XCEL ENERGY

MN Efficient New Home Construction Product Impact & Process Evaluation

February 21, 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
83 Columbia St. Suite 400
Seattle, WA 98104

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

APPENDICES

EXECUTIVE SUMMARY

2019 Efficient New Home Construction Product Evaluation

EMI CONSULTING

Introduction

Xcel Energy contracted with EMI Consulting to evaluate the 2018 Efficient New Home Construction Product in Minnesota. The product offers whole-home building envelope and prescriptive rebates to Xcel Energy builders who build homes above standard code. The product also offers prescriptive rebates for builders who install Energy Star® washers and refrigerators. Rebates are offered to encourage builders to build energy-efficient new homes by lowering the upfront premium costs associated with the building and testing of these homes.

As part of the process evaluation, EMI Consulting assessed builder and homeowner motivations and barriers to participation in the product, the potential to link customers more directly to the utility, as well as opportunities to work with alternative fuel types, enhance the incentive design structure, and work with smart-connected homes. For the impact evaluation, EMI Consulting assessed the impact of the product on builder decision-making. This summary includes the key findings and recommendations from our evaluation.

Methods

Participating Builder Survey (n=66)

Participating Homeowner Survey (n=70)

Influencer Interviews (n=7)

Peer Benchmarking Interviews (n=4)

Fielding:
July – August 2019

Summary of Findings

The evaluation team estimated a **retrospective NTGR of 0.79 for kWh** and a **prospective NTGR of 0.82** if the product incorporates evaluation recommendations. These ratios are based on participating builder responses.

Both builders and homeowners could **benefit from additional support and training** from Xcel Energy. Homeowners would like more **training on their efficient equipment** and builders would like support **training homeowners**.

Homeowners and builders both expressed interest in **smart homes and alternative fuel types,** though builders were most interested in **crossover with other Xcel Energy products.**

Some builders were **confused about the incentive structures**; some did not understand how to reach higher rebate tiers, and some were **not aware of the existence of prescriptive rebates**.

Net-to-Gross Estimation

7.4 out of 10 Rebate's influence on builder's decisions to build energy-efficient new homes, where 0 was Not at All Influential and 10 was Extremely Influential.

The dollar amount of the rebate was rated as the **most influential product element.**

54% Builders reporting they would have built new homes to the **exact same efficiency level** if the incentive, information, and support from the product were not available.

27% Builders reporting they were **not at all likely** to have built new homes to the exact same efficiency level if the incentive, information, and support from the product were not available.

2019 Efficient New Home Construction Product Evaluation

EMI CONSULTING

Product Experiences & Link Between Customer and Utility

PRODUCT EXPERIENCES

Homeowners are satisfied with their new homes, and builders have participated in the product over multiple years, expressing satisfaction with overall product experiences. 93% of homeowners believed their new homes were energy efficient and 77% of builders reported they had participated in the product prior to 2018.

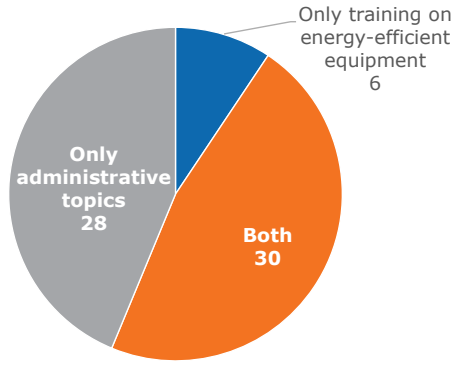
Builders reported that additional **support and contact from Xcel Energy** would be beneficial, particularly to train homeowners on efficient equipment and to answer questions about rebate and incentive structures. Survey follow-up interviews indicated some builders do not understand the tiered incentive structure, and some are **not aware of the availability of prescriptive rebates**.

CUSTOMER, UTILITY & BUILDER LINK

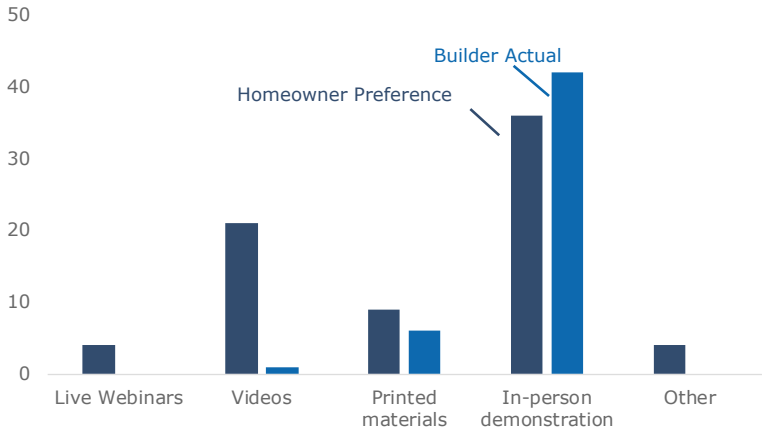
36 of 64 homeowners who interacted with their builders received training on energy-efficient equipment. Most of these also interacted with builders on administrative topics as well.

Most builders provide **training to homeowners in-person**. While this is homeowners' preferred delivery mechanism, homeowners also reported that **video trainings would be useful**, something that few builders offer.

Kind of Interaction with Builders



Builder Training Delivery and Homeowner Preference



2019 Efficient New Home Construction Product Evaluation

EMI CONSULTING

Potential New Offerings

61%

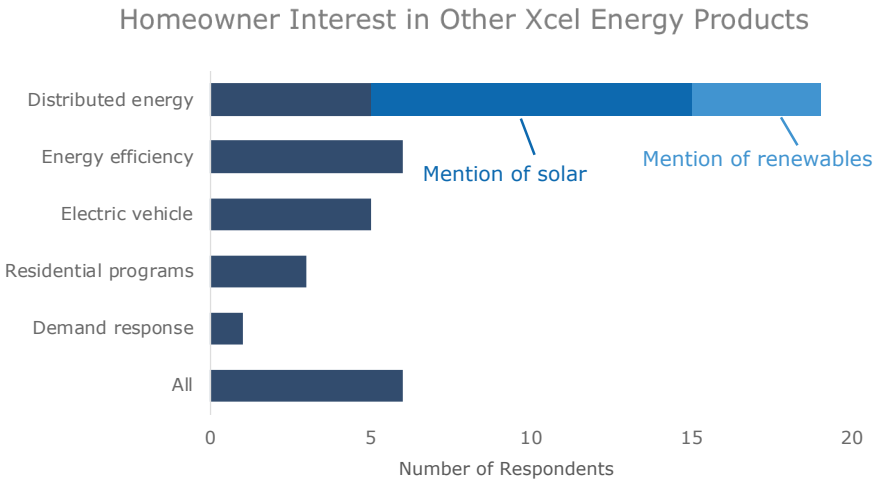
Of homeowners were interested in **premium electric technologies.**

51%

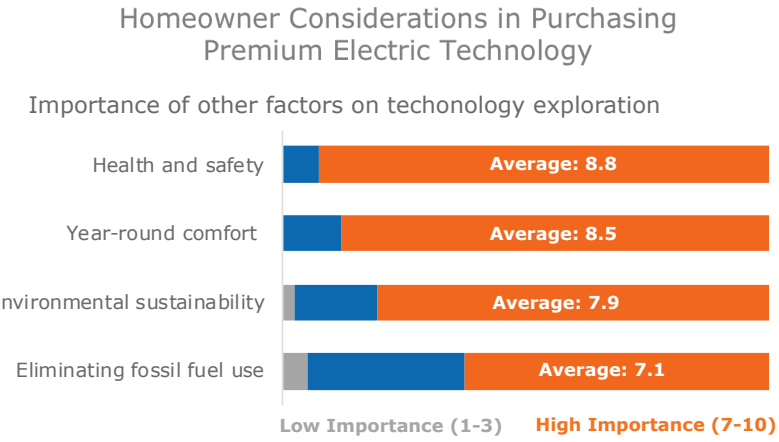
Of homeowners were interested in **smart, connected technologies.**

42%

Of homeowners were interested in **learning about other Xcel Energy products, especially distributed energy.**



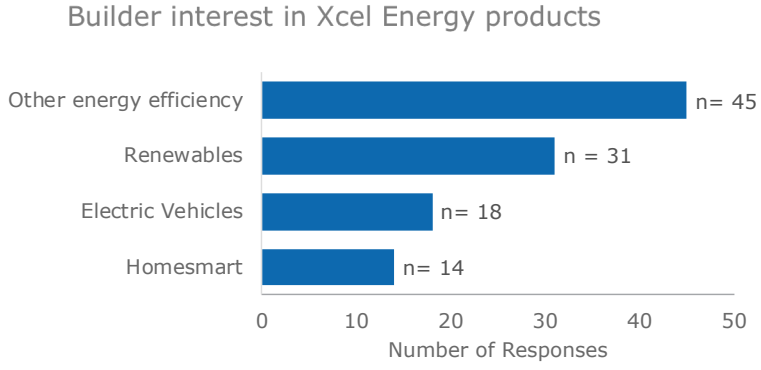
Homeowners rated **health and safety** as most important in deciding whether to purchase premium electric technologies.



Of discussed changes to the product, builders were most interested in **crossover with other Xcel Energy products**, specifically other **energy efficiency products.**

45/50

Builders expressed interest in crossover with other Xcel Energy products.



2019 Efficient New Home Construction Product Evaluation

EMI CONSULTING

Conclusions & Recommendations

The product shows influence in the market, with a retrospective NTGR of 0.79 for kWh. Key drivers of product influence include the dollar amount of the rebate, previous experience with efficient equipment, and previous experience with the product.

If the product design remains the same, the evaluation team recommends using a prospective NTGR of 0.79 for kWh. If the product incorporates the evaluation recommendations, the evaluation team estimates a prospective NTGR of .82. To bring the prospective ratio closer to 1, the evaluation team recommends diluting free-riders by increasing participation. This may be achieved by clarifying processes, improving communication, and raising the rebate amount.

Builders and homeowners could benefit from additional support and training from Xcel Energy.

Create and provide training videos for both homeowners and builders. Supporting builders in training homeowners may increase both homeowner satisfaction with builders and efficient use of equipment. For builders, the evaluation team recommends training on best practices for interacting with homeowners. For homeowners, the evaluation team recommends training on maintaining and using equipment to maximize savings, as well as education on how energy-efficient equipment lowers energy costs.

Some builders were confused about the incentive structures; some did not understand how to reach higher prescriptive rebate tiers, and some were not aware of the existence of prescriptive rebates.

Create program process documents for builders to help clarify program processes, including rebate tier levels and prescriptive rebates. Provide information for builders to pass to homeowners about the benefits of energy-efficient appliances rebated through the program for instances where the homeowner is the decision-maker about appliances.

Homeowners and builders both expressed interest in opportunities for smart homes and alternative fuel types, though builders were most interested in crossover with other Xcel Energy products.

Provide information for builders on premium electric options and smart technology that is easily shared with homeowners, and research opportunities for crossover with other Xcel Energy products. Providing information to builders that may be interesting to homeowners could increase the adoption of premium electric and smart technology from homeowners with a low barrier to entry. Researching ways to work with other Xcel Energy products may increase portfolio-level savings. As both homeowners and builders named the environment as a reason for adopting energy-saving equipment, using this when marketing new technologies and/or researching crossover with other products may prove effective.

1. INTRODUCTION

Xcel Energy offers a comprehensive array of energy services and products to its customers, including demand side management (DSM). For the evaluations of its 2018 products, Xcel Energy sought to understand the role each product plays 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 five products offered in Colorado and Minnesota in 2018. This included PY2018 of the Efficient New Home Construction Product in Minnesota, discussed in this report.[1] This introduction includes an overview of the product and the evaluation approach, and describes the organization of this report.

1.1 PRODUCT OVERVIEW

The MN Efficient New Home Construction Product offers whole-home building envelope and prescriptive rebates to Xcel Energy builders who build homes above standard code. The product also offers prescriptive rebates for builders who install Energy Star washers and refrigerators. Rebates are offered to encourage builders to build energy-efficient new homes by lowering the upfront premium costs associated with the building and testing of these homes. From January to December 2018, the Efficient New Home Construction Product claimed over 2.9 GWh in energy savings from rebates provided in Minnesota (Table 1).

[1] The products selected for evaluation in 2019 include: Heating Efficiency (CO), Motors and Drives (CO), Single Family Weatherization (CO), Efficient New Home Construction (MN), Residential Cooling (MN).

