refrigerator & Freezer Recycling Product	12
Figure 2-3. Fate of Unit Without Product (Grouped by Free-Ridership Category) ...	13
Figure 2-4. Average Difficulty Completing Self-Hauling Tasks	14
Figure 2-5. Number of Respondents by Amount Willing to Pay for Hauling	15
Figure 2-6. Percent of Non-Participants by Fate of Unit	17
Figure 2-7. Percent of Participants by Reported Unit Fate Without Product	17
Figure 2-8. When Respondents Would Have Acted Without Product	18
Figure 3-1. Source of Product Awareness Mentioned First	25
Figure 3-2. Did Respondents Plan to Remove Unit Before Participating	26
Figure 3-3. Additional Information Needed Before Participating	26
Figure 3-4. Percentage of Nonparticipants Aware of Product	27
Figure 3-5. Preferred Sources of Information About Removing Appliance	27
Figure 3-6. Did Respondents Consider Alternatives to Product	29
Figure 3-7. Alternatives to Product Considered by Survey Respondents	29
Figure 3-8. Level of Satisfaction by Product Element	31
Figure 3-9. Likelihood of Product Recommendation	31

TABLE OF CONTENTS

APPENDICES

Appendix A: Evaluation Plan

Appendix B: Data Collection Documents

Appendix C: Data Collection Memos

2020 Colorado Refrigerator & Freezer Recycling Product Evaluation

Introduction

Xcel Energy contracted with EMI Consulting to evaluate the 2020 Refrigerator and Freezer Recycling Product in Colorado. The product offers incentives to Xcel Energy single-family residential customers who recycle working refrigerators and freezers through Xcel Energy. Rebates are offered to encourage Xcel Energy residential customers to remove old refrigerators and freezers from the electric grid, resulting in energy savings.

EMI Consulting assessed the product's impact through a net-to-gross estimation. Through the process evaluation, the evaluation team assessed residential customers' awareness of the product, customers' motivations and barriers to participation in the product, and customers' experience with the product. This summary includes the key findings and recommendations from the evaluation.

Methods

Participating Customer Survey (n=71)

Nonparticipating Customer Survey (n=73)

Peer Utility Interviews (n=5)

Secondary Market Actor Interviews (n=8)

Fielding:

July – August 2020

Summary of Findings



The product has a strong influence on participating customers' decisions to recycle their appliance. The evaluation team estimates a retrospective **NTGR of 0.73**. The evaluation team recommends a prospective **NTGR of 0.80** if Xcel Energy adjusts marketing messaging and conducts targeted outreach to a broader customer base.



Most participating customers reported that they **needed to conduct additional research about product eligibility requirements** before deciding to participate in the product. Revisiting marketing messaging would decrease existing barriers to participation.

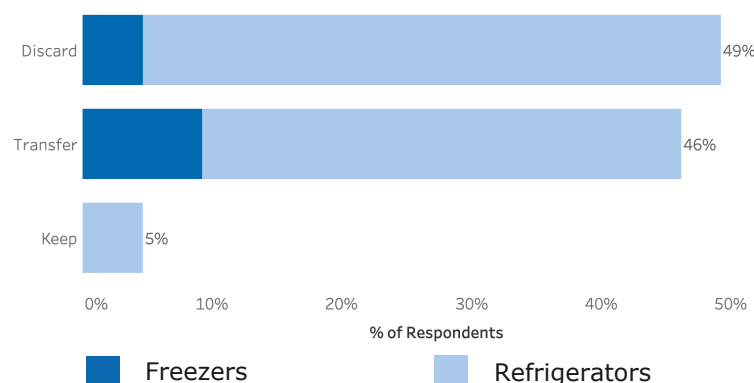


Nonparticipating customers who were aware of the product **tended to have higher incomes than those who were not aware**, suggesting a need for additional outreach to reach lower-income residents.



Participating customers reported **high satisfaction with all elements of their experience** with the product. Respondents indicated that they had a very high likelihood of recommending the product to a friend, family member, or co-worker.

Net-to-Gross Estimation



49% Participating customers reported they would have discarded their appliance in a way that would have removed it from the electric grid anyway without the product.

50% Participating customers reported they would have waited six or more months longer to recycle their appliance without the product.

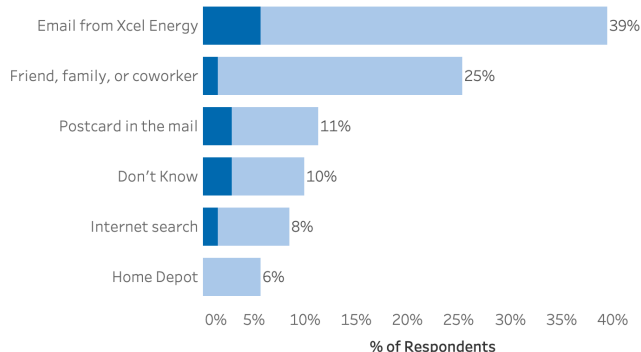
Product Experiences & Link Between Customer and Utility

PRODUCT AWARENESS



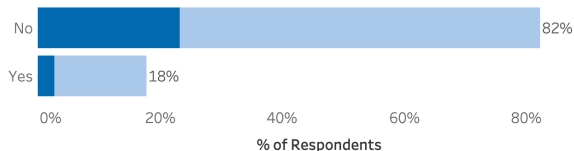
Respondents reported that they first heard about the product through word of mouth, emails, and website advertisements.

(61 Refrigerators, 10 Freezers)



Only 18% of nonparticipating customers were aware of the product. However, an awareness rate of 18% is relatively high for a large residential product like this one.

(54 Refrigerators, 19 Freezers)



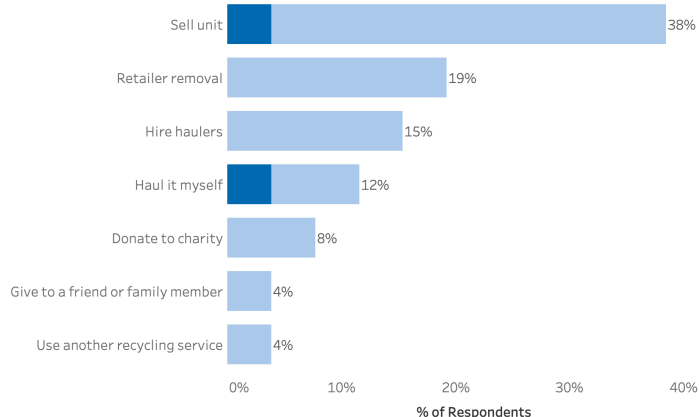
PRODUCT PARTICIPATION



38% of participating customer respondents reported they considered selling their unit before deciding to participate in the product, suggesting that the product is competing more with the costs and benefits of selling to the market than other recycling services.

Alternatives to Product Considered

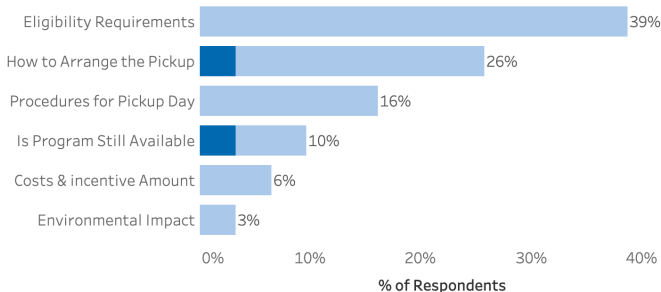
(24 Refrigerators, 2 Freezers)



When asked an open-ended question about what additional information they needed before deciding to participate in the product, participating customers most-frequently mentioned eligibility requirements and information about pickup logistics.

Additional Information Needed to Participate

(29 Refrigerators, 2 Freezers)



2020 Colorado Refrigerator & Freezer Recycling Product Evaluation

Customer Experience

4.9 out of 5

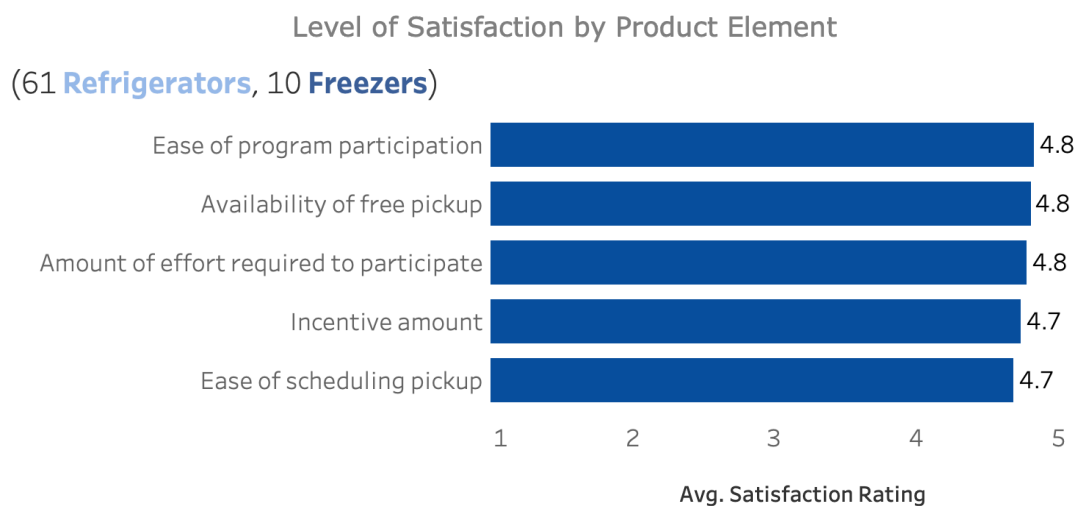
Average reported likelihood of recommending the product to friends, family, or colleagues

4.8 out of 5

Average reported satisfaction with the ease of participation, the free pickup, and the effort of participation

100%

Of participants reported a satisfaction rating of at least 4 or more (on a scale from 1 to 5) for every product element



2020 Colorado Refrigerator & Freezer Recycling Product Evaluation

Conclusions & Recommendations

The product has a strong influence on participating customers' decisions to recycle their appliances. For most responding participating customers, the product either removed a unit from the grid that would have otherwise remained in use or significantly accelerated a customer's decision to remove their appliance.

Most participating customer respondents reported that they decided to recycle their appliance through the product because of the convenience of the free pickup, the financial incentive, and the environmental benefits. However, most respondents also reported that they needed to conduct additional research about product eligibility requirements before deciding to participate in the product.

Participating customer respondents tended to have relatively high household incomes, suggesting that product staff's perceptions about the demographic composition of participating customers is accurate.

Participating customer respondents reported high satisfaction with all elements of their experience with the product.

The evaluation team recommends applying the retrospective NTGR of 0.73 if no program changes are made. If Xcel Energy adjusts marketing messaging and conducts targeted outreach to a broader customer base, as described in recommendations 2 and 3a below, the evaluation team recommends applying a prospective NTGR of up to 0.80. The primary contributor to estimating the NTGR ratio below 0.80 is the relatively low savings Xcel Energy can claim from newer refrigerators recycled through the product.

Revisit marketing messaging to include prominent references to the eligibility requirements, the convenience and ease of participation relative to alternatives, and the environmental benefits. This change would decrease existing barriers to participation and allow customers to participate quickly without needing to conduct additional research prior to deciding to choose Xcel Energy's appliance recycling product.

Pursue deeper product savings by conducting additional outreach to low-income customers. The evaluation team recommends partnering with the marketing teams for Xcel Energy products that serve low-income customers (e.g., Multifamily) to tune the product's marketing campaign to reach low-income residential customers.

Pursue deeper product savings by conducting additional research around nonparticipating customer decision-making and implementing findings from that research. To reach deeper savings, the Xcel Energy team should conduct focus groups with target customer groups to characterize their decision-making processes and identify product improvements.

Maintain the current product implementation approach and continue to track product satisfaction to identify any threats to product satisfaction.

1. INTRODUCTION

Xcel Energy offers a comprehensive array of energy services and products to its customers, including demand-side management (DSM). For its 2020 product evaluations, Xcel Energy sought to understand the role a selection of products play in changing the marketplace, to analyze that influence on customer choices, and to use the findings to improve customer experience and ensure industry-leading product performance. To accomplish this, Xcel Energy contracted with EMI Consulting to evaluate four products offered in Colorado and Minnesota in 2020.¹ This report focuses solely on the Refrigerator and Freezer Recycling Product offered in Colorado. This introduction section includes an overview of the product and the evaluation approach, and it describes the organization of the report.

1.1 PRODUCT OVERVIEW

The Colorado Refrigerator and Freezer Recycling Product offers rebates to Xcel Energy single-family residential customers who recycle working refrigerators and freezers through Xcel Energy. Rebates are offered to encourage Xcel Energy residential customers to remove old refrigerators and freezers from the electric grid, resulting in energy savings. As part of a refrigerator/freezer pick up order, Xcel Energy will also recycle air conditioners, although this appliance is not eligible for a rebate. The product relies on print and email marketing to directly engage customers with the product. In 2020, the product added social media campaigns. In 2019, the Colorado Refrigerator and Freezer Recycling Product claimed over 5.7 GWh in energy savings (Table 1-1).

¹ The products selected for evaluation by EMI Consulting in 2020 include: Energy Efficient Showerheads (CO & MN), Refrigerator and Freezer Recycling (CO), Small Business Lighting Efficiency (CO), and Business LED Instant Rebate (CO).

Table 1-1. CO Refrigerator & Freezer Recycling Savings, January-December 2019

Measure	Units		kWh		kW	
	Quantity	% of total	Quantity	% of total	Quantity	% of total
Secondary Refrigerator	3,124	44.6%	2,648,881	46.10%	473.47	44.8%
Primary Refrigerator	2,757	39.3%	2,034,893	35.42%	363.69	34.4%
Freezer	1,088	15.5%	1,050,392	18.28%	187.82	17.8%
Room AC Recycling	42	0.60%	11,668	0.20%	31.04	2.9%
Total	7,011	100%	5,745,834	100%	1,056.03	100%

Note: This is the population of participating customers receiving rebates between January and December 2019. These numbers are based on aggregated data provided to EMI Consulting in March 2020.

The Refrigerator and Freezer Recycling Product is not considering any major modifications for future cycles, although ARCA, the implementer, made significant modifications to their implementation approach in March 2020 in response to the COVID-19 pandemic. As an essential hazardous waste handling service, ARCA has continued operations but requested that customers move their old refrigerator units to the garage or curbside to minimize customer contact with ARCA pickup team members.

1.2 EVALUATION OVERVIEW

The 2020 evaluation team conducted an impact and process evaluation. Characterizing the **impact** of the product culminated in the recommendation of a net-to-gross ratio (NTGR) for the product. The assessment of key product **processes** characterized key drivers of, and barriers to, product awareness, product participation, and positive customer experience.

Table 1-2 summarizes the key evaluation objectives and evaluation questions by product goal. The following sections describe each product goal, and their respective evaluation objectives and questions in greater detail.

Table 1-2. Evaluation Overview

Product Goal	Evaluation Objectives	Evaluation Questions
Positively impact residential energy consumption	Obj1-1. Estimate net-to-gross ratio Obj1-2. Identify opportunities for increasing product impact	Q1-1. To what extent is the product reducing energy consumption? Q1-2. What does the Colorado market for secondhand appliances look like?
Increase awareness	Obj2-1. Assess effectiveness of current marketing approaches Obj2-2. Identify opportunities for increasing product awareness among key customer segments	Q2-1. To what extent are nonparticipating customers aware of the product? Q2-2. How are customers learning about the product? Q2-3. How do other utilities build customer awareness?
Increase participation	Obj3-1. Identify and characterize barriers to, and drivers of, product participation Obj3-2. Identify opportunities for increasing product participation	Q3-1. What motivates customers to participate? Q3-2. What barriers to participation do customers face? Q3-3. How do other utilities drive customer participation?
Optimize customer experience	Obj4-1. Assess customers' experiences with the product Obj4-2. Identify opportunities for improving customer experience	Q4-1. How do customers experience the product? Q4-2. How do other utilities optimize the customer experience?

IMPACT RESIDENTIAL ENERGY CONSUMPTION

To **characterize the impact of the Refrigerator and Freezer Recycling Product** on the residential market, the evaluation team estimated a net-to-gross ratio (NTGR) [**Obj1-1**] and identified opportunities for increasing the product's impact [**Obj1-2**]. To achieve these objectives, the evaluation team collected and analyzed data from participating and nonparticipating customer phone and web surveys to assess the extent to which the product is reducing load on the electrical grid [**Q1-1**].

More details on the evaluation team's approach for estimating NTGR can be found in Section 2.2 of this report.

INCREASE PRODUCT AWARENESS

Product staff frequently mentioned an interest in **increasing customers' awareness of the product**. To assist with achieving this goal, the evaluation team assessed the effectiveness of current marketing approaches [**Obj2-1**] and identified opportunities for increasing customer awareness of the product among key customer segments [**Obj2-2**]. To achieve these objectives, the evaluation team collected and analyzed data from participating and nonparticipating customer

surveys and utility benchmarking interviews to understand the extent to which nonparticipating customers were aware of the product [Q2-1], how both participating and nonparticipating customers became aware of the product [Q2-2], and how other utilities increased awareness of their programs [Q2-3].

INCREASE PRODUCT PARTICIPATION

While the product regularly meets participation goals, product staff also frequently mentioned an interest in **increasing the number of product participating customers**. To assist with achieving this goal, the evaluation team identified and characterized the barriers to, and drivers of, product participation [Obj3-1] and identified opportunities for increasing product participation [Obj3-2]. To achieve these objectives, the evaluation team collected and analyzed data from participating customer surveys and utility benchmarking interviews to identify the factors that motivated customers to participate in the product [Q3-1], factors that acted as barriers to product participation [Q3-2], and ways that other utilities drove participation [Q3-3].

OPTIMIZE CUSTOMER EXPERIENCE

While product staff reported that customers were generally satisfied with the product, most product staff expressed an interest in **optimizing customers' experience with the product**. To assist with achieving this goal, the evaluation team characterized customers' experiences with the product [Obj4-1] and identified opportunities for improving those experiences [Obj4-2]. To achieve these objectives, the evaluation team collected and analyzed data from participating customer surveys to characterize customers' experiences with the product [Q4-1] and identify best practices from other utilities for optimizing customer experience [Q4-2].

1.3 REPORT ORGANIZATION

The following chapters organize the evaluation findings into two components: impact and process evaluation results. Chapter 2 details the evaluation approach and results of the net impact evaluation and the attribution of product impacts using a standard net-to-gross ratio (NTGR) analysis. Chapter 3 discusses the process evaluation approach and results and is broken down into three broad categories that align with process research objectives: (1) Product Awareness, (2) Product Participation, and (3) Customer Experience. Conclusions and recommendations are presented in Chapter 4. The evaluation plan, data collection instruments, and task-specific findings are provided in this report's appendices.

2. IMPACT FINDINGS

A central component of this evaluation was the estimation of the net-to-gross ratio (NTGR) for the Xcel Energy Refrigerator and Freezer Recycling Product in Colorado. For demand-side management (DSM) products, the NTGR is a metric that estimates the influence of the product on the target market. It is used both as a benchmarking indicator of effectiveness and to adjust reported gross energy savings to account for energy efficiency that would occur in the absence of a program. NTGR results can indicate opportunities for Xcel Energy to adjust the design and implementation of its products to increase the cost-effectiveness of both individual products and the entire portfolio. The NTGR includes several factors that create differences between gross and net savings, such as free-ridership and secondary market effects. Unlike most NTG estimations, the appliance recycling protocol does not call for an analysis of spillover or market effects, as the product goal is to remove appliances from the grid rather than to replace or install equipment. The evaluation team estimated a retrospective NTGR based on data reported by customers and trade partners, and then recommended prospective NTGRs based on potential changes to the product's design.

Note that a variety of factors, including the maturity of the product, the maturity of the technologies it promotes, product intervention strategies, and cross-product coordination strategies can affect the level of free-ridership. The evaluation team has taken care to present our NTGR results with this context in mind.

This chapter presents:

- **Key Impact Findings** – The key findings section presents the recommended NTGR based on the evaluation team's synthesis of findings from market actors.
- **Net-to-Gross Approach** – The approach section presents an overview of the evaluation team's methods to estimate the recommended NTGR.
- **Net-to-Gross Ratio Inputs** – This section presents qualitative and quantitative data that support the NTGR estimates.

2.1 KEY IMPACT FINDINGS

This section presents a summary of key findings from the impact evaluation for the Colorado Refrigerator and Freezer Recycling Product, including retrospective and prospective NTGR recommendations. The evaluation team estimated retrospective NTGRs based on the quantitative and qualitative results of the customer and trade partner research. Then, the team recommended a prospective NTGR based on potential changes to the product design, as presented in the following section.

RETROSPECTIVE NET-TO-GROSS RATIO

The evaluation team estimated **a retrospective NTGR of 0.73 for kWh** for the Refrigerator and Freezer Recycling Product, based on participating and nonparticipating customer responses. To estimate this NTGR, the evaluation team took the following steps:

1. Analyzed data from participating customer surveys to assign initial free-ridership (FR) scores to each individual survey respondent. These scores were based on what participating customers reported that they would have done with the appliance in the absence of the product. Based on their response to this question, respondents were assigned *initial* free-ridership scores based on the standard NTG protocol. The scores were assigned based on whether they would have kept the appliance in operation (FR = 0), transferred ownership to another person or organization (FR = 0.5), or discarded it in a way that would permanently remove it from the grid (FR = 1).
2. Using the recommended “enhanced approach” of the NTG protocol for appliance recycling programs, the initial free-ridership score of 0.5 for transferred units was revised to incorporate findings from interviews with secondary market actors. These interviewees generally reported that approximately 70% of used refrigerators and freezers are re-sold in the Colorado market. The evaluation team used this information to adjust free-ridership scores of all participating customers who reported they would have transferred or sold the appliance absent the product from FR = 0.5 to FR = 0.3. This 0.3 value represents the approximately 30% of used appliances that would have been removed from the grid even in the absence of the product.
- The evaluation team applied a series of adjustments to initial FR scores for individual survey respondents based on the following factors:
 - Perceived difficulty of hauling the appliance to dispose of it
 - Social desirability bias in responses
 - Small (6-12 month) acceleration in disposing of unit
 - Large (12+ month) acceleration in disposing of unit
- Adjusted FR scores for each individual were multiplied by the kWh savings for each respondent category. The sum of these final, weighted scores brought the final free-ridership value to 0.27. and the final retrospective net-to-gross ratio to 0.73.
- To estimate the overall NTGR, the evaluation team subtracted the free-ridership ratio from 1. Because the appliance recycling methodology does not include market effects or spillover, the final retrospective NTGR is 0.73. Detailed methodology for the NTGR estimates can be found in Section 2.2.

PROSPECTIVE NET-TO-GROSS RATIO

The product team did not report any known changes to the product in the coming years that might affect the prospective NTGR. However, if Xcel Energy implements

the recommendations related to marketing strategy and broadening the participating customer base as outlined in Chapter 4, the evaluation team anticipates that the NTGR will increase. The evaluation team recommends a **prospective NTGR of 0.80**. The 0.80 prospective NTGR is an estimate based on predicted reductions in free-ridership if Xcel Energy completes recommendations 2 and 3a.

2.2 NET-TO-GROSS APPROACH

The evaluation team developed the NTGR for the Colorado Refrigerator and Freezer Recycling Product using a self-report approach, based on participating customer survey results in combination with additional research data inputs. The methodology used in this evaluation was informed by the Core Residential Protocol in the *2020 Illinois Statewide Technical Reference Manual for Energy Efficiency Version 8*, in *Figure 4-2 on page 59 of Volume 4: Cross-Cutting Measures and Attachments* (hereafter referred to as the “Illinois TRM”).

The data inputs to the NTGR analysis included:²

- **Participating customer surveys** – focused on determining free-ridership for product participating customers.
- **Nonparticipating customer surveys** – focused on secondary market effects.
- **Interviews with secondary market actors (used refrigerator sellers and retailers)** – focused on determining overall secondary market effects.
- **Known product changes in upcoming years** – implications for planned changes in product design, including additional measures.

The evaluation team used random selection to sample for both the participating and nonparticipating customer surveys. For the participating customer survey, we used stratified random sampling to generate a sample of participating customers who were representative of the 2019 participating customer population in terms of whether they had recycled a primary refrigerator, a secondary refrigerator, or a freezer. The team used true random sampling to generate the nonparticipating customer sample from the population of 10,000 nonparticipating customers supplied by Xcel Energy. The sample sizes were sufficient to reach a 90% level of confidence with a minimum of +/- 10% relative precision.

To develop the sample for secondary market actor interviews, the evaluation team researched the used appliance market in Colorado and talked with an expert in the used appliance market. The team drew an approximate population of used appliance sellers and retailers. The evaluation team attempted to interview used appliance sellers with both high and low sales volumes.

² Additional descriptive detail on these research activities appears in Chapter 3 and in the appendices.

The evaluation team used self-reported data from participating customers to develop an initial FR score. Then, it made qualitative adjustments to that score using data from nonparticipating customer surveys and interviews with used refrigerator sellers and retailers. Data from all the sources listed above were then used to construct a logical narrative of product attribution, and to estimate the prospective NTGR for the product. The remainder of this section details the approach to determining free-ridership, including an explanation of free-ridership in the context of appliance recycling programs and how the evaluation team applied this to the Xcel Energy Refrigerator and Freezer Recycling Product.

FREE-RIDERSHIP

Free-ridership is a measure of the amount of a product's claimed savings that would have occurred in the absence of the product. The primary use of free-ridership is to understand the extent to which the product influenced the customer to recycle their refrigerator or freezer. The evaluation team assessed free-ridership primarily using participating customer self-report surveys. Free-ridership is assessed on a scale from 0 to 1, where 1 indicates that the product had 100% free-ridership and all product savings would have occurred without any of the product's rebates or assistance.

For the Refrigerator and Freezer Recycling Product, free-ridership is a function of how many working and in-use appliances they would have remained on the electric grid absent the product. Free-ridership is low when the product contributed to a significant decrease in the number of appliances on the grid.

To determine free-ridership, the evaluation team divided participating customers into one of three general categories:

Group A – Non-Free-Riders

This group includes participating customers who said that they would have kept their appliance in use and plugged in if the Xcel Energy product did not exist. Energy savings from recycling these units are assumed to be fully attributable to the product and are assigned a free-ridership score of 0.

Group B – Possible Free-Riders

This group includes participating customers who said that they would have transferred their appliance to another individual, charity, or retailer. For these cases, the evaluation team determined secondary market impacts, or the likely fate of the appliance after transfer. Participating customers who said they would have transferred the unit were assigned an initial free-ridership score of 0.5. The evaluation team then attempted to determine when this transfer would have happened. If it would have happened between 6 and 12 months after product participation, free-ridership was decreased by 0.25 to a score of 0.25, and if it would have happened 12 months or more after product participation, free-ridership was decreased by 0.5 to a score of 0.0.

Group C – Free-Riders (with exceptions) – This group includes participating customers who reported that they would have discarded their appliance in a way that would have permanently removed the unit from service anyway, even if the Xcel Energy product did not exist. Participating customers who would have hauled or hired someone to haul the appliance to a landfill or recycling center were initially assumed to be full free-riders, as they would have removed the appliance from the electric grid without the product. However, if participating customers reported they would have removed the appliance from the electric grid more than six months after participating in the product, the evaluation team decreased free-ridership with the assumption that the product incentivized the participating customer to remove the appliance from the electric grid earlier than they otherwise would have. The customer's expected delay to recycling their appliance also indicates a decreased probability they would have recycled when they indicated. Free-ridership for participating customers who reported they would have removed the appliance between 6 and 12 months after product participation was decreased by 0.5 to a score of 0.5. For those who reported they would have removed the refrigerator from their home more than 12 months after participation, the evaluation team assumed the product had full influence on their decision to recycle the refrigerator. Free-ridership for these individuals was assessed at 0.

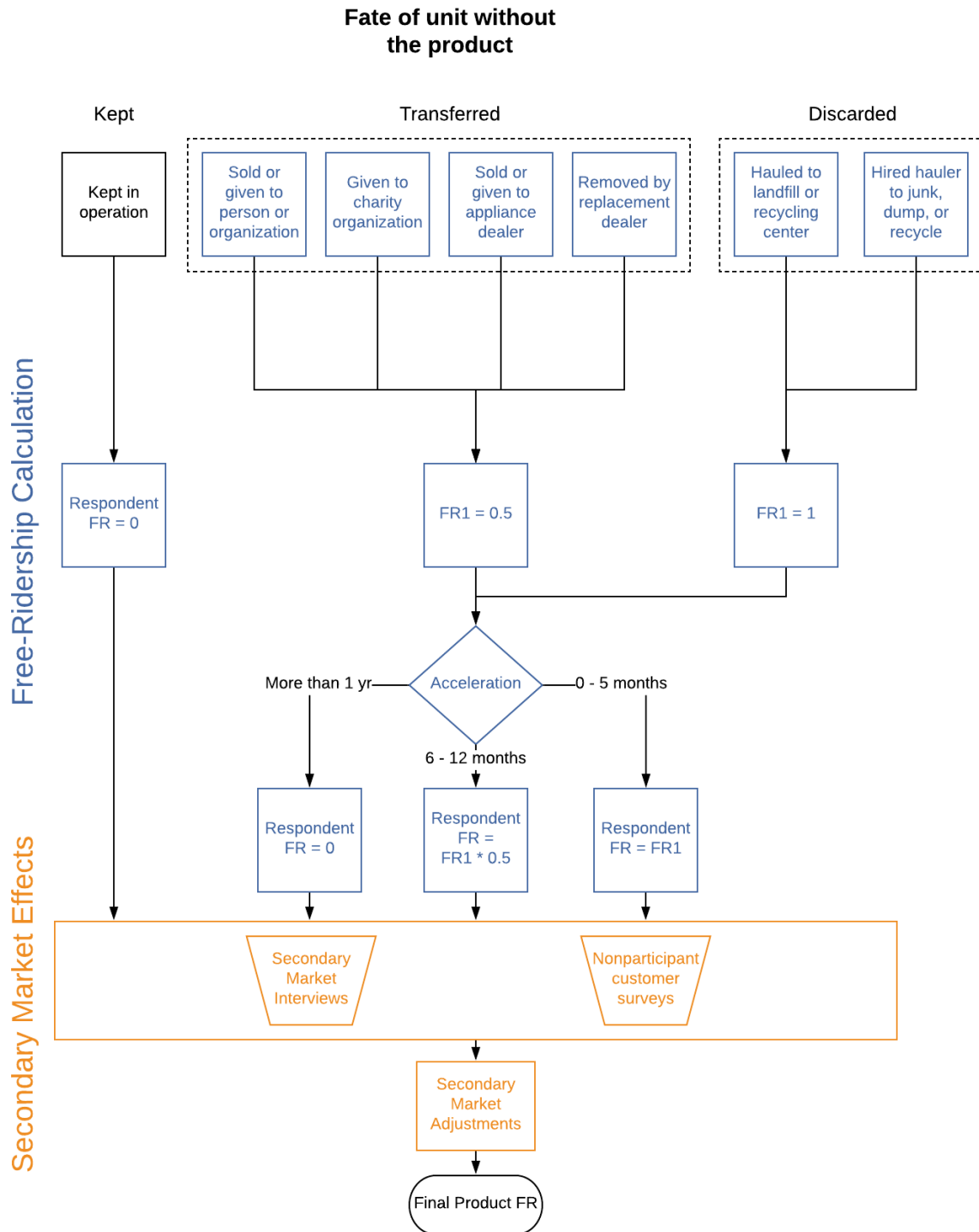
Secondary Market Impacts. To determine what likely would have happened with units that participating customers reported would have been transferred absent the product, the evaluation team conducted research into secondary market impacts. Secondary market impacts refer to what the would-be acquirers would have done if they had not acquired the appliance. Generally, there are three possible options for these acquirers:

- A. **None of the would-be acquirers would have purchased a different unit** – All acquirers were opportunistic acquirers and were not looking for an additional unit. By participating in the product, participating customers reduce the number of inefficient units in the market.
- B. **All of the would-be acquirers would have purchased a different unit** – No acquirers were opportunistic, and all of them were looking for an additional unit, either new or used. By participating in the product, participating customers have no effect on the total number of units in the market.
- C. **Some of the would-be acquirers would have purchased a different unit** – Some acquirers were opportunistic while others were not. The evaluation team used data from nonparticipating customer surveys and interviews with used appliance retailers and private sellers to estimate this proportion.

Based on research into secondary market impacts, the evaluation team qualitatively adjusted free-ridership scores for the product's participating customers to reflect the market reality.

Figure 2-1 describes the logic used for estimating free-ridership for the Refrigerator and Freezer Recycling Product.

Figure 2-1. Free-Ridership Estimation Methodology



DETERMINATION OF NET-TO-GROSS RATIO

The evaluation team estimated the CO Refrigerator and Freezer Recycling Product's initial NTGR using the following formula:

$$\text{Product NTGR} = 1 - (\text{Free Ridership Ratio})$$

The evaluation team utilized all the information collected about the product (through customer surveys and follow-up interviews, and secondary market actor interviews) to construct a logical, internally consistent, and coherent assessment of product attribution that attempted to identify to characterize the proportion of the product's gross energy savings were attributable to Xcel Energy. Based on these results, the evaluation team estimated **a retrospective NTGR of 0.73** that is consistent with the pattern of results across data collection efforts. Should Xcel Energy implement the recommendations found in this report, the evaluation team recommends **a prospective NTGR of 0.80**.