Table 1. Efficient New Home Construction Savings by Measure, January – December 2018

Envelope Improvement	Units		kW		kWh		Therms		Total Rebate (Gas + Electric)	
	Quantity	% of total	Quantity	% of total	Quantity	% of total	Quantity	% of total	Total Rebate	% of total
Envelope Improvement - 10% - 14.99%	785	27%	232.888	20%	618,609	21%	64,217	18%	$146,900	15%
Envelope Improvement - 15% - 19.99%	1,375	48%	521.528	45%	1,314,600	45%	162,287	47%	$422,655	43%
Envelope Improvement - 20% - 24.99%	614	21%	318.139	28%	810,640	28%	101,830	29%	$346,590	35%
Envelope Improvement - 25% - 29.99%	77	3%	52.075	5%	130,504	4%	16,971	5%	$52,435	5%
Envelope Improvement - 30% - 34.99%	7	0%	5.392	0%	11,851	0%	1,804	1%	$6,310	1%
Envelope Improvement - 35% & Higher	3	0%	23.756	2%	50,529	2%	375	0%	$2,285	0%
Totals	**2,861**	**100%**	**1,153.78**	**100%**	**2,936,733**	**100%**	**347,484**	**100%**	**$977,175**	**100%**

The Efficient New Home Construction product provides incentives to encourage home builders to construct energy-efficient residential homes. Builders of single-family, duplex, triplex, fourplex, town homes, and condo units with individual heating systems and residential meters may participate. Homes that achieve total energy savings of at

least 10% better than code are eligible for rebates. Both builders and Home Energy Rating System[2] (HERS) raters receive rebates, and both parties must be enrolled in the product in order to participate. The product's main offerings are:

Builder rebates for gas and electric homes. Homes that achieve energy savings of at least 10% above code may receive rebates.

- Gas and Gas/Electric Combo Homes: Homes must save a minimum of 10% above code and must have positive therm savings. Homes that do not reach the minimum are not eligible for participation. Builders are eligible for each completed new home in the gas service territory.
- Electric-Only Homes: Builders receive rebates when the home achieves a minimum 10% total energy savings above code and has positive kWh savings.

Appliance Rebates. ENERGY STAR®-rated clothes washers and ENERGY STAR®-rated refrigerators are eligible for rebates in homes successfully participating in either of the above offers.

Rater Incentive. Raters receive an incentive for each eligible home they submit to the product.

The Efficient New Home Construction Product includes builder rebates in three categories: Gas-only or gas/electric combination homes, electric-only homes, and appliance rebates. Envelope improvement rebates start at $100 and reach up to $2,000 depending on total energy savings achieved better than code. The rebates range from $250 to $2,000 for gas-only and gas/electric combo homes. For electric-only homes, rebates are set at $100 for all qualifying homes. Builders may also receive appliance rebates for ENERGY STAR®-rated washers and dryers in qualifying homes range from $10 to $15. In addition to builders, the Efficient New Home Construction Product relies on raters. Each participating builder subcontracts with a rater of its choice, a change from the original product process where Xcel Energy worked with one rater. Xcel Energy provides raters with a $75 rebate per home.

The Efficient New Home Construction Product was first offered in 1996, at which point it was modeled after the Energy Star® Program. In 2017, Xcel Energy began allowing builders to hire certified house raters of their choice. ICF implemented the 2018 product for Xcel Energy and partner utility CenterPoint Energy. Currently, the product is not actively considering modifications to the rebate structure for future cycles.

[2] The Home Energy Rating System (HERS) is the nationally recognized standard system for inspecting, calculating, and rating home energy performance.

1.2 EVALUATION OVERVIEW

The evaluation team designed a comprehensive evaluation of the Efficient New Home Construction Product to provide information on five key categories of research topics:

- Product influence (net-to-gross ratio)
- The link between customers and the utilities
- Opportunities to work with alternative fuel types, for smart-connected homes, and to enhance the incentive design bucket structure
- Motivations and barriers of homeowners/end-users and builders, including whether paperwork is a barrier for builders

To achieve these research objectives, the evaluation team conducted surveys with both homeowners and builders. Then, to qualitatively understand builder responses and ensure that survey data accurately represented net-to-gross ratios, the evaluation team conducted follow-up interviews with decision-makers (called influencer interviews) at select homebuilding companies. To contextualize the Xcel Energy product in terms of other similar programs in the market, the evaluation team conducted benchmarking interviews with peer residential new construction programs. Table 2. Summary of Evaluation Objectives and Research Methods presents an overview of the research topics and data sources used in this evaluation of the Efficient New Home Construction Product.

Table 2. Summary of Evaluation Objectives and Research Methods

Research Objective Category	Evaluation Objective	Builder Survey n = 66	Homeowner Survey n = 70	Influencer Interviews n = 7	Peer Benchmarking Interviews n = 4
Impact: Product influence (net-to-gross ratio)	Estimate a NTG ratio documenting the product's influence on builders.	✓		✓	
	Identify major drivers of free ridership.	✓			
	Assess market effects of the Product.	✓		✓	
Process: Connect the link between customers and the utilities	Connect the link between homeowners and the utilities, two parties which do not *have* to communicate to make the Product work.	✓	✓		
Process: Opportunities to work with alternative fuel types, for smart homes, and to enhance the incentive design bucket structure	Identify opportunities to work with alternative fuel types, including geothermal and variable capacity heat pump technology.	✓	✓	✓	✓
	Identify opportunities for smart homes, including systems that account for water savings and condensing water heaters.	✓	✓	✓	✓
	Identify whether there is potential future coordination with other Xcel Products.	✓			
	Identify opportunities for enhancing the incentive structure, including prescriptive opportunities	✓			✓
Process: Motivations and barriers of homeowners/ end-users and builders	Identify motivations and barriers of homeowners		✓		
	Identify whether the Product paperwork is a barrier for builder participation	✓			

1.3 REPORT ORGANIZATION

The following chapters organize the evaluation findings into two components: process and impact evaluation results. As illustrated in Table 2, each data collection activity may have contributed to multiple evaluation objectives. Further detail on the evaluation approach is presented in the following chapters. Chapter 2 reviews the approach and results of the net impact evaluation and the attribution of product impacts using a standard net-to-gross ratio analysis. Chapter 3 discusses the process evaluation components, including (1) program processes; (2) builder, homeowner, and utility interactions; and (3) opportunities for new technologies and adjusted rebate structures. Conclusions and recommendations are presented in Chapter 4. Detailed, descriptive methodology information, evaluation plans, and survey instruments can be accessed 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 Efficient New Home Construction Product in Minnesota. For demand-side management (DSM) programs, the NTGR is a metric that estimates the influence of the program on the target market. It is used to adjust reported gross energy savings to account for energy efficiency that would occur in the absence of a program, and it is also used as a benchmarking indicator of program effectiveness. 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 spillover. The evaluation team estimated a retrospective NTGR based on data provided by builders, and then recommended prospective NTGRs based on potential changes to the product's design. Note that, while a NTGR of 1.0 is often seen as desirable, it may not be appropriate for all product designs. This depends on a variety of factors, including the maturity of the product and the technologies it promotes, product intervention strategies, and cross-product coordination strategies. The evaluation team has taken care to present our NTGR results with this context in mind.

This chapter presents:

- **Key findings –** The key findings section presents the recommended NTGR based on the evaluation team's synthesis of findings from market actors.
- **Approach –** The approach section presents an overview of the evaluation team's methods to calculating the recommended NTGR.
- **Net-to-gross ratio inputs –** This section presents qualitative and quantitative data that support the NTGR calculations.

2.1 KEY IMPACT FINDINGS

This section presents key findings from the impact evaluation for the MN Efficient New Home Construction Product, including retrospective and prospective NTGR recommendations. The evaluation team estimated a retrospective NTGR based on the quantitative and qualitative results of the customer and trade partner research. Then, the team recommended a prospective NTGR based on future changes to the product design, as presented in the following section.

RETROSPECTIVE NET-TO-GROSS RATIO

The evaluation team estimated a retrospective NTGR of 0.79 for the Efficient New Home Construction Product, based on results from builder surveys. To estimate this NTGR, the evaluation team took the following steps:

- The evaluation team first estimated an overall free-ridership ratio of 0.29 (unweighted average), based on participating builder surveys and follow-up

interviews (to determine whether to classify factors as related to the product).
    - These results were weighted to be representative of the population,[3] and decreased to 0.23 for kWh.
    - The evaluation team reviewed answers for consistency and adjusted scores for individual builders that reported lower free-ridership in open-ended responses than their scores accounted for. These adjustments did not change the overall free-ridership score.
- The evaluation team estimated 1% spillover for kWh, bringing the NTGR to 0.78 for both kWh and kW.
- The evaluation team estimated a 1% market effects adder, bringing the NTGR to 0.79 for both kWh and kW. Even though the product isn't providing direct influence on codes and standards, respondents reported they are less likely to push back on new codes and standards (or do so less actively), given the product's influence.

PROSPECTIVE NET-TO-GROSS RATIO

The evaluation team recommends an estimated prospective NTGR of .82, providing that Xcel Energy implements the recommendations in this report and no other significant changes to the product are made. Specifically, the evaluation indicates that educating builders about product components, specifically about how the tiered rebates are structured and how they could reach higher tiers, may incentivize builders to build more efficiently than they currently do. Additionally, increasing rebate amounts may decrease free-ridership among builders. The evaluation team does not recommend a change in the NTGR for crossover with other Xcel Energy products or new components, as other products are evaluated separately.

2.2 NET-TO-GROSS APPROACH

The evaluation team developed the NTGR for the MN Efficient New Home Construction Product using a self-report approach, based on participating builder survey results in combination with additional research data inputs. The methodology used in this evaluation was built from the Core Nonresidential Protocol in the *2016 Illinois Statewide Technical Reference Manual for Energy Efficiency Version 6.0*, in *Attachment A of Volume 4: Cross-Cutting Measures and Attachments*.

[3] The evaluation team weighted each builder by the average per-unit savings multiplied by the total number of participating homes for that builder, so that builders who built higher efficiency homes were given more weight, and builders who built more homes were given more weight.

The data inputs to the NTGR analysis included:[4]

- Builder surveys – focused on builder-level effects, including free-ridership and participant spillover
- Follow-up interviews with participating builders – sought to clarify any conflicting information in the original surveys

The evaluation team used self-reported data from participating builders to develop an initial NTGR. Data from follow-up interviews discussed above were then used to construct a logical narrative of product attribution and to finalize the prospective NTGR for the 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. 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.

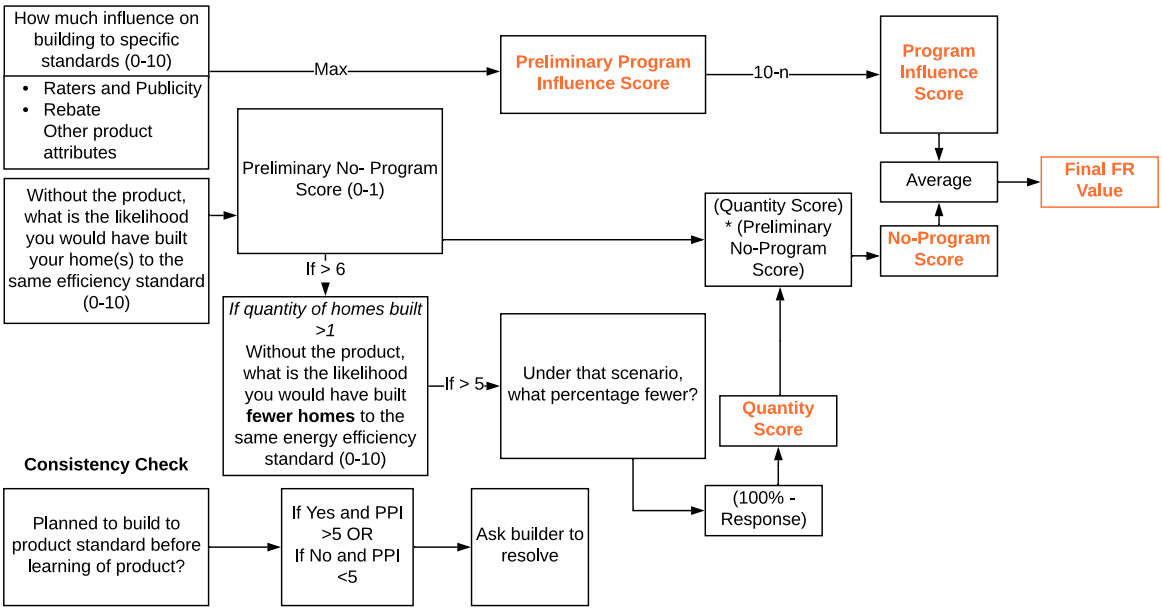
To determine free-ridership, the evaluation team started with the Core Nonresidential Protocol from the Illinois TRM, and wrote specific questions to assess three free-ridership components:

- A **Program Components Score**, based on the participating builder's perception of the importance of various product components in their decision to carry out the energy-efficient project;
- A **No-Program Score**, based on the participating builder's intention to carry out the energy-efficient project without product funds; and
- A **Quantity Adjustment**, based on the participating builder's perception of the difference in the number of efficient homes the builder would have built in the absence of the product.

When scored, these components assess the likelihood of free-ridership on a scale of 0 to 10, with the two scores averaged and the quantity adjustment applied to create a final free-ridership score (Figure 2-1).

[4] Additional descriptive detail on these research activities appears in Chapter 3 and in the appendices.

Figure 2-1. Free-Ridership Calculation Methodology



SPILLOVER

Spillover is a measure of the amount of energy savings that occur due to the product that are *not* captured in the product's claimed energy savings. For the purposes of this evaluation, only participant spillover was estimated due to the need for additional data outside of the scope of this research that would be required to estimate non-participant spillover effects.

To capture participant spillover, the evaluation team asked participating builders for information about any additional efficient new homes built outside of the product (for which they did not receive a rebate). The surveys also probed for information on the importance of the Efficient New Home Construction Product when participants made installation decisions for non-rebated homes, specifically the likelihood that energy efficient measures would have been installed in non-rebated homes if they had not participated in the product. The evaluation team computed savings estimates for all identified spillover homes and the product's spillover ratio was calculated by dividing the total spillover savings by the product's total energy savings.

DETERMINATION OF NET-TO-GROSS RATIO

The evaluation team estimated the product's initial net-to-gross ratio using the following formula:

$$Product\ NTGR = 1 - (Free - ridership\ Ratio) + (Participant\ Spillover\ Ratio) + (Market\ Effects\ Adder)$$

Finally, the evaluation team utilized all the information collected about the product (through customer surveys and follow-up interviews, trade partner interviews, and known product changes) to construct a logical, internally consistent, and coherent narrative of product attribution that attempted to identify all possible pathways of Xcel Energy influence. In addition to free-ridership and participant spillover, the evaluation team also considered whether any adjustment was warranted due to the presence of market effects. Based on these results, the evaluation team recommended a final summative NTGR value that is consistent with this narrative.

2.3 NET-TO-GROSS RATIO INPUTS

As described in the approach section, the recommended NTGR is based on three primary data inputs: free-ridership, spillover, and market effects. This section explores each of these results in more detail, including qualitative data that support the results.

FREE-RIDERSHIP RESULTS

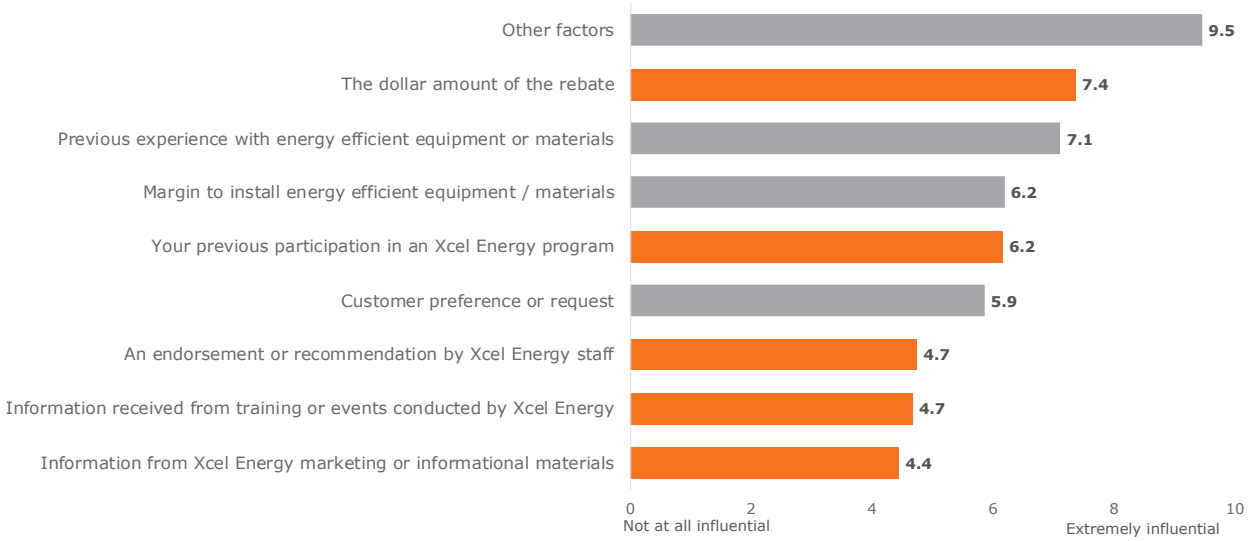
Free-ridership is a measure of the proportion of the product's claimed energy efficiency savings that would have occurred in the absence of the product. To estimate free-ridership, the evaluation team estimated three metrics: a program components score, a no-program score, and a quantity adjustment. The following sections describes each of the metrics in more detail.

PROGRAM COMPONENTS SCORE

To determine the program components score, the evaluation team asked participating builders to rate the influence of a variety of factors upon their decision to build energy-efficient new homes. These factors each fall into one of three categories: automatic program factors, non-program factors, or non-automatic program factors.

Automatic program factors, highlighted in orange in Figure 2-2, are factors that can be attributed to Xcel Energy and/or product influence in all cases, including (1) dollar amount of the rebate, (2) previous participation in an Xcel Energy product, (3) endorsement or recommendation by Xcel Energy staff, (4) Information received from Xcel Energy training or event, and (5) Xcel Energy marketing or informational materials. Of these factors, participating builders rated the dollar amount of the rebate as the most influential factor, at an average of 7.4 out of 10. The next most influential factor, previous participation in an Xcel Energy product, was rated more than one point lower (score of 6.2 out of 10).

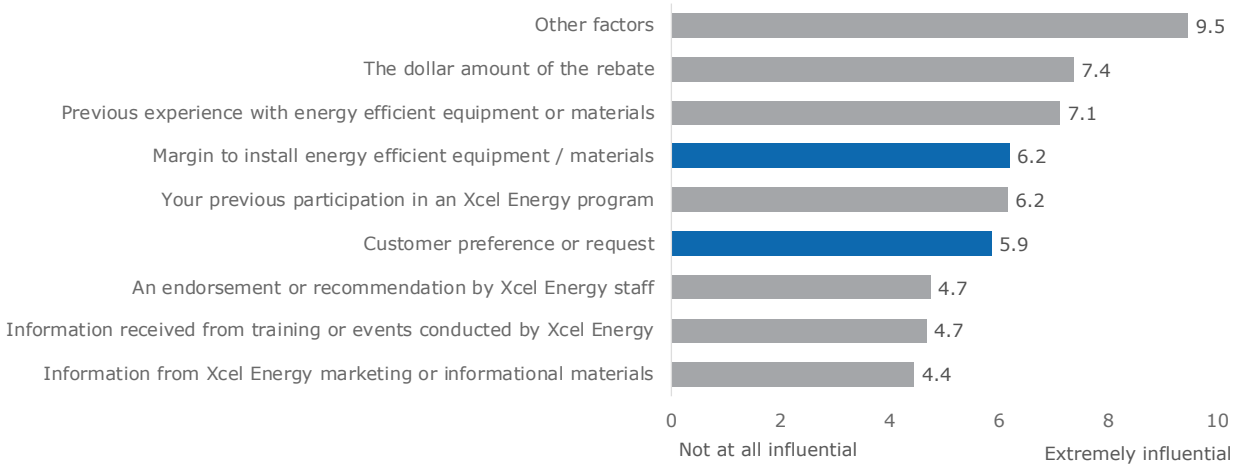
Figure 2-2. Automatic Program Factors



Automatic program factors are shown in orange.

Non-program factors, highlighted in blue in Figure 2-3, are factors that may influence a customer to build efficient homes but that are not related to or affected by the product. The evaluation team asked participating builders to rate the following non-program factors: (1) margin to install energy-efficient equipment or materials and (2) customer preference or request. Of these, the margin to install equipment was rated slightly higher than customer preference, though the difference between the two factors was just 0.3 points on a scale of 10. The margin to install equipment may have been considered a program factor because the rebates decrease builder margins. However, the evaluation team chose to count it as a non-program factor for this evaluation because these differences in margins are not necessarily related to the Xcel Energy product. The product is based on an envelope-level evaluation that allows builders flexibility in how to achieve better-than-baseline construction. Thus, depending on a variety of factors including heating and cooling equipment, insulation, and other envelope sealing measures, different builders may have different overall margins to make new homes energy efficient.

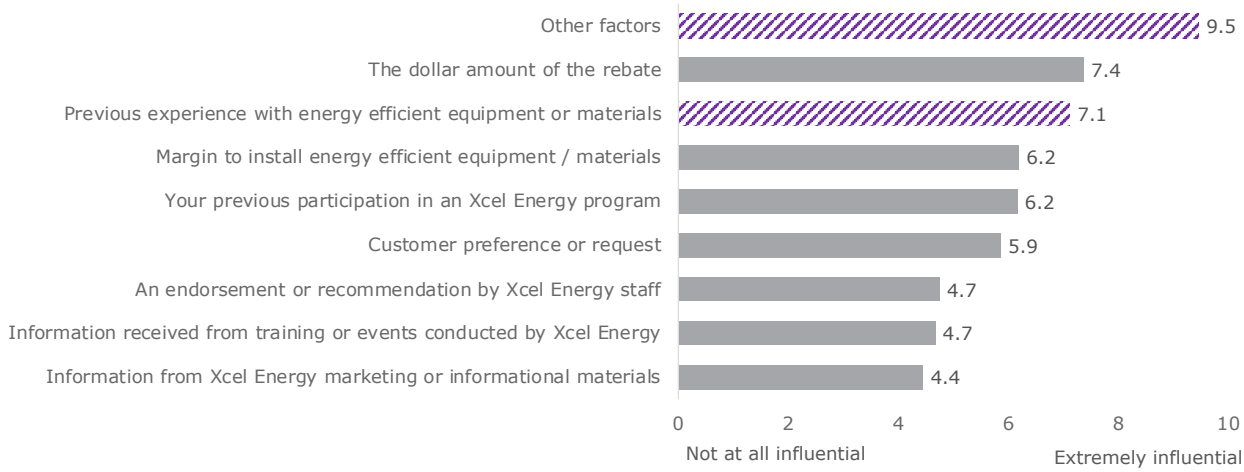
Figure 2-3. Non-Program Factors



Non-Program factors are shown in blue.

Finally, the evaluation team asked participating builders to rate the influence of non-automatic program factors on their decision to build efficient homes, highlighted in purple in Figure 2-4. These are factors that, depending on the specific situation, may be classified either as a program factor or as a non-program factor. Follow-ups during the survey and through interviews after the survey determined whether these factors were program factors or non-program factors. If survey respondents reported Xcel Energy played a role in these non-automatic program factors, the factor was included as a program factor for that participating builder. If Xcel Energy did not play a role in these factors, the factor was included as a non-program factor. Non-automatic program factors included (1) previous experience with equipment, and (2) other factors. Combined, "other factors" were rated as most influential at 9.5 out of 10, while previous experience with equipment was rated at 7.1 out of 10.

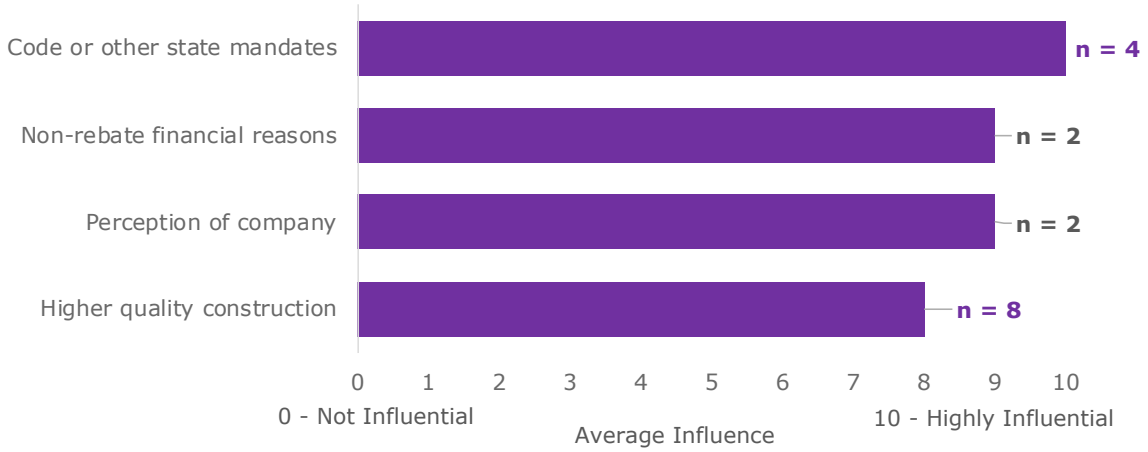
Figure 2-4. Non-Automatic Program Factors



Non-automatic program factors are shown in purple.

Of all program components, "Other factors" ranked more than two points ahead of the next most important factor. The evaluation team asked which other particular factors were influential in builders' decisions, and found that higher quality construction associated with energy-efficient building was cited most commonly, while following state code or other mandates was most important (Figure 2-5). As updates to Minnesota building code require builders to construct homes more efficiently, it follows that these changes to code may affect builders' construction practices more than the Xcel Energy product, which they participate in voluntarily. While the evaluation team did not classify any of the "other factors" as program factors, they indicate patterns in how builders engage with and perceive the product.