2.3 NET-TO-GROSS RATIO INPUTS

As described in Figure 2-1, the recommended NTGR is based on two primary inputs: the free-ridership score and qualitative adjustments from secondary market actors. The free-ridership score can be further sub-divided into two parts: (1) appliance fate without the product and (2) adjustments for social desirability bias in participating customer responses and acceleration of removing units from the electric grid. This section describes the results for each of these inputs in more detail.

APPLIANCE FATE ABSENT THE PRODUCT

Determining the fate of the appliance absent the product required understanding the decision-making processes that customers go through when replacing or removing an appliance from their home. The evaluation team divided this decision-making process into two categories:

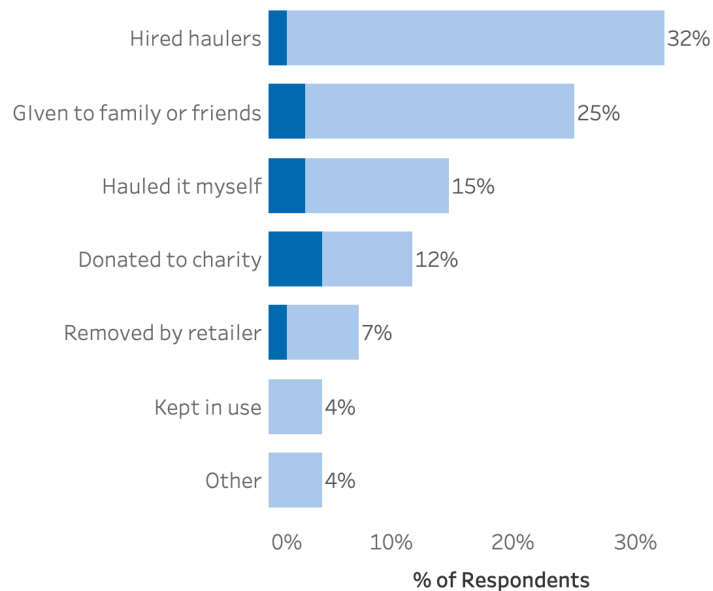
- **Self-report data**, based on participating and nonparticipating customers' intended and actual actions around appliances they intended to replace
- **Secondary market data**, based on interviews with used appliance sellers to determine the likelihood that a used appliance would be removed from the electric grid versus transferred to a different household

SELF-REPORT DATA

To characterize what would have happened to the appliance in the absence of the product, the evaluation team asked participating customers directly what they would have done without the product. As shown in Figure 2-2, the largest percentage (32%) of respondents who recycled their unit through the product reported they would have hired haulers had it not existed. Just 4% of respondents reported they would have kept their units.

Figure 2-2. Fate of Unit Without Refrigerator & Freezer Recycling Product

(9 Freezers, 59 Refrigerators)



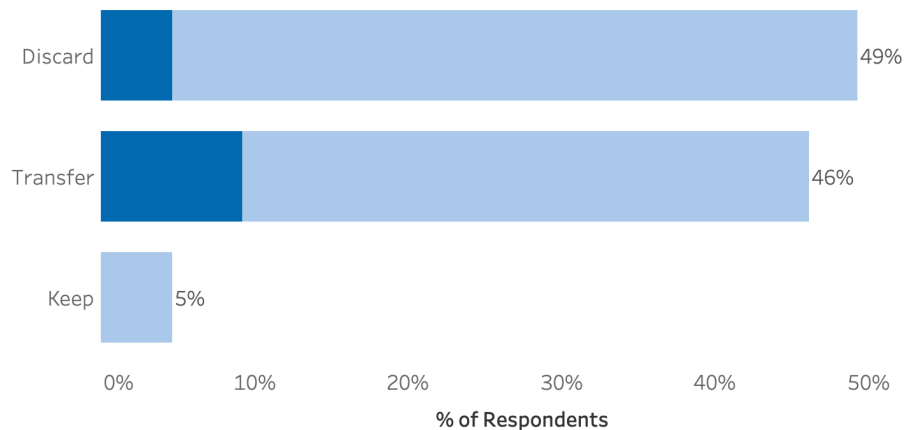
To better understand how the responses shown in Figure 2-2 relate to free-ridership, the evaluation team grouped responses into one of the three distinct categories defined in the Illinois TRM:

- **Group A: Non-Free-Riders.** People who would have kept their appliance absent the product. Initial free-ridership = 0.
- **Group B: Possible Free-Riders.** People who would have transferred their appliance to someone else by giving it to family or friends, a charity organization, or a retailer. Initial free-ridership = 0.5.
- **Group C: Full Free-Riders.** People who reported they would have discarded their unit by hiring haulers, hauling to the landfill themselves, or recycling themselves. Initial free-ridership = 1.0.

Figure 2-3 depicts this more generalized breakdown of responses. Note that the three “other” responses in Figure 2-2 are not included in Figure 2-3, as these respondents indicated that they did not know what they would have done with their unit.

Figure 2-3. Fate of Unit Without Product (Grouped by Free-Ridership Category)

(9 Freezers, 56 Refrigerators)



SECONDARY MARKET ADJUSTMENT

The basic research methodology outlined in the Illinois TRM recommends a free-ridership ratio of 0.5 for individuals who reported they would have transferred their appliance to friends or family, a charity, or a retailer. The enhanced version of this methodology, which the evaluation team followed, recommends adjusting that ratio based on research in the secondary appliance market to understand the true ratio of transferred units removed from the electric grid (recycled or otherwise disposed of) versus transferred to a different user (sold or plugged in elsewhere).

Taking the responses to the secondary market actor interviews as a whole suggests that approximately 70% of the units that ended up in the hands of secondary market actors would have ended up being resold and plugged back into the electric grid. In other words, instead of assuming that the Xcel Energy product removed units that would have ultimately remained on the grid 50% of the time, findings from the secondary market actor interviews suggests that the product is responsible for removing approximately 70% of transferred units from the electric grid.

The evaluation team revised the FR score of participating customers who would have transferred their unit down from 0.5 to 0.3 to represent the finding that approximately 30% of units that would have been transferred would have been removed from the grid without the product.

Incorporating these inputs, the evaluation team assigned the following updated, Colorado-specific FR scores to each responding participating customer based on what they said would have happened in the absence of the product:

- Group A – Non-Free-Riders (would have kept unit): 0.0
- Group B – Possible Free-Riders (would have transferred unit): 0.3
- Group C – Free-Riders (would have disposed of unit): 1.0

FREE-RIDERSHIP ADJUSTMENTS

After characterizing customers as non-free-riders, possible free-riders, or free-riders and assigning base FR scores to each responding participating customer, the evaluation team applied a series of adjustments to the FR score. These adjustments included the “Hauling Difficulty Adjustment,” “Social Desirability Bias Adjustment,” and “Acceleration Adjustment.” These adjustments and their impact on the FR score are described in further detail below.

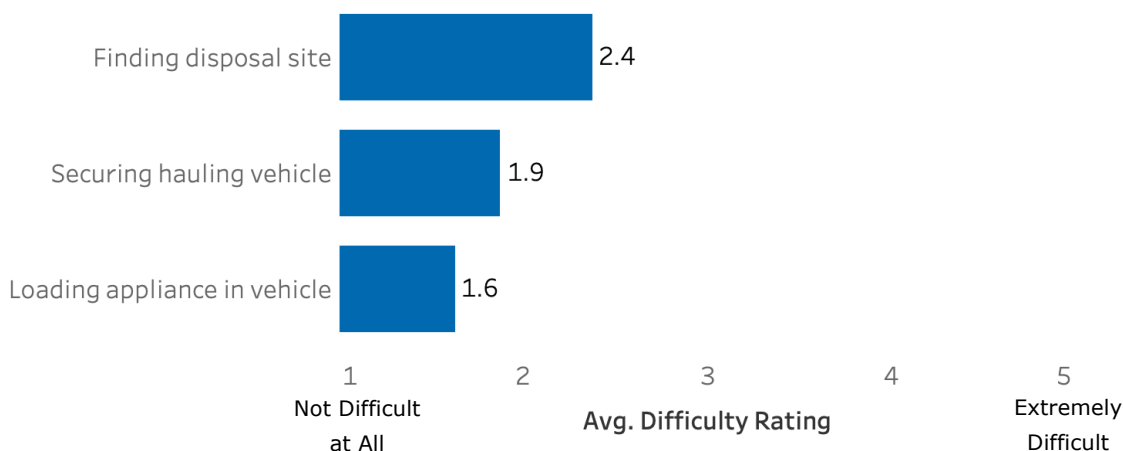
HAULING DIFFICULTY ADJUSTMENT

This adjustment was applied to several responding participating customers who reported that, in the absence of the product, they would have hauled the unit to a landfill or recycling center themselves or paid someone to haul it. These respondents were assigned an initial FR score of 1.0 based on the assumption that the unit would have been taken off the electric grid even without the product. However, the evaluation team assigned an FR score of 0.5 for respondents in this group who also reported that they would have had significant difficulty hauling the unit themselves or who reported that they would have paid an unrealistically low rate for someone to haul the unit to the landfill or recycling center.

Participating customers who reported in the survey that they would have hauled the unit to be removed from the grid by themselves were asked how difficult several tasks would have been on a 1 to 5 scale, with 1 meaning “not at all difficult” and 5 meaning “very difficult.” Average responses to these questions are shown in Figure 2-4. Note that not all participants who mentioned that they would have hauled the units away themselves responded to this follow-up question.

Figure 2-4. Average Difficulty Completing Self-Hauling Tasks

(6 Refrigerators, 2 Freezers)



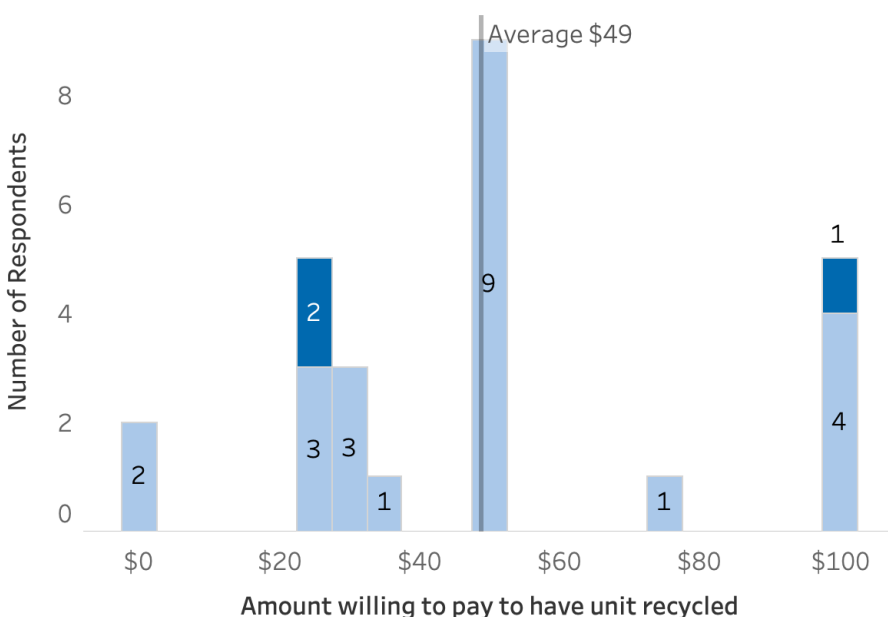
The evaluation team reduced the free-ridership score from 1 to 0.5 for participating customers whose difficulty ratings across these three questions averaged 3 or greater. This is based on the assumption that approximately half of these respondents would have faced significant difficulty removing their unit themselves and are therefore more appropriately categorized as “possible free-riders.”

Participating customers who reported that they would have hired haulers to dispose of their unit were asked how much they would have been willing to pay to have their unit hauled. On average, respondents reported they would have been willing to pay \$49 to dispose of their appliance, with responses ranging from \$0 to \$100. These responses are summarized in Figure 2-5.

Figure 2-5. Number of Respondents by Amount Willing to Pay for Hauling

How much would you have paid to dispose of your appliance?

(23 Refrigerators, 3 Freezers)



The evaluation team researched typical rates for hauling refrigerators and freezers for disposal in Colorado, both through formal hauling companies and through gig services such as Task Rabbit. The team found no instances in which these units could be hauled for less than \$50. Based on this research, the team adjusted the free-ridership scores for respondents who said they would have paid less than \$50 to haul their unit from 1.0 to 0.5. This adjustment reflects the assumption that respondents who reported a willingness to pay less than \$50 for hauling away their unit were approximately half as likely to have actually paid someone to haul their unit.

SOCIAL DESIRABILITY BIAS ADJUSTMENT

This adjustment was applied to several responding participating customers who reported that they would have disposed of the unit themselves, hired someone to haul the unit, or transferred their unit to someone else in the absence of the product. The evaluation team coded respondents in this group based on whether their responses indicated that their reported assessment of what they would have done in the absence of the product may be inaccurate due to social desirability bias. Social desirability bias refers to the well-documented phenomenon of survey respondents providing answers that they perceive to be socially acceptable but do not accurately represent reality. This has been documented as a serious issue with estimating net-to-gross scores for appliance recycling programs, as respondents may—intentionally or unintentionally—inaccurately report that they would have recycled their unit anyway without the program because that is perceived to be a socially desirable response.³

The available evidence suggests that social desirability bias is a meaningful factor in participants' responses to a question asking what they would have done in the absence of the product. Non-participants, who were screened to include only Xcel customers who reported that they planned to recycle their refrigerator or freezer last year, overwhelmingly reported that they ended up keeping their appliance (Figure 2-6. Percent of Non-Participants by Fate of UnitFigure 2-6). Participants, however, overwhelmingly reported that they would have discarded or removed their unit from the grid (Figure 2-7). While it is important to note that non-participants and participants are not perfectly equivalent, the difference in response patterns is striking enough that it warranted additional investigation and adjustment to the scores (see footnote 3).

³ EPATEE. (2020). *Evaluating net energy savings*.
https://epatee.eu/sites/default/files/files/epatee_topical_case_study_evaluating_net_energy_savings.pdf

Figure 2-6. Percent of Non-Participants by Fate of Unit

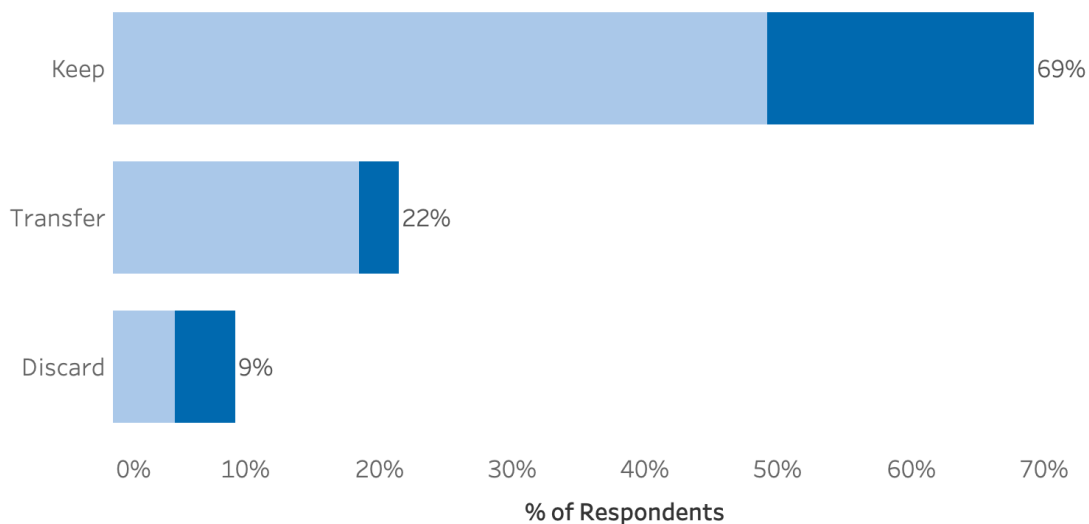
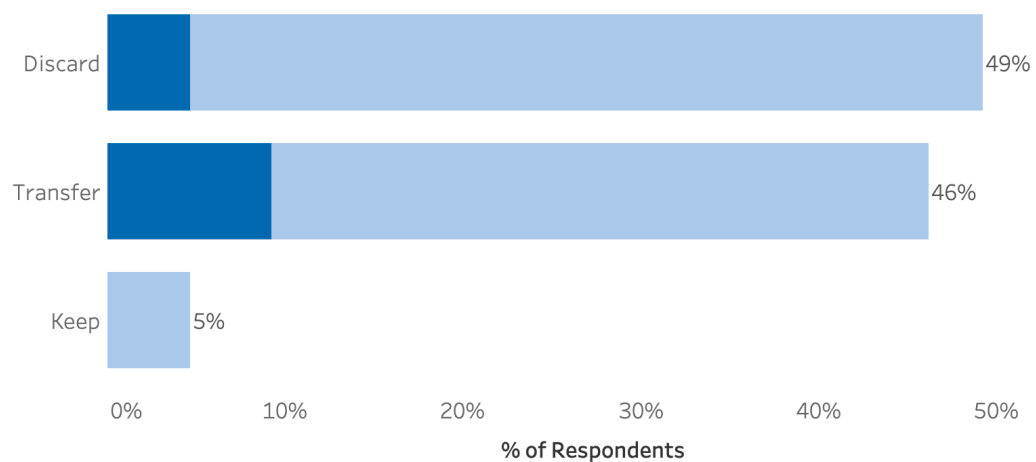


Figure 2-7. Percent of Participants by Reported Unit Fate Without Product



To apply this adjustment, the evaluation team referred to past evaluations that applied a social desirability bias adjustment.⁴ In these evaluations, the evaluators divided a participating customer's FR score by 2 if the respondent reported that they would have done the desirable behavior without the program, but their

⁴ ADM Associates. (2016). *Evaluation of 2015 Public Service Company of New Mexico Energy Efficiency & Demand Response Portfolio*.
<https://www.pnm.com/documents/396023/3157050/2015+Independent+Measurement+%26+Verification+Report+-+Part+1+ADM+Associates.pdf/87814b15-cc02-4c8f-9fb5-50d39dd65fc0>

responses to an open-ended question about why they engaged in the energy efficient behavior reference core elements of the program. For example, this adjustment was applied to participating customers who purchased incentivized bulbs, reported that the incentive program had no influence over their behavior but also reported that they purchased the efficient bulbs because it was a “great deal” or because of the incentive in response to an open-ended question.

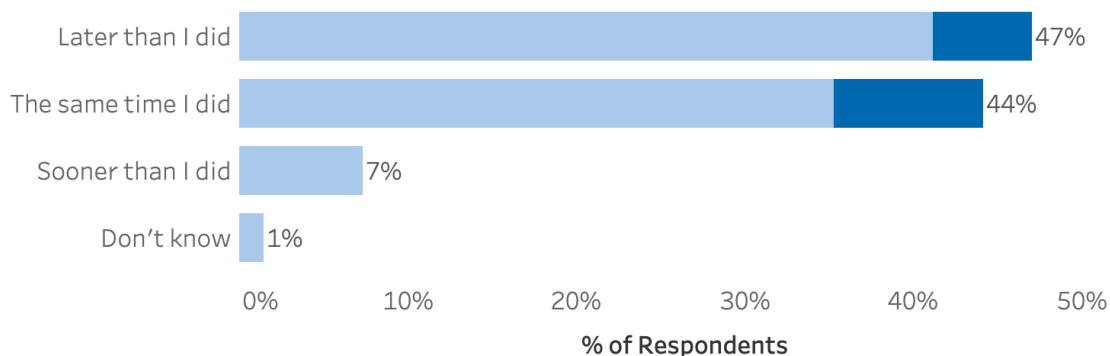
Drawing from these precedents, the evaluation team interpreted respondents with this pattern of conflicting responses—reporting that they would have disposed of the unit anyway, but also reporting that core elements of the product influenced their decision to recycle their appliance—as being approximately half as likely to have actually taken the action they reportedly would have taken. For the Refrigerator and Freezer Recycling Product, this adjustment was applied for supposed free-riders and possible free-riders who reported some variation of “They paid us, and they were willing to come out to handle it” when asked why they recycled their appliance. The evaluation team reduced the FR score for respondents in this group by half.

ACCELERATION ADJUSTMENT

Finally, the evaluation team applied an adjustment to the free-ridership score for participating respondents who reported that the product influenced the timing of when they recycled their appliance. Specifically, it applied an adjustment to participants who reported they would have transferred their unit or removed their unit from the electric grid without the product, but who also said that they would have taken this action at least six months later than they did with the product. Figure 2-8 displays the number of respondents who would have transferred or removed their refrigerator or freezer without the Xcel Energy product by the amount of time their action would have been delayed.

Figure 2-8. When Respondents Would Have Acted Without Product

(58 Refrigerators, 10 Freezers)



The evaluation team multiplied the free-ridership scores of participating respondents by 0.5 if they reported that they would have removed their unit six

months to a year later than they did with the product. The evaluation team multiplied free-ridership scores of participating respondents by 0.0 if they reported that they would have removed their unit more than one year later than they did with the product. This adjustment reflects the assumption that, for these respondents, the product is responsible for reducing energy consumption for at least six months. It also reflects the assumption that the greater the reported delay in taking action, the less likely a respondent is to actually take that action.

FINAL FREE-RIDERSHIP

After applying these adjustments, the evaluation team weighted participating customer free-ridership scores by the proportion of total energy savings achieved by the respondent. This calculation is summarized in Equation 1.

Equation 1. Free-Ridership Estimation

$$FR = W(FR1 \times S \times H \times D)$$

Where

W = Weight (% of total respondent energy savings)

FR1 = Base Free-ridership (from question about fate of the unit in absence of the product)

S = Secondary Market Actor Adjustment (0.3 if unit would be transferred, otherwise 1)

H = Hauling Difficulty Adjustment (0.5 if average reported hauling difficulty ≥ 3 , otherwise 1)

D = Social Desirability Adjustment (0.5 if actions driven by core product features, otherwise 1)

The final free-ridership ratio was estimated to be 0.27.

RETROSPECTIVE NET-TO-GROSS

Using the net-to-gross formula, the evaluation team estimated a NTGR of 0.73. The generalized formula the evaluation team used to determine NTGRs is shown in Equation 2 below.

Equation 2. Generalized Net-to-Gross Ratio

$$NTGR = 1 - (\text{Free-Ridership Ratio})$$

Using this formula, the kWh NTGR is shown in Equation 3. The free-ridership ratio of 0.27 here is influenced by a large number of participating customers reporting they would have hauled or removed the appliance themselves in the absence of the product.

Equation 3. kWh Net-to-Gross Ratio

$$NTGR = 1 - (0.27) = 0.73$$

PROSPECTIVE NET-TO-GROSS

The prospective NTGR takes future changes and adjustments to the product into account. The product team did not report any known changes to the product in the

coming years, however the evaluation team did identify a number of changes to the product that are likely to increase the product's influence in the market. Specifically, to increase the product's influence on the marketplace, the evaluation team recommends:

- Focusing on educational marketing that:
 - Highlights eligibility requirements for potential participating customers, and
 - Emphasizes ease of participation, particularly as compared to arranging and paying for a self-haul disposal option.
- Prioritizing deeper savings by reaching out to customer bases that currently have low participation. These groups include non-white and low-income customers. This may be achieved by:
 - Aligning incentives amounts with kWh savings in the form of a tiered incentive structure or bonus incentive for older or less-efficient appliances, and
 - Partnering with marketing teams for Xcel Energy's low-income products to educate customers about the Refrigerator and Freezer Recycling Product.

Conducting additional research to understand how nonparticipating customers make decisions about how to dispose of refrigerators and freezers is likely to facilitate the process of gaining deeper savings by reaching out to new customer groups. While this research in itself will not change the prospective NTGR, the evaluation team believes it would nevertheless prove beneficial for the product in the long-term, as the product team identified reaching out to new customer groups as a challenge to implementation.

3. PROCESS FINDINGS

The evaluation team conducted a process evaluation to determine how Xcel Energy can optimize the design and delivery of the Colorado Refrigerator and Freezer Recycling Product to its customers. Specific research objectives of the process evaluation are listed in the bullets below:

- Assess effectiveness of current marketing approaches.
- Identify opportunities for increasing product awareness among key customer segments.
- Identify and characterize barriers to, and drivers of, product participation.
- Identify opportunities for increasing product participation.
- Assess customers' experiences with the product.
- Identify opportunities for improving customer experience.

To accomplish these objectives, the evaluation team elicited feedback from participating customers and nonparticipating customers in the Xcel Energy Colorado territory, as well as peer utilities and secondary market actors. This chapter presents key findings from the process evaluation, the evaluation team's approach to conducting the process evaluation, and specific findings relating to each evaluation objective. These findings, along with findings from the impact evaluation, inform the conclusions and recommendations presented in the final chapter.

3.1 KEY FINDINGS

The evaluation team found the following key findings from the process evaluation research:

- **Key Finding: Participating customers reported high satisfaction with all elements of their experience with the product.** Respondents indicated that they had a very high likelihood of recommending the product to a friend, family member, or co-worker (4.9 on a 1 to 5 scale). Furthermore, the average satisfaction rating ranged from 4.7 to 4.9 across those who recycled refrigerators and freezers, highlighting excellent customer satisfaction.
- **Key Finding: Word-of-mouth and direct engagement are important for increasing awareness.** About 40% of both refrigerator and freezer participating customers reported first becoming aware of the product through an Xcel Energy email. Word-of-mouth was the next most influential for those who recycled refrigerators (28%), whereas a postcard in the mail and "don't know" were tied at 20% of responses for those who recycled their freezers. Of those who recycled their refrigerators, 84% were already considering recycling or getting rid of their appliance, so it is likely that the emails they received provided these potential participating customers with an informational nudge, resulting in program participation. Out of both

refrigerator and freezer participating customers, 44% reported needing additional information in order to participate, especially in regard to eligibility requirements. Peer utilities also mentioned that most of their participating customers also learned about their programs through direct engagement or word-of-mouth.

- **Key Finding: Participating customers who considered alternatives would likely sell their units or use a retailer removal service, if not for participating in the product.** Of the 39% of participating customers who considered alternatives, selling their refrigerators was the most frequently mentioned alternative (38%), followed by having it removed by a retailer (21%). Participation appears to mainly be driven by the convenience of a free pick up, the monetary incentive, and environmental benefits.

In Section 3.2, we describe the overall approach used for the process evaluation research activities and, beginning in Section 3.3, we provide detailed results from all of these activities.

3.2 APPROACH

To accomplish the process evaluation objectives for the Refrigerator and Freezer Recycling Product, the evaluation team completed a suite of intersecting and complementary research activities in 2020. Appendix A.1 includes additional details about the evaluation plan. The following discussion highlights the research topics contributed by each research activity: participating customer surveys, nonparticipating customer surveys, peer utility interviews, and secondary market actor interviews.

PARTICIPATING CUSTOMER SURVEYS

The evaluation team conducted 71 telephone surveys with participating customers using customer records from Xcel Energy for the sample frames. The evaluation plan used for this project can be found in Appendix A.1. Sample sizes for the participating customer surveys were set at levels adequate to provide a 90% level of confidence with a minimum of +/- 10% relative precision.

For the purposes of this evaluation, a participating customer was defined as any residential customer in a single-family home that recycled a refrigerator, secondary refrigerator, or a freezer through the Xcel Energy product in 2019. The participating customer sample was stratified and populated proportional to kWh savings to ensure that the sample was representative across measure type. The participating customer survey was designed to address the following process research questions:

- How are customers learning about the product?
- What motivates customers to participate?
- What barriers to participation do customers face?
- How do customers experience the product?

Appendix B.2 contains the questionnaire used for the participating customer survey.

NONPARTICIPATING CUSTOMER SURVEY

The evaluation team conducted 73 telephone surveys with customers who did not participate in the Refrigerator and Freezer Recycling Product. The sample size of the nonparticipating customer survey was set at levels adequate enough to provide a 90% level of confidence with a minimum of +/- 10% relative precision. Process research questions for the nonparticipating customer survey are listed below:

- To what extent are nonparticipating customers aware of the product?
- What barriers to participation do customers face?

Appendix B.3 contains the instrument used for the nonparticipating customer surveys.

PEER UTILITY INTERVIEWS

In addition to the surveys with participating and nonparticipating customers, the evaluation team conducted five in-depth interviews with peer utilities. The peer utility research addressed the following process topics:

- How do other utilities build customer awareness?
- How do other utilities drive customer participation?
- How do other utilities optimize the customer experience?

SECONDARY MARKET ACTOR INTERVIEWS

In addition to the surveys with participating and nonparticipating customers, and the peer utility interviews, the evaluation team conducted eight in-depth interviews with secondary market actor interviews. This included five used appliance dealers, two new appliance dealers, and one industry expert. The secondary market actor interviews addressed the following process topics:

- To what extent is the product reducing load on the electric grid?
- What does the Colorado market for secondary appliances look like?

Appendix B.4 presents the interview guides used for these secondary market actor interviews.

3.3 DETAILED FINDINGS

This section provides a summary of findings from the process evaluation, presented by evaluation topics, which have been divided into three broad categories that align

with process research objectives: product awareness, product participation and customer satisfaction. Within these broad objectives, the evaluation team provided data relating to all relevant objectives:

- Product Awareness
 - Assess effectiveness of current marketing approaches.
 - Identify opportunities for increasing product awareness among key customer segments.
- Product Participation
 - Identify and characterize barriers to, and drivers of, product participation.
 - Identify opportunities for increasing product participation.
- Customer Experience
 - Assess customers' experiences with the product.
 - Identify opportunities for improving customer experience.

See Table 3-1 for an overview of how the evaluation team addressed each category across research methods.

Table 3-1. Process Evaluation Topics

Process Evaluation Topic	Research Effort			
	Participating Customer Surveys	Nonparticipating Customer Surveys	Peer utility Interviews	Secondary Market Interviews
n =	71	73	5	8
Product Awareness	✓	✓	✓	✓
Product Participation	✓		✓	
Customer Experience	✓			

PRODUCT AWARENESS

The first process evaluation objectives were to explore the effectiveness of current marketing strategies and identify how customers became aware of the product. Our research indicates that customers primarily learn about the product through direct marketing strategies. Customers reported that they heard about the product through word of mouth, emails, and website advertisements. In the following section, the evaluation team provides detailed results surrounding the awareness of the product, peer utility marketing strategies, and participating customer recommendations to increase customer awareness. The evaluation team includes

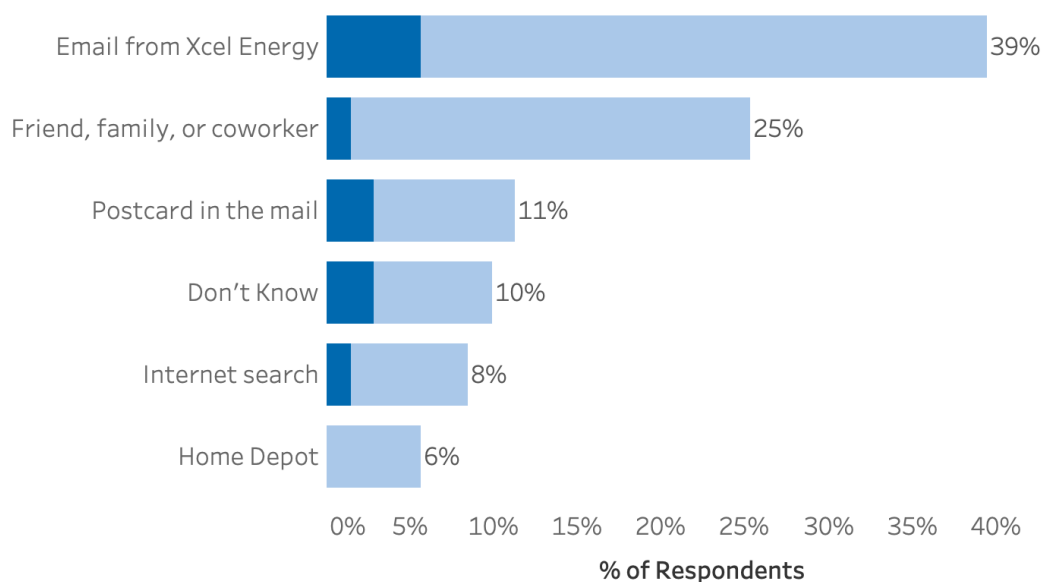
feedback on all of these themes from participating customers, nonparticipating customers, and trade partners where relevant.

PRODUCT AWARENESS: PARTICIPATING CUSTOMER PERSPECTIVE

The evaluation team asked participating customers how they first became aware of the Refrigerator and Recycling Product. Product awareness was assessed through all four research efforts. We found that participating customers first became aware of the product through varied sources, but emails and friends/family/coworkers were mentioned most frequently. Continued direct engagement from someone, such as neighbors or community members they know appears to increase product awareness for potential participants. An email from Xcel Energy was the first source of awareness of the product mentioned by 39% of participant respondents. Word-of-mouth was the next most influential method of learning of the product for those who recycled refrigerators (n=18) (see Figure 3-1).

Figure 3-1. Source of Product Awareness Mentioned First

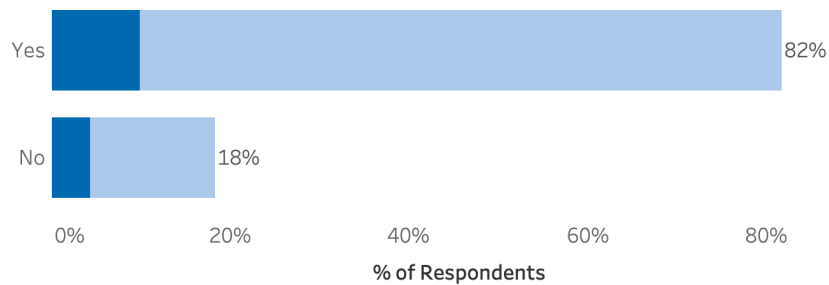
(61 Refrigerators, 10 Freezers)



To better understand participating customers' awareness of the product, we also asked whether they considered recycling their appliance before learning about the product. Of those who recycled their refrigerators, 84% were already considering recycling or getting rid of their appliance (Figure 3-2).