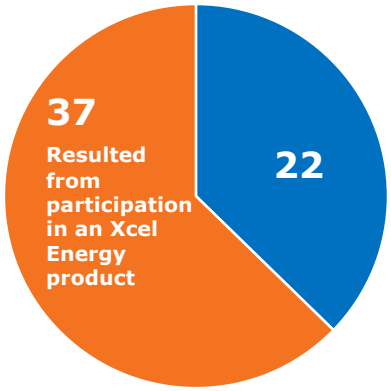
Figure 2-5. Other Important Program Factors



The evaluation team asked builders who cited previous experience with efficient equipment or materials whether that experience came from Xcel Energy or elsewhere. For the 37 builders who reported that it did come from Xcel Energy,

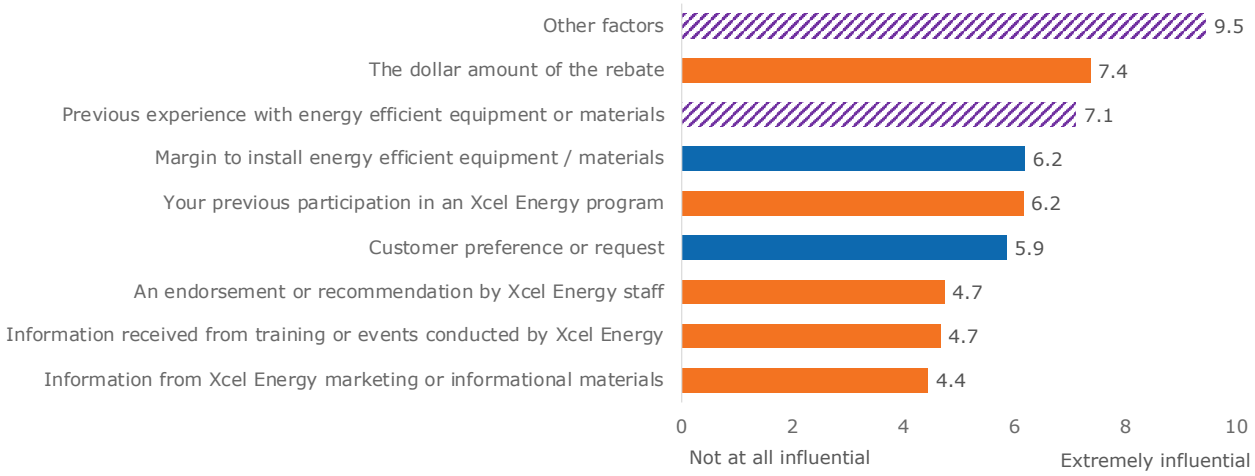
previous experience was counted as a program factor, while for the other 23 it was counted as a non-program factor. This distribution is shown below in Figure 2-6.

Figure 2-6. Distribution of Builder Sources of Previous Experience



Overall, product participation was driven by a mix of factors, and the product did have significant influence in builders' decisions to participate. As shown in Figure 2-7, automatic program factors generally were less important to builders than non-automatic and automatic non-program factors. No "other factors" responses were classified as program components, but these were generally more important than other categories. However, previous experience with equipment was more commonly a program component than not, somewhat counteracting this effect.

Figure 2-7. All Program Components



Automatic program factors are shown in orange, automatic non-program factors in blue, and non-automatic program factors in purple.

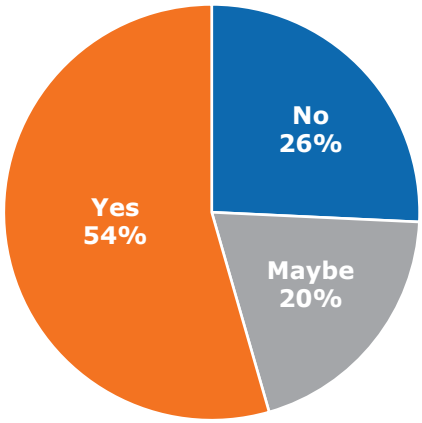
To determine the Program Component Score, the evaluation team took the program factor attributed with the most influence from each participating builder, averaged these scores, and re-scaled the result to be between 0 and 1. The unweighted 2018 Efficient New Home Construction Product score is 0.09. Program Components Scores closer to 0 indicate the product has a high level of influence. Because it does not ask about what would have happened in the absence of the product, the Program Components Score typically underestimates free-ridership and is balanced by the No-Program Score, described in the following section.

No-Program Score

The No-Program Score is a measure of how likely customers are to have built identical homes without the influence of the product. In contrast to the Program Components Score, which asks how influential the product was on a customer's decision to build efficient homes, the No-Program Score asks whether that decision would have been different absent the product.

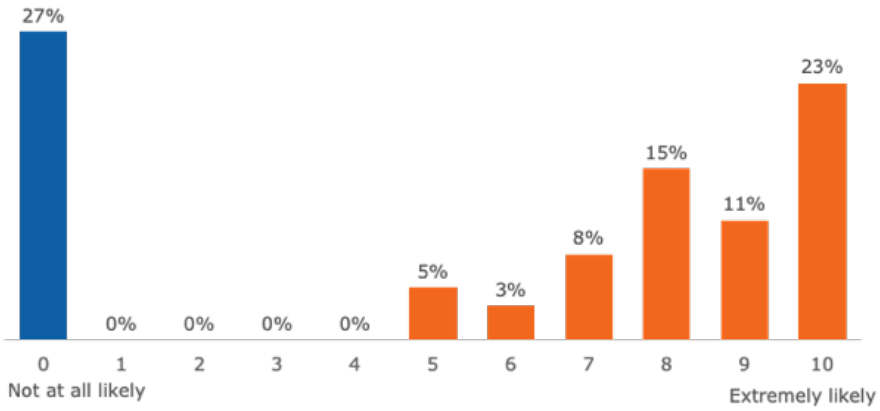
54% of builders reported they would have built homes to exactly the same efficiency level had the product not been available. As shown in Figure 2-8, more than a quarter of builders reported they would not have built homes to the same efficiency level, and 20% reported they were unsure.

Figure 2-8. Would you have built homes to the same efficiency level?



The evaluation team followed up with builders who reported they would have or might have built homes to the exact same efficiency level, asking them to rate that likelihood on a scale of 0 to 10. Those who reported they would not have built homes to the same efficiency level were assumed to have rated this likelihood at 0 out of 10. Figure 2-9 shows the distribution of these responses, which average at 6.3. Respondents who said they would not have built homes to the same efficiency level are highlighted in blue.

Figure 2-9. Likelihood to Build to the Same Efficiency Level

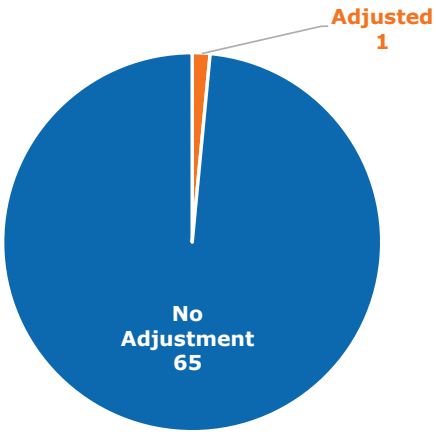


These scores bring the unweighted No-Program Score to 0.44. This number is affected by the quantity adjustment, discussed in the next section.

Quantity Adjustment

The quantity adjustment accounts for builders who built a larger number of efficient homes than they would have without the influence of the product. As shown in Figure 2-10, only one builder reported they would have built fewer homes without the product. This individual reported they would have built 20% fewer homes without the product's influence.

Figure 2-10. Builders Adjusted for Quantity

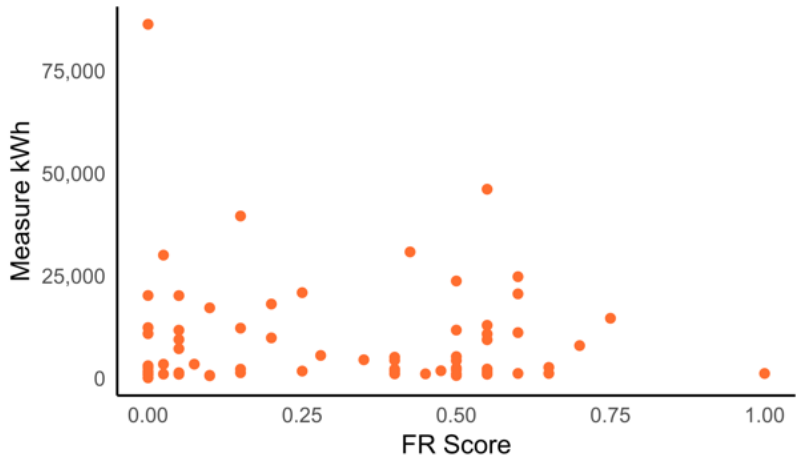


Because just one builder's No-Program Score was adjusted for quantity, the overall adjusted score rounds to the same ratio as the unadjusted score: 0.44.

Free-Ridership Adjustments

After determining an initial free-ridership ratio, the evaluation team examined participating builder survey respondents by their estimated free-ridership ratio and the energy savings in kWh of the homes they built through the product. This data, shown in Figure 2-11, revealed several outliers. To determine why these participating builders fell outside the typical range, the evaluation team conducted seven follow-up interviews, and adjusted free-ridership accordingly.

Figure 2-11. Unadjusted Free-Ridership Ratios by Savings



The evaluation team adjusted free-ridership for builders who, during follow up interviews, reported that the product was more influential than they had indicated in the survey. While free-ridership scores for three of these builders were not altered by the interview, four of them were. Figure 2-12 highlights, in blue, the four individuals who were adjusted. Figure 2-13 highlights these same individuals after adjustments.

Figure 2-12. Free-Ridership Ratios to Adjust

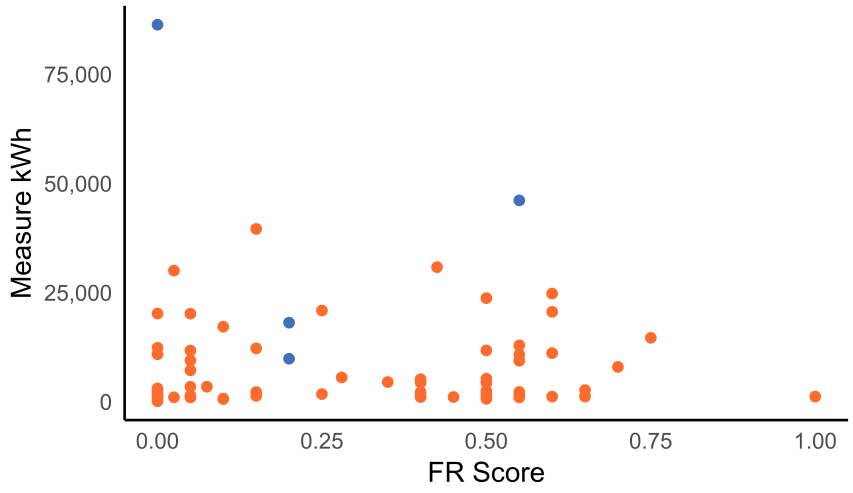
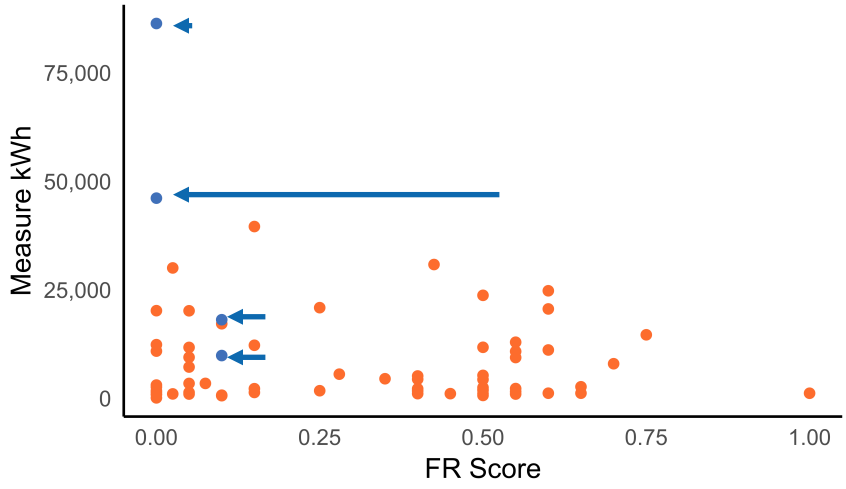


Figure 2-13. Adjusted Free-Ridership Ratios by Savings



Reasons for adjusting free-ridership scores varied. In two cases, adjustments were related to builders learning about and engaging with HERS testing. One builder in particular noted that HERS testing encourages competition for better scores between builders, because raters share other builders' scores. Another builder reported that the product has changed the questions homebuyers ask, and that homebuyers care about energy efficiency in their homes more than they did prior to builders' participation in the product. Finally, one builder reported that the product and tiered incentive levels allow their company to build higher quality buildings at competitive prices. This individual reported that without the product, their homes would either be of significantly lower quality construction or prohibitively priced for their target population.

Final Free-Ridership

Finally, the evaluation team averaged the Program Components Score and the Adjusted No-Program Score and applied sampling weights to estimate free-ridership. With sampling weights applied, the free-ridership ratio was 0.23. This section discusses the weights applied to the initial score of 0.29 to reach that score.

The evaluation team weighted each score the average per-unit savings multiplied by the total number of participating homes for that builder, so that builders who built higher efficiency homes were given more weight and builders, who built more homes were given more weight. A summary of weighted free-ridership ratios is below in Table 3.

Table 3. Weighted Free-Ridership Ratios

NTGR	Average kWh FR score	Population kWh Savings	Percent	Weighted kWh FR score
Total	**0.29**	**2,892,988**	**100%**	**0.23**

SPILLOVER RESULTS

Spillover is a measure of the amount of energy savings that occur due to the product that are *not* captured in the product's claimed energy savings. To be eligible for spillover, builders must have:

1. Built additional efficient[5] new homes after participating in the product;
2. Not received rebates for these homes (and not be in the process of applying for rebates); and
3. Been influenced to install this equipment by the Efficient New Home Construction Product.