Figure 3-2. Did Respondents Plan to Remove Unit Before Participating

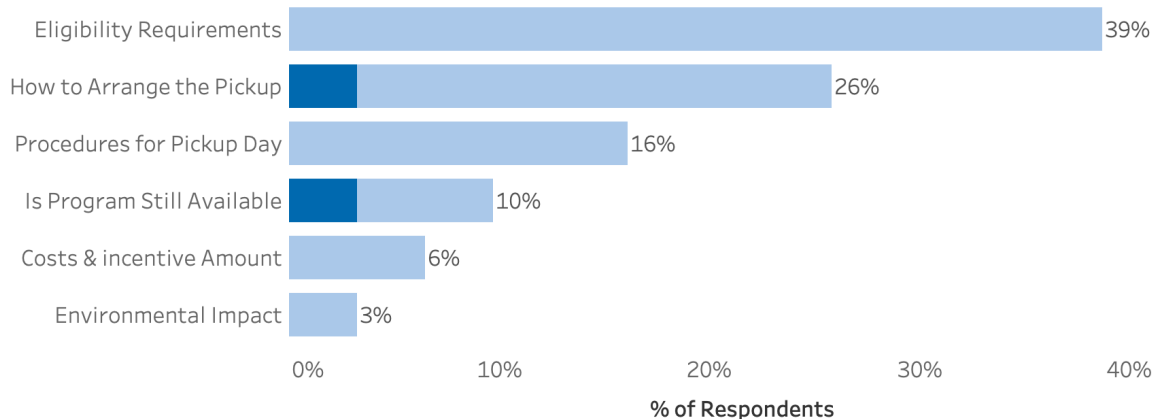
(10 Freezers, 61 Refrigerators)



The evaluation team also investigated whether customers needed more information after they first heard about the product. Of participating customers who recycled either a refrigerator or freezer, 18% indicated that they did not need more information after hearing about the product (32 participants with refrigerators and 8 with freezers respectively). However, the remaining 82% who did need additional information in order to participate primarily wanted information about the eligibility requirements for the product and the logistics of arranging and completing the pickup (See Figure 3-3).

Figure 3-3. Additional Information Needed Before Participating

(29 Refrigerators, 2 Freezers)

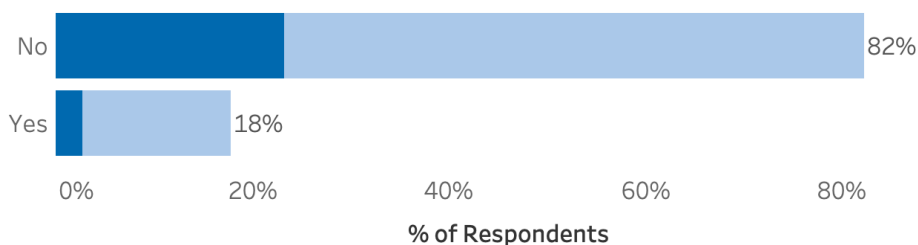


PRODUCT AWARENESS: NONPARTICIPATING CUSTOMER PERSPECTIVE

The evaluation team also asked nonparticipating customers whether they were aware of the Refrigerator and Freezer Recycling Product. An overwhelming majority of nonparticipating customers were not aware of the product (82% of nonparticipating customers). Nonparticipating customers who owned a freezer were slightly less aware of the product, as compared to their refrigerator counterparts (80% vs. 89% respectively (Figure 3-4).

Figure 3-4. Percentage of Nonparticipants Aware of Product

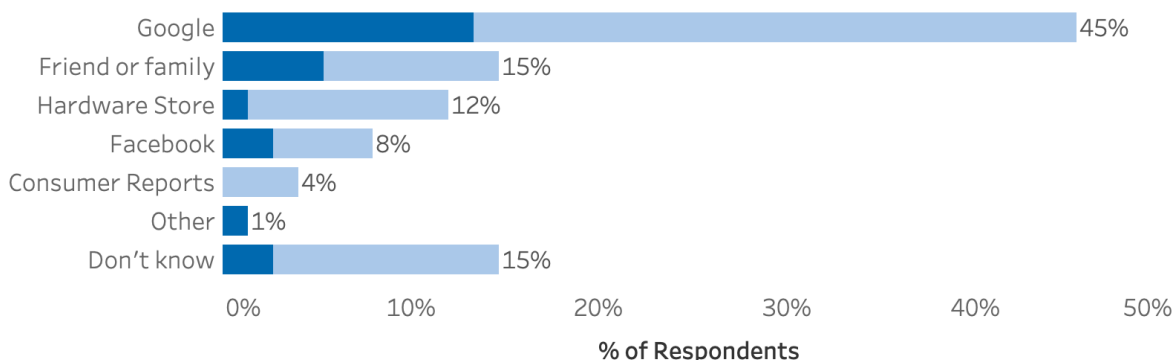
(54 Refrigerators, 19 Freezers)



Since the majority of the nonparticipating customers were not aware of the product, we were interested in finding out where they would go to find information on how to get rid of their appliance. Nonparticipating customers indicated that Google was the top place they would go to find information about getting rid of their appliance. Other responses include reaching out to friends of family and asking a hardware store. There was a spread across the other options customers provided, as indicated in Figure 3-5.

Figure 3-5. Preferred Sources of Information About Removing Appliance

(55 Refrigerators, 20 Freezers)



PRODUCT AWARENESS: PEER UTILITY PERSPECTIVE

Similar to participating customers, Xcel Energy's peer utilities mentioned that most of their participating customers also learned about their programs through direct engagement or word-of-mouth. Specific methods of marketing to engage with potential customers have included direct outreach, engagement with implementers, and referrals from participating customers. Some utilities determined that targeted emails and bill inserts were more effective and have the highest click-through rate. Interviewees cited brochures as the least effective. Methods used by peer utilities to develop customer awareness include targeted emails, bill inserts, and social media advertisements. All of the peer utility representatives we interviewed indicated that they coordinated with a third-party implementer as part of their direct outreach marketing efforts. Furthermore, some of the utilities track emails (opens, link clicks, etc.) as a way to understand product awareness.

Similar to Xcel Energy, all interviewed utility staff shared similar goals to running their programs. These goals are highlighted in marketing materials. Common themes include (1) removing old appliances off the electric grid, (2) running a cost-effective product, and (3) encouraging their customers to be energy efficient and environmentally friendly.

Product awareness was specifically discussed in one of the secondary market actor interviews. The interviewee (a dealer) indicated that the \$50 incentive was very popular when they offered it and believed that a lot of people would opt in for the incentive if they were aware of it. They suggested to increase customer awareness of the incentives.

One interviewee brought up the importance of affordability for their customer base, saying that the used units are very affordable for people that cannot afford a new unit, although they wished all their customers could buy new. This is a potentially important element to consider, as there will be a portion of Xcel Energy's customer base that, despite any and all efforts to increase product awareness, may never participate because they cannot afford a new refrigerator and a \$50 rebate does fully eliminate the barrier to purchasing a new refrigerator.

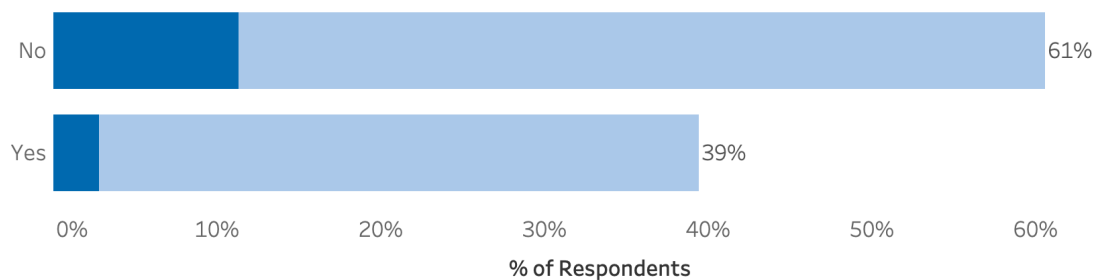
We asked participating customers and peer utilities about the barriers and drivers to product participation in Xcel Energy's Refrigerator and Freezer Recycling Product. The goal for this objective was to identify and characterize opportunities for increasing product participation. Participating customers and peer utilities did not mention any specific barriers; however, convenience and efficiency were identified as the main drivers to customer participation.

PRODUCT PARTICIPATION: PARTICIPATING CUSTOMER PERSPECTIVE

Survey respondents reported that, for the most part, they did not consider alternatives to recycling the appliance through Xcel Energy's product. Of all the participating customer respondents, 61% reported that they did not consider other options before deciding to recycle through Xcel Energy. When segmented by appliance type, 80% of those who recycled a freezer reported they did not consider any other alternatives (Figure 3-6). This indicates that Xcel Energy seems to be the default choice for those considering freezer recycling.

Figure 3-6. Did Respondents Consider Alternatives to Product

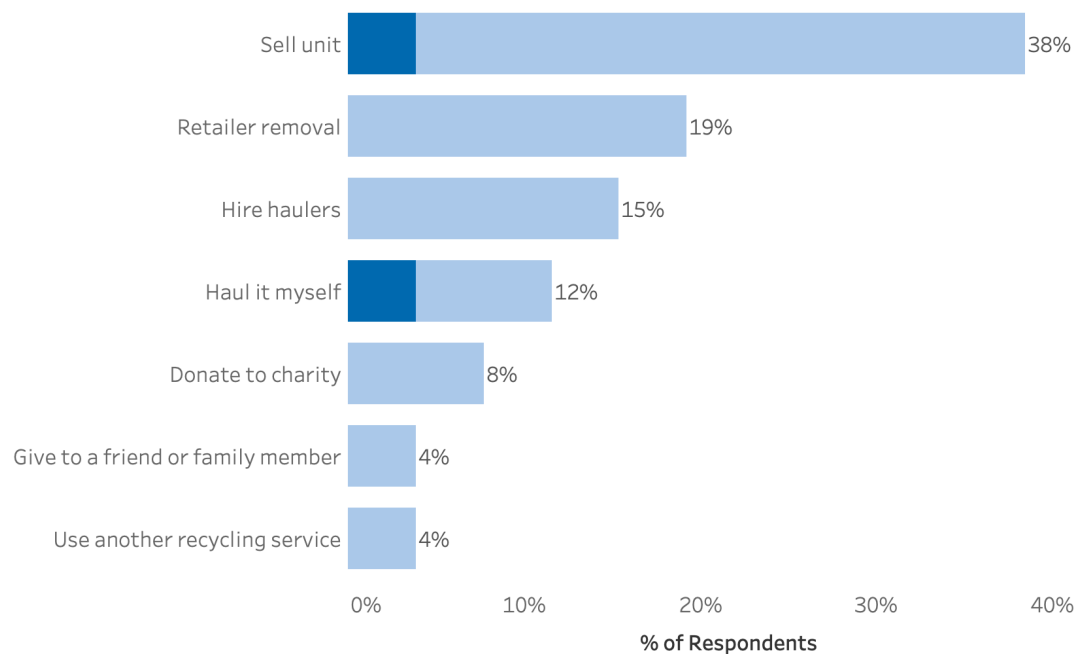
(10 Freezers, 61 Refrigerators)



For those who did consider alternatives, the most frequently mentioned alternatives were selling the unit, having the new unit installers remove the unit, or hiring haulers (Figure 3-7). Of all respondents, 39% reported that they considered other options before deciding to recycle through Xcel Energy.

Figure 3-7. Alternatives to Product Considered by Survey Respondents

(24 Refrigerators, 2 Freezers)



We further asked customers why they chose the product. Some respondents (29%) indicated that they participated in the product because of the convenience and ease of the free pickup. They also described the monetary incentives and environmental benefits as reasons for participation.

PRODUCT PARTICIPATION: PEER UTILITIES PERSPECTIVE

The evaluation team also asked peer utilities about their customers' experiences with their programs and any barriers those customers may have experienced. Through customer feedback from a third-party implementer or evaluator, peer utilities' customers were generally satisfied with their programs. There were aspects of participation with which customers were not completely satisfied, but none that prevented customer participation. Peer utility interviewees also reported no specific barriers to customer participation however, some of the utility representatives indicated the existence of market and regulatory barriers. One utility interviewed, and a few others who provided information outside of an interview, indicated they were ceasing operations either due to regulatory decisions, concerns around cost-effectiveness, or a changing market landscape. This changing landscape includes more retailers offering to pick up and recycle appliances when delivering new units, as well as the second-hand market of refrigerators 10 years old and older potentially becoming obsolete, as consumers reported they were less likely to purchase older "energy hogs" when compared with newer models.

CUSTOMER EXPERIENCE

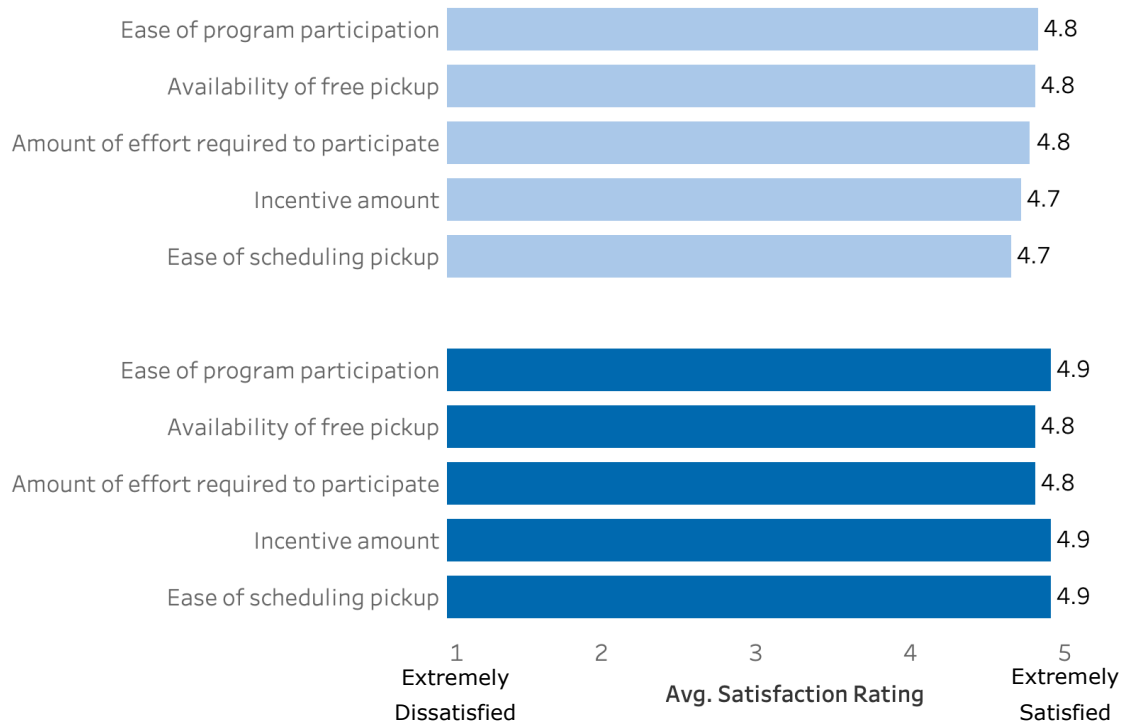
The final major objective for the process evaluation was to assess customers' experiences with the product and investigate opportunities for improving the customer experience. Both participating customers and peer utilities were asked about customer satisfaction. The evaluation team asked customers to rate their satisfaction with aspects of the product through the participating customer survey. Survey results indicate that, overall, the customer experience for the Refrigerator and Freezer Recycling Product is positive. Peer utilities also shared that their customers report positive satisfaction with their programs.

CUSTOMER EXPERIENCE: PARTICIPATING CUSTOMER PERSPECTIVE

When asked to rate their satisfaction with aspects of the product, participating customers reported high satisfaction with all elements of their experience with the product (Figure 3-8). It appears that the amount of effort required to participate aligns with the effort participating customers reported they expected. Their responses indicate a high level of ease with product participation. The incentive amount appears to meet and or exceed expectations, and the results indicate participating customers are very satisfied with both the availability of the free pickup and the scheduling of that pickup. These results compliment the customer participation results, in that convenience and efficiency were identified as the main drivers to participation.

Figure 3-8. Level of Satisfaction by Product Element

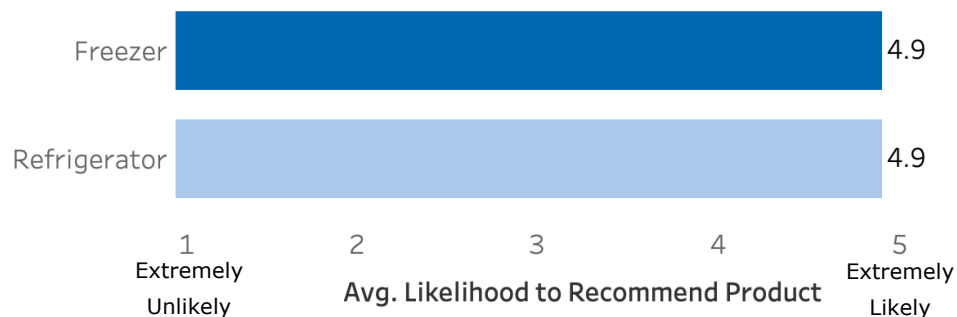
(61 Refrigerators, 10 Freezers)



It is likely that, since participating customers experienced high levels of satisfaction, they were also likely to recommend the product to a friend, family member, or co-worker. This is highlighted by the high average score of 4.9 out of 5, when asked how likely they would be to recommend the program (Figure 3-9).

Figure 3-9. Likelihood of Product Recommendation

(61 Refrigerators, 10 Freezers)



CUSTOMER EXPERIENCE: PEER UTILITIES PERSPECTIVE

Similar to participating customers, peer utilities also reported high levels of customer satisfaction. Some of the utilities indicated they collected data on satisfaction through their customer experience surveys sent out after customer participation in appliance recycling programs. These surveys are often conducted through a third-party evaluator or their implementer. Based on survey results, peer utility interviewees reported their programs generally had high customer satisfaction. Similar to Xcel Energy customers, their customers highlight the convenience of having a free pick-up of their appliance with an additional incentive check.

However, the most frequently mentioned complaint from their customers centered around the wait time to receive incentive check. One utility mentioned changing their implementer due to customer complaints about the lengthy wait times when receiving incentive checks.

4. CONCLUSIONS AND RECOMMENDATIONS

This chapter presents the evaluation team's key findings and associated recommendations for the Xcel Energy Refrigerator and Freezer Recycling Product in Colorado. All recommendations are based on findings from our evaluation research.

Overall, the evaluation team found that the Refrigerator and Freezer Recycling Product is operating smoothly, with high levels of satisfaction among participating customers. There is corresponding evidence from this evaluation that the product has had a positive net impact on reducing electric grid load within the Xcel Energy Colorado service area. Specific findings and recommendations follow.

Key Finding 1: The product has a strong influence on participating customers' decision to recycle their appliance. For most responding participating customers, the product either removed a unit from the grid that would have otherwise remained in use or significantly accelerated participating customers' decision to remove their appliance. Participating customers cited the convenience of a free pick-up, the monetary incentive, and environmental benefits as drivers for recycling their unit through the product.

- **Recommendation 1: The evaluation team recommends applying the retrospective net-to-gross ratio of 0.73 if no program changes are made. If Xcel Energy adjusts marketing messaging and conducts targeted outreach to a broader customer base, as described in recommendations 2 and 3a below, the evaluation team recommends applying a prospective net-to-gross ratio of up to 0.80.** The primary contributor to the net-to-gross ratio being below 0.80 is the relatively low savings Xcel Energy can claim from newer refrigerators recycled through the program.

Key Finding 2: Most participating customer respondents reported that they decided to recycle their appliance through the product because of the convenience of the free pick-up, the financial incentive, and the environmental benefits. Most participating customers also reported that they needed to conduct additional research about product eligibility requirements before deciding to participate in the product.

- **Recommendation 2: Revisit marketing messaging to include prominent references to the eligibility requirements, the convenience and ease of participation relative to alternatives, and the environmental benefits.** This change would decrease existing barriers to participation and allow customers to participate quickly without needing to conduct additional research prior to deciding to choose Xcel Energy's appliance recycling product.

Key Finding 3: Participating customer respondents tended to have relatively high household incomes. Respondents to the participating customer survey had high household incomes, suggesting that product staff's perceptions about the demographic composition of participating customers is accurate.

- **Recommendation 3a: Pursue deeper product savings by conducting additional outreach to low-income customers.** The evaluation team recommends that the product partner with the marketing teams for Xcel Energy products that serve low-income customers (e.g., Multifamily) to tune the product's marketing campaign to reach low-income residential customers.
- **Recommendation 3b: Pursue deeper product savings by conducting additional research around nonparticipating customer decision-making and implementing findings from that research.** To reach deeper savings, the Xcel Energy team should conduct focus groups with target customer groups to characterize their decision-making processes and identify product improvements.

Key Finding 4: Participating customers reported high satisfaction with all elements of their experience with the product. Respondents indicated that they had a very high likelihood of recommending the product to a friend, family member, or co-worker (4.9 on a 1-5 scale). Furthermore, the average satisfaction rating ranged from 4.7 to 4.9 across those who recycled refrigerators and freezers, highlighting excellent customer satisfaction.

- **Recommendation 4: Maintain current product implementation approach and continue to track product satisfaction to identify any threats to product satisfaction.**

XCEL ENERGY

CO Refrigerator and Freezer Recycling Product Impact & Process Evaluation

APPENDICES

December 18, 2020



PRESENTED TO:

Nicholas Minderman
DSM Policy & Strategy Consultant
Xcel Energy
414 Nicollet Mall
Minneapolis, MN 55401

PRESENTED BY:

Jeremy Kraft
Project Director
EMI Consulting
807 E Roy Street, Suite 301
Seattle, WA 98102

APPENDIX A: EVALUATION PLANNING DOCUMENTS

To support the 2020 process and impact evaluation of Xcel Energy efficiency products, the EMI Consulting evaluation team will be conducting a process and impact evaluation of the Xcel Energy CO Refrigerator Recycling product. This memo provides a plan for the 2020 Xcel Energy CO Refrigerator Recycling product evaluation based on staff feedback during the evaluation kick-off meeting, staff interview findings, and review of program documentation. This evaluation plan includes the following sections:

- Product Overview
- Evaluation Overview
- Data Collection Activities and Sampling Plans
- Net-to-Gross Approach

A.1 PRODUCT OVERVIEW

The CO Refrigerator Recycling product offers rebates to Xcel Energy single family residential customers who recycle working refrigerators through Xcel Energy. Rebates are offered to encourage Xcel Energy residential customers to remove old refrigerators and freezers from the grid. Customers can also recycle residential air conditioners and dehumidifiers through the product but are not eligible to receive rebates for this equipment, nor will Xcel Energy make additional trips to pick it up. The product relies on print and email marketing directly to customers. In 2020, it will also include social media marketing. In 2019 the Refrigerator Recycling Product claimed over 5.7 GWh in energy savings from rebates provided in Colorado (Table A-1).

Table A-1. CO Refrigerator Recycling Savings, January – December 2019

Measure	Units		kWh		kW	
	Quantity	% of total	Quantity	% of total	Quantity	% of total
Secondary Refrigerator	3,124	44.6%	2,648,881	46.10%	473.47	44.8%
Primary Refrigerator	2,757	39.3%	2,034,893	35.42%	363.69	34.4%
Freezer	1,088	15.5%	1,050,392	18.28%	187.82	17.8%
Room AC Recycling	42	0.60%	11,668	0.20%	31.04	2.9%
Total	7,011	100%	5,745,834	100%	1,056.03	100%

Note: This is the population of participants receiving rebates between January and December 2019. These numbers are based on aggregated data provided to EMI Consulting in *March 2020*.

The Product is not considering any major modifications for future cycles, although ARCA, the implementer, has made significant modifications to their implementation approach in March 2020 in response to the COVID-19 pandemic. As an essential hazardous waste handling service, ARCA has continued operations but requested that customers move their old refrigerator units to the garage or curbside to minimize customer contact with ARCA pickup team members.

A.2 EVALUATION OVERVIEW

The 2020 evaluation will assist the product team with characterizing the **impact** of the product and with assessing key product **processes**. Characterizing the **impact** of the product will culminate in the recommendation of a net-to-gross ratio (NTGR) for the product. The assessment of key product **processes** will characterize key drivers of, and barriers to, product awareness, product participation, and positive customer experience.

Error! Reference source not found. summarizes the key evaluation objectives and evaluation questions by product goal. The following sections describe each product goal, and their respective evaluation objectives and questions, in greater detail.

Table A-2. Evaluation Overview

Product Goal	Evaluation Objectives	Evaluation Questions
Positively impact appliance recycling market	Obj1-1. Calculate net-to-gross ratio Obj1-2. Identify opportunities for increasing product impact	Q1. To what extent is the product reducing grid load? Q2. What does the Colorado market for second hand appliances look like?
Increase awareness	Obj2-1. Assess effectiveness of current marketing approaches Obj2-2. Identify opportunities for increasing product awareness among key customer segments	Q2-1. To what extent are nonparticipants aware of the product? Q2-2. How are customers learning about the product? Q2-3. How do other utilities build customer awareness?
Increase participation	Obj3-1. Identify and characterize barriers to, and drivers of, product participation Obj3-2. Identify opportunities for increasing product participation	Q3-1. What motivates customers to participate? Q3-2. What barriers to participation do customers face? Q3-3. How do other utilities drive customer participation?
Optimize customer experience	Obj4-1. Assess customers' experiences with the product Obj4-2. Identify opportunities for improving customer experience	Q4-1. How do customers experience the product? Q4-2. How do other utilities optimize the customer experience?

IMPACT APPLIANCE RECYCLING MARKET

To **characterize the impact of the Refrigerator Recycling product**, the evaluation team will calculate a net-to-gross ratio (NTGR) [**Obj1-1**] and identify opportunities for increasing the product's impact [**Obj1-2**]. To inform these objectives, the evaluation team will collect and analyze data from participant and nonparticipant phone surveys to assess the extent to which the product is reducing load on the electrical grid [**Q1**].

More details on the evaluation team's approach for calculating NTGR can be found later in this document.

INCREASE PRODUCT AWARENESS

Product staff frequently mentioned an interest in **increasing customers' awareness of the product**. To assist with achieving this goal, the evaluation team will assess the effectiveness of current marketing approaches [**Obj2-1**] and identify opportunities for increasing customers' awareness of the product among key customer segments [**Obj2-2**]. To inform these objectives, the evaluation team will

collect and analyze data from participating and non-participating customer surveys and utility benchmarking interviews to understand the extent to which nonparticipants are aware of the product [Q2-1], how nonparticipants and participants became aware of the product [Q2-2], and how other utilities increase awareness of their programs [Q2-3].

INCREASE PRODUCT PARTICIPATION

While the product regularly meets participation goals, product staff also frequently mentioned an interest in **increasing the number of product participants**. To assist with achieving this goal, the evaluation team will identify and characterize the barriers to, and drivers of, product participation [Obj3-1] and identify opportunities for increasing product participation [Obj3-2]. To inform these objectives, the evaluation team will collect and analyze data from customer surveys and utility benchmarking interviews to identify the factors that motivate customers to participate in the product [Q3-1], factors that act as barriers to product participation [Q3-2], and ways that other utilities drive participation [Q3-3].

OPTIMIZE CUSTOMER EXPERIENCE

While product staff report that customers are generally satisfied with the product, most product staff expressed an interest in **optimizing customers' experience with the product**. To assist with achieving this goal, the evaluation team will characterize customers' experiences with the product [Obj4-1] and identify any opportunities for improving customers' experience with the product [Obj4-2]. To inform these objectives, the evaluation team will collect and analyze data from customer surveys to characterize customers' experience with the product [Q4-1] and identify best practices from other utilities for optimizing customer experience [Q4-2].

A.3 DATA COLLECTION ACTIVITIES AND SAMPLING PLANS

The evaluation team will conduct several data collection activities to answer the evaluation questions described in **Error! Reference source not found.** These activities and the questions they address are summarized in Table A-3. Additional details are provided following the table.

Table A-3. Refrigerator Recycling Evaluation Summary

Evaluation Task	Completion Quota	Evaluation Questions Addressed
1. Staff Interviews	4 interviews	Inform evaluation plan
2a. Participant Surveys (phone)	70 participants	Q1 To what extent is the product reducing grid load? Q2-2 How are customers learning about the product? Q3-1 What motivates customers to participate? Q3-2 What barriers to participation do customers face? Q4-1 How do customers experience the product?
2b. Non- and near-participant Surveys (web)	35 non-participants and 35 near-participants	Q2-1 To what extent are nonparticipants aware of the product? Q2-2 How are customers learning about the product? Q3-1 What motivates customers to participate? Q3-2 What barriers to participation do customers face?
3. Peer Utility Benchmarking Interviews	4-6 utilities	Q2-3 How do other utilities build customer awareness? Q3-3 How do other utilities drive customer participation? Q4-2 How do other utilities optimize the customer experience?
4. Follow-up interviews with participants	Up to 10 interviews	Q1 To what extent is the product reducing grid load? Q3-1 What motivates customers to participate? Q3-2 What barriers to participation do customers face? Q4-1 How do customers experience the product?
5. Secondary Market Interviews	Up to 10 interviews	Q1 To what extent is the product reducing grid load? Q2 What does the Colorado Market for secondary appliances look like?

1. STAFF INTERVIEWS

In March 2020, the evaluation team conducted four interviews with seven Xcel Energy staff to inform this evaluation plan, discuss product goals, and review product processes, challenges, and successes. Those interviewed included the current product lead, a team lead for a different product, two engineers, a program manager at ARCA, the implementer, a marketing representative from ARCA, and a contracting representative from ARCA. These interviews were conducted over the telephone and took between 30 minutes and one hour to complete. These meetings, combined with the kickoff meeting, allowed the evaluation team to create a focused evaluation plan with defined data collection activities.

2A. PARTICIPANT SURVEYS

The evaluation team will conduct 20-30 minute telephone surveys with 70 participants from the 2019 product year. These surveys will focus on answering five questions:

- **Q1** To what extent is the product reducing grid load?
- **Q2-2** How are customers learning about the product?
- **Q3-1** What motivates customers to participate?
- **Q3-2** What barriers to participation do customers face?
- **Q4-1** How do customers experience the product?

Each participant in the population who has adequate contact information will be assigned to one of three study groups depending on the type of unit they recycled: 1) Primary Refrigerator, 2) Secondary Refrigerator, or 3) Freezer. Product participants who have recycled more than one unit will be assigned to a group chosen randomly from among the units they have recycled. The target number of completed participant surveys for each group is based on the proportion of total 2019 savings achieved by the corresponding measure type. This sampling approach is summarized in Table A-4.

Table A-4: Sample Design

Group	Number of Participants	Percent of Total Savings (kWh)	Target Completes
Primary Refrigerator	3,124	46%	32
Secondary Refrigerator	2,757	35%	25
Freezer	1,088	18%	13
Total	7,011	100%	70

2B. NEAR- AND NON-PARTICIPANT SURVEYS

The evaluation team will conduct 20-30 minute web surveys with 35 near-participants and 35 non-participants to meet both process and impact evaluation objectives. Nonparticipant respondents are defined as customers who have never contacted ARCA or Xcel Energy staff about the product (true nonparticipants). Customers who have contacted ARCA or Xcel Energy staff about the product but did not participate will be included as near participants. These surveys will focus on answering four questions:

- **Q2-1** To what extent are nonparticipants aware of the product?
- **Q2-2** How are customers learning about the product?
- **Q3-1** What motivates customers to participate?
- **Q3-2** What barriers to participation do customers face?

3. PEER UTILITY BENCHMARKING INTERVIEWS

The objective of the peer utility benchmarking task is to understand how peer utilities are approaching key issues related to implementing Refrigerator Recycling programs. The Refrigerator Recycling staff identified that it would be beneficial to speak with utilities with both similar and differing implementation styles. This includes utilities of similar size, as well as smaller utilities that are subject to fewer regulations. Staff also reported an interest in speaking with utilities that do not use ARCA as their implementer. The evaluation team suggested that the evaluation team attempt to interview at least X interview representatives for First Energy and MassSaves.

The evaluation team will work to recruit staff in key management roles related to Refrigerator Recycling programs at peer utilities with a target sample size of four to six interviews. These interviews will focus on answering three questions:

- **Q2-3** How do other utilities build customer awareness?
- **Q3-3** How do other utilities drive customer participation?
- **Q4-2** How do other utilities optimize the customer experience?

The evaluation team will develop a peer utility interview guide that is customized to the desired benchmarking components, to be provided to Xcel Energy for approval prior to beginning any data collection. Finally, the evaluation team will summarize the results of the benchmarking analysis in a summary within the final evaluation report.

4. SURVEY FOLLOW-UP INTERVIEWS

The evaluation team will conduct up to 10 follow-up interviews with participants and non-participants to gain deeper insight into the following process and impact objectives:

- **Q1** To what extent is the product reducing grid load?
- **Q3-1** What motivates customers to participate?
- **Q3-2** What barriers to participation do customers face?
- **Q4-1** How do customers experience the product?