Five builders constructed homes that qualified for spillover. These builders built 29 homes outside the product, which equated to a total savings of 29,311 kWh. The evaluation team divided the spillover-qualified savings by total product savings (2,892,988 kWh), which yielded a spillover of 1%.

MARKET EFFECTS

The evaluation team included a 1% market effects adder for the Efficient New Home Construction Product. Baselines for this product are determined by Minnesota building code, and the building code is the best marker of the current market of energy efficiency in new construction residential homes. Historically, Xcel Energy has not had an active role in the code update process due to the broader and more relevant interests of other stakeholders such as, but not limited to, builders associations, building trades groups, and code officials. Even though Xcel Energy is not providing direct influence on energy codes, the evaluation team finds a plausible pathway for programs such as this one to enable greater increases in energy code performance due to increased familiarity with higher performance building practices that are encouraged through utility programs. If separate programs for codes and standards are established in the same market as the Efficient New Home Construction program, the inclusion of this market effects adder should be revisited.

[5] Efficient new homes were defined as homes with equipment that would qualify for rebates from the product.

RETROSPECTIVE NET-TO-GROSS

Overall, the evaluation team found that the product impacted participating builder decisions. Using the net-to-gross formula, we determined a kWh NTGR of 0.79. The generalized formula the evaluation team used to determine NTGRs is shown in Equation 1 below.

Equation 1. Generalized Net-to-Gross Ratio

$$NTGR = 1 - (Free\text{-}Ridership\ Ratio) + (Spillover\ Ratio) + (Market\ Effects\ Adder)$$

Using this formula, the kWh NTGR is shown in Equation 2. Builders who participated in this survey effort reported that the dollar amount of the rebate was most influential in their decision to participate in the product. The free-ridership ratio of 0.23 here is influenced by more than half (54%) of participating builders reporting they would have built homes to the exact same efficiency if the product did not exist.

Equation 2. kWh Net-to-Gross Ratio

$$kWh\ NTGR = 1 - (0.23) + (0.01) + (0.01) = 0.79$$

3. PROCESS EVALUATION

The evaluation team conducted a process evaluation of the Efficient New Home Construction Product in Minnesota to help Xcel Energy optimize the product's design and delivery. Specific research objectives of the process evaluation are listed below:

- Connect the link between customers and the utilities, two parties which do not *have* to communicate to make the product work.
- Identify whether the product paperwork is a barrier for builder participation in the product.
- Identify opportunities for the product to work with alternative fuel types, whether it be geothermal or electric vehicle chargers, hybrid, and/or variable capacity heat pump technology.
- Identify opportunities for smart homes, including systems for homes that account for water savings, including condensing water heaters or tankless, and increased electrification.
- Identify whether there is potential future coordination with other Xcel products and other utility areas.
- Identify opportunities for enhancing the incentive design bucket structure, including where there might be gaps that can be met with prescriptive opportunities similar to the current ENERGY STAR® appliance rebates.
- Identify motivations and barriers of homeowners/end-users.

To accomplish these objectives, the evaluation team elicited feedback from product staff, participating builders, participating homeowners, and other utilities with similar products. 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 that, overall, builders are satisfied with the current product operations, and homeowners appreciate their efficient homes. Both builders and homeowners noted that additional training may help them better understand program processes, and both groups also expressed interest in integrating additional offerings such as new technologies or crossover with other Xcel Energy programs. Additional key findings from the process evaluation research included:

- **Builders and homeowners could benefit from additional support and training from Xcel Energy.** Homeowners reported they would like more training on their energy-efficient equipment and had lower satisfaction with builders than other aspects of the product. Builders reported they would appreciate additional support from Xcel Energy to train homeowners.

- **Some builders were confused about the incentive structures; some did not understand how to reach higher rebate tiers and some were not aware of the existence of prescriptive rebates.** Though builders appreciated the rebates they received, they did not feel they had sufficient information to understand what to do to reach higher rebate tiers. Additionally, some builders, including some who had received rebates, were unaware of the existence of prescriptive rebates and said that they were not involved in decision-making about appliances.
- **Homeowners and builders both expressed interest in opportunities with smart homes and alternative fuel types, though builders were most interested in crossover with other Xcel Energy products.** Homeowners were more interested in new technologies and alternative fuel types than builders, though some builders also expressed interest in these. Builders saw more opportunity for crossover or integration with other existing Xcel Energy products than other potential changes to the product. While it was not most important for either group, the environment was a factor for both builders and homeowners.

3.2 APPROACH

To accomplish the evaluation objectives for the Efficient New Home Construction Product, the evaluation team completed a suite of intersecting and complementary research activities in 2019. Detailed information on the sampling approach used for the research can be accessed in Appendix A. The following discussion highlights the research topics contributed by each research activity: staff interviews, participating builder surveys, participating homeowner surveys, and benchmarking interviews.

STAFF INTERVIEWS

The evaluation team conducted in-depth group interviews with seven Xcel Energy personnel involved with the MN Efficient New Home Construction Product early in the course of this evaluation, including one product manager, one team lead, one engineer, one trade ally account manager, two program staff (including one program manager, and one program support), and one senior manager. The staff interviews covered the following topics:

- Product activities, goals, and resources
- Product strengths and challenges
- Evaluation priorities

Appendix B.1 presents the interview guide used for these discussions.

PARTICIPATING BUILDER SURVEYS

The evaluation team conducted telephone surveys with participating builders using builder participation records from Xcel Energy for the sample frames. The evaluation plan used for this activity can be found in Appendix A. Sample sizes for

the participant 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 builder was defined as any builder that closed an Efficient New Home Construction opportunity in 2018. The evaluation team attempted to contact all participating builders from the population. Additionally, we selected seven survey respondents who provided conflicting answers in the net-to-gross battery. We conducted in-depth interviews with these customers so that the evaluation team could dive deeper into their decision-making and clarify their free-ridership. The participating builder surveys were designed to address the following process objectives:

- Assess builder perceptions and awareness of the Efficient New Home Construction Product to better understand how these factors may hinder greater product participation.
- Characterize the motivations and barriers in the builder decision-making process for participating in the Efficient New Home Construction Product.
- Understand builders' experiences and satisfaction with the product, including experiences with the application process.

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

PARTICIPATING HOMEOWNER SURVEYS

In addition to the surveys with participating builders, the evaluation team conducted surveys with homeowners (end-users living in the energy-efficient new home). The homeowner research addressed the following process topics:

- Homeowner awareness of the efficiency of their new home
- Opportunities related to the uptick in website clicks from the Parade of Homes[6] and understand how to take advantage of increased web interest
- The motivations and barriers to buying and living in this particular home
    - How much, if at all, did the energy efficiency of the home influence their purchasing decision?
- Homeowners and builder interaction
- Training builders provide to homeowners
    - If offered, how satisfied are homeowners with that training?
    - If builders are not providing training, should the product work with homeowners afterwards to provide education? How?
- Homeowner satisfaction with interactions with builders?

[6] The Minnesota Parade of Homes provides homebuyers an opportunity to tour new construction homes each year. It also has a website with further information about builders, energy efficiency, and other resources for buyers.

- Homeowners satisfaction with the comfort-level in their home (e.g., consistent temperature, any health and safety issues) and quality of construction, including maintenance issues related to health and safety
- Additional efficient equipment homeowners are researching or installing in their homes
- Homeowner interest in information on other Xcel Energy programs, such as renewable energy programs, EVs, maintenance packages (HomeSmart) or solar

Appendix B.3 presents the questionnaire used for the participating homeowner research.

BENCHMARKING INTERVIEWS

The evaluation team examined four peer utilities to benchmark the Xcel Energy product against others in the industry, assessing product design and delivery and key performance indicators (e.g., participation levels, free-ridership). The evaluation team conducted in-depth interviews with representatives from these utility programs to meet the following goals:

- Understand how other utilities structure and evaluate their residential new construction offerings (both in terms of overall achievement and net-to-gross methodology).
- Identify any potential for product expansion based on offerings provided by other utilities.
- Identify challenges faced by other utilities in promoting residential new construction programs.
- Identify successes of other utility programs and how those might be applied to the MN Efficient New Home Construction Product.

To provide important contextual information, additional descriptive program information was collected where possible, including incentive structures, product implementation strategies and engagement practices, and participation levels. Appendix B.4 contains the interview guide used for the benchmarking interviews, and Appendix C.5 provides a memo with detailed results from these interviews.

Data on all of the process evaluation topics are presented below. Results are presented in three sections, reflective of research objective categories: (1) Product Experiences, (2) Customer, Utility, and Builder Link, and (3) Potential New Offerings. The synthesis of findings places an emphasis on helping Xcel Energy interpret builder and homeowner perspectives and identifying actionable opportunities for improving product operations and marketing.

3.3 PRODUCT EXPERIENCES

The evaluation team drew from participating builder and homeowner surveys to understand (1) who was participating in the product, (2) how these individuals became aware of and engaged with the product, (3) which new home features were

most important, particularly for homeowners, (4) product satisfaction, and (5) experiences with program processes and rebates. Our research indicates that homeowners are satisfied with their homes and builders are satisfied with their interactions with Xcel Energy and with overall product experiences. However, builders also expressed some confusion over how the product works, with some indicating in follow-up interviews that they did not understand how to reach a higher rebate level or who to reach out to if they had questions or wanted to learn more about the product. Additionally, some builders who had received prescriptive rebates for efficient refrigerators and washers were unaware that these rebates existed and reported that they were not involved in the decision-making process for those appliances. In the following section, we provide more detailed results on homeowner and builder product experiences.

PRODUCT PARTICIPATION

In 2018, 188 builders participated in the MN Efficient New Home Construction Product. The product is characterized by high participation from a small number of large production builders, and lower participation levels among a larger number of smaller builders. Interviews with peer utilities indicate that high participation from large production builders is common, but not desirable; two peers reported similar participation levels from production builders, and both recommended avoiding this situation.

As shown in Table 4, the surveyed population for this evaluation built fewer homes on average than the overall builder population and the maximum number of homes built differs between the surveyed population and overall population by around 500. Because the evaluation team was not able to reach and/or survey large production builders, it cannot draw conclusions about product processes for that group. Despite this, other indicators like average envelope tier remained similar (19.4% above average at population level and 19.7% above average among those surveyed), indicating that the surveyed population otherwise closely resembles the overall builder population.

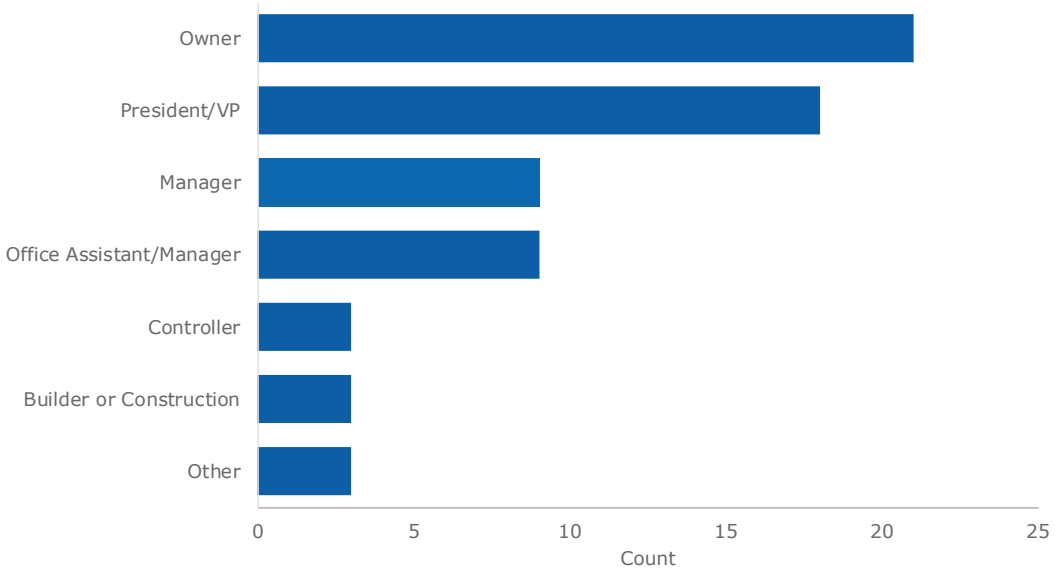
Table 4. Surveyed Builders Compared to Population

	Population	Surveyed
Number of builders	188	66
Number of homes built	2,865	534
Average number of homes built per builder	15.2	8.2
Maximum number of homes built	577	76
Average Envelope Tier	19.4%	19.7%
Percent building 1 or 2 homes	45%	48%
Percent building 50 or more homes	5%	1%

Most of the builders the evaluation team spoke with held executive positions in their companies. As shown in Figure 3-1, some respondents held an office assistant or office manager position. Regardless of position, the respondents were

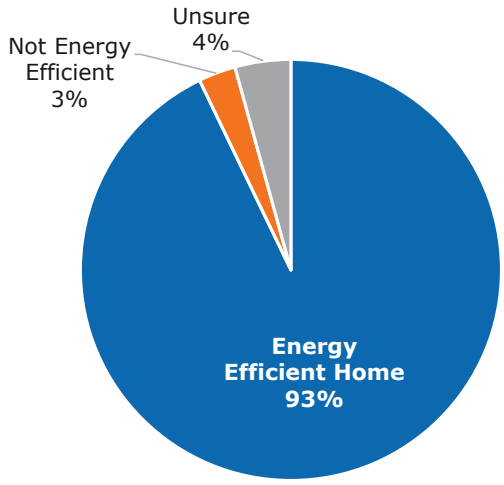
knowledgeable about the product, and usually completed the majority of the product paperwork.