The objective of these interviews is to gain qualitative insight into particularly interesting or surprising responses. Topics may vary based on individual survey responses. Based on responses to follow-up interviews, the evaluation team may adjust impact results.

5. SECONDARY MARKET INTERVIEWS

The evaluation team will conduct up to 10 interviews with private individuals selling refrigerators and second-hand appliance retailers. The objectives of this task are two-fold.

- **Q1** To what extent is the product reducing grid load?

- **Q2** What does the Colorado Market for secondary appliances look like?

Through these interviews, the evaluation team will gain a deeper understanding of what the second-hand appliance market looks like in Colorado. The team will use this information to support net-to-gross calculations through a more complete understanding of what likely would have happened to refrigerators had they not been recycled through the product.

A.4 NET-TO-GROSS APPROACH

The NTG assessment aims to estimate the percent of savings achieved that can be attributed to product actions, or a NTG ratio. The NTG value includes multiple metrics, which are described in the sections below. To calculate the NTGR, the evaluation team will primarily use participant and nonparticipant self-report surveys to assess product attribution, including free ridership, spillover, and market effects metrics. The team will base its methodology on the most recent Illinois Technical Reference Manual (TRM)¹ as this type of approach is used extensively in other jurisdictions both by our team and outside industry experts, and it was the basis of the NTG approach for the evaluations of the 2017-2019 Xcel Energy product evaluations.

The evaluation team will estimate a retrospective and prospective NTG value. Using surveys with participating customers, we will develop the final NTG ratios to ensure that we provide the most accurate and reliable estimate of NTG. The remainder of this section presents the evaluation team's method to estimating the retrospective and prospective NTG ratios.

RETROSPECTIVE NTG

The evaluation team will estimate a retrospective NTG by examining free ridership and secondary market impacts. The evaluation team will rely primarily on data collected from participants, along with additional qualitative input from near-participants, retailers, and private sellers. The evaluation team will synthesize these results to estimate a NTG ratio at the program level, as shown in **Error! Reference source not found.** This section describes how the evaluation team will estimate the retrospective NTG ratio.

Free-ridership. The evaluation team will first determine free-ridership for product participants. Free-ridership measures the proportion of a product's claimed savings that would have occurred in the absence of the product. The primary objective of this task is to determine the extent to which the product influenced the customer to recycle their refrigerator. The evaluation team will assess free ridership primarily using participant self-report surveys.

¹ Illinois Energy Efficiency Stakeholder Advisory Group. Illinois Statewide Technical Reference Manual, Version 8.0, Volume 4, Attachment A: IL-NET-TO-GROSS Methodologies, Volume 4. October 17, 2019. https://s3.amazonaws.com/ilsag/IL-TRM_Effective_01-01-20_v8.0_Vol_4_X-Cutting_Measures_and_Attach_10-17-19_Final.pdf

For the Refrigerator Recycling product, free-ridership is assessed by determining what participants would have done absent the product. Generally, participants fall into one of three categories:

- A. **Non Free Rider** – The appliance would have been kept by the participating household.
- B. **Possible Free Rider** - The appliance would have been transferred (given away or sold) to an individual or retailer.
- C. **Free Rider** - The appliance would have been discarded anyway in a way that would have permanently removed the unit from service. This includes units that would have been transferred to a retailer and are 10 years old or older.

Participants in group A would have kept the appliance and are thus assigned a free-ridership score of 0 because the product significantly influenced them to recycle the unit. If participants report they would have removed the fridge from their home, the evaluation team will conduct further research.

Participants who would have hauled or hired someone to haul the appliance to a landfill or recycling center will initially be assumed to be full free-riders (Group C), as they would have removed the appliance from the grid without the product. However, if participants report they would have removed the appliance from the grid more than 6 months after participating in the product, the evaluation team will decrease free-ridership with the assumption that the product incented the participant to remove the appliance from the grid earlier than they otherwise would have. Free-ridership for participants who report they would have removed the appliance between 6 and 12 months after product participation will be decreased by 0.25 for a NTGR of 0.75. For those who report they would have removed the fridge from their home more than 12 months after participation, the evaluation team will assume the product had full influence on their decision to recycle the fridge. Free-ridership for these individuals will be 0, and NTGR will be 1.0.

If participants were neither intending to keep nor recycle or dispose of the appliance, they likely were intending to transfer the unit for further use. For these cases, the evaluation team must determine secondary market impacts, or the likely fate of the appliance after transfer. In cases where participants report they would have removed the appliance to a second-hand appliance dealer, the evaluation team will assume full free-ridership if the fridge is over 10 years old, and free-ridership of 0.5 if it is under 10 years old. For all other transfer cases, participants will be assigned an initial free-ridership score of 0.5. Like for participants who report they would have recycled or otherwise disposed of the appliance, the evaluation team will attempt to determine when this transfer would have happened. If it would have happened between 6 and 12 months after product participation, free-ridership will be decreased by 0.25, and if it would have happened 12 months or more after product participation, free-ridership will be decreased to 0.

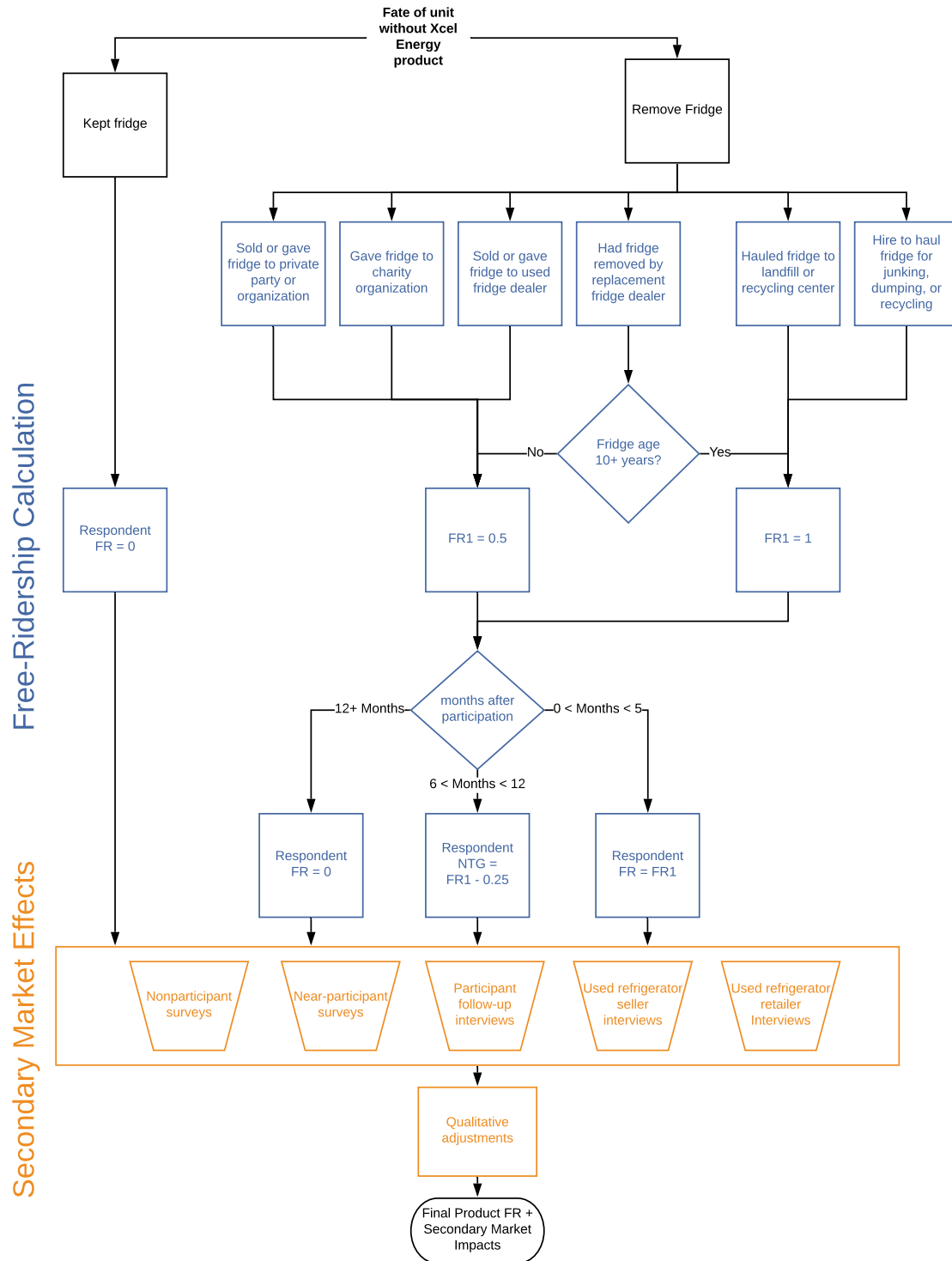
Secondary Market Impacts. To determine what likely would have happened with units that participants reported would have been transferred absent the product,

the evaluation team will conduct research into secondary market impacts. Secondary market impacts refer to what the would-be acquirers would have done if they had not acquired the appliance. Generally, there are three possible options for these acquirers:

- A. **None of the would-be acquirers would have purchased a different unit** – All acquirers were opportunistic acquirers and were not looking for an additional unit. By participating in the product, participants reduce on a one-to-one basis the number of inefficient units in the market.
- B. **All of the would-be acquirers would have purchased a different unit** – No acquirers were opportunistic, and all of them were looking for an additional unit. By participating in the product, participants have no effect on the total number of units in the market.
- C. **Some of the would-be acquirers would have purchased a different unit** – Some acquirers were opportunistic while others were not. The evaluation team will use data from non- and near- participant surveys, follow-up interviews with participants, and interviews with used appliance retailers and private sellers to estimate this proportion.

Based on research into secondary market impacts, the evaluation team will qualitatively adjust free-ridership scores for product participants to reflect the market reality.

Error! Reference source not found. describes the logic used for calculating free ridership.

Table A-5. Free Ridership Calculation Methodology²² Modified from depicted in the IL TRM Version 8, Volume 4, Figure 4-2, page 59.

RETROSPECTIVE NTG

By design, our final NTG estimate recommendation includes data from mixed methods research – both quantitative data and qualitative data. The initial NTG estimates will be calculated using self-reported participant responses, and near-participant survey responses. After the initial NTG estimates are calculated, we will utilize the quantitative and qualitative data to construct a logical, internally consistent, and coherent narrative of program attribution that attempts to identify all possible pathways of Xcel Energy influence. We will rely on the following data sources to construct the NTGR:

- Participant surveys
- Near-and non-participant surveys
- Follow-up interviews with participants and near and non-participants
- Interviews with private individuals selling used refrigerators
- Interviews with second-hand or used appliance retailers

The final NTG recommendation is based on the professional judgment of our team after considering all available quantitative and qualitative data.³

PROSPECTIVE NTG

The team will attempt to adjust the retrospective NTG estimate to provide a more accurate forward-looking, or prospective value. Participants will be asked about the importance of the rebates in removing appliances from the grid. Their responses, our understanding of the broader appliance market in Colorado, input from peer benchmarking research, and input from staff interviews regarding future changes to the product will provide the evaluation team with a program and no-program baseline that can inform a prospective NTG value.

³ The 2020 IL TRM does not include spillover or market effects for appliance recycling programs.

APPENDIX B: DATA COLLECTION DOCUMENTS

Appendix B includes the following:

- B.1 Staff Interview Guide
- B.2 Participant Survey Guide
- B.3 Near- and Non-Participant Survey Guide
- B.4 Secondary Market Actor Interview Guide
- B.5 Peer Utility Interview Guide

B.1 REFRIGERATOR AND FREEZER RECYCLING STAFF INTERVIEW GUIDE

INTRODUCTION

This guide is to be used to interview staff associated with Xcel Energy's DSM programs as part of the EMI Consulting 2020 evaluation of the Xcel Energy DSM programs. The interviews will be semi-structured, with these questions serving as a basic guide for experienced EMI Consulting staff during one-on-one phone interviews.⁴ As a guide for semi-structured interviews, these questions will not necessarily be asked verbatim, but will serve as a roadmap during the conversation.

STAFF INTERVIEW RESEARCH QUESTIONS OR OBJECTIVES

- Assess the extent to which the program design supports program objectives and customer service/satisfaction objectives.
- Assess the degree to which program resources are sufficient to conduct program activities with fidelity to the implementation plan
- Collect staff feedback on implementation successes and challenges
- Identify themes and issues to incorporate into the evaluation plan

INTERVIEW

SECTION A: INTRODUCTION

[If staff was not included in kick-off meetings/ involved in prior evaluations:] First we would like to give you some background about who we are and why we want to talk with you today. EMI Consulting is an independent consulting firm that works with electric and gas utilities to review and improve

⁴ Some interviews may be conducted jointly. This would most likely occur if someone's role recently changed or if more than one person performs the role.

program operations and delivery. Xcel Energy contracted with us to perform an evaluation of their portfolio of energy efficiency programs and we're currently in the process of conducting interviews with product managers and key staff involved in designing and delivering the portfolio to improve our understanding of Xcel Energy's DSM programs and its' influence on customers. We also want to understand what will be useful for you as Xcel Energy program staff because of our research. We want to incorporate your priorities into our study so that the results are as useful as possible.

[ALL] Thank you for taking the time to speak with me today. My objective for this meeting today is to gain a deeper understanding of this program, what Xcel hopes to achieve through implementing this program how it operates, and a bit about your experiences with the Refrigerator and Freezer Recycling product. We are interested in asking you some questions about SBL so we can benefit from your knowledge and experience to improve our understanding of the product. I have a set of questions that should take approximately 45 - 60 minutes, depending upon your experiences and involvement with the product. All the information will be weaved together with information gleaned from other interviews.

Before I begin, is it alright if I record the conversation for note taking purposes?
[RECORD IF ALLOWED]

A1. [If needed] First, can you take a moment and explain your role and scope of responsibilities with respect to the Refrigerator and Freezer Recycling product?

Probes:

- Approximately how long have you held this position?
- What previous positions did you hold?
- Whom do you report to in the overall org structure?
- Do you have any direct reports?

SECTION B: PRODUCT GOALS

I'd like to be sure I understand the goals of this product, both overall and specific.

B1. Can you take me through the key goals for the Refrigerator and Freezer Recycling product?

B1a. Can you describe any savings goals? Do you have specific goals for individual components of the program (measure type/retail channels)? These can be internal goals, as well.

Define for Custom, Prescriptive, DI (ok to email later)
(exclude midstream)

B1b. Any other, non-energy goals/objectives?

B1b1. Any more immediate goals? For example, participation goals, customer engagement goals, improving customer satisfaction? Changing customer awareness of or attitudes about energy efficiency measures?

B1b2. Any longer-term goals? For example, reducing greenhouse gas emissions? Altering market behaviors?

B2. What are “indicators of success”?

B2a. Do you look at any interim indicators that the product is or is not meeting its objectives or goals?

B3. Have any of these goals changed in the last couple years?

B3a. What was the rationale for changing them?

B3b. In your opinion, how have these changes affected the products’ operations or its outcomes?

B4. What changes do you expect to occur in the future? From the kickoff meeting, we talked about future marketing and promotion efforts, including testimonials. Anything else?

B5. What influences do you think this product has had on the market? Do you get any feedback on potential spillover that may be occurring? People who might be recycling their appliances through, say, through the Responsible Appliance Disposal (RAD) Program, municipal pick-up service or scrap metal recyclers after someone tells them about the program?

B6. Are you using any NTG adjustments? What NTG numbers are you currently using? When were these developed?

SECTION C: PROGRAM ACTIVITIES

I would like to make sure I have a solid understanding of how this product operates. If there is any formal documentation that you can refer me to as we walk through these next questions, I’d appreciate getting copies.

C1. According to the DSM plan, I found the following components to the product. I wanted to ask a few clarifying questions and check to see if I am missing anything?

- Direct outreach:
 - How is this performed? (I will want to be sure to capture all methods, as this will be important in developing questions for the NTG.)
- Scheduling the recycling

- Eligibility for recycling
- ARCA's process for conducting the recycling
- Follow-up with participants
- How participants receive incentive
- Are there any other activities that we haven't discussed?

- C1a.** In terms of incentives, I understand customers can receive prescriptive/custom incentives.
- Are these additional or the same level of rebates than traditional program?)
Custom: (customer must complete project w/in 24 mo of pre-approval)
- C3.** Does Clear Result use this same program model in other states? Do you know if implementation in Colorado is unique in any way?
- C4.** Do you ever have to cap product participation?
If yes, how have customers/trade partners perceived this?

SECTION D: RESOURCES

- D1.** What resources do you rely on to implement the program? How many staff are in each role?
- D1a.** Program, implementer, sales staff?
 - D1b.** Management and program direction?
 - D1c.** IT tools and data tracking tools? What does ARCA share?
 - D1d.** Other resources?
- D2.** Are these resources sufficient to implement the program as designed?
- D2a.** [IF NO] How could the program design/implementation change to be more efficient? What additional resources would help you implement the program as designed?
- D3.** Have any of these program resources changed in the last few years?
- D3a.** What was the rationale for changing them?
 - D3b.** In your opinion, how have these changes affected the program's operations or its outcomes?

SECTION E: PROGRAM TRACKING AND REPORTING

I'd like to understand how program activities are tracked to understand what data might be available to us in our evaluation.

- E1.** What kind of documentation is available that describes the product? Implementation plans? Program manuals? Process maps?
- E2.** What kinds of data are collected for the Refrigerator and Freezer Recycling product?
- E3.** Are there any data that you would like to collect for the Refrigerator and Freezer Recycling product, but haven't been able to?
- E4.** Are there any data/documentation currently not tracked that might be helpful for the evaluation?
- E5.** As part of our evaluation, we will likely want to speak to "near-participants," customers that showed some interest in program participation, but didn't participate for whatever reason. Would these customers be tracked?

SECTION F: STRENGTHS AND CHALLENGES

Next, I'd like to get your feedback on how the product is running.

- F1.** In your opinion, what are the strengths of the SBL product as it is currently being run?
 - F1a.** What would you say is working well in terms of program design or implementation?
- F2.** What are the most significant challenges for this program at this point?
- F3.** What feedback, if any, do you receive from customers and/or trade partners on the product?
- F4.** What do you believe are the biggest barriers to getting customers and/or trade partners to participate in this product?
- F5.** Are there any specific opportunities for improvement in the design or implementation of the product? Please describe.
- F6.** What would you like to see changed in how the product is designed or run, if anything?
 - F6a.** Do you think there are any roadblocks preventing these changes from happening?

SECTION G: EVALUATION PRIORITIES AND CLOSING

- G1.** Next, I'd like to transition to evaluation priorities. We recorded the following during the kickoff meeting. Please confirm whether these were accurate and if you have anything else to add?
- How to target older refrigerators and freezers
 - Barriers—Why do customers choose different avenues vs. program? Scheduling issue? Other issue?
 - Customers dropping out mid-process – Xcel Energy tracks interest (schedule appt), pickup, etc. so we can follow their journey. Does not seem to be a major problem with customer drop out, but worth investigating and understanding the reasons.
 - NTGR: Need to make sure we are asking a well-crafted set of questions around people who said they would recycle fridge regardless.
 - There are concerns that the results in the MN study did not match those of the Home Use study on what people do with their secondary appliances. Also, concerns that social desirability may bias response to that question, with customers stating that they would have recycled the appliance anyway because it sounds better.
 - Note: EMI Consulting is not evaluating the program in other Xcel Energy territories but can look at past evaluations and/or interview other territories as part of peer benchmarking.
- G3.** Do you have particular questions that you would like to see answered by the evaluation? Why are these questions important?
- G4.** Do you have thoughts about specific peer utilities you would like to interview? What about characteristics of peer utilities?
- G5.** Do you have any other comments, concerns or suggestions about the product that we didn't discuss that you would like to make sure I know about?

Thank you very much for taking the time in assisting us with this evaluation. If I come up with any additional questions that come from this interview, do you mind if I send you an email or give you a quick call? I will also follow up with you shortly to identify peer utilities and performance indicators to kick-off the benchmarking task.

B.2 PARTICIPANT SURVEY GUIDE

INTRODUCTION

To support the 2020 process and impact evaluation of Xcel Energy efficiency products, the EMI Consulting evaluation team will conduct online surveys with participating customers, defined as Xcel Energy customers who participated in the Refrigerator Recycling Product in 2019. The CO Refrigerator Recycling product

offers rebates to Xcel Energy single family residential customers who recycle working refrigerators through Xcel Energy. Rebates are offered to encourage Xcel Energy residential customers to remove old refrigerators and freezers from the grid. Customers can also recycle residential air conditioners and dehumidifiers through the product, but are not eligible to receive rebates for this equipment, nor will Xcel Energy make additional trips to pick it up.

The remainder of the introduction provides the research questions which the participating customer survey is designed to address, a description of the sample variables to support programming the survey, and fielding instructions for the survey house.

EVALUATION OBJECTIVES

The objectives for the Refrigerator Recycling evaluation are to:

- Obj1-1. Calculate net-to-gross ratio
- Obj1-2. Identify opportunities for increasing product impact
- Obj2-1. Assess effectiveness of current marketing approaches
- Obj2-2. Identify opportunities for increasing product awareness among key customer segments
- Obj3-1. Identify and characterize barriers to, and drivers of, product participation
- Obj3-2. Identify opportunities for increasing product participation
- Obj4-1. Assess customers' experiences with the product
- Obj4-2. Identify opportunities for improving customer experience

The participant survey does not address every evaluation objective. For reference, the Table B-6 provides the evaluation efforts used for each objective.

Table B-6. Refrigerator and Freezer Recycling Evaluation Objectives

Product Goal	Evaluation Objective	Impact or Process Objective	Research Activity	Participant Survey Objective
Positively impact appliance recycling market	1-1 Calculate Net-to Gross Ratio	Impact	Participant Surveys, Near and non-participant surveys, Follow-up interviews with participants, secondary market interviews	✓
	1-2 Identify opportunities for increasing product impact	Impact	Near- and non- participant surveys, peer utility benchmarking interviews, secondary market interviews	
Increase awareness of product	2-1 Assess effectiveness of current marketing approaches	Process	Participant surveys, near-participant surveys, follow-up interviews with participants.	✓
	2-2 Identify opportunities for increasing product awareness among key customer segments	Process	Near- and non-participant surveys, secondary market interviews	
Increase product participation	3-1 Identify and characterize barriers to, and drivers of, product participation	Process	Participant surveys, near- and non-participant surveys, follow-up interviews with participants	✓
	3-2 Identify opportunities for increasing product participation	Process	Non- and near- participant surveys, peer utility benchmarking, secondary market interviews	
Optimize Customer Experience	4-1 Assess customers' experiences with the product	Process	Participant surveys, follow-up interviews with customers	
	4-2 Identify opportunities for improving the customer experience	Process	Participant surveys, follow-up interviews with customers	

Specific research questions which this participant survey is designed to address are the following:

- **Q1** Is Xcel Energy influencing customers to remove equipment from the grid?
- **Q2-2** How are customers learning about the product?
- **Q3-1** What motivates customers to participate?
- **Q3-2** What barriers to participation do customers face?
- **Q4-1** How do customers experience the product?

Table B-7 presents the link between each evaluation objective, research question, and survey question.

Table B-7. Evaluation Objectives and Research Questions

Evaluation Objective	Research Question	Survey Question Number(s)
1-1 Calculate Net-to Gross Ratio	Q1. To what extent is the product reducing grid capacity and consumption load?	Section C
2-1 Assess effectiveness of current marketing approaches	Q2-2. How are customers learning about the product?	Section A
3-1 Identify and characterize barriers to, and drivers of, product participation	Q3-1. What motivates customers to participate? Q3-2. What barriers to participation do customers face?	Section B
4-1 Assess customers' experiences with the product	Q4-1. How do customers experience the product?	Section D
4-2 Identify opportunities for improving the customer experience	Q4-1. How do customers experience the product?	D2a; D5- D6a; D7a; D9; CLOSE1

SAMPLE POPULATION & TARGET COMPLETES

The following table shows the population counts and electricity consumption savings of participants who participated in the product in 2019. The population is broken into groups based on the equipment the participants recycled. The population comprises the unique set of respondents in the data provided by Xcel Energy.

Group	Number of Participants	Percent of Total Savings (kWh)	Target Completes
Primary Refrigerator	3,124	46%	32 (46%)
Secondary Refrigerator	2,757	35%	25 (36%)
Freezer	1,088	18%	13 (18%)
Total	7,011	100%	70 (100%)

SAMPLE VARIABLES

The following table include the sample variables that will be used to conduct this survey, as well as descriptions of these variables and potential codes.

Sample Variable	Variable Description	Potential Codes
Interviewer Name	Name of interviewer from Ewald and Wasserman	e.g. Katrin Ewald
Contact	Customer Name	e.g. Robert Saul
Program	Program Name	e.g. "Colorado Refrigerator and Freezer Recycling"
Appliance	Description of appliance customer recycled through the program	e.g. Refrigerator
Phone	Phone number for customer	e.g. 555-555-5555
Measure_Name	Type of measure(s) customer received through the program	a = Primary Refrigerator b = Secondary Refrigerator c = Freezer

FIELDING INSTRUCTIONS

- Attempt each record six times on different days of the week and at different times.
- Leave messages on the first and fourth attempt.
- Experienced interviewers should attempt to convert "soft" refusals (e.g., "I'm not interested", immediate hang-ups) at least once.
- The survey is considered complete when CLOSE2 is answered.
- After the survey fielding subcontractor (Ewald and Wasserman) completes 5 interviews, hold calling and output a preliminary SPSS dataset and recordings of the pretest interviews. Resume calling after EMI Consulting checks the data (usually with 1-2 working days).
- Monitor at least 10 percent of the interviews to ensure proper interview protocols (e.g., reading questions verbatim, proper probing, accurate data entry).
- Calling hours are 9 AM to 8 PM MST.

SURVEY SECTIONS

- **INTRO.** Screening and Introduction
- **A.** Program Awareness and Marketing
- **B.** Motivations and Barriers
- **C.** Net-to-Gross
- **D.** Product Experience and Satisfaction
- **CLOSE.** Closing

SURVEY

SECTION INTRO: INTRODUCTION & SCREENING

Intro1. Hello, this is **<INTERVIEWER NAME>** calling from Ewald and Wasserman, a national research firm working with Xcel Energy. We understand that COVID-19 has made life more difficult. As the economy begins to re-open, Xcel Energy wants to support its customers and wants to hear from you about your experience with the Refrigerator Recycling program.

I'm hoping to speak to someone in your household who would be familiar with your participation in Xcel Energy's refrigerator recycling program in 2019. Our records show that you recycled a **<PRODUCT DESCRIPTION>** as part of the Xcel Energy **<PROGRAM>** program. We're conducting a brief, 20 minute confidential survey on Xcel Energy's behalf and offering a \$25 Amazon gift card for your time. May I speak with **<CONTACT>?**

1. Yes, that would be me.
 2. Yes, let me transfer you to the correct person **[IF NAME GIVEN, ENTER AS <CONTACT>; REPEAT QUESTION INTRO1 WITH NEW RESPONDENT]**
 3. No, they are not available right now.
 4. No, you have the wrong number.
 5. No, other reason (SPECIFY).
- DK **[TERMINATE]**
REF **[TERMINATE]**

[ASK IF INTRO1=1 OR 5]

Intro2. Are you the person who is most familiar with your household's participation in the **<PROGRAM>** program, or at least as familiar as anyone else?

1. Yes.
 2. No, they are not available right now.
 3. No, that's someone else.
 4. No, that person no longer lives here.
 5. Not applicable – this household did not participate in any such program.
- [TERMINATE]**
DK **[TERMINATE]**
REF **[TERMINATE]**

[ASK IF INTRO2=4]

Intro3. Is there someone else that is knowledgeable about your household's participation in the program?

1. Yes.
2. No **[TERMINATE]**
- DK **[TERMINATE]**
- REF **[TERMINATE]**

[INTERVIEWER NOTE: In some cases, the person most familiar with the program may be a relative or friend at a different number.]

[ASK IF INTRO2=2-3 OR INTRO3=1]

Intro4. What is this person's name?

1. [RECORD CORRECT PERSON'S NAME AS **<CONTACT>**]
- DK **[TERMINATE]**
- REF **[TERMINATE]**

[ASK IF INTRO4=1]

Intro5. Would I reach that person by dialing the same number I used to connect with you: **<PHONE>**?

1. Yes
2. No, use a different number (RECORD HERE AS **<PHONE>**) **[THANK AND TERMINATE; REDIAL NEW SAMPLE CASE]**
- DK **[TERMINATE]**
- REF **[TERMINATE]**

PROGRAMMER NOTE: Only those for whom Intro1=1 or Intro2=1 should get to this screen; the rest would end at Intro5 as they will need to be made into new sample cases and called back at a later time.

[ASK IF INTRO1=1 OR INTRO2=1]

Intro6. Great! Is now a good time or should we call you back?

1. No objection – fine to continue
2. Objection **[RESOLVE AND RESCREEN AS NECESSARY]**
- REF **[TERMINATE]**

SECTION A: AWARENESS AND MARKETING

A1. I'm going to list a few ways you may have learned about the **<PROGRAM>** program. As I read the list, please say "yes" if you learned about the program from that source, or "no" if you did not learn about the program from that source.

[RANDOMIZE ORDER; READ ALL CHOICES AND RECORD YES/NO ANSWERS]

1. An email from Xcel Energy
2. Home Depot
3. Friend, family, or coworker
4. Internet search

- 5. Postcard in the mail
- 6. Social media (specify)
- DK
- REF

A2. Did you learn about the **<PROGRAM>** program from any other sources?
[OPEN END]

**[IF COUNT OF "YES" RESPONSES TO A1 > 1; READ ALL WHERE A1 = "YES";
RANDOMIZE ORDER]**

A3. Which of these sources was most important to you for deciding to participate in the **<PROGRAM>** program?

- 1. An email from Xcel Energy
- 2. Home Depot
- 3. Friend, family, or coworker
- 4. Internet search
- 5. Postcard in the mail
- 6. Social media (specify)
- 7. DK
- 8. REF

A4. After first hearing about the **<PROGRAM>** program, did you need more information about the program to decide whether to participate?

- 1. Yes
- 2. No
- 3. DK
- 4. NA

[IF A4 = 1]

A5. What additional information did you need?

[OPEN END]

[IF A4 = 1]

A6. Where did you end up finding the information you needed? **[DO NOT READ; CATEGORIZE BASED OFF RESPONSE]**

(Select all that apply)

- 1. Online or web search (not Xcel Energy's website)
- 2. Xcel Energy website
- 3. Called phone number from marketing material
- 4. Sent email to Xcel Energy from marketing material
- 5. Not able to find information
- 6. Other [Specify]
- 98. DK
- 99. REF

A7. Did you consider any options other than the Xcel Energy **<PROGRAM>** program for removing your **<APPLIANCE>** from your home?

1. Yes
2. No
3. N/A
98. DK
99. REF

[IF A7 = 1]

A8. Which of the following options did you consider?

1. Keeping the appliance
2. Giving it to a friend or family member
3. Selling it on an online platform like Craigslist or Facebook Marketplace
4. Selling it through a used appliance store
5. Other (specify)

[IF A7 = 1]

A9. Which sources did you use to inform your decision about what to do with the appliance?

1. Online or web search
2. Home Improvement store like Home Depot, Lowe's, Menard's or similar
3. Friends or family
4. Recycling retailer
5. Hauling companies
6. Other (specify)

A10. Why did you ultimately decide to proceed with the Xcel Energy **<PROGRAM>** program instead?

[OPEN END]

SECTION B: MOTIVATIONS AND BARRIERS

Next, I would like to understand more about the considerations you made prior to participating in the program.

[IF TYPE = SECONDARY]

B1. According to my records, the **<APPLIANCE>** you recycled was a secondary **<APPLIANCE>**, meaning it was not the **<APPLIANCE>** you used the most when you participated in the program. After the pick-up occurred, did you replace this secondary **<APPLIANCE>** with a different **<APPLIANCE>**?

1. Yes
2. No
3. N/A
98. DK
99. REF

[IF B1 = 1]

B2. Did you replace the secondary **<APPLIANCE>** with an **<APPLIANCE>** that you already had in your home for more than one month?

1. Yes
2. No
3. NA
98. DK
99. REF

[IF TYPE = PRIMARY]

B3. How did you replace your *primary* **<APPLIANCE>**?

1. Purchased used from a second-hand appliance dealer
2. Purchased or received used from a private party (I.e. Craigslist or Facebook Marketplace)
3. Purchased or received used from a friend or family member
4. Purchased new from a retailer (in store)
5. Purchased new online
6. Other, specify:
 98. DK
 99. REF

[IF B3 = 1,2,3]

B4. Approximately how old is the **<APPLIANCE>** you are currently using as your primary **<APPLIANCE>**?

1. 0-2 years
2. 3-5 years
3. 6- 10 years
4. More than 10 years old
5. NA
98. DK
99. REF

B5. Is the **<APPLIANCE>** you are currently using as your primary **<APPLIANCE>** Energy Star certified? This would usually be designated by a sticker or decal with the EnergyStar logo on the appliance itself.

1. Yes
2. No
3. NA
98. DK
99. REF

[ASK ALL]

B6. Before you heard about the Xcel Energy **<PROGRAM>** program, were you considering recycling or otherwise getting rid of your **<APPLIANCE>**?

1. Yes
2. No
3. N/A
98. DK

99. REF

B7. Please rate the importance of each of the following on your decision to recycle your **<APPLIANCE>** through the **<PROGRAM>** program. Use a scale of 1-5, where 1 is not at all important and 5 is extremely important. If the option is not applicable to your situation, please let me know. [RANDOMIZE, 1-5 SCALE]

- a. Availability of a promotion through Xcel Energy
- b. Age of **<APPLIANCE>**
- c. Energy costs associated with keeping **<APPLIANCE>**
- d. Availability of updated **<APPLIANCE>** with more features
- e. Scheduling flexibility
- f. Option for Xcel Energy to pick up **<APPLIANCE>** rather than hauling yourself
- g. Similar timing to other renovations or appliance replacements taking place in your home
- h. Style of the old appliance, for example the color or finish
- i. Size of the old appliance
- j. Amount of space available in your home for the old appliance
- k. Change in the number of people living in your household

B8a. Were there any other reasons you decided to recycle your **<APPLIANCE>**?

1. Yes
2. No
3. DK
4. NA

[IF B8A = 1]

B8b. What else influenced your decision to recycle your **<APPLIANCE>**?

[OPEN END]

[IF B8A = 1]

B8c. On a scale of 1-5, with 1 being not important and 5 being extremely important, how important was **<B8b Response>** in your decision to participate in the program?

SECTION C: NET-TO-GROSS

C1. In your own words, can you describe why you decided to recycle your **<APPLIANCE>** through the **<PROGRAM>** program? [OPEN END]

C2. Think back to just before you scheduled your **<APPLIANCE>** pickup through the Xcel Energy **<PROGRAM>** program. What do you think you would have done with the [APPLIANCE] if the Xcel program didn't exist? [DO NOT READ; CATEGORIZE BASED ON RESPONSE]

- a. Continued using it
- b. Sold it or given it to a private party

- c. Given it to a charity organization
- d. Sold it or given it to a used fridge dealer
- e. Had fridge removed by the replacement fridge dealer
- f. Hauled to landfill or recycling center myself
- g. Hired someone to haul fridge for junking, dumping, or recycling

98. DK

99. REF

[IF C2 = a]

C2_1. Would you have kept it plugged in?

1. Yes

2. No

98. DK

99. REF

C2a [IF C2 = F] On a scale from 1 to 5, where 1 means "Not difficult at all" and 5 means "Extremely difficult" please rate the difficulty of the following steps you took to haul the <APPLIANCE> to a landfill or recycling center.

- 1. Finding a landfill or recycling center to haul the <APPLIANCE> to
- 2. Securing a vehicle to transport the <APPLIANCE>
- 3. Moving the <APPLIANCE> to the vehicle

98. DK

99. REF

C3. [IF C2 = E, F, or G] How much would you have been willing to pay to dispose of your fridge or hire someone to do so?

C3a. [IF C3 < \$100] If the cost of disposing of the appliance were more than [C3 response], what would you have done with the appliance?

[Ask C4- C5a IF C2 = \= A]

C4. If the Xcel Energy <PROGRAM> program did not exist, when would you have disposed of [APPLIANCE]? Would it have been...

- 1. Sooner than I did
- 2. The same time I did
- 3. Later than I did

98. DK

4. 99. REF

C4a. [If C4 = C] Approximately how much later would you have disposed of [APPLIANCE] if the <PROGRAM> program did not exist?
[OPEN-END]

C5 Did you look into any options other than the Xcel Energy <PROGRAM> program for disposing of [APPLIANCE]?

- 1. Yes (Specify) _____
- 2. No
- 98. DK
- 99. REF

C6. [IF C5= Yes] In your own words, can you describe why you decided to use the Xcel Energy **<PROGRAM>** program over the other options you researched?

SECTION D: PRODUCT EXPERIENCE AND SATISFACTION

Thank you for taking the time to talk with me. I just have a few more questions for you about your experience during the program.

D1. About how long from when you first contacted Xcel Energy to sign up for the **<PROGRAM>** program did it take for **<APPLIANCE>** to be removed from your home?

- 1. Less than a week
- 2. 1-3 weeks
- 3. 3 weeks or more
- 98. DK
- 99. REF

D2. Did this timing meet your expectations?

- 1. Yes
- 2. No
- 3. NA
- 98. DK
- 99. REF

[IF D2 = 2]

D2a. What were your expectations? [DO NOT READ; CLASSIFY RESPONSES]

- 1. Less than a week
- 2. 1-3 weeks
- 3. 3 weeks or more
- 4. Other (specify)
- 98. DK
- 99. REF

[IF # <APPLIANCE> > 1, REPEAT QUESTION FOR EACH MEASURE TYPE]

D3. According to my records, Xcel Energy picked up **<APPLIANCENAMES>** when you participated in the **<PROGRAM>** program. On a scale of 1-5, with 1 being not at all important, and 5 being extremely important, how important was it to your decision to participate that Xcel Energy offers pick up of **<APPLIANCE_1>?**

D4. Prior to participating in the program, did you attempt to contact an Xcel Energy representative?

- 1. Yes

- 2. No
- 3. NA
- 98. DK
- 99. REF

[If D4 = 1]

D5. Were you able to reach someone?

- 1. Yes
- 2. No
- 3. N/A
- 98. DK
- 99. REF

D6. Was this person able to give you the information you needed?

- 1. Yes
- 2. No
- 3. N/A
- 98. DK
- 99. REF

[IF D6 = 2]

D6a. What information did you need that you were not able to get?

[OPEN END]

D7. On a scale of 1-5, with 1 being extremely unlikely and 5 being extremely likely, how likely are you to recommend participating in the **<PROGRAM>** program to a friend, family member, or co-worker?

[1-5 Scale]

[IF D7 =< 3]

D7a. Why are you not very likely to recommend participating in the program to a friend, family member or co-worker?

[OPEN END]

D8. Next, I would like you to rate your satisfaction with the following aspects of the program on a scale of 1-5, with 1 being extremely dissatisfied and 5 being extremely satisfied. [RANDOMIZE ORDER]

- a. Ease of scheduling the pickup of your **<APPLIANCE>**
- b. Ease of participating in the program
- c. Interactions with program staff prior to pick up
- d. Interactions with program staff during pick up
- e. The amount of effort required on your part to participate
- f. Availability of free pickup
- g. Rebate amount [if needed: "The rebate refers to the \$50 you received for recycling your refrigerator through the program"]

[FOR EACH D8A-G, IF RATING ≤ 3]

D9. Why were you not satisfied with [D8a-D8g wording]

SECTION: CLOSE

CLOSE1. Is there anything we didn't cover that you'd like to mention or discuss about your experiences as a participant in the **<PROGRAM>** program, including recommendations for program improvements?

CLOSE2. These are all the questions I have. As a thank you for your input, we'd like to email you, or someone of your choosing, a \$25 Amazon gift card. We just need a bit of information to email the gift card to the intended recipient.

[COLLECT CONTACT INFORMATION]

[IF <CONTACT> ASKS]

We also have an option to donate the \$25 to United Way.

[IF CONTACT ASKS FOR MORE INFO ABOUT UNITED WAY] United way is a worldwide non-profit that focus on education, income, and health which they believe are the building blocks for a good quality of life. They have local chapters throughout the US.

B.3 NEAR- AND NON-PARTICIPANT CUSTOMER SURVEY GUIDE

INTRODUCTION

To support the 2020 process and impact evaluation of Xcel Energy efficiency products, the EMI Consulting evaluation team will conduct online surveys with near participating customers, defined as Xcel Energy customers who contacted an Xcel Energy representative about the program but did not participate in the Refrigerator Recycling Product. The CO Refrigerator Recycling product offers incentives to Xcel Energy single family residential customers who recycle working refrigerators through Xcel Energy. Incentives are offered to encourage Xcel Energy residential customers to remove old refrigerators and freezers from the grid. Customers can also recycle residential air conditioners and dehumidifiers through the product but are not eligible to receive incentives for this equipment, nor will Xcel Energy make additional trips to pick it up.

The remainder of the introduction provides the research questions which the near-participant and Nonparticipant customer survey is designed to address, a description of the sample variables to support programming the survey, and fielding instructions for the survey house.

EVALUATION OBJECTIVES

The objectives for the Refrigerator Recycling evaluation are to:

- Obj1-1. Calculate net-to-gross ratio

- Obj1-2. Identify opportunities for increasing product impact
- Obj2-1. Assess effectiveness of current marketing approaches
- Obj2-2. Identify opportunities for increasing product awareness among key customer segments
- Obj3-1. Identify and characterize barriers to, and drivers of, product participation
- Obj3-2. Identify opportunities for increasing product participation
- Obj4-1. Assess customers' experiences with the product
- Obj4-2. Identify opportunities for improving customer experience

The near-participant and Nonparticipant survey does not address every evaluation objective. For reference, the following table provides the evaluation efforts used for each objective.

Product Goal	Evaluation Objective	Impact or Process Objective	Research Activity	Near-Participant Survey Objective
Positively impact appliance recycling market	1-1 Calculate Net-to Gross Ratio	Impact	Participant Surveys, Near and Nonparticipant surveys, Follow-up interviews with participants, secondary market interviews	✓
	1-2 Identify opportunities for increasing product impact	Impact	Near- and non-participant surveys, peer utility benchmarking interviews, secondary market interviews	✓
Increase awareness of product	2-1 Assess effectiveness of current marketing approaches	Process	Participant surveys, near-participant surveys, follow-up interviews with participants.	✓
	2-2 Identify opportunities for increasing product awareness among key customer segments	Process	Near- and Nonparticipant surveys, secondary market interviews	✓
Increase product participation	3-1 Identify and characterize barriers to, and drivers of, product participation	Process	Participant surveys, near- and Nonparticipant surveys, follow-up interviews with participants	✓
	3-2 Identify opportunities for increasing product participation	Process	Non- and near-participant surveys, peer utility benchmarking, secondary market interviews	✓
	4-1 Assess customers' experiences with the product	Process	Participant surveys, follow-up interviews with customers	

Optimize Customer Experience	4-2 Identify opportunities for improving the customer experience	Process	Participant surveys, follow-up interviews with customers	
------------------------------	--	---------	--	--

Specific research questions which the near-participant survey is designed to address are the following:

- Q1-1 What demographics are not participating?
- Q2-1 To what extent are near participants aware of the product?
- Q2-2 How are customers learning about the product?
- Q3-1 What motivates customers to participate?
- Q3-2 What barriers to participation do customers face?

The following table presents the link between each evaluation objective, research question, and survey question.

Evaluation Objective	Research Question	Survey Sections
2-1 Assess effectiveness of current marketing approaches	Q2-1a To what extent are nonparticipants aware of the product? Q2-1b How are customers learning about the product?	Section A; Section E
2-2 Identify opportunities for increasing product awareness among key customer segments	Q2-2 What would motivate near and Nonparticipants to participate in the Xcel Refrigerator Recycling program?	Section B; Section C; Section D; Section E
3-1 Identify and characterize barriers to, and drivers of, product participation	Q3-1a What motivates customers to participate? Q3-1b What barriers to participation do customers face?	Section B; Section C
3-2 Identify opportunities for increasing product participation	Q3-2 What would influence near- and Nonparticipants' likelihood to participate in the program?	Section B; Section C; Section D

SAMPLE POPULATION AND TARGET COMPLETES

The following table shows the sample population and target completes for non-participating customers.

Group	Sample Size	Target Completes
Nonparticipants	10,001	35
Total	10,001	70 (100%)

SAMPLE VARIABLES

The following table include the sample variables that will be used to conduct this survey, as well as descriptions of these variables and potential codes.

Sample Variable	Variable Description	Potential Codes
Contact	Customer Name	e.g. Robert Saul
Group	Customer study group	Nonparticipant Near participant
Program	Program Name	e.g. "Colorado Refrigerator and Freezer Recycling"
Appliance	(Assigned in customer sample file for near participants) Description of appliance customer recycled through the program	e.g. Refrigerator

FIELDING INSTRUCTIONS

The near-participating customer survey will be fielded online by EMI Consulting, using Qualtrics software. EMI Consulting completes the following steps to field an online survey:

- Internal Pilot: Distribute survey to members of the EMI Consulting team for testing and timing. Revise survey as needed.
- Customer Pilot: Distribute survey to 50 customers in the sample. Review responses and revise survey as needed.
- Customer Survey: Distribute survey to all customers in the sample
- Reminder: Send a reminder to all customers in the sample after 1 week in the field, then again after 2 weeks in the field.

SURVEY SECTIONS

- **INTRO.** Screening and Introduction
- **A.** Program Awareness and Marketing
- **B.** Barriers
- **C.** Purchasing Decisions
- **D.** Motivations
- **E.** Demographics
- **CLOSE.** Closing

SURVEY

SECTION INTRO: INTRODUCTION AND SCREENING

Intro1. Thank you for participating in this online survey. Xcel Energy wants to support its customers and wants to hear from you about your experiences related to appliances.

This survey is short, and your answers will be kept confidential. Xcel Energy is offering participants a \$25 digital gift card that can be used at a variety of businesses, applied as a donation to a variety of non-profits, or applied to a Visa cash card. This survey is administered by EMI Consulting on behalf of Xcel Energy. EMI Consulting is a national research firm working with Xcel Energy.

[IF GROUP = Near-Participant]

Intro1b. Our records show that you scheduled an appointment to have your refrigerator or freezer picked up and recycled by Xcel Energy in 2019. Do you recall scheduling your appliance to be recycled through this program?

1. Yes, I remember scheduling to have Xcel Energy pick up my refrigerator or freezer. **[SKIP TO INTRO5]**
2. No, but someone else in my residence scheduled for my refrigerator or freezer to be recycled by Xcel Energy.
3. No, I don't recall this at all. **[SKIP to Intro3aa]**
- DK **[SKIP to Intro3aa]**
- REF **[TERMINATE]**

[ASK IF INTRO1b=2]

Intro2. We would like to contact this household member to ask them about their experiences. Can you please provide their email address?

1. First and last name: **(OPEN END)**
2. Email: **(OPEN END FOR EMAIL ADDRESS)**
3. Prefer not to answer.

[ASK INTRO3a IF INTRO1b=3, INTRO1b=DK, OR GROUP = Nonparticipant]

Intro3aa. Which of the following appliances do you have in your residence? SELECT ALL THAT APPLY.

1. A working refrigerator
2. A working detached freezer
3. Neither a working refrigerator nor detached freezer **[TERMINATE]**
- (EXCLUSIVE)**
4. REF **[TERMINATE] (EXCLUSIVE)**

[TERMINATE IF Intro3aa =3 OR 4]

[IF Intro3aa=1]

Intro3ab. How old is the oldest working **refrigerator** in your residence?

1. 0 - 4 years old
2. 5 - 9 years old
3. 10 - 15 years old
4. More than 15 years old
5. DK
6. REF **[TERM, if not selected other appliance]**

[IF Intro3aa=2]

Intro3ac. How old is the oldest working **detached freezer** in your residence?

1. 0 - 4 years old
2. 5 - 9 years old
3. 10 - 15 years old
4. More than 15 years old
5. DK
7. REF **[TERM, if not selected other appliance]**

**[CONTINUE WITH APPLIANCE THAT IS OLDER THAN 0 – 4, IF TIE
PRIORITIZE DETACHED FREEZER, IF ONLY 1 APPLIANCE AND IT IS 0-4
CONTINUE WITH THAT APPLIANCE]**

**[IF Intro3aa=1 AND Intro3ab=2 Appliance=Prioritize “Detached Freezer”
over “Refrigerator”]**

[IF Intro3ab=1 AND Intro3ab<>1 Appliance='refrigerator']

[IF Intro3ac<>1 AND Intro3ab=1 Appliance='detached freezer']

Intro3a. Did you consider **recycling or disposing of your **oldest working**
<APPLIANCE> in your residence in 2019 or 2020?**

1. Yes
2. No
3. REF

[IF Intro3ab=1 AND Intro3ac=1 Intro3a <>1, ask for other appliance.]

[ASK IF INTRO1=3 OR GROUP = Nonparticipant]

Intro3c. Did you consider **selling or giving away your oldest working
<APPLIANCE> in 2019 or 2020?**

1. Yes
2. No
- REF

**[If respondent has both working refrigerator and freezer, loop back to
Intro3a ask them for refrigerator]**

**[TERMINATE IF (Intro3a1 AND Intro3a2 = 2) AND Intro3c = 2 AND GROUP
= Nonparticipant]**

[IF INTRO1=3 AND GROUP = Near-Participant]

**Intro3d. Do you recall looking into a service where someone from Xcel Energy
would come to your home to collect a <APPLIANCE> and provide you with a \$50
or \$75 incentive?**

1. Yes
2. No
- DK **[TERMINATE]**
- REF **[TERMINATE]**

[TERMINATE IF Intro3a = 2 AND Intro3c = 2 AND Intro3d = 2]

[ASK INTRO5 IF INTRO1b=1]

INTRO5. Which appliance did you schedule to have Xcel Energy pick up?

1. A refrigerator
2. A detached freezer
3. Both a refrigerator and a detached freezer
4. Don't remember **[Terminate]**
5. Prefer not to respond **[Terminate]**

[IF Intro5=1 Appliance='refrigerator']

[IF Intro5<>1 Appliance='detached freezer']

[IF INTRO3d = 1]

Intro4. Thank you! That service offering by Xcel Energy is called the Refrigerator Recycling Program. The rest of the questions in this survey will be about that program.

Intro6. Which of the following best characterizes what ultimately happened with the **<APPLIANCE>** you were considering getting rid of?

[RANDOMIZE 1-7, ANCHOR OPTION 1 AT TOP]

1. Recycled through Xcel Energy **[TERMINATE]**
2. Plan to recycle the equipment through Xcel Energy at a later date
3. Kept it, but left it unplugged
4. Kept it, and left it plugged in
5. Gave it to charity
6. Gave it away to friend or family member
7. Sold or donated it to a secondhand appliance dealer
8. Sold it online via Craigslist, Facebook Marketplace, or a similar online platform
9. Payed a hauling company to bring appliance to the dump/landfill
10. Payed a hauling company to bring the appliance to a recycling center
11. Brought the appliance to a dump/landfill myself
12. Brought the appliance to a recycling center myself
13. Retailer that sold me my new appliance removed my old appliance
14. Recycled through a different organization (specify _____)
15. Other (specify _____)

[TERMINATE LANGUAGE FOR INTRO SECTION]

Thank you for your interest in taking this survey. At this time, you do not meet the eligibility requirements. We appreciate your time.

SECTION A: AWARENESS, MARKETING

[IF GROUP = Nonparticipant]

A0b. Where would you look first to find information about getting rid of your **<APPLIANCE>**?

1. Hardware or home improvement store employee
2. Friend or family
3. Google
4. Yelp
5. Consumer Reports
6. An app like Mercari or LetGo
7. Angie's List
8. Facebook or Facebook Marketplace
9. Other [Please specify]
- 10. DK**

[IF GROUP = Nonparticipant AND Intro6 <> 2]

A0a. Have you heard about a service Xcel Energy offers where someone from Xcel Energy comes to your home to collect a refrigerator or freezer and provide you with an incentive of at least \$50?

1. Yes
2. No
3. DK

[IF GROUP = Nonparticipant, skip to Section B]

A1. How did you *first* learn about the **<PROGRAM>** program? **[RANDOMIZE ORDER, LIMIT TO ONE RESPONSE OPTION]**

1. Email
2. Home Depot employee **[ANCHOR]**
3. A sign in a Home Depot store **[ANCHOR]**
4. Other Home Depot marketing **[ANCHOR]**
5. Friend or family
6. Google search
7. Postcard in the mail
8. Other retailer (specify) **[ANCHOR]**
9. Social media (specify) **[ANCHOR]**
10. DK **[ANCHOR]**

[IF A1 = DK, SKIP TO A4]

A2. Do you recall learning about the **<PROGRAM>** program from any other sources?

1. Yes
2. No
3. DK

[IF A2 = 1]

A2a. From which of the following sources did you also learn about the **<PROGRAM>** program? Select all that apply. **[REMOVE RESPONSE OPTION FROM A1 FROM THIS LIST, ALLOW MULTIPLE RESPONSE OPTIONS]**

1. Email
2. Home Depot employee
3. A sign in a Home Depot store
4. Other Home Depot marketing
5. Other retailer (specify)
6. Friend, Family, or other word of mouth
7. Google search
8. Postcard in the mail
9. Social media (specify)
10. DK

[IF A2a = DK, SKIP TO A4]

[IF A2 = 1]

A3. Which of these sources most motivated you to inquire about the **<PROGRAM>** program?

[PIPE RESPONSE OPTIONS FROM A1 AND A2a]

7. DK

A4. After first hearing about the **<PROGRAM>** program, did you go to other sources for additional information about the program before deciding whether to participate?

1. Yes
2. No
3. DK
4. NA

[IF A4 = 1]

A5. Where did you go to find that information?

7. Visited the Xcel Energy website
8. Visited a different website [Specify]
9. Contacted an Xcel Energy or ARCA Recycling representative
10. Contacted somebody else [Specify]
11. Other [Specify]
12. DK

[IF A4 = 1]

A6. What information were you looking for?

1. Appliance recycling information
2. Savings opportunity for refrigerators or detached freezers
3. Other appliance recycling opportunities
4. Other, [Specify]

[IF A5 <> 98]

A7. Were you able to find the information you were looking for?

APPENDICES

1. Yes
2. No
3. DK

[IF A5=3]

A8. Did the Xcel Energy or ARCA representative provide you with the information you were looking for?

1. Yes
2. No
3. DK

SECTION B: MOTIVATIONS AND BARRIERS

D6. (DISPLAY IF INTRO6 <> 3 OR 4 (Kept appliance)) Now we are going to ask you about what motivated you to get rid of your **<APPLIANCE>**

Was the **<APPLIANCE>** you were thinking about getting rid of an EnergyStar™ product?

1. Yes
2. No
3. DK

D2. When you moved into your home, was the **<APPLIANCE>** you were thinking about getting rid of already in the home?

4. Yes
5. No
6. I don't remember

[IF GROUP = Near-Participant]

D3. Before you heard about the Xcel Energy **<PROGRAM>** program, were you considering recycling or otherwise getting rid of the **<APPLIANCE>**?

1. Yes
2. No
3. DK

D4. What motivated you to consider getting rid of the **<APPLIANCE>**? Select all that apply. **(MULTI RESPONSE)**

1. The appliance was completely broken (would not turn on)
2. The appliance was not working well (it turned on but did not cool completely, leaked, or had some other defect)
3. I wanted a nicer looking appliance
4. I updated my kitchen and this appliance no longer fit in
5. I wanted a new appliance with more features
6. I wanted an appliance that used less energy
7. A new appliance was on sale
9. Other [**SPECIFY**]
10. DK

11. NA

B2. What sources, if any, did you use to inform your decision about what to do with the **<APPLIANCE>**? Select all that apply. **(MULTI RESPONSE)**

7. Online or web search
8. Home improvement store like Home Depot, Lowe's, Menard's or similar
9. Friends or family
10. Appliance retailer
11. Recycling center
12. Hauling companies
13. Other (specify)
14. No other sources
15. Don't know

[IF Intro6 = 7, 8]

B3a. Approximately how much money did you ultimately sell your appliance for?

1. Free or less than \$10
2. Between \$10-100
3. Between \$101-\$500
4. Between \$501 and \$700
5. More than \$700
6. Non-monetary trade
- Don't know
- Prefer not to say

SECTION C: PURCHASING DECISIONS

[ASK C1 IF Intro6 <> 3 OR 4, ALL ELSE, SKIP TO C5]

C1. Now we have some questions about replacing your appliance.

Did you ultimately choose to replace the \${e://Field/APPLIANCE}?

1. Yes
2. No
3. DK

[ASK C2 IF C1 = 1, ALL ELSE, SKIP TO C5]

C2. When you replaced the **<APPLIANCE>**, did you get a brand new appliance or did you get a previously-owned appliance?

1. Brand new
2. Previously owned or used
3. DK
4. NA

[IF C2=1]

C2a. Where did you purchase or receive the new **<APPLIANCE>**?

1. An in-store retailer [**SPECIFY**]
2. An online retailer [**SPECIFY**]
3. Other [**SPECIFY**]

[IF C2=2]

C2b. From where did you purchase or receive the previously-owned **<APPLIANCE>**?

1. A second hand appliance store
2. Through a friend or family member
3. Through a neighbor or community member through websites such as Craigslist, NextDoor, Facebook [**SPECIFY**]
4. Other [**SPECIFY**]

[IF C2= 2]

C3. Did you ever consider purchasing a new **<APPLIANCE>** instead of a previously-owned one?

4. Yes
5. No
6. DK
7. NA

[IF C2= 1 or 2]

C4. Approximately how much money did you spend on the **<APPLIANCE>**?

1. **(SHOW IF C2 = 2)** Free or less than \$10
2. Between \$10-100
3. Between \$101-\$500
4. Between \$501 and \$700
5. More than \$700
6. **(SHOW IF C2 = 2)** Non-monetary trade
- Don't know
- Prefer not to respond

SHOW C5 TRANSITION TEXT IF <APPLIANCE>≠ Refrigerator

Previously, we were asking questions about your <APPLIANCE>, but now we want to know more about the refrigerator(s) in your home.

C5. Do you currently have more than one refrigerator plugged in at your home?

1. Yes
2. No
3. DK

[IF C5 = 2 OR 3, SKIP TO SECTION D, SHOW C6 ONLY IF C5=1]

C6. Prior to the outbreak of COVID-19, did you typically have food or drinks in your second refrigerator? Your second refrigerator is the one you use less.

1. Yes
2. No
3. DK

C7. Do you currently have food or drinks in your second refrigerator?

1. Yes
2. No
3. DK

C8. How did you decide to use more than one refrigerator? Select all that apply.
(MULTI RESPONSE)

1. I got another refrigerator and the first one still worked. There was no need to get rid of the old refrigerator.
2. I got another refrigerator and didn't know how to get rid of the old refrigerator.
3. One refrigerator wasn't big enough for our day-to-day needs.
4. Wanted a secondary refrigerator to support a food-related business or hobby (hunting, fishing, gardening, harvesting, etc.)
5. Wanted a secondary refrigerator for special events or hosting guests
6. The refrigerator was here when I moved in
6. Other **[SPECIFY]**
98. DK

C11. (IF APPLIANCE = detached freezer) Are you considering getting rid of your second refrigerator? Your second refrigerator is the one you use less.

(IF APPLIANCE = refrigerator) Is the refrigerator you are considering getting rid of your second refrigerator? Your second refrigerator is the one you use less.

1. Yes
2. No
3. DK
4. Prefer not to say

(SHOW C12 IF C11 = 1)

C12. Why are you considering getting rid of your second refrigerator?
[Open-end]

SECTION E. DEMOGRAPHICS

D1. How long have you lived in your current residence?

1. 0-2 years
2. 3-5 years
3. 6-10 years
4. More than 10 years
- Don't know
- Prefer not to answer

E1. Which of the following best describes your home?

1. Single-family home
2. Single-family attached home, such as a duplex or townhome
3. Apartment building or condo with 2-4 units
4. Apartment building or condo with 5+ units
5. Mobile home
6. Don't know
7. Prefer not to answer

E2. Do you own or lease your home?

1. Own
2. Lease / Rent
3. Other
4. DK
5. Prefer not to answer

[ASK E2 <> 1]

E3. Are you the person who pays your Xcel Energy utility bill, or does someone else pay the bill, such as a landlord?

1. I pay my own bill
2. Someone else pays the bill
3. DK
4. REF

E5. Are you of Hispanic, Latino, or Spanish origin?

1. No, not of Hispanic, Latino, or Spanish origin
2. Yes, Hispanic, Latino, or Spanish origin
3. Don't know
4. Prefer not to say

E6. What is your race?

1. White
2. Black or African American
3. American Indian or Alaska Native
4. Asian
5. Native Hawaiian or other Pacific islander
6. Bi-racial or Multi-racial
7. Some other race (please specify)
8. Prefer not to say

E7. What is your age?

1. Under 18 years old
2. 18-24 years old
3. 25-34 years old
4. 35-44 years old

5. 45-54 years old
6. 55-64 years old
7. 65-74 years old
8. 75 years or older
9. REF

E8. How do you identify?

1. Male
2. Female
3. Non-binary
4. Other
5. REF

E9. In 2019, approximately what was your yearly household income before taxes?

1. < \$25,000
2. \$25,000 to \$34,999
3. \$35,000 to \$49,999
4. \$50,000 to \$74,999
5. \$75,000 to \$99,999
6. \$100,000 to \$149,000
7. \$150,000 to \$199,000
8. \$200,000 or more
88. Don't know
99. Prefer not to answer

SECTION: CLOSE

CLOSE1a. Is there anything that was not covered that you'd like to mention about your experiences when thinking about recycling your **<APPLIANCE>**?

(OPEN END)

[ASK ALL]

CLOSE1b. That was the last question, as a thank you for your input we are happy to provide you with a \$25 gift card or make a donation to your local United Way. Tango gift cards are offered as virtual gift cards, which will be sent to your email by October 1, 2020.

Would you prefer the \$25 gift card option or would you prefer to donate to your local United Way?

1. Tango (virtual gift card)
2. Please donate to my local United Way

[ASK IF CLOSE1 = 1,2]

CLOSE2B. We currently have the following information on file to email your Tango virtual gift card:

<EMAIL ADDRESS>

Is this the correct email address for the \$25 gift card?

1. Yes, email is correct
2. No, please correct to: (FILL OUT)

[ASK IF CLOSE1 = 4]

CLOSE4. In whose name should the donation to United Way be made?

1. Name: [TEXT BOX]
2. Anonymous

[Show if respondent accepted virtual gift card (CLOSE1=1,2)]

CLOSE5. You should expect to receive your virtual gift card by October 1, 2020. The gift card will be emailed directly from EMI Consulting, so please keep an eye out for an email with our name and logo on it.

If you have any questions or have not received your gift card within the next four business days, please contact Matt Galport at (206) 388-0968 and reference the Xcel Energy Refrigerator Recycling Program survey.

To submit your responses, please click "Submit" below and to the right.

[END OF SURVEY]

B.4 SECONDARY MARKET ACTOR INTERVIEW GUIDE

INTRODUCTION

To support the process and impact evaluation of the 2020 Xcel Energy efficiency products, the EMI Consulting evaluation team will conduct interviews with second-hand retailers and individuals who sell used refrigerators. The objective of the interviews is to gain a deeper understanding of what the second-hand market looks like in CO. The team will use this information to support net-to-gross calculations through a more complete understanding of what likely would have happened to refrigerators had they not been recycled through the product.

This document presents the in-depth interview guide for this task. The evaluation team plans to conduct up to 10 interviews with retailers and individuals who sell second-hand appliances. We will recruit for these 10 interviews from a contact list created by the evaluation team. This task is intended to support the overall evaluation objectives shown in Table B-8.

Table B-8. CO Refrigerator Recycling Evaluation Objectives

Product Goal	Evaluation Objectives	Evaluation Questions	Secondary Market Objective
Positively impact appliance recycling market	1-1. Calculate net-to-gross ratio 1-2. Identify opportunities for increasing product impact	Q1-1. <i>To what extent is the product reducing grid load?</i> Q1-2. <i>What does the Colorado market for second hand appliances look like?</i>	✓
Increase awareness	2-1. Assess effectiveness of current marketing approaches 2-2. Identify opportunities for increasing product awareness among key customer segments	Q2-1. To what extent are nonparticipants aware of the product? Q2-2. How are customers learning about the product? Q2-3. How do other utilities build customer awareness?	
Increase participation	3-1. Identify and characterize barriers to, and drivers of, product participation 3-2. Identify opportunities for increasing product participation	Q3-1. What motivates customers to participate? Q3-2. What barriers to participation do customers face? Q3-3. How do other utilities drive customer participation?	
Optimize customer experience	4-1. Assess customers' experiences with the product 4-2. Identify opportunities for improving customer experience	Q4-1. How do customers experience the product? Q4-2. How do other utilities optimize the customer experience?	

The specific list of research topics for the secondary market interviews are presented in Table B-9, alongside the interview questions intended to address them.

Table B-9. Research Topics

Research Topics	Interview Guide Section
Understand to what extent is the product reducing grid load	Section B & C
Understand what the market for secondary appliances looks like in CO	Section B & C

RECRUITING INSTRUCTIONS

The evaluation team plans to send advance emails to contacts. This email will contain an explanation of the research, as well as both an Xcel Energy and EMI Consulting contact person the potential interviewee can reach out to if they have additional questions or would like to schedule an interview at their convenience.

Consultants on the evaluation team, who will be conducting interviews and have been trained on the purpose and goals of the CO Refrigerator Recycling qualitative research, will recruit potential respondents. The evaluation team will be as flexible as possible in scheduling these interviews, including scheduling early morning or evening interviews when possible to accommodate the busy schedules respondents may have. The evaluation team will leave a voicemail or receptionist message on the first attempt whenever possible, and then use discretion to determine any additional messages left on subsequent attempts. The evaluation team will strive to attempt to contact each contact a minimum of 4 times before terminating contact, but depending on each unique situation, the evaluation team may need to attempt additional contacts to ultimately reach the correct person.

We will provide a \$50 Tango e-gift card as an incentive for completed interviews.

INTERVIEW INSTRUCTIONS

This guide is designed to apply to a wide range of potential respondents. As such, the questions are written deliberately to be open-ended and flexible. The questions should be understood as concepts to explore rather than a verbatim script. In particular, the bulleted follow-up questions should be considered possibilities to probe further, but may not apply to all respondents.

INTERVIEW

INTRODUCTION/RECRUITMENT

INTRO 1 Hello, this is **INTERVIEWER NAME**, calling from EMI Consulting on behalf of Xcel Energy. Is **CONTACT NAME** available?