Figure 3-1. Builder Respondent Job Role



The evaluation team did not discuss product awareness with the homeowner population, but we did ask whether homeowners understood that their new homes were efficient. As shown in Figure 3-2, 93% of homeowners did understand they were living in energy-efficient homes, with just five total respondents indicating they did not believe their home was energy-efficient or that they were unsure.

Figure 3-2. Homeowner Belief that Their Home is Energy-Efficient

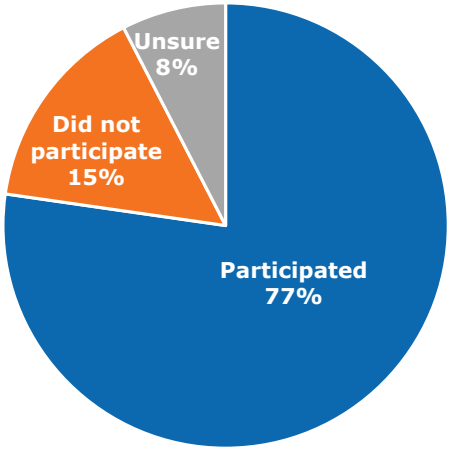


PRODUCT AWARENESS

Awareness of the Efficient New Home Construction Product was high among builders, with most having participated in previous years. Because homeowner awareness of the product is not necessary for participation in the product, the evaluation team asked instead about how homeowners became aware of the homes they purchased. Responses to questions about builder and homeowner awareness are detailed further in this section.

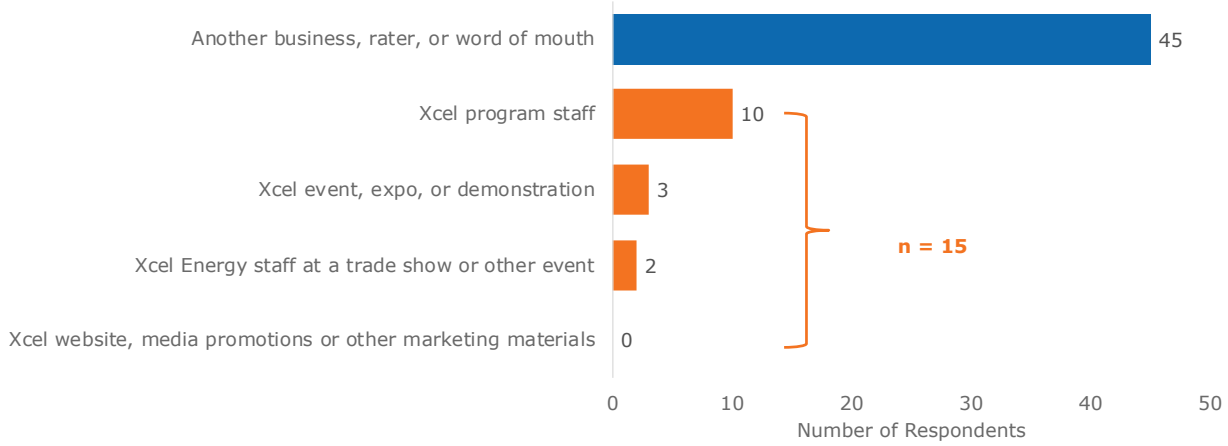
As shown in Figure 3-3, 77% of builders participated in the product prior to 2018. 15% of builders surveyed were new participants and had not participated prior to 2018. This indicates that the product is well-known in the Minnesota residential construction market and that many builders use the product year after year.

Figure 3-3. Builder Product Participation Prior to 2018



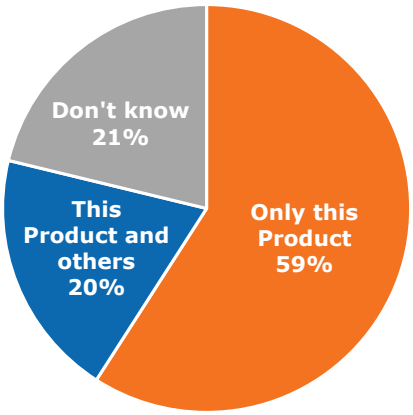
While awareness of the product is high among builders, that awareness more often comes from word-of-mouth and conversations with other builders than it does directly from Xcel Energy efforts. As shown in Figure 3-4, 45 builders became aware of the rebates through word-of-mouth, while 15 became aware of them through any Xcel Energy efforts, highlighted in orange.

Figure 3-4. Builder Rebate Awareness Source



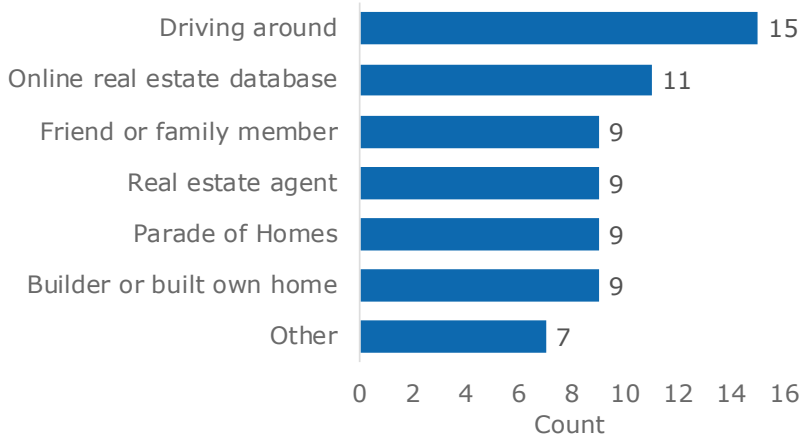
While builders tend to participate in the Efficient New Home Construction Product year after year, they are unlikely to participate in other Xcel Energy products. As shown in Figure 3-5, 59% of surveyed builders had only participated in this product, and just 20% were certain they had participated in others. This suggests that marketing efforts for this product should assume that builders are not experienced with other Xcel Energy products, unless the product formalizes crossover with other products in the future.

Figure 3-5. Builder Participation in Other Energy Efficiency Products



The evaluation team asked homeowners how they became aware of the homes they ultimately purchased and moved into. Figure 3-6 shows that in many cases, homeowners found their new homes by driving around desirable neighborhoods. While this was the most common source of awareness, overall awareness was distributed across a variety of sources, including online real estate databases, word-of-mouth, real estate agents, Parade of Homes, and builders.

Figure 3-6. Homeowner Home Awareness Source

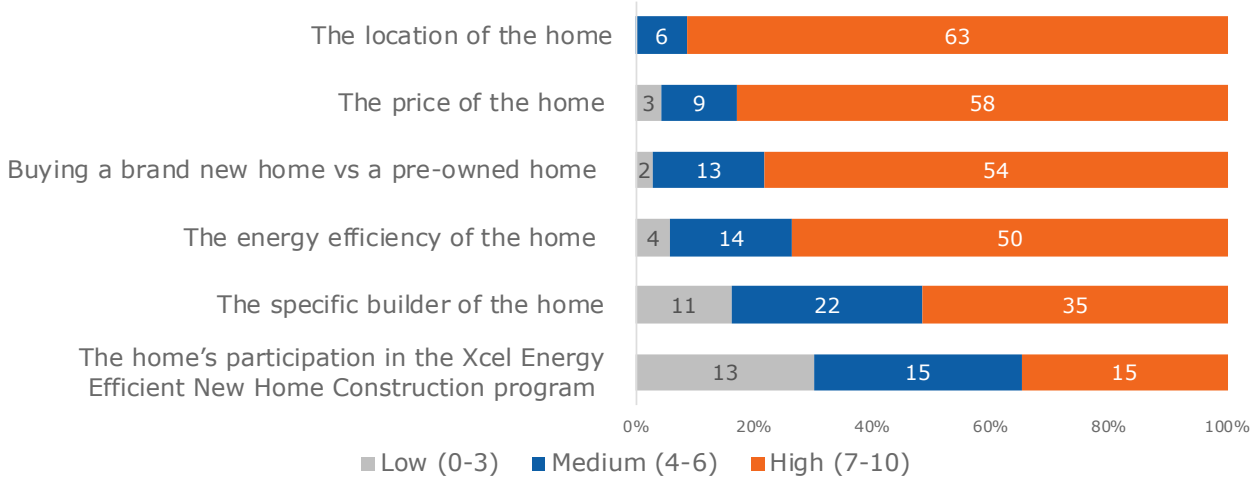


NEW HOME FEATURES

The evaluation team spoke with homeowners about what they were looking for in their home purchases and how they decided to purchase the home. This section details that decision process.

Overall, the most important consideration when purchasing a new home was the home's location. Figure 3-7 highlights that in addition to qualities such as location and price, however, many homeowners rated the energy efficiency of their new home as highly important. In contrast, just over one-third of homeowners rated participation in the Efficient New Home Construction Product at or above 7 out of 10. This indicates that making a stronger connection for homeowners between participation in the product and the energy efficiency of the home may increase overall satisfaction with Xcel Energy.

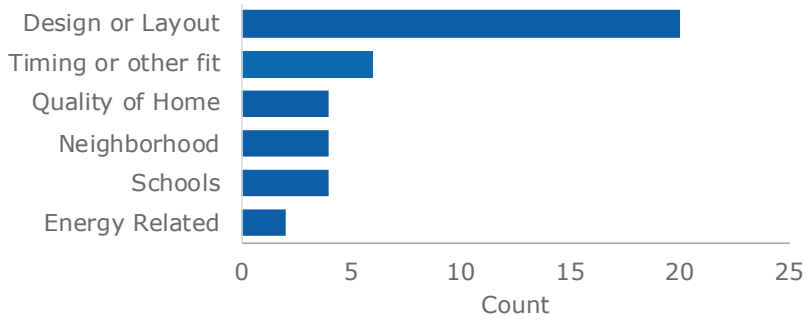
Figure 3-7. Importance of New Home Characteristics



EMI CONSULTING

In addition to the considerations noted in Figure 3-7, homeowners had the opportunity to provide more specific reasons for purchasing their particular home. These reasons are summarized in Figure 3-8. Many of these homeowner-provided responses echo considerations discussed above, further highlighting the importance of home location (neighborhood and schools). Additionally, some homeowners specifically had reasons related to the energy use or efficiency in their new homes. As seen in both Figure 3-7 and Figure 3-8, while energy efficiency may not be the most important factor for new homebuyers, it still plays an important part in their decision-making process.

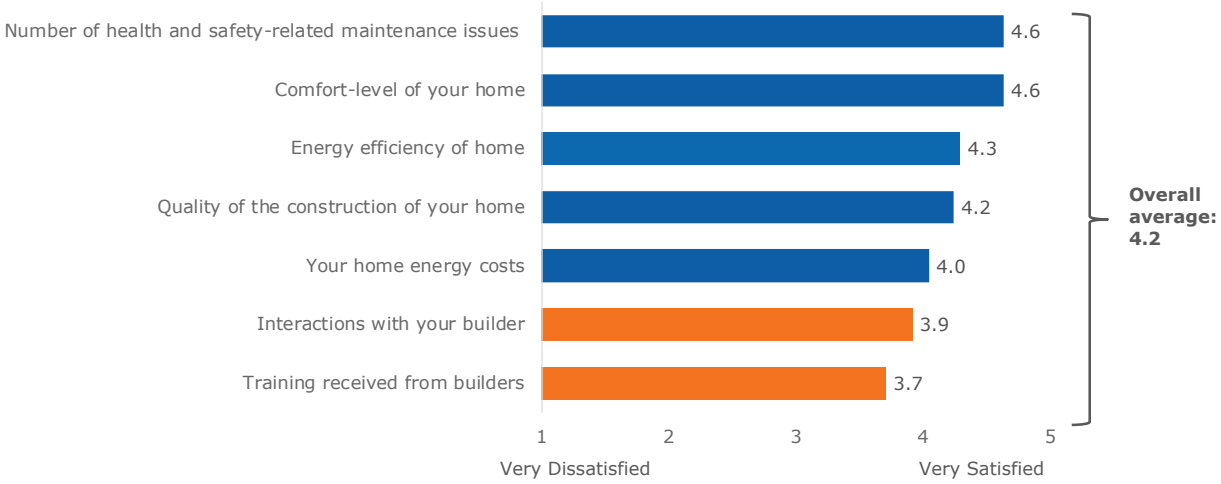
Figure 3-8. Homeowner-Specified Considerations



SATISFACTION

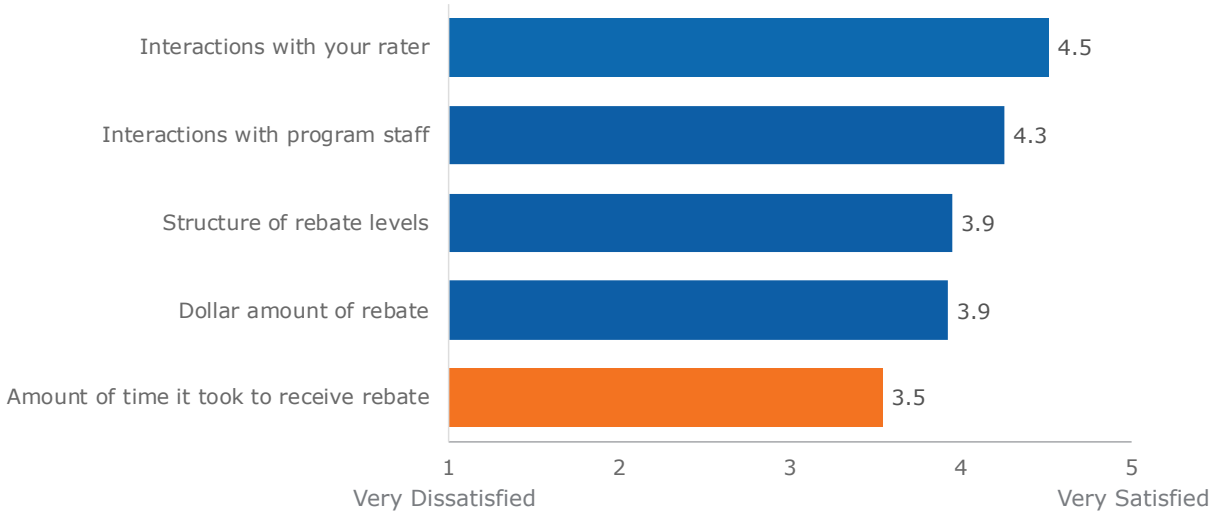
Overall, builders were satisfied with their experiences with the product, and homeowners were satisfied with participating homes and their experiences with builders. The high scores in Figure 3-9 highlight overall homeowner satisfaction, with an average satisfaction across all elements of 4.2 out of 5. While homeowners were not dissatisfied with any aspect of the product, their satisfaction with builders, highlighted in orange, was lower than satisfaction with other elements. If Xcel Energy provided support to builders in training homeowners on energy-efficient equipment, it is possible that these scores would increase.

Figure 3-9. Homeowner Satisfaction with Product Elements



Builders were also satisfied with overall product experiences. As shown in Figure 3-10, builders were most satisfied with their interactions with raters and program staff, while elements related to rebates were rated lower. The amount of time to receive the rebate, highlighted in orange, was rated lower than all other elements, with some builders reporting they had waited multiple months without an update about the status of their rebates.

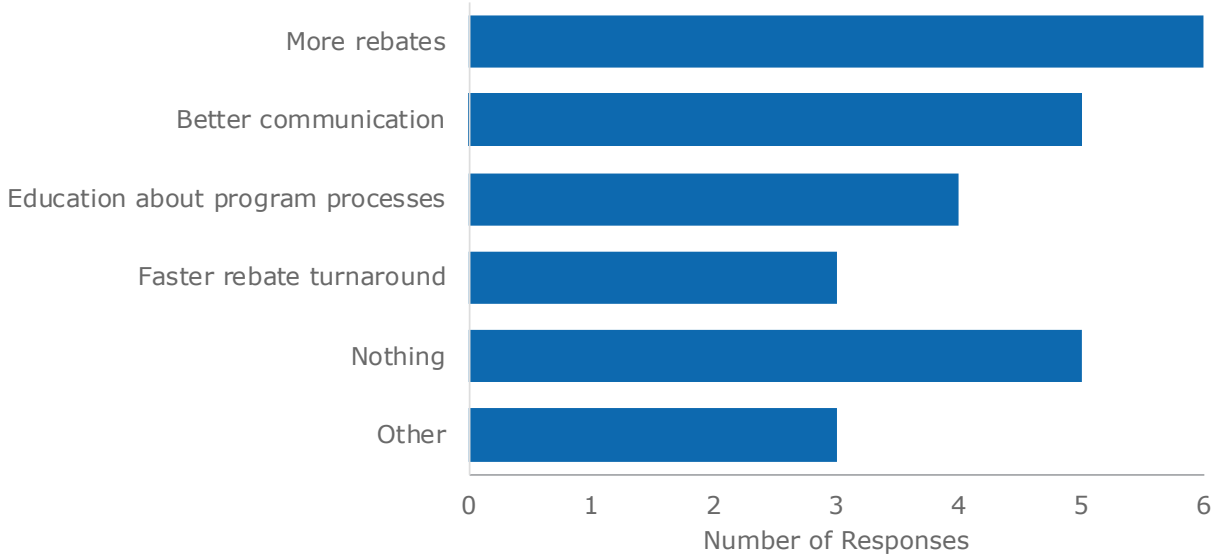
Figure 3-10. Builder Satisfaction with Product Elements



Despite rating it lowest of all product elements, builders generally did not cite rebate turnaround as an area for improvement. As shown in Figure 3-11, just three builders suggested rebates could be turned around more quickly. More builders suggested higher rebate amounts, better communication, and better education about program processes as areas where the product could be improved. This indicates that while some builders do want a faster turnaround period, in many

cases, they would place a higher value on improved communication regarding the status of their rebate and other administrative processes.

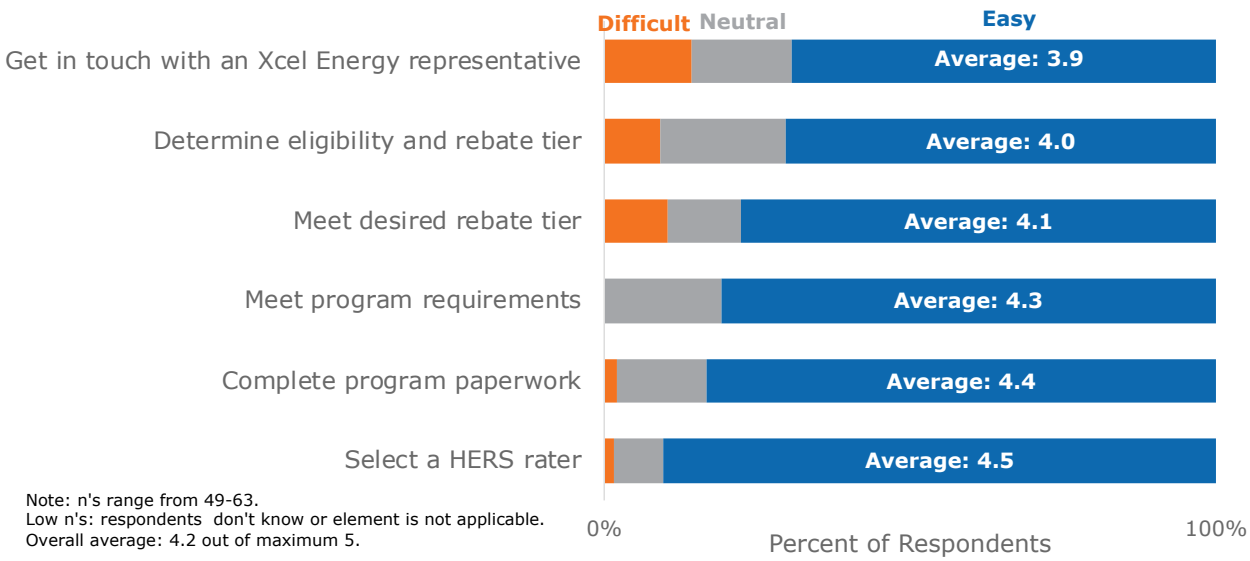
Figure 3-11. Areas for Product Improvement Mentioned by Builders



PROGRAM PROCESSES AND REBATES

The evaluation team discussed program processes and rebate structures with builders at a high level during the survey, then went into further detail about these topics during the follow-up interviews. Overall, while builders are satisfied with product experiences, they expressed some confusion surrounding some of the processes, as well as difficulties contacting Xcel Energy representatives. Figure 3-12 highlights how builders rated the difficulty of various tasks associated with the product.

Figure 3-12. Difficulty of Product Elements



Note: n's range from 49-63.
Low n's: respondents don't know or element is not applicable.
Overall average: 4.2 out of maximum 5.

In survey follow-up interviews, builders reported that they would benefit from more contact with Xcel Energy representatives about how the program works and how rebate tiers work:

> *"It would be helpful to have more contact with Xcel Energy representatives to learn about the program, scoring levels, and have a contact when there are issues."*

This reflects not only the challenges some builders cited in getting in touch with Xcel Energy representatives, but also in determining eligibility and rebate tiers. While some of the builders who were confused about incentive structures were the same ones who reported it was challenging to get in touch with Xcel Energy representatives, others reported that incentive structures had not thoroughly been explained to them, but did not mention difficulties contacting Xcel Energy:

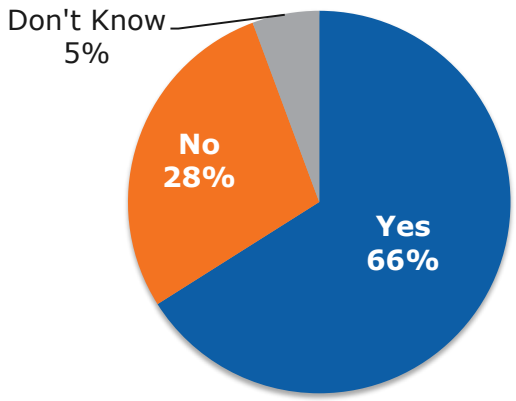
> *"I don't know what score we attained if we get a bigger rebate. Our homes do pass and do score well, but I don't know if we score better we get more money back, or if you just attain a certain level, you get x amount."*

Because builders do not always understand how to reach higher rebate tiers, some of them are not motivated to build more efficient homes. Instead, they build homes as efficiently as they believe they can and appreciate any rebates they receive for that home. Thus, while the product does motivate builders to build efficiently, improving communication about how to reach higher incentive tiers may motivate builders to increase their level of participation.

In addition to confusion about rebate and incentive tiers, builder surveys and follow-up interviews indicated there is some confusion surrounding availability of

and access to prescriptive rebates currently offered through the product. Survey responses indicated that 66% of builders were interested in additional prescriptive rebates (Figure 3-13). However, builders who were asked about prescriptive rebates during follow-up interviews reported they did not make decisions about equipment eligible for prescriptive rebates and, in some cases, were not aware they are eligible to apply for any prescriptive rebates through the Efficient New Home Construction Product.

Figure 3-13. Builder Interest in Additional Prescriptive Rebates



All builders with whom the evaluation team conducted follow-up interviews reported that homeowners receive an allowance for home appliances and then work with showrooms to choose specific models:

> *"We give homebuyers an allowance, but don't influence their choices at all. That all goes through the appliance store."*

While builders may have conversations with home buyers about energy efficiency, they ultimately do not see themselves as decision-makers for appliances like clothes washers and refrigerators; they are more likely to make decisions about space and water heating and cooling appliances. In one case, a builder was not only unaware of the prescriptive rebates available through the product, but was certain that this type of rebate was unavailable:

> *"We only installed washers for our homebuyers in about 3 of 70 homes last year, and we are not allowed to apply for rebates for those."*

While the evaluation team did not conduct follow-up interviews with all surveyed builders, all of those we spoke to had limited knowledge of available prescriptive rebates. Additionally, builders did not have influence over the specific appliance types eligible for additional prescriptive rebates, and did not consider these decisions to be part of their role in the home building process. This may indicate that if the product retains prescriptive rebates in the future, they should be

marketed in a way that makes them accessible to homeowners, builders, and showrooms that may be involved in appliance purchase decisions.

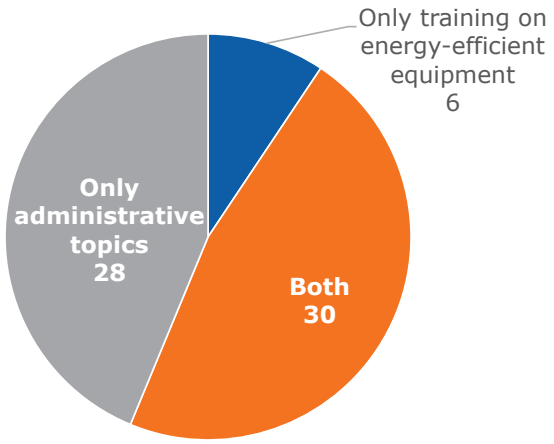
Overall, while builders are satisfied with the rebates they receive through the product, they also expressed some confusion with certain elements. Builders indicated that this confusion likely could be relieved with additional communication or education about processes and expectations for working with the product.

3.4 CUSTOMER, UTILITY, AND BUILDER LINK

Because homeowners and the utility do not need to interact with one another in order for the program to work successfully, the evaluation team focused on understanding what is important to new homebuyers and how the utility might help meet those needs. This perspective is relatively unique among utilities that offer residential new construction programs. Just one peer utility reported any interaction with homeowners, and these interactions were administered through a separate, homeowner-facing program in which homeowners receive direct mailings and can receive $500 rebates for building efficient new homes.