INTRO 2 We are working with Xcel Energy on a study to understand the market for second-hand appliances and are offering a \$50 gift card for eligible participants.

Are you the best person to talk to about used appliances?

[IF NO] Can you direct me to someone else who could discuss used appliances?

[IF YES] Is now a good time to discuss the used appliance market?

[IF NEEDED] We would like to interview you for this study, as you have been identified as a *private seller/retailer* of second-hand appliances

[IF NEEDED] In your interview, we would talk about the quantity of units that are sold to you and how you decide whether to resell or dispose of the unit.

- a. Yes **[BEGIN INTERVIEW]**
- b. No, a later time is better **[RECORD CONTACT INFORMATION; SETUP INTERVIEW TIME,]**
- c. No, not interested **[DISCUSS CONCERNS; ANSWER QUESTIONS; ATTEMPT TO CONVERT TO "YES"]**

[IF INTERVIEWEE ASKS ABOUT GIFT CARD] The \$50 gift card is a Tango gift card which is a digital gift card that can be redeemed at a variety of retailers, including Amazon, Apple, and Target, among others. Within a couple weeks after completing the interview, you will be sent a link to the Tango website where you can select the retailer of your choice.

SECTION A: INTRODUCTION

To provide me with valuable context for each interview when completing the analysis later, it helps to begin each discussion with an overview of your role and responsibilities.

- A1. To start, can you describe your role and scope of responsibilities at your business?
- A2. Roughly what proportion of previously-owned refrigerators and freezers that you take in do you end up reselling versus salvaging? In other words, what percent of the fridges you get would you say ultimately end up getting used? (PERCENT)

Do you sell refrigerators or freezers that are 10 or more years old? Of all of these old refrigerators and freezers you have gotten, roughly what proportion do you sell versus salvaging? (PERCENT)

How do you dispose of refrigerators and freezers you do not sell? Do you use a service? What service?

Roughly how many used refrigerators and freezers do you sell each year?

SECTION B: USED APPLIANCE CUSTOMERS

B1. In thinking about the customers who purchase used refrigerators and freezers from you, roughly what percent are residential customers vs. companies/businesses?

- How would you describe the types of homes that they are sold to?
 - Single-family vs. multifamily home
 - Rental vs. owned
- For the businesses, do you know if they are purchasing for their own location/facility or are they being placed elsewhere?
 - Do you know what they do with the appliances?

B2. For your residential customers (individuals), do you know if they are purchasing these used fridges and freezers as their primary units, or are they mostly purchasing them as a secondary unit, for their basement or garage perhaps?

- Approximately what percent are purchasing second units?
- Does that vary based on the type of customer/application?

B3. Do you ever run out of stock of used refrigerators and/or freezers?

- Periodically? When/why?

B4. Of all the used refrigerators and freezers that you sell, approximately what percent are Energy Star rated?

B5. Of all the used refrigerators and freezers that you sell, approximately what percent are less than 5 years old?

More than 10 years old?

B6. Now, thinking about the units you do not sell, do you notice any trends about what kinds do not sell?

- What do you do with the appliances you do not sell?

SECTION C: USED APPLIANCE SOURCES

[IF INDIVIDUAL SELLER, SKIP TO C4]

C1. Where do you obtain your used refrigerators and freezers?

- Drop-off from distributor or other contractors?
- Wholesale warehouse, auction
- Customer drop-off (advertised?)
- Purchased from retailers or other vendors (advertised?)
- Rental (e.g., Rent-a-Center)
- Any other sources?

[IF MORE THAN 1 IN C1]

C2. Roughly what proportion of your used refrigerators and freezers do you get from each of these sources that you just mentioned?

- Any specific vendors or brands you prefer? Are they supplied locally, or out of state?

C4. In 2019, approximately how many refrigerators and freezers did you **obtain**, with the intent to sell?

C5. In 2019, about how many used refrigerators and freezers did you **sell**??

- In thinking about this current year, are you on track to exceed, meet, or not meet that number from last year?
- What are the reasons why you may not have sold some equipment that you obtained and intended to sell?

C8. Has COVID-19 changed the way your business operates? If so, how?

SECTION D: CLOSING

D1. Before we finish up, We're specifically interested in trying to figure out roughly what proportion of used refrigerators and freezers end up eventually getting used again versus salvaged. Do you have any insight into what that proportion generally looks like across the used appliance market?

Is there anything that you think we should know about the used appliance market?

- D2. Those are all the questions I have for you today. Do you have any questions for me, or anything else you would like to add?
- D3. Great! Thank you so much for your time. We really appreciate your feedback. As a thank you for your time and valuable input we would like to send you a \$50 Tango e-gift card. What is the best email address to send this e-gift card to?

[IF INTERVIEWEE ASKS ABOUT GIFT CARD] The \$50 e-gift card is a Tango gift card which is a digital gift card that can be redeemed at a variety of retailers, including Amazon, Apple, and Target, among others. In the next two weeks we will send you a link to redeem your gift card on the Tango website.

B.5 PEER UTILITY INTERVIEW GUIDE

INTRODUCTION

To support the process and impact evaluation of the 2020 Xcel Energy efficiency products, the EMI Consulting evaluation team will benchmark the Xcel Energy products against peer utilities. The objective of the benchmarking is to identify opportunities to improve the Xcel Energy products based on a comparison of peer utility programs' design, delivery, and processes. In addition, benchmarking allows the evaluation team to understand the performance of the product in context with the performance of other utilities. To conduct the benchmarking, the evaluation team will identify and conduct secondary research on the peer utilities and perform in-depth interviews with program managers at the peer utilities.

This document presents the in-depth interview guide for the CO Refrigerator Recycling programs peer utilities interviews. The evaluation team plans to conduct 4 to 6 peer utility interviews. Table B-10 presents 10 utilities from which the evaluation team will recruit for interviews. Target respondents are staff in key management roles for peer utility programs that incentivize appliance recycling and programs that specifically target refrigerators and refrigerators.

Table B-10. List of Peer Utilities

Utility	Program Name
Ameren Missouri	Refrigerator and Freezer Recycling Program
Toledo Edison	Appliance Turn-In program
AEP Ohio	AEP Ohio Recycling Program
Met-Ed	Appliance Turn-In program
Pacific Gas and Electric	PG&E's Appliance Recycling Program
PSE&G	Appliance Recycling program
Potomac Edison	Appliance Turn-in program
Delmarva Power	Appliance Recycling Program

This task is intended to support the overall evaluation objectives by asking peer utilities about their experiences with implementing similar programs. The overall evaluation objectives are shown in Table B-11.

Table B-11. Energy Efficient Showerheads Evaluation Objectives

Product Goal	Evaluation Objectives	Evaluation Questions	Peer Utility Objective
Positively impact appliance recycling market	1-1. Calculate net-to-gross ratio 1-2. Identify opportunities for increasing product impact	Q1. To what extent is the product reducing grid load? Q2. What does the Colorado market for secondhand appliances look like?	
Increase awareness	2-1. Assess effectiveness of current marketing approaches 2-2. Identify opportunities for increasing product awareness among key customer segments	Q2-1. To what extent are nonparticipants aware of the product? Q2-2. How are customers learning about the product? Q2-3. <i>How do other utilities build customer awareness?</i>	✓
Increase participation	3-1. Identify and characterize barriers to, and drivers of, product participation 3-2. Identify opportunities for increasing product participation	Q3-1. What motivates customers to participate? Q3-2. What barriers to participation do customers face? Q3-3. <i>How do other utilities drive customer participation?</i>	✓
Optimize customer experience	4-1. Assess customers' experiences with the product 4-2. Identify opportunities for improving customer experience	Q4-1. How do customers experience the product? Q4-2. <i>How do other utilities optimize the customer experience?</i>	✓

The specific list of research topics for the peer utility interviews are presented in Table B-12, alongside the interview questions intended to address them. Note that Table B-12 focuses on peer-specific research topics, but the interview guide covers a number of other topics that can help the inform our understanding of the overall evaluation objectives.

Table B-12. Peer Utility Research Topics

Peer Utility Research Topics	Interview Question
Understand how other utilities build customer awareness.	Section B
Understand how other utilities drive customer participation	Section B
Understand how other utilities optimize customer experience	Section C

RECRUITING INSTRUCTIONS

The evaluation team plans to send emails to any program managers with available email addresses. This email will contain an explanation of the research, as well as both an Xcel Energy and EMI Consulting contact person the utility can reach out to if they have additional questions or would like to schedule an interview at their convenience.

Consultants on the evaluation team, who will be conducting interviews and have been trained on the purpose and goals of the CO Refrigerator Recycling qualitative research, will recruit potential respondents. The evaluation team will be as flexible as possible in scheduling these interviews, including scheduling early morning or evening interviews when possible to accommodate busy utility schedules. The evaluation team will leave a voicemail or receptionist message on the first attempt whenever possible, and then use discretion to determine any additional messages left on subsequent attempts. The evaluation team will strive to attempt to contact each peer utility a minimum of 4 times before terminating contact, but depending on each unique situation, the evaluation team may need to attempt additional contacts to ultimately reach the correct person.

INTERVIEW INSTRUCTIONS

This guide is designed to apply to a wide range of potential respondents. As such, the questions are written deliberately to be open-ended and flexible given the role of the interviewee. The questions should be understood as concepts to explore rather than a verbatim script. In particular, the bulleted follow-up questions should be considered possibilities to explore further but may not apply to all respondents.

INTERVIEW

INTRODUCTION/RECRUITMENT

INTRO 1 Hello, this is **INTERVIEWER NAME**, calling from EMI Consulting on behalf of Xcel Energy. Is **CONTACT NAME** available?

INTRO 2 We are working with Xcel Energy on a benchmarking and best practices study for their CO Refrigerator and Freezer Recycling Program. As part of this study, we are reaching out to leaders of appliance recycling programs to learn about innovative programs and best practices in the field.

While I know energy efficiency programs may have been impacted as part of the nation's COVID-19 response, we are primarily interested in better understanding your core design before it was impacted by COVID and learning about changes you've made to the program since COVID.

We would like to include **UTILITY** in this study, as your appliance recycling program has been identified as a peer program. In your interview, we would talk about your program's design and implementation, as well as its successes and challenges.

[**IF NEEDED:**] We will not be requesting any customer or participant data.

INTRO 3 Can we include **UTILITY** in our study?

- a. Yes [**RECORD CONTACT INFORMATION; SETUP INTERVIEW TIME; EMAIL INTERVIEW TOPICS**]
- b. No [**DISCUSS CONCERNS; ANSWER QUESTIONS; ATTEMPT TO CONVERT TO "YES"**]

SECTION A: KPIS/PROGRAM DESIGN

A1. First, we'd like to talk through the basic design and organization of your appliance recycling program. [**ASK/CONFIRM BASED ON HOLES IN BACKGROUND RESEARCH ON PROGRAM**]

Can you describe your program at a high level?

- a. What are the program's overall objectives?

[PROBE if not mentioned: To what extent does the program involve general education on the importance of energy efficiency?]

- b. Is your program run by utility staff or a third-party implementer? (ex: ARCA, Franklin Energy, DNVGL, Clear Result)
- c. How many [PROGRAM STAFF OR IMPLEMENTER STAFF] members support the program? (ex: Prog. Manager, Field Rep., engineer, others?) **Probe:** %FTE on this program?
- d. Do you happen to know what the net-to-gross ratio is that gets applied to your program's savings? How does that get calculated (e.g., is it based on surveys of customers, set by state regulators, etc.)?

- A2. Next, I'd like to talk about your program's efficiency incentives.
[ASK/CONFIRM BASED ON HOLES IN BACKGROUND RESEARCH. CAN ASK QUESTIONS BELOW OR ASK RESPONDENT IF OK TO FOLLOW UP VIA EMAIL]
- a. Can you recommend a web page or other resource where I can find a list of your available measures and their incentive values?
 - b. If "NO": What specific measures are offered?
 - a. What are the incentive levels for each measure? **Probe:**
Free? Instant rebate?
 - b. What options are available?
 - i. One option per measure or can customers choose from additional premium options?
 - c. Do you see any new measures coming into your program any time soon? Do you foresee getting rid of any measures any time soon? Would your answers be any different if it were not for COVID-19?

SECTION B: PROGRAM OUTREACH AND MARKETING

Next, I'd like to talk about program outreach and marketing.
[ASK/CONFIRM BASED ON HOLES IN BACKGROUND RESEARCH ON PROGRAM]

- B1. How do most customers first learn about your appliance recycling program?
 - a. Does your program measure customer awareness? If so, how?
- B2. How does the utility engage potential program participants, if at all?
PROBE AS NEEDED: Do you follow specific steps? Do you have a protocol for engagement? What marketing practices do you use to increase customer awareness of the program?
 - a. What has been the most effective?
 - b. What has been the least effective?
 - c. [If not already mentioned] Do you attempt to contact customers based on their preferred method of contact?
 - d. How often does marketing and outreach occur within a year?
 - e. [If not already mentioned] Does the program work with other programs at **Utility** to raise awareness and/or distribute measures?
- B3. Out of the customers who you are engaged with, approximately what percent go on to participate in the program and have at least one appliance removed?
 - a. What activities or resources have you found to be particularly effective in driving customer participation?

- b. To what extent is the appliance recycling program used as a feeder into other energy efficiency programs?
- B4. How is customer eligibility defined for your program?
 - a. Do you target certain types of customers? (PROBE if they allow previous participants in the program again after a certain amount of time. If so, what's the timeframe?)
 - b. Are there certain measures that are "added on" but not a reason for a trip alone, e.g. distributing direct install measures/kits or small appliance recycling (e.g. room air conditioners, smaller refrigerators)
- B5. Above and beyond removing old appliances and offering incentives, are there any additional benefits the program provides to customers?

SECTION C: OPTIMIZATION

Next, I'd like to talk about the experiences your customers have while participating in your program.

- C1. What do your customers say about participating in this program?
Probe for: negative and positive experiences.
 - a. How do you collect data on customer feedback, if at all?
- C2. In your opinion, what changes could the program make to optimize your customers' experiences, if any?
Probe for: feasibility of changes, barriers, opportunities
 - b. If multiple changes suggested, which of the aforementioned changes would take priority?

SECTION D: CLOSING

- D1. Those are all the questions I have for you today. Before I finish, do you have any questions for me, or anything else you would like to add?

APPENDIX C: FINDINGS

Appendix C includes the following:

- C.1 Staff Interview Findings
- C.2 Participating Customer Survey Findings
- C.3 Non- or Near-Participating Customer Survey Findings
- C.4 Peer Utility Interview Findings

C.1 STAFF INTERVIEW FINDINGS

INTRODUCTION

To support the process and impact evaluation of the 2019 Xcel Energy efficiency products, the EMI Consulting evaluation team conducted telephone interviews with key staff managing and implementing the Colorado Refrigerator and Freezer Recycling Product. The interview objectives were to collect staff feedback on product experiences and evaluation priorities. When the Product Manager desired feedback from more than one staff member within a team, the evaluation team conducted group interviews. Members of the EMI Consulting evaluation team interviewed the following key staff managing and implementing the SBL product:

Xcel Energy Staff:

- Product Manager and former Product Manager
- Two Refrigerator and Freezer Recycling Engineering Team members (chosen by product manager)
- Team Lead (Team Lead for Refrigerator and Freezer Recycling Product unavailable, so EMI Consulting interviewed another team lead).

ARCA (Implementer) Staff:

- Refrigerator and Freezer Recycling Program Manager (chosen by product manager)
- Marketing Representative (chosen by product manager)
- Contracting representative(chosen by product manager)

This memo contains our summary of the key takeaways, a description of the product, an inventory of interviewees' perceptions of the product's strengths and barriers, and feedback on evaluation priorities.

KEY TAKEAWAYS

Below are key takeaways from staff experiences with the CO Refrigerator and Freezer Recycling product. These key takeaways provide a summary of the product context and feedback received during both the kick-off meeting and the subsequent staff interviews.

- **Product staff see the product as an important part of the overall portfolio, and tend to think about portfolio-level energy savings goals in addition to product-level savings.** While the product must meet savings goals, these goals are subject to change throughout the year based on the overall portfolio performance. Staff therefore focus on providing strong customer experiences and to ensure that marketing efforts continue to align closely with participation rates.
- **Both Xcel Energy staff and implementer staff reported the product is working well overall.** Product staff are satisfied with program processes, resources, and the collaborative relationship between ARCA and Xcel Energy staff.
- **The product's net-to-gross ratio (NTGR) is low, and staff are interested in EMI's approach for measuring NTGR.** Staff believe that free-ridership scores may be artificially high due to social desirability bias increasing occurrences in which respondents say they would have recycled their unit in absence of the product. If the NTGR remains low, staff would like actionable and targeted recommendations to understand how to improve it.
- **As the refrigerators and freezers available to collect become newer, per-unit savings for the product decrease. Staff would like to tap into new markets to increase cost effectiveness and achieve deeper savings.** Product staff have noted that participants tend to be geographically and demographically similar. To achieve deeper savings, staff would like to identify and engage markets with older units.

PRODUCT ACTIVITIES, GOALS, AND RESOURCES

The following bullets present the evaluation team's understanding of the product based on staff interview results and review of available product documentation.

ACTIVITIES

This section outlines activities that product staff and participants undertake prior to, during, and after participation.

Determining Eligibility

- To be eligible to participate in the product, customers must be current Xcel Energy customers, and the unit must be picked up at the residential service address associated with the customer's account number. Units must be in working order, and customers may recycle a maximum of two units per calendar year. There are no year or vintage requirements on the units.
 - Xcel Energy also picks up and disposes of room air conditioners and dehumidifiers if customers have these in addition to refrigerators. Staff will not pick up these items if they do not also pick up a unit. In 2019, Xcel Energy picked up 52 air conditioners and 6 dehumidifiers in Colorado. In addition, participants may receive 2 LED lightbulbs during pickup. Xcel Energy does not claim savings for these measures.

- Some staff questioned the possibility of picking up non-working refrigerators to build goodwill with customers, even if Xcel Energy can not claim savings for this.

Marketing and Outreach

- Most product participants are in mid-high income neighborhoods and are between the ages of 50 and 65.
- Marketing efforts and participation are closely tied. The product ramps marketing efforts up or down each fall based on savings achievements in other areas of the Xcel Energy residential portfolio.
- Marketing and outreach efforts are conducted through email initially, with direct mail follow-ups as needed.
 - Marketing typically begins each spring over email to customers who have not recently participated in the product.
 - Some years, Xcel Energy offers promotional or additional incentives for a limited period of time to encourage participation. During the fall of 2019, the product ran a sweepstakes for a Home Depot gift card and offered increased incentives.
 - Product staff also market through Google's search advertisements.
 - As needed, the marketing team sends customers 6x9 promotional postcards.
 - In 2020, the product marketing team is expanding to social media (Facebook and Pinterest) platforms and creating video testimonial advertisements. As these platforms already serve customers who regularly use the product, the team hopes to further increase awareness and participation.
 - Starting in 2019 in Minnesota, Xcel Energy has partnered with Home Depot to place marketing directly on fridge or freezer models in-store. This program is extending to Colorado in 2020.
- As of writing, the COVID-19 pandemic has delayed marketing efforts for the product. However, Xcel Energy and ARCA are offering a contactless pick-up service and the product is scheduled to continue in 2020.

Pickup

- After scheduling a pickup over the phone or online, two ARCA employees (one driver and one helper) pick up refrigerators. At least 50% of scheduling is done online.
- If a particular day is filled online, customers can not schedule a pick-up for that day or time.
- During pick-up, one ARCA employee fills out paperwork and answers questions for the customer. The other prepares the refrigerator for removal. Both employees remove the refrigerator together.
- Drivers pick up between 10 and 25 units per day, and routes are designed in zones to maximize speed and efficiency.
- After pick-up, refrigerators are responsibly disassembled and recycled.

- ARCA enters the unit model year and indicates whether the units are the customers' primary or secondary units. From a savings perspective, primary and secondary units are treated the same.

Post-pickup

- Participants receive incentive checks within four weeks after pickup. Staff reported they often arrive within two weeks.
- Xcel Energy engineers use ARCA-collected unit model information to calculate savings, uploading data to Salesforce once per month.
- Participants receive the opportunity to participate in the Home Energy Squad product when units are picked up. Home Energy Squad allows residential customers to schedule home energy audits and direct installs of energy efficiency equipment. ARCA informs Xcel Energy of which customers would like information about Home Energy Squad daily.

GOALS AND OBJECTIVES

- The Refrigerator Recycling Product's primary goals are based on energy savings achievement (kWh and kW).
- Product participation is tracked by household rather than appliance. Participation goals for both 2019 and 2020 are 7,000 households.
- Xcel Energy tracks email open and click-through rates.
- Maintaining cost effectiveness is an important product goal. It is becoming more difficult to remain cost effectiveness as units are newer and savings are not as deep as previously.
- The 2020 budget is slightly higher than the 2019 budget, but also assumes increased average savings of 571kWh per customer rather than the 2019 average of 562 kWh per customer.

Year	Budget	kW	kWh	mTRC Test Ratio	Participation	Average Savings per customer (kWh)
2019 Target	\$1,232,233	599	3,935,695	1.04	7,000	562
2019 Achieved	\$1,123,769	432	3,571,202	1.15	7,011	509
2020 (Projected)	\$1,249,390	743	4,000,307	1.11	7,000	571

- Non-energy objectives include the following:
 - Build goodwill and relationships with Xcel Energy customers.
 - After participation, Xcel Energy aims to enroll customers in other residential products, like Home Energy Squad.

- ARCA has additional internal goals, including:
 - Customer satisfaction (measured in terms of customer complaints)
 - Efficient collections
 - Timely responses from call center employees
 - Acceptable and timely open dates for customers to schedule pickups
 - Customers should receive incentives within four weeks of pickup

RESOURCES

- Product marketing is an important resource for the product. Marketing resources include:
 - Marketing staff at Xcel Energy to coordinate and approve email, mail, content, and web marketing.
 - Marketing partnership with Home Depot
- The ARCA call center in Las Vegas manages customer calls.
- ARCA has a web-based portal and data tracking system that Xcel Energy staff also have access to. This portal includes information on scheduled pickups, canceled pickups,
- The product currently does not track customer satisfaction, though it does track customer complaints.
- ARCA manages the majority of data tracking, including remanufacturing, calls, orders, confirmation, and questions. This also includes customer addresses, names, account numbers, premise numbers, and appliance specifications.
- ARCA refreshes customer databases on a monthly basis and sends that information to Xcel Energy.
- ARCA has an assigned business analyst to track orders, manage transportation, and audit orders.

PRODUCT STRENGTHS AND CHALLENGES

During interviews, staff identified the following strengths and challenges to implementing the Refrigerator and Freezer Recycling Product in 2019. Strengths include factors that product staff identified as supporting the success of the product; challenges include factors that product staff identified as preventing the product from reaching its goals.

STRENGTHS

- Customers appreciate that it is simple and free to participate in the product, and that they receive a \$50 check for participation. This helps build goodwill with customers.
- Participation in the product is closely related to marketing efforts, making it easy to predict and control savings and participation rates.
- Because the implementer tracks details about participants, the product staff have a strong understanding of its participants' demographic and geographic characteristics.

APPENDICES

- Internal communication among staff is strong, and staff members feel the product is working well.
- The implementer works with only appliance recycling products, and has expertise and IT support to implement and track programs effectively and efficiently.
- The product leads some customers to participate in other Xcel Energy products.
- The product regularly meets savings goals, reaching 110% of the goals in 2019.
- Customer satisfaction with the product is high, as demonstrated by a lack of customer complaints.

CHALLENGES

- Though staff know which markets they are not currently reaching, they do not understand how to reach those markets.
- Refrigerators are not as old as they used to be, making it more challenging to reach savings goals without increasing participation.
- The product experiences a slow season in February and March of each year. Product staff reported it can be challenging to keep the product moving during these months.
- Staff reported that increasing marketing collaboration between ARCA and Xcel Energy may help ensure that efforts do not overlap and are not duplicated across organizations.

FEEDBACK ON EVALUATION PRIORITIES

During interviews, staff identified research topics they would like the evaluation to address. The following bullets compile these topics, along with additional topics that the evaluation team identified based on staff interview findings. The evaluation team will consider these research topics when prioritizing portfolio-wide evaluation needs and as able, incorporate them into the final evaluation plan for the 2019 Refrigerator and Freezer Recycling Product.

- Understand how to reach untapped markets, especially those with the greatest opportunity for deep savings. Staff would like to expand product reach beyond their current market of middle to high income neighborhoods and women between 50 and 65 years old. While they do understand which markets they do not currently reach, they do not know how to reach these markets.
- Understand drivers behind low NTGR, and ensure that free-ridership and spillover are not over- or under- estimated. If the NTGR remains low, understand what actions to take to increase it.
- Understand why near-participants choose different programs or services, i.e. the Home Depot recycling program.

- Gather feedback on social media marketing to understand how to refine it to increase participation among target groups (i.e., people with fridges made before 2010).
- Learn about other program approaches from peer utilities, potentially including:
 - Utilities that work with different implementers.
 - Municipal utilities that are subject to fewer regulations and have more creative license in terms of program implementation.
 - Other similarly-sized utilities that work with ARCA, like Mass Save and First Energy.

C.2 REFRIGERATOR AND FREEZER PARTICIPATING CUSTOMER SURVEY FINDINGS

INTRODUCTION

This appendix presents results from the participating customer survey for the 2020 Refrigerator and Freezer Recycling Survey.

FINDINGS

Intro1. Hello, this is **<INTERVIEWER NAME>** calling from Ewald and Wasserman, a national research firm working with Xcel Energy. We understand that COVID-19 has made life more difficult. As the economy begins to re-open, Xcel Energy wants to support its customers and wants to hear from you about your experience with the Refrigerator Recycling program.

I'm hoping to speak to someone in your household who would be familiar with your participation in Xcel Energy's refrigerator recycling program in 2019. Our records show that you recycled a **<PRODUCT DESCRIPTION>** as part of the Xcel Energy **<PROGRAM>** program. We're conducting a brief, 20 minute confidential survey on Xcel Energy's behalf and offering a \$25 Amazon gift card for your time. May I speak with **<CONTACT>?**

[ASK IF INTRO1=1 OR 5]

Intro2. Are you the person who is most familiar with your household's participation in the **<PROGRAM>** program, or at least as familiar as anyone else?

[ASK IF INTRO2=4]

Intro3. Is there someone else that is knowledgeable about your household's participation in the program?

[INTERVIEWER NOTE: IN SOME CASES, THE PERSON MOST FAMILIAR WITH THE PROGRAM MAY BE A RELATIVE OR FRIEND AT A DIFFERENT NUMBER.]

[ASK IF INTRO2=2-3 OR INTRO3=1]

Intro4. What is this person's name?

1. [RECORD CORRECT PERSON'S NAME AS **<CONTACT>**]

DK [TERMINATE]

REF [TERMINATE]

[ASK IF INTRO4=1]

Intro5. Would I reach that person by dialing the same number I used to connect with you: **<PHONE>**?

1. Yes

2. No, use a different number (RECORD HERE AS **<PHONE>**) **[THANK AND TERMINATE; REDIAL NEW SAMPLE CASE]**

DK [TERMINATE]

REF [TERMINATE]

PROGRAMMER NOTE: Only those for whom Intro1=1 or Intro2=1 should get to this screen; the rest would end at Intro5 as they will need to be made into new sample cases and called back at a later time.

[ASK IF INTRO1=1 OR INTRO2=1]

Intro6. Great! Is now a good time or should we call you back?

1. No objection – fine to continue

2. Objection **[RESOLVE AND RESCREEN AS NECESSARY]**

REF [TERMINATE]

SECTION A: AWARENESS AND MARKETING

A1. I'm going to list a few ways you may have learned about the **<PROGRAM>** program. As I read the list, please say "yes" if you learned about the program from that source, or "no" if you did not learn about the program from that source.

[RANDOMIZE ORDER; READ ALL CHOICES AND RECORD YES/NO ANSWERS]

	Count	Valid Percent
An email from Xcel Energy	28	30%
Home depot	6	7%
Friend, family, or coworker	23	25%
Internet search	12	13%
Postcard in the mail	14	15%
Social media	3	3%
Don't know	7	8%
Total	93	100%

A2. Did you learn about the **<PROGRAM>** program from any other sources?

[OPEN END]**Verbatim Response**

Through investing in solar panels
 I had done it before so I knew from previous experience
 Xcel website
 Lowe's
 Just through Xcel Energy
 No - but I've done it a couple times before so I also had prior knowledge
 Best Buy
 I heard about it a long time ago. I might have received a postcard too.
 I had done it before.
 No. Just through Xcel.
 No - 48
 DK - 6

[IF COUNT OF "YES" RESPONSES TO A1 > 1; READ ALL WHERE A1 = "YES"; RANDOMIZE ORDER]

A3. Which of these sources was most important to you for deciding to participate in the **<PROGRAM>** program?

	Count	Valid Percent
An email from Xcel Energy	5	26%
Home depot	2	11%
Friend, family, or coworker	4	21%
Internet search	4	21%
Postcard in the mail	0	0%
Social media	0	0%
Refused	4	21%
Total	15	100%

A4. After first hearing about the **<PROGRAM>** program, did you need more information about the program to decide whether to participate?

	Count	Valid Percent
Yes	31	44%
No	40	56%
Don't know	0	0%
Refused	0	0%
Total	71	100%

[IF A4 = 1]

A5. What additional information did you need?

[OPEN END]**Verbatim Response**

I wanted to see if the refrigerator would be picked up and what are the requirements for that.
 Details on eligibility and scheduling
 I talked to Home Depot. I needed more information on ease of recycling.
 To find out if it was real.
 Timing - how soon they could come get it.
 I just needed to find out how much money I would receive if I was to participate in the program.
 What they were going to do with it (landfill)
 Eligibility requirements
 I needed to know what the qualifications were and how I needed to make arrangements.
 How it worked, what we needed to do to have it ready to hand off and timeline for pickup
 Just the details about how it worked
 I just needed the details than what was provided in the newsletter email: how it works, what I needed to do to initiate the pickup etc.
 The eligibility requirements
 Details about rebate and timing of pickup - wanted to get rid of it as soon as possible
 The requirements for eligible pickups and how to make the request.
 I wanted to see if there were any cost to take my refrigerator.
 Needed to know what day they would pick it up, what needed to be running etc. also logistics of removing.
 I needed a phone number to call.
 What was required and the specifics of how to do it.
 I had to call to find out how it worked.
 To see if my fridge would qualify.
 I needed full details about the program.
 I went online to ascertain if we would qualify with the type of refrigerator we had and the how the process worked.
 Location, time and any peculiarities involved.
 I called for a clarification of how long the program was available
 I needed to understand if I was qualified to participate in the program and whether or not my refrigerator qualified.
 How it worked.
 I needed to know how to arrange it. I didn't know that had to be working and plugged in when the pick up people arrived.
 Called to ask if it was really true. Had to ask if they would take out of the house themselves.
 Also what I needed to do.
 I needed more details on how it works
 I needed to know whether the program was functioning or not.

[IF A4 = 1]

A6. Where did you end up finding the information you needed? [DO NOT READ; CATEGORIZE BASED OFF RESPONSE] (Select all that apply)

	Count	Valid Percent
Online web search	4	11%
Xcel Energy website	16	46%
Called phone number from marketing material	11	32%
Sent email to Xcel Energy from marketing material	0	0%
Not able to find information	0	0%
Other	4	11%
Don't know	0	0%
Total	35	100%
Verbatim Response		

Home Depot

From the person I spoke to on the phone.

Called Xcel representative

Called Xcel Energy and they gave me the number for the program itself.

A7. Did you consider any options other than the Xcel Energy <PROGRAM> program for removing your <APPLIANCE> from your home?

	Count	Valid Percent
Yes	28	39%
No	43	61%
Don't know	0	0%
Refused	0	0%
Total	71	100%

[IF A7 = 1]

A8. Which of the following options did you consider?

	Count	Valid Percent
Keeping the appliance	0	0%
Giving it to a friend or family member	2	7%
Selling it on an online platform like Craigslist or Facebook Marketplace	10	36%
Selling it through a used appliance store	0	0%
Other	16	57%
Total	28	100%

Verbatim Response

Donating to non-profit resale store.
 I considered paying someone to pick it up and take it away.
 Donating to non-profit resale store.
 Having Costco remove it for me
 Recycling through my local waste disposal center
 A junk removal company
 There was a program offered by the company we bought the refrigerator from (Lowe's)
 I was looking at companies who would haul away at a cost to me.
 Having it taken by the company delivering our new appliance
 Contacted Eco-cycle in Boulder
 Removal through Lowe's
 Taking it to the dump
 Asking children if they wanted it
 Taking it to the dump
 Have the people delivering the new one to take the old fridge
 Have haulers pick it up

[IF A7 = 1]

A9. Which sources did you use to inform your decision about what to do with the appliance?

	Count	Valid Percent
Online or web search	14	40%
Home improvement store like home depot, Lowe's, Menard's or similar	4	11%
Friend or family	4	11%
Recycling retailer	2	6%
Hauling companies	2	6%
Other	7	20%
Don't know	2	6%
Total	35	100%

Verbatim Response

Called Xcel Energy.
 Talking to an Xcel representative
 Talking to an Xcel representative
 Looking at what similar appliances were selling for through private party and then realizing that I wouldn't be able get the return I wanted.
 After talking to Xcel representative on the phone, I just decided to go with them
 My general understanding of efficiency. I just decided it was the better option.
 I called Xcel directly

A10. Why did you ultimately decide to proceed with the Xcel Energy <PROGRAM> program instead?

[OPEN END]

Verbatim Response

Because it was the easier process and we would get a rebate.

Because they were paying me AND taking it away.

Because they would recycle it and would come get it the quickest.

Because we would have received the same amount of money if we sold it

Because it was the more responsible solution

Because it was an easy pick-up instead of having to haul it ourselves

It was the easiest option.

Because of the rebate plus the fact that they said they recycled what they could.

Just time and convenience

It seemed the most efficient method as they knew exactly what they were looking for so they could give us instructions on what to expect. It was smart for the Earth and it was \$50 for us.

Because I wanted to get rid of the unit and Xcel Energy was offering a \$50 rebate.

Because they would pick it up and give me \$35 - it was old and I doubt I could get very much by selling it.

It was the most convenient and the most time efficient option. I wanted to get rid of the appliance quickly.

Because I was getting paid and it was more convenient.

I thought it was a great idea because they would recycle it if they could.

It was the easiest option and best for environment

The pickup was free and also the turn around time. The person I spoke to was really enthusiastic and it felt like a good fit.

I was moving and when you post something to online platforms you have to communicate directly with people and set up showing times and they might not be interested in buying whereas with Xcel Energy, they were offering a fair monetary value and was really convenient for me at the time.

Rebate rather than removing

It was easier. I wouldn't have any problem dealing with a private party. I just decided that Xcel Energy knew what they were doing and went with them.

We wanted it to be recycled

That they paid us and they were willing to come out to handle it

They said they would recycle it and I felt good about it

Because it wasn't going to be a major cost or time constraint

To keep it out of a landfill, specially the parts that could be recycled

Store would have charged me and Xcel Energy was paying me

They recycle

Because of the rebate/money I would get.

Section B: Motivations and Barriers

Next, I would like to understand more about the considerations you made prior to participating in the program.

[IF TYPE = SECONDARY]

B1. According to my records, the **<APPLIANCE>** you recycled was a secondary **<APPLIANCE>**, meaning it was not the **<APPLIANCE>** you used the most when you participated in the program. After the pick-up occurred, did you replace this secondary **<APPLIANCE>** with a different **<APPLIANCE>**?

	Count	Valid Percent
Yes	19	68%
No	9	32%
Don't know	0	0%
Refused	0	0%
Total	28	100%

[IF B1 = 1]

B2. Did you replace the secondary **<APPLIANCE>** with an **<APPLIANCE>** that you already had in your home for more than one month?

	Count	Valid Percent
Yes	5	26%
No	14	74%
Don't know	0	0%
Refused	0	0%
Total	19	100%

[IF TYPE = PRIMARY]

B3. How did you replace your *primary* **<APPLIANCE>**?

	Count	Valid Percent
Purchased used from a second-hand appliance dealer	0	0%
Purchased or received used from a private party	2	6%
Purchased or received used from a friend or family member	1	3%
Purchased new from a retailer	24	73%
Purchased new online	4	12%
Other	2	6%
Don't know	0	0%
Total	33	100%

Verbatim Response

We moved into new home and brought our own fridge so we needed to get rid of the fridge that was there

The house we bought was with fridge and I brought a newer fridge with me

[IF B3 = 1,2,3]

B4. Approximately how old is the **<APPLIANCE>** you are currently using as your primary **<APPLIANCE>**?

	Count	Valid Percent
0-2 years	0	0%
3-5 years	1	33%
6-10 years	2	67%
More than 10 years old	0	0%
N/A	0	0%

Don't know	0	0%
Refused	0	0%
Total	3	100%

B5. Is the **<APPLIANCE>** you are currently using as your primary **<APPLIANCE>** Energy Star certified? This would usually be designated by a sticker or decal with the EnergyStar logo on the appliance itself.

	Count	Valid Percent
Yes	52	73%
No	11	16%
Don't know	8	11%
Refused	0	0%
Total	71	100%

[ASK ALL]

B6. Before you heard about the Xcel Energy **<PROGRAM>** program, were you considering recycling or otherwise getting rid of your **<APPLIANCE>?**

	Count	Valid Percent
Yes	58	82%
No	13	18
Don't know	0	0%
Refused	0	0%
Total	71	100%

B7. Please rate the importance of each of the following on your decision to recycle your **<APPLIANCE>** through the **<PROGRAM>** program . Use a scale of 1-5, where 1 is not at all important and 5 is extremely important. If the option is not applicable to your situation, please let me know. [RANDOMIZE, 1-5 SCALE]

a. Availability of a promotion through Xcel Energy

	Count	Valid Percent
1 – Not at all important	7	10%
2	5	7%
3	8	11%
4	15	21%
5 – Extremely important	34	48%
Don't know	1	1%
Not Applicable	1	1%
Total	71	100%

b. Age of **<APPLIANCE>**

	Count	Valid Percent
1 – Not at all important	14	20%
2	3	4%
3	11	16%
4	12	17%
5 – Extremely important	29	41%
Don't know	1	1%
Not Applicable	0	0%
Total	71	100%

c. Energy costs associated with keeping **<APPLIANCE>**

	Count	Valid Percent
1 – Not at all important	16	23%
2	6	8%
3	11	15%
4	16	23%
5 – Extremely important	16	23%
Don't know	0	0%
Not Applicable	6	6%
Total	71	100%

d. Availability of updated **<APPLIANCE>** with more features

	Count	Valid Percent
1 – Not at all important	21	30%
2	6	8%
3	10	14%
4	11	15%
5 – Extremely important	16	23%
Don't know	0	0%
Not Applicable	7	10%
Total	71	100%

e. Scheduling flexibility

	Count	Valid Percent
1 – Not at all important	10	14%
2	7	10%

3	13	18%
4	20	28%
5 – Extremely important	19	27%
Don't know	0	0%
Refused	1	1%
Total	71	100%

f. Option for Xcel Energy to pick up **<APPLIANCE>** rather than hauling yourself

	Count	Valid Percent
1 – Not at all important	1	1%
2	1	1%
3	1	1%
4	7	10%
5 – Extremely important	60	85%
Don't know	0	0%
Not Applicable	1	1%
Total	71	100%

g. Similar timing to other renovations or appliance replacements taking place in your home

	Count	Valid Percent
1 – Not at all important	24	34%
2	1	1%
3	5	7%
4	6	8%
5 – Extremely important	20	28%
Don't know	0	0%
Not Applicable	15	21%
Total	71	100%

h. Style of the old appliance, for example the color or finish

	Count	Valid Percent
1 – Not at all important	31	44%
2	10	14%
3	8	11%
4	4	6%
5 – Extremely important	12	17%
Don't know	0	0%
Not Applicable	6	8%
Total	71	100%

i. Size of the old appliance

	Count	Valid Percent
1 – Not at all important	21	30%
2	8	11%
3	9	13%
4	13	18%
5 – Extremely important	17	24%
Don't know	0	0%
Not Applicable	3	4%
Total	71	100%

j. Amount of space available in your home for the old appliance

	Count	Valid Percent
1 – Not at all important	23	32%
2	4	6%
3	11	15%
4	10	14%
5 – Extremely important	16	23%
Don't know	0	0%
Not Applicable	7	10%
Total	71	100%

k. Change in the number of people living in your household

	Count	Valid Percent
1 – Not at all important	39	55%
2	2	3%
3	5	7%
4	1	1%
5 – Extremely important	2	3%
Don't know	0	0%
Not Applicable	22	31%
Total	71	100%

B8a. Were there any other reasons you decided to recycle your **<APPLIANCE>?**

	Count	Valid Percent
Yes, specify:	28	39%
No	43	61%
Don't know	0	0%
Refused	0	0%
Total	71	100%

Verbatim Response

We like to keep energy footprint small
Xcel would recycle what they could
It was costing me a lot of money because it was older and I wanted to change the place that it was in.
We had bought a new one.
It's the responsible thing to do
It was a piece of junk.
I just didn't need it anymore.
Being environmentally conscious is important to us
I was actually getting ready to move and didn't need at my new house.
The Earth.
I just wanted to replace it with a smaller one that was more efficient.
My primary choice would have been to recycle it, and prior to discovering the program I would have had to transport it myself, and that wasn't something I wanted to do. So having Xcel Energy come and retrieve it was the best option.
Being environmentally responsible
It wasn't working properly
Because they gave me money for it.
I care about the environment
It was left over by former owners
The fridge broke
For environmental reasons

The incentive
 Timing
 It broke down.
 It broke
 It was not frost free. It was given to me, I did not purchase it myself.
 It needed a repair
 It was free.
 I got a credit on energy bill
 Environment friendly recycling

[IF B8A = 1]

B8c. On a scale of 1-5, with 1 being not important and 5 being extremely important, how important was **<B8b Response>** in your decision to participate in the program?

	Count	Valid Percent
1 – Not at all important	0	0%
2	0	0%
3	1	4%
4	2	7%
5 – Extremely important	25	89%
Total	28	100%

SECTION C: NET-TO-GROSS

C1. In your own words, can you describe why you decided to recycle your **<APPLIANCE>** through the **<PROGRAM>** program?

[OPEN END]

Verbatim Response

We moved into new home and brought our own fridge so we needed to get rid of the fridge that was there

A lack of space in basement for the old refrigerator

Because I believed that they would properly dispose and recycle it as opposed to someone who I would have to pay. I was confident they would do the right thing.

Because I didn't know I could recycle it and it was a wonderful opportunity to not put something in the landfill.

Because I got \$25 and felt a responsibility

Because I like recycling and Xcel gave me \$50. It was a really heavy unit and it would have been a real hassle to move it.

Because I like to recycle

Because I was moving in to a new house and it didn't fit into my new garage and the hassle of selling it on Craigslist was too complicated. The Xcel Energy offer was really good timing and presented a good opportunity for getting rid of the refrigerator.

Because instead of paying to get it hauled away we got paid and they hauled it away.

Because it was cheaper

Because it was convenient and quick. The people who picked it up were fast and friendly.

Because it was easy and the rebate

Because it was easy, good for environment and recycled.

Because its a good program, they cut the cords so no one would reuse it, and there was no charge.

Because of the rebate and free pickup.

Because they came and picked it up

Because they picked it up

Because they picked it up and there was no cost and I got \$50

Because they would pick it up and give me money for it.

Because they would recycle what they could and pay me to come pick it up.

Because Xcel picked it up for free and I felt confident it would be disposed of in a manner that was environmentally safe. And they gave us money we could use towards the new refrigerator.

Being environmentally conscious, it was important to us to know that someone would recycle, reuse, or dispose of it in a way that was environment-friendly.

Convenience

Convenience, financial benefit, and doing the right thing with the old units, like recycling what they can.

Convenience. They hauled it away and it was at no cost for me, in fact, I got paid.

Ease of disposal and benefit to environment

Ease of transaction

First of all, the program picked it up, took it away, and paid me for it. Moreover, it was costing me more to run it because of its age.

For the convenience of someone else picking it up and the rebate/incentive

I always try and recycle and I didn't want to have it junked. Since it wasn't working great I didn't want to sell it either.

I care about the environment immensely and landfill is causing harm and I wanted to do my part to care for mother earth and leave a tiny carbon footprint

I didn't need refrigerator and wanted to be environment friendly.

I didn't need the refrigerator anymore. I was going through a divorce at the time and the ability to have someone come and pick it up and recycle it was really important to me.

I do believe in recycling, but I was motivated by the rebate and the fact that someone takes it away for me.

I got paid and they disposed it

I had an extra refrigerator, and this was the easiest, cheapest way to get rid of it. It didn't cost me anything.

I had used it before and I am happy to not just throw something away and that they do recycle.

Although the man who picked it up said that what they do is crush, I hope he was joking.

I like the conservation and recycling effort Xcel makes

I like to recycle because it is better for the environment and they gave us money back to do it...win win all the way around.

I liked that it was good for the environment and I liked that I was getting money for it.

I think it is important to recycle everything that you can and it's more important with big items like this

I think it was a good program. It was through a company I use for my energy anyways.

I was going to get rid of it due to a kitchen remodel, Xcel promotion was very convenient because they picked it up and they gave a cash back

I was lucky to find it online. It sounded easy, I got a rebate, and they said they would recycle what they could instead of sending it all to landfill.

It was convenient and useful. We could do it ourselves, but it would be harder due to health problems.

It was mentioned to us and we decided to do it since we recycle trash.

It was simple and easy

It was taken away for free and gave me \$50 bucks.

It was the first to come to our attention. There aren't any easy ways to recycle e-waste here. Also, the mere fact that we didn't want to throw it away or give an inefficient machine to someone else. Also, the timing was really good.

It was the responsible thing to do and also convenience.

It was time to get one with more space

It was timing. I hadn't had a chance to research other options and the postcard for it came in the mail at the perfect time.

Just because I knew it would be recycled and would be disposed of in an environment-friendly way, and the rebate/incentive.

Prior to this time, Xcel Energy took away my two older refrigerators for free and gave me some light bulbs. So it was the free pickup incentive and also that I could get a rebate in return.

The condition of the refrigerator was not likely to bring in a lot of money so selling it wasn't the best option at the time. When I found a way that was more environment friendly to get rid of it, that really sealed the deal for me.

The ease of transaction and incentive

The financial incentive and concern for the environment - I could trust that it would be disposed of responsibly or recycled.

The incentive

The money rebate was good, and the ease of doing so was important. I assumed they would know what they were doing.

The old refrigerator was constantly running, eating too much power and not functioning consistently

The rebate triggered the activity and picking it up is a big deal. It was an effective program and has been around for a while.

They gave me money for it, came and picked it up from my house, and the ease of participating in the program: All I had to do was schedule the appointment.

They made it really easy, convenient, and they paid me to do it.

We did not want to have the old one sitting around and we did not know what we would have done with it

We got \$50 and didn't have to do much of anything.

We had access to a newer refrigerator. This one was older and Xcel offered to come pickup the old one.

We had gotten a new one and decided we did not need two.

We liked the program. It was convenient.

When I heard about it and heard all the details - I thought it was the best option for me

C2. Think back to just before you scheduled your **<APPLIANCE>** pickup through the Xcel Energy **<PROGRAM>** program. What do you think you would have done with the [APPLIANCE] if the Xcel program didn't exist? [DO NOT READ; CATEGORIZE BASED ON RESPONSE]

	Count	Valid Percent
Continue using it	3	4%
Sold it or given it to a private party	17	25%
Given it to a charity organization	7	10%
Sold it or given it to a used fridge dealer	0	0%
Had fridge removed by the replacement fridge dealer	4	6%
Hauled to landfill or recycling center myself	10	15%
Hired someone to haul fridge for junking, dumping, or recycling	21	31%
Don't know	3	4%
Other	3	4%
Total	68	100%

Verbatim Response

I would have just kept it around in storage on my property.

I would have stored it - until I could find a way to recycle it

I would have tried to find another option to recycle it

[IF C2 = a]

C2_1. Would you have kept it plugged in?

	Count	Valid Percent
Yes	3	100%
No	0	0%
Don't know	0	0%
Refused	0	0%
Total	3	100%

C2a [IF C2 = F] On a scale from 1 to 5, where 1 means "Not difficult at all" and 5 means "Extremely difficult" please rate the difficulty of the following steps you took to haul the <APPLIANCE> to a landfill or recycling center.

4. Finding a landfill or recycling center to haul the <APPLIANCE> to

	Count	Valid Percent
1 - Not difficult at all	4	40%
2	1	10%
3	1	10%

4	0	0%
5 – Extremely difficult	2	20%
Don't know	0	0
Refused	2	20%
Total	10	100%

5. Securing a vehicle to transport the <APPLIANCE>

	Count	Valid Percent
1 – Not difficult at all	6	60%
2	0	0%
3	0	0%
4	1	10%
5 – Extremely difficult	1	10%
Don't know	0	0%
Refused	2	20%
Total	10	100%

6. Moving the <APPLIANCE> to the vehicle

	Count	Valid Percent
1 – Not difficult at all	5	50%
2	1	10%
3	2	20%
4	0	0%
5 – Extremely difficult	0	0%
Don't know	0	0%
Refused	2	20%
Total	10	100%

C3. [IF C2 = E, F, or G] How much would you have been willing to pay to dispose of your fridge or hire someone to do so?

	Count	Valid Percent
0	2	6%
\$25	5	14%
\$30	3	9%
\$35	1	3%
\$50	9	26%
\$75	1	3%
\$100	4	11%

Don't know	3	9%
Refused	7	20%
Total	35	100%

C3a. [IF C3 < \$100] If the cost of disposing of the appliance were more than [C3 response], what would you have done with the appliance?

Verbatim Response

Either give it away or try to sell it.

Honestly, if it was more than \$50 I would have probably paid it. We needed to get rid of it.

I have a great big yard. I would have just put it in the corner somewhere.

I would have called a junk company to pick it up or called waste management.

I would have either put it out in front of the house for someone to come pickup or advertised it on Craigslist for the \$100.

I would have ended up paying it

I would have given it away for free

I would have had to take the cost and pay more if needed

I would have let it sit there.

I would have paid more

I would have paid whatever they would have charged me.

I would still be sitting in my garage

I would still have someone haul it away

It would probably still be sitting in my back yard.

Maybe given it away. Not sure.

Probably kept it longer and eventually paid the cost. The timing of the rebate program had a lot of effect on that decision.

Put it in my garage storage.

The people who delivered the new appliances would have taken it for free, so I wouldn't have paid anything.

Don't know – 2

Refused – 1

[Ask C4- C5a IF C2 =\= A]

C4. If the Xcel Energy <PROGRAM> program did not exist, when would you have disposed of [APPLIANCE]? Would it have been...

	Count	Valid Percent
Sooner than I did	5	8%
The same time I did	28	43%
Later than I did	31	48%
Don't know	1	2%
Refused	0	0%
Total	65	100%

C4a. [If C4 = C] Approximately how much later would you have disposed of [APPLIANCE] if the <PROGRAM> program did not exist?
[OPEN-END]

	Count	Valid Percent
Less than six months later	13	42%
Six months to a year later	10	32%
More than a year later	4	13%
Don't know	4	13%
Refused	0	0%
Total	31	100%

C5. Did you look into any options other than the Xcel Energy <PROGRAM> program for disposing of [APPLIANCE]?

	Count	Valid Percent
Yes	19	26%
No	9	74%
Don't know	0	0%
Refused	0	0%
Total	28	100%

C6. [IF C5= Yes] In your own words, can you describe why you decided to use the Xcel Energy <PROGRAM> program over the other options you researched?

Verbatim Response

All of the options I researched would have cost me money as well as having a vehicle to haul the fridge as well as labor help.

Because it was an easier process and we would get a rebate

For other options, I would have had to pay to get it hauled

I was impressed that they offered this program. It made me happy. When I called, the gentleman was kind and helpful and passionate. They send the rebate money in the mail. The process was simple.

It seemed simpler.

It was convenient and better for the refrigerator reuse. Plus I got \$50.

It was convenient and something I knew about. It was a rewarding feeling to get it out of my house and recycled in a meaningful way. I didn't want to have someone else using an inefficient appliance.

It was most convenient

Other recyclers seemed to claim that it would be recycled, but they weren't as reputable or reliable. With Xcel Energy, I was rest assured that the unit would be recycled and I wouldn't have to worry about who is coming into my home to pickup the unit as Xcel Energy is reputable. Scheduling.

The college did not need it for free. It was easier with my work schedule to have Xcel pick it up.
 The environmental impact and the fact that we could get paid for it. Also, the fact that they reached out to us to inform us about this program was really important.
 The other options required that I either pay for pickup or haul it away myself if it was a free program. Xcel Energy offered free pickup and paid me for it.
 The other program wouldn't take it
 There was a gain in receiving \$50 vs just having it recycled.
 They didn't offer free pickup.
 Xcel Energy paid me and assured that it would be done properly.
 Xcel Energy paid me and they hauled it away. Otherwise I would have had to pay someone or haul it myself.

SECTION D: PRODUCT EXPERIENCE AND SATISFACTION

Thank you for taking the time to talk with me. I just have a few more questions for you about your experience during the program.

D1. About how long from when you first contacted Xcel Energy to sign up for the **<PROGRAM>** program did it take for **<APPLIANCE>** to be removed from your home?

	Count	Valid Percent
Less than a week	21	31%
1-3 weeks	28	41%
3 weeks or more	11	16%
Don't know	8	12%
Total	68	100%

D2. Did this timing meet your expectations?

	Count	Valid Percent
Yes	56	93%
No	3	5%
N/A	1	2%
Don't know	0	0%
Refused	0	0%
Total	60	100%

[IF D2 = 2]

D2a. What were your expectations? [DO NOT READ; CLASSIFY RESPONSES]

	Count	Valid Percent
Less than a week	2	67%

1-3 weeks	1	33%
3 weeks or more	0	0%
Other	0	0%
Don't know	0	0%
Refused	0	0%
Total	3	100%

[IF # <APPLIANCE> > 1, REPEAT QUESTION FOR EACH MEASURE TYPE]

D3. According to my records, Xcel Energy picked up <APPLIANCENAMES> when you participated in the <PROGRAM> program. On a scale of 1-5, with 1 being not at all important, and 5 being extremely important, how important was it to your decision to participate that Xcel Energy offers pick up of <APPLIANCE_1>?

	Count	Valid Percent
Not at all important	0	0%
2	0	0%
3	4	6%
4	5	7%
Extremely important	59	87%
Total	71	100%

D4. Prior to participating in the program, did you attempt to contact an Xcel Energy representative?

	Count	Valid Percent
Yes	19	28%
No	47	69%
N/A	1	1%
Don't know	1	1%
Not Applicable	1	1%
Total	71	100%

[If D4 = 1]

D5. Were you able to reach someone?

	Count	Valid Percent
Yes	18	95%
No	0	0%
Don't know	1	5%

Refused	0	0%
Total	19	100%

D6. Was this person able to give you the information you needed?

	Count	Valid Percent
Yes	18	100%
No	0	0%
N/A	0	0%
Don't know	0	0%
Refused	0	0%
Total	18	100%

[IF D6 = 2]

D6a. What information did you need that you were not able to get?

[OPEN END]

N/A

D7. On a scale of 1-5, with 1 being extremely unlikely and 5 being extremely likely, how likely are you to recommend participating in the **<PROGRAM>** program to a friend, family member, or co-worker?
[1-5 Scale]

	Count	Valid Percent
Not at all likely	0	0%
2	0	0%
3	0	0%
4	7	10%
Extremely likely	61	90%
Total	68	100%

[IF D7 =< 3]

D7a. Why are you not very likely to recommend participating in the program to a friend, family member or co-worker?

[OPEN END]

D8. Next, I would like you to rate your satisfaction with the following aspects of the program on a scale of 1-5, with 1 being extremely dissatisfied and 5 being extremely satisfied. [RANDOMIZE ORDER]

h. Ease of scheduling the pickup of your **<APPLIANCE>**

	Count	Valid Percent
1 – Extremely dissatisfied	0	0%
2	1	1%
3	5	7%
4	9	13%
5 – Extremely satisfied	52	76%
Don't know	1	1%
Refused	0	0%
Total	68	100%

i. Ease of participating in the program

	Count	Valid Percent
1 – Extremely dissatisfied	0	0%
2	0	0%
3	2	3%
4	8	12%
5 – Extremely satisfied	58	85%
Don't know	0	0%
Refused	0	0%
Total	68	100%

j. Interactions with program staff prior to pick up

	Count	Valid Percent
1 – Extremely dissatisfied	0	0%
2	0	0%
3	0	0%
4	5	7%
5 – Extremely satisfied	51	75%
Don't know	10	15%
Refused	2	3%
Total	68	100%

k. Interactions with program staff during pick up

	Count	Valid Percent
1 – Extremely dissatisfied	0	0%
2	0	0%
3	2	3%
4	5	7%

5 – Extremely satisfied	58	85%
Don't know	3	4%
Refused	0	0%
Total	68	100%

l. The amount of effort required on your part to participate

	Count	Valid Percent
1 – Extremely dissatisfied	0	0%
2	0	0%
3	2	3%
4	12	18%
5 – Extremely satisfied	54	79%
Don't know	0	0%
Refused	0	0%
Total	68	100%

m. Availability of free pickup

	Count	Valid Percent
1 – Extremely dissatisfied	0	0%
2	1	1%
3	1	1%
4	9	13%
5 – Extremely satisfied	57	84%
Don't know	0	0%
Refused	0	0%
Total	68	100%

n. Rebate amount [if needed: "The rebate refers to the \$50 you received for recycling your refrigerator through the program"]

	Count	Valid Percent
1 – Extremely dissatisfied	0	0%
2	1	1%
3	3	4%
4	8	12%
5 – Extremely satisfied	54	79%
Don't know	1	1%
Refused	1	1%
Total	68	100%

[FOR EACH D8A-G, IF RATING ≤ 3]

D9. Why were you not satisfied with [D8a-D8g wording]

D9a. ease of scheduling pickup of your <APPLIANCE>?

Verbatim Response

All of the options I researched would have cost me money as well as having a vehicle to haul the fridge as well as labor help.

Because the time-frames were very limited and I had to be here and my work schedule did not allow for it. I had to reschedule and they could not tell me the time frame availability.

I was surprised that the number I called did not handle it, a third party called me back I would have liked it to be handled in one step.

If I remember correctly, it took two weeks. After we had the original date scheduled, Xcel Energy had called back and changed the date. It was pushed back a week from the original date we had picked.

It had to do with the timing/lead-time to pick it up, which was 3-4 weeks.. When they picked it up it had to be in running condition. It was working when I scheduled the pickup but if it had broken down in the meantime, I would have had to pay someone else to haul it. Also, during that time it was sitting plugged in while not in use, so it was using energy.

They were only available on Thursdays and they had very large windows for pickup time.

DK - 1

D9b. ease of participating in the program?

Verbatim Response

I wasn't thrilled.

The decreased availability of time slots for pickup.

D9d. interactions with program staff during pick-up?

Verbatim Response

I don't remember there being any

Two gentlemen asked for tip.

D9e. amount of effort required on your part to participate?

Verbatim Response

The pickup options conflicted with my work schedule at the time.

DK - 1

D9f. availability of free pickup?

Verbatim Response

I shouldn't have had to wait for four months for there to be a pickup date other than a Thursday."

Time frames offered aren't conducive to people who have a job who work during the daytime hours. Because I had to be physically present for them.

D9g. the rebate amount?**Verbatim Response**

I thought it would be more

I wish it was more.

It is always nice to have some money, but new refrigerators are expensive, so any additional funds would be helpful.

It's not that I was dissatisfied with it. It just wasn't a primary or deciding factor in making my decision, it was just frosting on the cake.

Close1. Is there anything we didn't cover that you'd like to mention or discuss about your experience as a participant in the <PROGRAM>, program, including recommendations for program improvements?

Verbatim Response

DK

I am grateful that the guy at Home Depot reminded us about the program even though we were alerted to it. Would have forgotten otherwise.

I remember being very relieved with the program.

I think it's a great program. My only suggestion is to promote it more - I'm sure there are a lot of people with old refrigerators at home that are just sitting there who don't know about the program.

I think they should promote their rebate programs more - they could send a flyer periodically on rebate programs with my bill, because I happened to find information on the internet but didn't know about it before that.

I thought it was a fantastic program. I was very happy with the process all the way through.

I was pleased with it.

I would have held on to that fridge for a long time if the program was not available. The program allowed me to get rid of it and Xcel Energy made it really easy.

If anything, they should make sure that they advertise this program to as many customers as possible. Perhaps include something with the utility bill inserts. I do know some people who didn't know about this program.

If this is a program that is offered year round, it would be great to have more communication outreach about the offer and similar offers from Xcel Energy.

It doesn't seem like they promote the program widely. I mostly heard it through word of mouth - I got the information I needed but without someone telling me about it, I probably would have paid someone to take it away and it would have probably gone into landfill.

It was all really great. No complaints.

It was great. It was easy to do and I'm helping the environment.

It's a great program but my other thought is why take a working appliance and kill it when they could reuse

Just keep doing what you're doing and publicize it more

Just that it's a great program and I've already recommended it to people.

Keep it active.

Make it a one step process, when you call get a pick up date and time slot...the callback took a week or more as I recall

Make it more well-known. I am glad that it was available.

More accurate window of pickup (was 3 hours past time)
 My only complaint with it was they asked if I had stairs. He had some trouble, dropped on screen door/cement, damaged it but got it fixed enough. Only one person.
 No - I was very happy with the program.
 No - just continue doing it!
 No, I think it was wonderful. I was really excited to find it.
 No, not really.
 No. I just think it was great.
 No. I think it is a good program. If I have another fridge I need to dispose of this would be my first option again.
 No. I think it's a great program.
 No. I think the program is great and wonderful!
 No. I was very happy and impressed with program.
 No. It was excellent.
 Not really - just keep doing it.
 Nothing. It was a good experience.
 REF
 Seems like this program should be promoted more.
 The guys who came and picked it up were awesome! The people who were sent did a great job.
 They took measurements and were very efficient.
 The guys who showed up to pick up the fridge looked like they had just gotten out of prison - they looked pretty rough. I'm not sure if my wife would have opened the door to them if she had been alone just because of their appearance.
 The only thing is when they called to confirm my participation, I didn't answer the call. They left a voice message with a phone number that didn't work. So I had to wait for them to call me back.
 The people who picked it up were very mindful. They were careful not to damage house.
 They should offer more flexibility, like consent to pick up the appliance if the person cannot be there during business hours. It felt like the pickup hours were limited.
 Very good, could not make it any easier.
 When I replaced my furnace with Xcel, I did not get my rebate but I was happy to see I got it with this program. I had been skeptical about it but Xcel came through on this.
 Xcel should be putting flyers in every major appliance store informing people about the program.
 I would much rather pay Xcel than some independent contractor. You should also advertise it on the Xcel Energy website so that customers know that it's available to them. Also, it might be good to offer the program for stoves and other large appliances as they are expensive to have hauled away.
 No - 22
 DK - 3
 REF - 2

C.3 NON- AND NEAR-PARTICIPATING CUSTOMER SURVEY RESULTS

INTRODUCTION

This appendix presents results from the non- and near-participating customer survey for the 2020 Refrigerator and Freezer Recycling Survey.

SURVEY FINDINGS

Intro1. Thank you for participating in this online survey. Xcel Energy wants to support its customers and wants to hear from you about your experiences related to appliances.

This survey is short, and your answers will be kept confidential. Xcel Energy is offering participants a \$25 digital gift card that can be used at a variety of businesses, applied as a donation to a variety of non-profits, or applied to a Visa cash card. This survey is administered by EMI Consulting on behalf of Xcel Energy. EMI Consulting is a national research firm working with Xcel Energy.

[IF GROUP = Near-Participant]

Intro1b. Our records show that you scheduled an appointment to have your refrigerator or freezer picked up and recycled by Xcel Energy in 2019. Do you recall scheduling your appliance to be recycled through this program?

1. Yes, I remember scheduling to have Xcel Energy pick up my refrigerator or freezer. **[SKIP TO INTRO5]**
 2. No, but someone else in my residence scheduled for my refrigerator or freezer to be recycled by Xcel Energy.
 3. No, I don't recall this at all. **[SKIP to Intro3aa]**
- DK **[SKIP to Intro3aa]**
REF **[TERMINATE]**

[ASK IF INTRO1b=2]

Intro2. We would like to contact this household member to ask them about their experiences. Can you please provide their email address?

1. First and last name: **(OPEN END)**
2. Email: **(OPEN END FOR EMAIL ADDRESS)**
3. Prefer not to answer.

[ASK INTRO3a IF INTRO1b=3, INTRO1b=DK, OR GROUP = Nonparticipant]

Intro3aa. Which of the following appliances do you have in your residence? SELECT ALL THAT APPLY.

	Count	Valid Percent
A working refrigerator	51	68%
A working detached freezer	0	0%
Both working refrigerator and detached freezer	24	32%
Total	75	100%

[TERMINATE IF Intro3aa =3 OR 4]

[IF Intro3aa=1]Intro3ab. How old is the oldest working **refrigerator** in your residence?

	Count	Valid Percent
0 – 4 years old	30	40%
5 – 9 years old	18	24%
10 – 15 years old	16	21%
More than 15 years old	6	8%
Don't know	5	7%
Total	75	100%

[IF Intro3aa=2]Intro3ac. How old is the oldest working **detached freezer** in your residence?

	Count	Valid Percent
0 – 4 years old	11	46%
5 – 9 years old	3	13%
10 – 15 years old	5	21%
More than 15 years old	4	17%
Don't know	1	4%
Total	24	101%

**[CONTINUE WITH APPLIANCE THAT IS OLDER THAN 0 – 4, IF TIE
PRIORITIZE DETACHED FREEZER, IF ONLY 1 APPLIANCE AND IT IS 0-4
CONTINUE WITH THAT APPLIANCE]**

**[IF Intro3aa=1 AND Intro3aa=2 Appliance=Prioritize "Detached Freezer"
over "Refrigerator"]**

[IF Intro3ab=1 AND Intro3ab<>1 Appliance='refrigerator']

[IF Intro3ac<>1 AND Intro3ab=1 Appliance='detached freezer']

Intro3a. Did you consider **recycling or disposing of your **oldest working**
<APPLIANCE> in your residence in 2019 or 2020?**

	Count	Valid Percent
Detached freezer		
Yes	13	54%
No	8	33%
Don't know	3	13%
Total	24	100%

	Refrigerator	Count	Valid Percent
Yes		56	75%
No		11	15%
Don't know		8	11%
Total		75	101%

[IF Intro3ab=1 AND Intro3ac=1 Intro3a <>1, ask for other appliance.

[ASK IF INTRO1=3 OR GROUP = Nonparticipant]

Intro3c. Did you consider **selling or giving away** your oldest working
<APPLIANCE> in 2019 or 2020?

	Detached freezer	Count	Valid Percent
Yes		14	58%
No		10	42%
Don't know		0	0%
Total		24	100%

	Refrigerator	Count	Valid Percent
Yes		53	71%
No		22	29%
Don't know		0	0%
Total		75	100%

[If respondent has both working refrigerator and freezer, loop back to Intro3a ask them for refrigerator]

[TERMINATE IF (Intro3a1 AND Intro3a2 = 2) AND Intro3c = 2 AND GROUP = Nonparticipant]

[IF INTRO1=3 AND GROUP = Near-Participant]

Intro3d. Do you recall looking into a service where someone from Xcel Energy would come to your home to collect a **<APPLIANCE>** and provide you with a \$50 or \$75 incentive?

1. Yes

2. No

DK **[TERMINATE]**

REF **[TERMINATE]**

[TERMINATE IF Intro3a = 2 AND Intro3c = 2 AND Intro3d = 2]

[ASK INTRO5 IF INTRO1b=1]

INTRO5. Which appliance did you schedule to have Xcel Energy pick up?

6. A refrigerator
7. A detached freezer
8. Both a refrigerator and a detached freezer
9. Don't remember [**Terminate**]
10. Prefer not to respond [**Terminate**]

[IF Intro5=1 Appliance='refrigerator']
[IF Intro5<>1 Appliance='detached freezer']

[IF INTRO3d = 1]

Intro4. Thank you! That service offering by Xcel Energy is called the Refrigerator Recycling Program. The rest of the questions in this survey will be about that program.

Intro6. Which of the following best characterizes what ultimately happened with the **<APPLIANCE>** you were considering getting rid of?

[RANDOMIZE 1-7, ANCHOR OPTION 1 AT TOP]

	Count	Valid Percent
Plan to recycle the equipment through Xcel Energy at a later date	4	5%
Kept it, but left it unplugged	6	8%
Kept it, and left it plugged in	42	56%
Gave it to charity	0	0%
Gave it away to friend or family member	3	4%
Sold or donated it to a seconhand dealer	1	1%
Sold it online via Craigslist, Facebook Marketplace, or a similar online platform	0	0%
Payed a hauling company to bring appliance to the dump/landfill	1	1%
Payed a hauling company to bring appliance to a recycling center	4	4%
Brought the appliance to a dump/landfill myself	0	0%
Brought the appliance to a recycling center myself	0	0%
Retailer that sold me my new appliance removed my old appliance	11	15%
Recycled through a different organization	1	1%
Other	2	3%
Total	75	98%

[TERMINATE LANGUAGE FOR INTRO SECTION]

Thank you for your interest in taking this survey. At this time, you do not meet the eligibility requirements. We appreciate your time.

SECTION A: AWARENESS, MARKETING

[IF GROUP = Nonparticipant]

A0b. Where would you look first to find information about getting rid of your **<APPLIANCE>**?

	Count	Valid Percent
Hardware or home improvement store employee	9	12%
Friend or family	11	15%
Google	33	45%
Yelp	0	0%
Consumer reports	3	4%
An app like Mercari or LetGo	0	0%
Angie's List	0	0%
Facebook or Facebook Marketplace	6	8%
Other	1	1%
Don't know	11	15%
Total	74	100%

[IF GROUP = Nonparticipant AND Intro6 <> 2]

A0a. Have you heard about a service Xcel Energy offers where someone from Xcel Energy comes to your home to collect a refrigerator or freezer and provide you with an incentive of at least \$50?

	Count	Valid Percent
Yes	13	18%
No	59	80%
Don't know	2	3%
Total	74	101%

[IF GROUP = Nonparticipant, skip to Section B]

A1. How did you *first* learn about the **<PROGRAM>** program? **[RANDOMIZE ORDER, LIMIT TO ONE RESPONSE OPTION]**

- 11.Email
- 12.Home Depot employee **[ANCHOR]**
- 13.A sign in a Home Depot store **[ANCHOR]**
- 14.Other Home Depot marketing **[ANCHOR]**
- 15.Friend or family
- 16.Google search
- 17.Postcard in the mail

- 18. Other retailer (specify) [**ANCHOR**]
- 19. Social media (specify) [**ANCHOR**]
- 20. DK [**ANCHOR**]

[IF A1 = DK, SKIP TO A4]

A2. Do you recall learning about the **<PROGRAM>** program from any other sources?

- 4. Yes
- 5. No
- 6. DK

[IF A2 = 1]

A2a. From which of the following sources did you also learn about the **<PROGRAM>** program? Select all that apply. **[REMOVE RESPONSE OPTION FROM A1 FROM THIS LIST, ALLOW MULTIPLE RESPONSE OPTIONS]**

- 11. Email
- 12. Home Depot employee
- 13. A sign in a Home Depot store
- 14. Other Home Depot marketing
- 15. Other retailer (specify)
- 16. Friend, Family, or other word of mouth
- 17. Google search
- 18. Postcard in the mail
- 19. Social media (specify)
- 20. DK

[IF A2a = DK, SKIP TO A4]

[IF A2 = 1]

A3. Which of these sources most motivated you to inquire about the **<PROGRAM>** program?

[PIPE RESPONSE OPTIONS FROM A1 AND A2a]

- 8. DK

A4. After first hearing about the **<PROGRAM>** program, did you go to other sources for additional information about the program before deciding whether to participate?

- 5. Yes
- 6. No
- 7. DK
- 8. NA

[IF A4 = 1]

A5. Where did you go to find that information?

- 13. Visited the Xcel Energy website
- 14. Visited a different website [Specify]
- 15. Contacted an Xcel Energy or ARCA Recycling representative

APPENDICES

- 16. Contacted somebody else [Specify]
- 17. Other [Specify]
- 18. DK

[IF A4 = 1]

A6. What information were you looking for?

- 1. Appliance recycling information
- 2. Savings opportunity for refrigerators or detached freezers
- 3. Other appliance recycling opportunities
- 4. Other, [Specify]

[IF A5 <> 98]

A7. Were you able to find the information you were looking for?

- 4. Yes
- 5. No
- 6. DK

[IF A5=3]

A8. Did the Xcel Energy or ARCA representative provide you with the information you were looking for?

- 4. Yes
- 5. No
- 6. DK

SECTION B: MOTIVATIONS AND BARRIERS

D6. (DISPLAY IF INTRO6 <> 3 OR 4 (Kept appliance)) Now we are going to ask you about what motivated you to get rid of your **<APPLIANCE>**

Was the **<APPLIANCE>** you were thinking about getting rid of an EnergyStar™ product?

	Count	Valid Percent
Yes	19	25%
No	23	31%
Don't know	33	44%
Total	75	100%

D2. When you moved into your home, was the **<APPLIANCE>** you were thinking about getting rid of already in the home?

	Count	Valid Percent
Yes	44	59%
No	29	39%
I don't remember	2	3%
Total	75	101%

[IF GROUP = Near-Participant]

D3. Before you heard about the Xcel Energy **<PROGRAM>** program, were you considering recycling or otherwise getting rid of the **<APPLIANCE>**?

- 4. Yes
- 5. No
- 6. DK

D4. What motivated you to consider getting rid of the **<APPLIANCE>**? Select all that apply. **(MULTI RESPONSE)**

	Count	Valid Percent
The appliance was completely broken (would not turn on)	4	4%
The appliance was not working well (it turned on but did not cool completely, leaked, or had some other defect)	13	14%
I wanted a nicer looking appliance	19	21%
I updated my kitchen and this appliance no longer fit in	6	7%
I wanted a new appliance with more features	21	23%
I wanted an appliance that used less energy	18	20%
A new appliance was on sale	6	7%
Other	4	4%
Don't know	0	0%
Total	91	100%

Verbatim Response

apartment came with a fridge
moving
It's too noisy and not energy efficient
Very old. Worried about failure.

B2. What sources, if any, did you use to inform your decision about what to do with the **<APPLIANCE>**? Select all that apply. **(MULTI RESPONSE)**

	Count	Valid Percent
Online or web search	22	26%
Home improvement store like Home Depot, Lowe's, Menard's or similar	13	15%
Friends or family	15	18%
Appliance retailer	4	5%
Recycling center	3	4%
Hauling companies	6	7%
Other (specify)	16	19%
No other sources	6	7%
Don't know	0	0%
Total	85	100%
Verbatim Response		

Repair person
 Rent a center
 internet offer from excel
 still have
 We ALWAYS recycle
 Apartment maintenance

[IF Intro6 = 7, 8]

B3a. Approximately how much money did you ultimately sell your appliance for?

	Count	Valid Percent
Free or less than \$10	0	0%
Between \$10-100	0	0%
Between \$101-\$500	0	0%
Between \$501-\$700	0	0%
More than \$700	0	0%
Non-monetary trade	1	100%
Don't know	0	0%
Prefer not to respond	0	0%
Total	1	100%

SECTION C: PURCHASING DECISIONS

[ASK C1 IF Intro6 <> 3 OR 4, ALL ELSE, SKIP TO C5]

C1. Now we have some questions about replacing your appliance.

Did you ultimately choose to replace the \${e://Field/APPLIANCE}?

	Count	Valid Percent
Yes	19	63%
No	9	30%
Don't know	2	7%
Total	30	100%

[ASK C2 IF C1 = 1, ALL ELSE, SKIP TO C5]

C2. When you replaced the **<APPLIANCE>**, did you get a brand new appliance or did you get a previously-owned appliance?

	Count	Valid Percent
Brand new	17	89%
Previously owned/used	1	5%
Don't know	0	0%
Not applicable	1	5%
Total	19	99%

[IF C2=1]

C2a. Where did you purchase or receive the new **<APPLIANCE>**?

	Count	Valid Percent
An in-store retailer	16	94%
An online retailer	0	0%
Other	1	6%
Total	17	100%

[IF C2=2]

C2b. From where did you purchase or receive the previously-owned **<APPLIANCE>**?

	Count	Valid Percent
A second hand appliance store	0	0%
Through a friend or a family member	0	0%
Through a neighbor, website or community member	1	100%
Other	0	0%
Total	1	100%

[IF C2= 2]

C3. Did you ever consider purchasing a new <APPLIANCE> instead of a previously-owned one?

	Count	Valid Percent
Yes	0	0%
No	1	100%
Don't know	0	0%
Not applicable	0	0%
Total	1	100%

[IF C2= 1 or 2]

C4. Approximately how much money did you spend on the <APPLIANCE>?

	Count	Valid Percent
Free or less than \$10	0	0%
Between \$10-100	0	0%
Between \$101-\$500	6	33%
Between \$501-\$700	3	17%
More than \$700	7	39%
Non-monetary trade	0	0%
Don't know	1	6%
Prefer not to respond	1	6%
Total	18	101%

SHOW C5 TRANSITION TEXT IF <APPLIANCE> ≠ Refrigerator

Previously, we were asking questions about your <APPLIANCE>, but now we want to know more about the refrigerator(s) in your home.

C5. Do you currently have more than one refrigerator plugged in at your home?

	Count	Valid Percent
Yes	19	25%
No	56	75
Don't know	0	0%
Total	75	100%

[IF C5 = 2 OR 3, SKIP TO SECTION D, SHOW C6 ONLY IF C5=1]

C6. Prior to the outbreak of COVID-19, did you typically have food or drinks in your second refrigerator? Your second refrigerator is the one you use less.

	Count	Valid Percent
Yes	16	84%
No	2	11%
Don't know	1	5%
Total	19	100%

C7. Do you currently have food or drinks in your second refrigerator?

	Count	Valid Percent
Yes	18	95%
No	0	0%
Don't know	1	5%
Total	19	100%

C8. How did you decide to use more than one refrigerator? Select all that apply. (MULTI RESPONSE)

	Count	Valid Percent
Got another refrigerator and kept original	6	29%
Special events and entertaining	5	24%
Needed more space for day-to-day needs	3	14%
Support business, sport or hobby (hunting, fishing, gardening, etc.)	2	9%
The refrigerator was here when I moved in	1	5%
Other	4	19%
Total	21	100%

Verbatim Response

Got a second refrigerator from a friend
 One is for me, the second is for kids
 Took advantage of sales

C11. (IF APPLIANCE = detached freezer) Are you considering getting rid of your second refrigerator? Your second refrigerator is the one you use less.

(IF APPLIANCE = refrigerator) Is the refrigerator you are considering getting rid of your second refrigerator? Your second refrigerator is the one you use less.

	Count	Valid Percent
Yes	9	47%
No	8	42%
Don't know	2	11%

Total	19	100%
-------	----	------

(SHOW C12 IF C11 = 1)**C12.** Why are you considering getting rid of your second refrigerator?

[Open-end]

Verbatim Response
Not needed
Not trying to get rid of it until it goes out
old, inefficient energy use
Want a newer better looking one
Just don't need it.
needs work
New features and look
Old, freezer doesn't work, very limited life expectancy
Not enough space

SECTION E. DEMOGRAPHICS

D1. How long have you lived in your current residence?

	Count	Valid Percent
0-2 years	18	24%
3-5 years	22	29%
6-10 years	8	11%
More than 10 years	25	33%
Don't know	2	3%
Total	75	100%

E1. Which of the following best describes your home?

	Count	Valid Percent
Single-family home	39	52%
Single-family attached home	11	15%
Apartment building or condo with 2-4 units	5	7%
Apartment building or condo with 5+ units	18	24%
Mobile home	2	3%
Don't know	0	0%
Total	75	101%

E2. Do you own or lease your home?

	Count	Valid Percent
Own	53	72%
Lease or rent	21	28%
Other	0	0%
Don't know	0	0%
Total	74	100%

[ASK E2 <> 1]

E3. Are you the person who pays your Xcel Energy utility bill, or does someone else pay the bill, such as a landlord?

	Count	Valid Percent
I pay my own bill	20	100%
Someone else pays the bill	0	0%
Don't know	0	0%
Total	20	100%

E5. Are you of Hispanic, Latino, or Spanish origin?

	Count	Valid Percent
No, not of Hispanic, Latino, or Spanish origin	51	70%
Yes, Hispanic, Latino, or Spanish origin	14	19%
Don't know	1	1%
Prefer not to say	7	10%
Total	73	100%

E6. What is your race?

	Count	Valid Percent
White	48	66%
Black or African American	4	5%
American Indian or Alaska Native	2	3%
Asian	4	5%
Native Hawaiian or other Pacific islander	0	0%
Bi-racial or Multi-racial	3	4%
Some other race	0	0%
Prefer not to say	12	16%
Total	73	99%

E7. What is your age?

	Count	Valid Percent
Under 18 years old	0	0%
18-24 years old	0	0%
25-34 years old	20	27%
35-44 years old	18	25%
45-54 years old	16	22%
55-64 years old	13	18%
65-74 years old	4	5%
75 years or older	1	1%
Prefer not to answer	1	1%
Total	73	99%

E8. How do you identify?

	Count	Valid Percent
Male	27	38%
Female	43	60%
Non-binary	0	0%
Other	0	0%
Prefer not to answer	2	3%
Total	72	101%

E9. In 2019, approximately what was your yearly household income before taxes?

	Count	Valid Percent
< \$25,000	5	7%
\$25,000 to \$34,999	3	4%
\$35,000 to \$49,999	7	10%
\$50,000 to \$74,999	14	19%
\$74,000 to \$99,999	11	15%
\$100,000 to \$149,000	11	15%
\$150,000 to \$199,000	3	4%
\$200,000 or more	6	8%
Don't know	0	0%
Prefer not to answer	12	17%
Total	72	99%

CLOSE1a. Is there anything that was not covered that you'd like to mention about your experiences when thinking about recycling your **<APPLIANCE>**?**Verbatim Response**

Nope

I didn't know Xcel had a service to help us get rid of it. If needed, I will definitely consider using it

Wish there were more options

No

no

No

n/a

No

Na

None

N/A

We purchased a new fridge upon moving in 21 years ago. Fridge that was in house upon our purchase of home was placed in garage and used for 21 years. Old Fridge was still working well but our need of a second fridge has diminished. We purchased new kitchen appliances in past 3 years.

Nope

It would be nice to include some references on what to do with an old non-functional refrigerator.

Mine is stainless steel and has some scratches on it from the previous owners. However, it is too small, unattractive, and probably wasting energy.

No

No

\$50 is not enough to entice me to use the service.

Size: I have a small house and need a counter depth model. They are very expensive,Äican,Äöt get a cheap one & that affected my decision.

No

No

Ease of pick up

Not at this time.

no

No

N/A

No

Didn,Ãt know I could recycle it with Excel. Good to know

Not at this time.

no

no

No

no

No

no - I plan to contact you

I,Ãm white; my wife is hispanic

No

no

Option to choose where to recycle the old refrigerator by letting me know how it,Ãs going to be recycled

Isn,Ãt our is if rent home ,the refrigerator isn,Ãt own

When I looked in the past, you guys wouldn't pick up where I live in Breckenridge, CO. If you would take old refrigerators for free in a timely manner, I would absolutely do this in the future!

no

No

N/A

When I answered the question" how old is your detached freezer" you did not ask if I was replacing an old freezer. I was not replacing an old freezer. My current freezer is the only freezer I have ever owned .But I answered the questions the way I would have disposed of an old freezer if I had on.

C.4 PEER UTILITY BENCHMARKING RESULTS

INTRODUCTION

To support the process and impact evaluation of the 2020 Xcel Energy efficiency products, the EMI Consulting evaluation team benchmarked the Xcel Energy Colorado Refrigerator Recycling product against peer utilities across the country. The objective of the benchmarking research was to understand how peer utilities approach key issues related to implementing and improving new construction products based on a comparison of the product design, delivery, and processes. The evaluation team's findings are informed by in-depth interviews with product managers at five utilities, and by secondary research into the new construction products offered by seven additional utilities. The criteria used to choose per utilities included:

- Conversations with program staff on programs they would like included

- Review of programs that are similar to what Xcel Energy offers
- EMI Consulting experience with similar types of programs

The interviews and secondary research focused on assessing product design, delivery, and key performance indicators (e.g., participation levels, free ridership) of peer utilities. Key themes the evaluation team explored with peer utilities included:

- Product descriptions including their objectives, relevant features of their implementation strategy, characteristics of their target customers, product staffing, recent changes to the product, and future outlook,
- Product processes including rater selection processes and baseline setting processes,
- Net-to-gross (NTG) savings approach and results,
- Marketing and customer engagement methods,
- Barriers to customer participation.

The remainder of this memo provides a summary of key takeaways and the findings related to the five key themes listed in the above bullets. To conduct the benchmarking, the evaluation team conducted secondary research on the peer utilities identified and performed in-depth interviews with product managers at peer utilities. The intent of this memo is to share results from the data collection effort with the benchmark utilities that were interviewed. These results are organized as follows:

- Key findings
- Peer Utility Background Information
- Marketing and Outreach
- Barriers to Customer Participation

KEY FINDINGS

The following bullets present key findings from the peer product benchmarking analysis:

- **While almost utilities measure savings, only one utility measures savings using the NTG ratio.** Utility B has a NTG of 0.37 for their appliance recycling product. Utility A reported that all savings are claimed, and Utility C mentioned that they use age as the calculation for savings. Utility D says they calculate savings based on what their RTD provides and has a limited age requirement for units.
- **Most utilities work with their implementor or third-party contract to engage with customers and track customer awareness.** Bill inserts and word of mouth are popular ways that utility customers learn about the product. Utilities commonly track customer awareness through email blasts and engagement trackers. Three utilities mentioned tracking their customer

engagement with the product and conduct customer satisfaction surveys through data collected from the evaluators or implementors.

- **Many peer utilities are concerned about the cost effectiveness of the product.** One utility is planning to cease operations of the product by the end of 2020 due to regulatory decisions. Data was also collected from California utilities on the reason why they discontinued the product. The products that continue to offer incentives are exploring unique strategies to increase customer participation while ensuring savings are met. One utility increases their measures to only accept units 1992 and older.

All peer utilities interviewed use a range of marketing strategies and they vary by utility. Some products have a specific marketing and outreach team for customer engagement.

PEER UTILITY BACKGROUND INFORMATION

This section provides background information on the structure of the refrigerator recycling products interviewed as part of this benchmarking research.

Utilities interviewed were from across the nation with varying energy type. One utility spans many states, while the rest are confined to specific states and locations. The products are all well-established, with only one utility retiring this year due to regulatory mandates. Data was also provided during outreach to California utilities about the discontinuation of appliance recycling products in the state.

As shown in **Error! Reference source not found.**, the five utilities interviewed all house their refrigerator recycling product offerings within their Residential Efficiency product. The products all vary in their customer communications and experience some change over the years of operations. Below is feedback on key product elements:

- All of the utilities coordinate with a third-party implementor as part of their direct outreach marketing efforts to improve energy efficiency among their residential customers.
- Only one utility uses the NTG ratio, but all peer utilities calculate savings in some form.
- All the utilities work with a vendor to implement the product.
- The utilities rely on their trade partners to supplement marketing efforts to their customers.

PEER UTILITY DESCRIPTIONS

To provide context on the products offered by each benchmarked utility, the evaluation team collected information on the measures and rebates offered by each utility. **Error! Reference source not found.** shows a summary of the measures offered by each product, as well as the rebates available for these measures.

TABLE 1: MEASURES AND REBATES OFFERED BY BENCHMARKED UTILITIES

Utility	Location	Incentive Offering	Third-Party Implementor	Measures	Product Longevity
Xcel Energy	Midwest	\$50	ARCA	Fridge and refrigerator, add on include air conditioner, dehumidifier	
Utility A	Midwest	\$50	CLEAResult	Fridge and refrigerator	
Utility B	Eastern USA	\$50	CLEAResult	Fridge and refrigerator, add on include air conditioner, dehumidifier	
Utility C	Midwest	\$25	ARCA	Fridge and refrigerator, add on include air conditioner, dehumidifier	6 years
Utility D	West Coast	\$25	ARCA	Fridge and freezer	
Utility E	East Coast	\$50-75	ARCA	Fridge and refrigerator, add on include air conditioner, dehumidifier	

Incentive structures across all interviewed peer utilities are mostly similar to that of Xcel Energy. All peer utilities provide appliances or freezer. Similar to most peer utilities, Xcel Energy has limited eligibility requirements to participate in the product, specifically no year or vintage requirements on the units. One out of the two utilities (Utility D) that offer a lower rebate amount reports that they struggle with maintaining the cost effectiveness. Utility D recently changed their measures to only pick-up units from 1992 or later. Most peers by contrast, minimally requires the appliance to be in working condition and limits each customer to two to three pick-ups a year. Utility E provides the highest rebate incentive and increases the rebate amount when a customer qualifies as a low-income customer. As these products develop, regulator decisions have influenced the varying incentive amounts by benched marked utilities within the Energy Efficiency portfolios.

One utility used an interesting strategy to be more cost effective by adjusting their rates. Utility A reported that they were originally providing a \$35 rebate amount wanted to increase customer participation. This utility adjusted their rates without an additional budget by combining their product with their goal to increase low income participation. In the end they were able to provide a \$50 incentive to customers by reducing marketing costs and removing and providing for free a new energy efficiency refrigerator to low income customers. Utility A saw success in coordinate with their low-income product and offering a special rebate to diversify their market geography. Unfortunately, Utility A, will be ending their product at the end of 2020 due to regulatory decisions.

In addition to the base rebate from recycling fridges and freezers, some utilities provide add on rebates to customers recycling small appliances. Similar to Xcel Energy, three utilities also offer prescriptive rebates in addition to their regular rebate offering. Utility B, C and E offers to pick up recycle room air conditioners and dehumidifiers only when picking up the larger appliances. Although Xcel Energy

does not claim savings for those measures, the three utilities also provide a \$5-10 rebate incentive to recycle the smaller units.

MARKETING AND OUTREACH OF PEER UTILITY PRODUCTS

The evaluation team spoke with each peer utility about their marketing outreach activities to engage customers with the product. This section will highlight the peer utilities' perspectives on how to engage customers with the product and strategies to encourage customers to participate in the product. All product managers reported that sharing the environmental benefits of recycling their appliance and directly engaging with customers encouraged customers consider the product. All peer utilities identified different key marketing strategies that drove participation to their products.

The evaluation team was first interested in better understanding how customers are learning about the product at other utilities. Specific methods of marketing used to engage with potential customers include direct outreach, engagement with implementors and referrals from participants. Methods to develop customer awareness include targeted emails, bill inserts, social media advertisements. All utilities interviewed shared similar goals to Xcel Energy in running their products. Common themes included 1) removing old appliances off the grid 2) running a cost-effective product, and 3) encouraging their customers to be energy efficient and environmentally friendly. Key details of marketing and outreach activities per individual peer utility product are below:

- Utility A noted that their marketing efforts were currently on hold. As mentioned earlier, this was based on their efforts to increase the incentive amounts by removing the marketing budget. In the past two years, Utility A moved away from using TV and radio advertisements to lower cost marketing, including bill inserts, email blasts and website banners. The product manager reported that they like to use customer relative marketing materials allowing customers to feel a connection to the product.
- Utility B works with their marketing and promotions manager to educate their customers on the benefits of recycling their old appliances. The product manager reported that they use a variety of different tactics such as website advertisement, email blasts and social media marketing. The product staff said that they prioritize direct contact engagement, which excluding tv and radio advertisements since their operating area is expensive. They like to incorporate limited time offers to raise participation.
- Utility C has a unique product where they operate on a seasonal basis. stated that word of mouth is one of their most effective strategies. They only market the product when it is active. This is through email blasts and website advertisement.
- Utility D often incorporates social awareness to their marketing strategy. They have an outreach team that works to advertise their energy efficiency products at neighborhood events. At the time of the interview, they were in the middle of a charity campaign and used email, website advertisements and word of mouth to encourage potential participants. Compared to other

utilities, Utility D does not use bill inserts to target customers since their product is only available to their electric customers. In addition to direct outreach, they also use targeted emails.

- Utility E mentions the biggest driver for customer engagement is bill inserts. Other marketing strategies also include social media outreach and radio and tv commercials. Depending on the service territory, they may or may not use media ads. The product staff reports that they also cross promote their product by leaving flyers in retailers such as Home Depot or Lowe's within the refrigerator and freezer sections.

Most peer utilities target residential electric customers as potential product participants. Two out of the five utilities interviewed allowed nonresidential customers to participate. While most peer utility interviewees indicated that their customers should have at least a working account with them, Utility A reported that they allow small businesses to recycle at least 2 units a year. Residential customers are often required to have at least a working refrigerator or freezer. However, Utility D raised their requirements to maintain cost effectiveness by only picking up appliances aged 1992 and older. Accounting for savings may have influenced peer utility products to target specific customers and specific models to ensure that the benefits of the product are taking place. Limited targeting of customer bases may have positive results on net to gross levels, such as identifying energy hog appliances.

Utilities also engaged with product participants through their marketing and outreach teams. Interviewees reported that they typically measure customer awareness through tracking emails. Two utilities (Utility B and C) work with a third party implementor to gather information relevant to their customers in order to track engagements with product information.

EMI Consulting also asked peer utilities about their strategies to build customer awareness. We asked peer utilities what activities or resources have been effective in driving customer participation. Two out of the three utilities that answered the question reported to utilizing status quo marketing and direct contact with their customers to drive participation. For instance, one utility indicated that they are considering an in-person collection event at a retailer. Utility A mentioned that pairing their fridge recycling product with a community low-income offering helped drive participation and savings. This strategy increased their customer experience and allowed for the utility to ensure that the appliances are being taken off the grid. Cross promoting the product with low income offerings may offers saving s potential for the product.

In addition to cross promoting the products with the low-income products, interviewees mentioned some sort of cross promotion at their utility. Utility B and D specifically mentioned their product feeding into lighting products. Using the home energy report, home audits, and lighting or showerhead kits were ways in which the refrigerator recycling product coordinated with other products to promote their measures. This could take the form of a recommendation or mention (from an audit or Home Energy Report) or a brochure/insert within the kit. Utility E indicated that

they previously included inserts about the product in their kits, while also highlighting it in the behavioral home energy reports. During the home audit, they found it beneficial to include recommendations that points to the product if they know a customer has a second refrigerator.

BARRIERS TO CUSTOMER PARTICIPATION

Xcel Energy wanted to better understand customer perspectives from other utilities on the limitations of peer utilities products. Overall peer utilities mentioned that they received high satisfaction ratings from their customers. When asked how they collected customer feedback, some peer utilities reported obtaining feedback through customer experience surveys. These surveys are usually conducted by their implementor or a third-party contractor. Based on survey results, peer utility interviewees indicated that their customers would say good things about their product and would generally be pleased. Similar to Xcel Energy customers, their customers highlight regard the convenience of having a free pick up of their appliance with an additional incentive check.

However, the biggest complaint from customers were regarding the wait time to receive incentive cheques. One utility mentioned changing their implementor due to customer complaints about the lengthy wait times when receiving incentive checks.

Besides the customer's perspective on their barriers to participation, the evaluation team also investigated potential market barriers to customer participation with the product. Almost all the utilities indicated that they were continuing operations in the foreseeable future. However, one of the peer utilities interviewed indicated that their product will be discontinued at the end of 2020. Due to regulatory decisions, Utility A reported that their product will no longer be able to continue to support the recycling of appliances. This decision is not exclusive to Utility A, utilities within California have also decided to cease operation of their appliance recycling product. During recruiting, one utility shared the reason their product cancellation:

- The goal of preventing the transfer of older, less efficient refrigerators on the resale market had become less prevalent because new models had become so much better that buying older refrigerators on the second-hand market became far less attractive. As a result, consumers tended not to be as interested in buying the major energy hogs, those that were then beyond 10 years of age.
- Appliance retailers started to offer to pick-up and recycle old appliances when delivering new units.
- While exploring strategies to reduce operation costs, they found the savings to be too insignificant to be cost-effective.
 - Their recycling vendor could not lower costs because funds recuperated from scrap metal had declined significantly.
 - They also considered bulk pick-up of units at retail locations. While the found success with one retailer, however, some retailers were reluctant to participate due to administrative burdens.

The decision to cease operations of the product in a few states highlight potential market challenges for the future of the product. These results indicate some uncertainty in the future of appliance recycling products in certain states. A few utilities are finding it difficult to justify cost effectiveness and adjusting measures to ensure that savings are claimed accurately. As measures change and efficiency levels are raised, utilities may need to identify additional opportunities to recycle large appliances order to continue to hit savings goals. Targeting certain customer segments and improving engagement with trade partners may have the potential to expand potential participants of the appliance recycling product.

Overall, the Xcel Energy Efficient Refrigerator Recycling product is comparable to peer products. It sits on the higher end of both participation levels and savings goals and actuals as compared to other products the evaluation team interviewed. However, it sits on the lower end in terms of budget. As Xcel Energy has reached its goals within its budget, the implementation strategies currently in use appear to be working. However, given its lower budget, it is in Xcel Energy's best interest to learn from other products and make changes to implementation strategy that may make the product more effective.

Refrigerator & Freezer Recycling Evaluation

2020 Program Evaluation: Recommendations and Responses

The Xcel Energy Refrigerator & Freezer Recycling product in Colorado offers residential electric customers prescriptive rebates and free pick-up services to dispose of their operable, inefficient refrigerator and freezer units in an environmentally safe and compliant manner. In addition, air conditioners and dehumidifiers are picked up and recycled for free with no rebate.

Xcel Energy (“the Company”) engaged a team of researchers led by EMI Consulting to conduct a process and impact evaluation of the Refrigerator Recycling product. The evaluation team conducted the following activities as part of that evaluation:

- Calculate the retrospective and prospective net-to-gross ratio (“NTGR”);
- Assess customers motivations and barriers to participation in the product;
- Assess customers’ experiences with the product;
- Assess effectiveness of current marketing and customer engagement methods;
- Identify opportunities for increasing product impact;
- Identify opportunities for increasing residential customers’ awareness of the product; and
- Identify opportunities for improving customer experience.

Based on the results of this research, the evaluation team developed key findings and recommendations for Xcel Energy.

Recommendation	Response
1) The evaluation team recommends applying the retrospective net-to-gross ratio of 0.73 if no program changes are made. If Xcel Energy adjusts marketing messaging and conducts targeted outreach to a broader customer base, as described in recommendations 2 and 3 below, the evaluation team recommends applying a prospective net-to-gross ratio of up to 0.80.	The Company will apply a NTGR of 80% to the product starting January 1, 2021 and will adjust marketing messaging and conducting outreach to a broader customer base.
2) Revisit marketing messaging to include prominent references to the eligibility requirements, the convenience and ease of participation relative to alternatives, and the environmental benefits.	The Company will adjust marketing messaging to emphasize and describe eligibility requirements, convenience and ease of participation and environmental benefits.
3) Pursue deeper product savings by conducting additional outreach to low-income customers. The evaluation team recommends that the product	The product team is partnering with other marketing teams serving low income customers to improve Refrigerator & Freezer Recycling marketing campaigns to improve outreach to low income customers.

partner with the marketing teams for Xcel Energy products that serve low-income customers (e.g., Multifamily) to tune the product's marketing campaign to reach low-income residential customers.	
4) Pursue deeper product savings by conducting additional research around nonparticipating customer decision-making and implementing findings from that research. To reach deeper savings, the Xcel Energy team should conduct focus groups with target customer groups to characterize their decision-making processes and identify product improvements.	The Company is exploring how to better reach non-participating customers and is considering focus group research options.
5) Maintain current product implementation approach and continue to track product satisfaction to identify any threats to product satisfaction.	The Company will continue to monitor participation trends in order to identify any threats to customer satisfaction.