To understand potential channels through which to reach homeowners, the evaluation team asked homeowners and builders whether they interacted with one another over the course of the building process, and what those interactions involved. 66 of the 70 surveyed homeowners reported they interacted with their builders, while 49 of 66 builders reported interactions with homeowners. As shown in Figure 3-14, more than half of homeowners who interacted with their builders received training on energy-efficient equipment. Of these, most also interacted with builders on administrative topics like schedules.

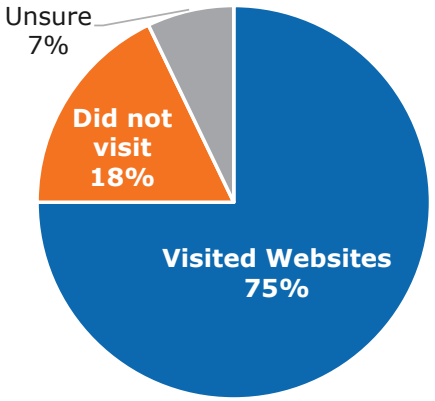
Figure 3-14. Kind of Interaction with Builders



In addition to asking homeowners about the kinds of interactions they had with builders, the evaluation team asked those who had attended a Parade of Homes whether they had interacted with the Parade of Homes website. 28 of the 70

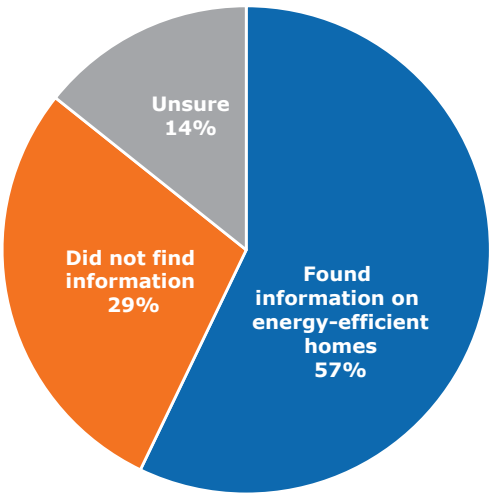
surveyed homeowners reported they had attended a Parade of Homes, and as shown in Figure 3-15, 75% of those reported visiting the Parade of Homes website after the fact.

Figure 3-15. Homeowners Visiting Parade of Homes Website after Event



To understand whether the Parade of Homes had encouraged homeowners to purchase energy-efficient homes, the evaluation team asked those homeowners who had visited the website whether they found any information on energy-efficient homes. 57% of homeowners recalled finding information about energy-efficient homes (Figure 3-16). While the 29% of respondents claimed they did not find information about energy-efficient homes, this does not necessarily mean they were unable to do so. Rather, they may have seen this information but not remembered doing so.

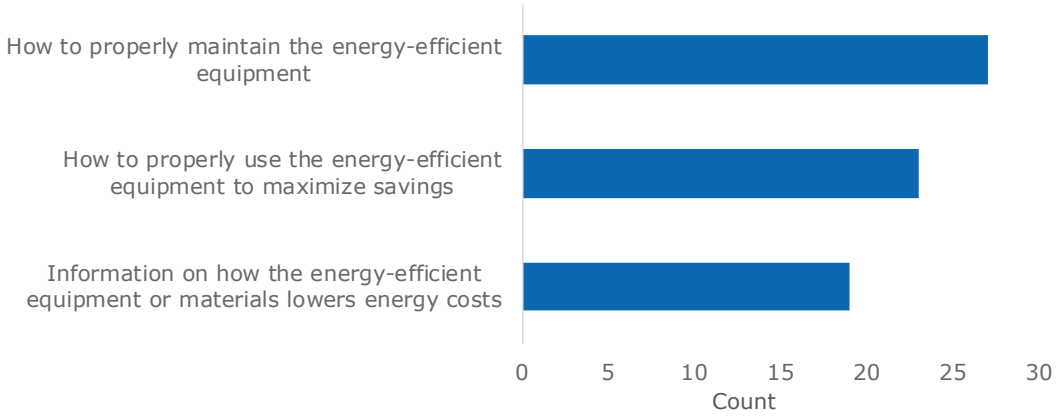
Figure 3-16. Parade of Homes Website Visitors Finding Information on Efficiency



To understand interactions between builders and homeowners after purchasing the energy-efficient home, the evaluation team asked both builders and homeowners

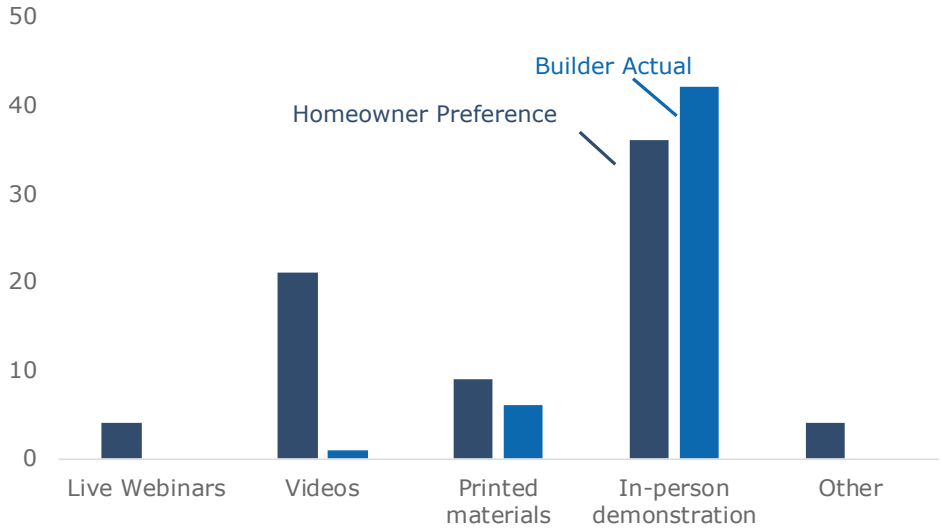
about training they either delivered or received. Homeowners who received training on energy-efficient equipment did so primarily through in-person demonstrations regarding how to properly maintain and use energy-efficient equipment, as well as information on how that equipment lowers energy costs. Some survey participants received training in more than one of these areas. Figure 3-17 shows the distribution of the kinds of training homeowners received.

Figure 3-17. Types of Training Homeowners Received



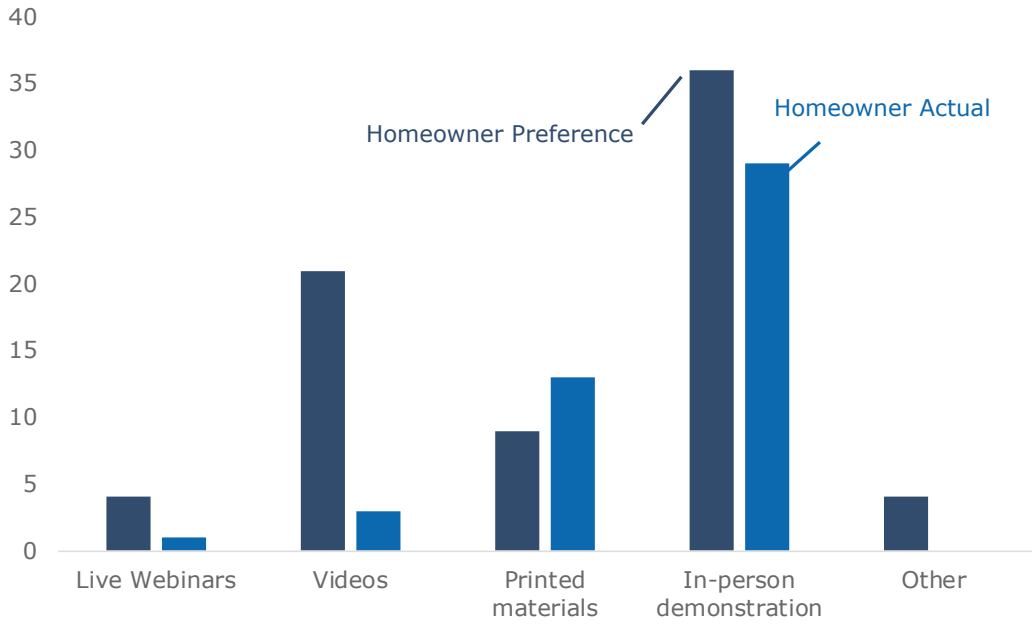
As shown in Figure 3-18, homeowner preferences for training method only partially align with the ways that builders are currently providing that training. Homeowners prefer in-person demonstrations over all other training methods, and builders are most likely to provide this kind of training. However, homeowners reported that video trainings would be second-most effective. This is a method that only one builder reported using to help train their homebuyers. While these two methods of training delivery far outperformed others, some homeowners reported that live webinars would be a useful source for learning about their new homes as well.

Figure 3-18. Builder Training Delivery & Homeowner Preference



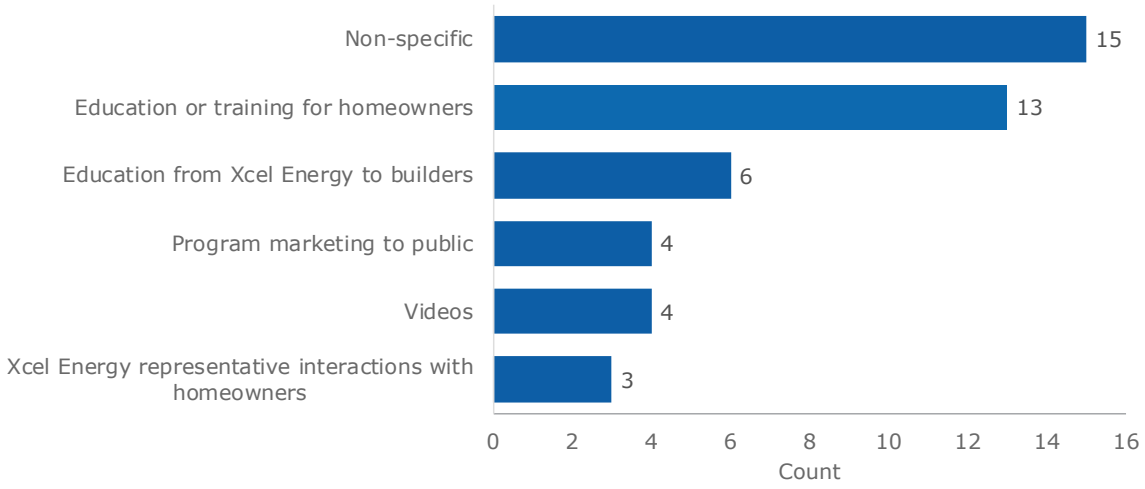
A different way to understand how homeowners received training on the energy-efficient equipment in their new homes is to compare the training they reported receiving with the training they would have liked to receive. The trends shown in Figure 3-19 highlight the divergence between the number of homeowners who reported they would have liked to receive training through videos and those who reported they did receive training through videos. Homeowners reported they wanted more of each type of training except for printed materials. While not conclusive, this may indicate that homeowners are receiving more printed materials than needed, and that they would like to see more demonstrations, videos, and webinars.

Figure 3-19. Homeowner Training Preference and Actual



The evaluation team also spoke with participating builders about how Xcel Energy could support them in their interactions with the product. As Figure 3-20 shows, builders who articulated how Xcel Energy could help them most commonly reported that education for homeowners would be beneficial. Education for builders was the second-most commonly requested specific form of support. This indicates that there is interest among builders not only for additional support in teaching homeowners about energy-efficient equipment, but also interest in receiving additional support and education for themselves as efficient homebuilding technologies and requirements for product participation change. Of the peer utilities the evaluation team spoke with, just one had any formalized interaction with homeowners, administrated under a different program and primarily through marketing materials. Were Xcel Energy to add additional support for homeowners, the model would be new and innovative. Based on high interest from builders for additional support in educating homeowners, such an addition to the product, if designed correctly, could prove increase builder and homeowner satisfaction with the product.

Figure 3-20. Support Builders Want from Xcel Energy



3.5 POTENTIAL NEW OFFERINGS

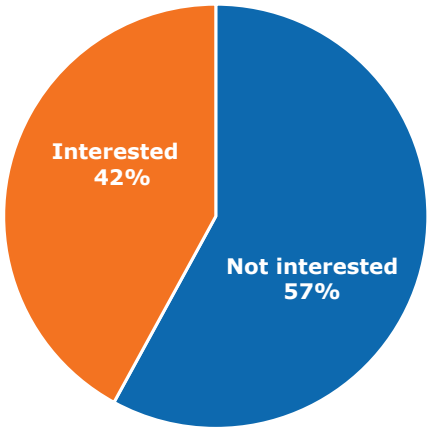
One objective of the MN Efficient New Home Construction Product process evaluation was to identify opportunities for the product to develop and potentially expand its offerings. This section details homeowner and builder feedback surrounding these potential new offerings, including crossover with existing Xcel Energy products, integration of smart home or premium electric technology, and use of alternate fuel types. Overall, interest in expanding product offerings is high, with both builders and homeowners expressing interest in various options the evaluation team asked about.

HOMEOWNERS

Though they are the end-users of the energy-efficient new homes, homeowners do not need to interact with the utility in order to benefit from the product. As such, though this group of individuals understood for the most part that they were in energy-efficient homes, they were not necessarily aware of the rebates received through the product.

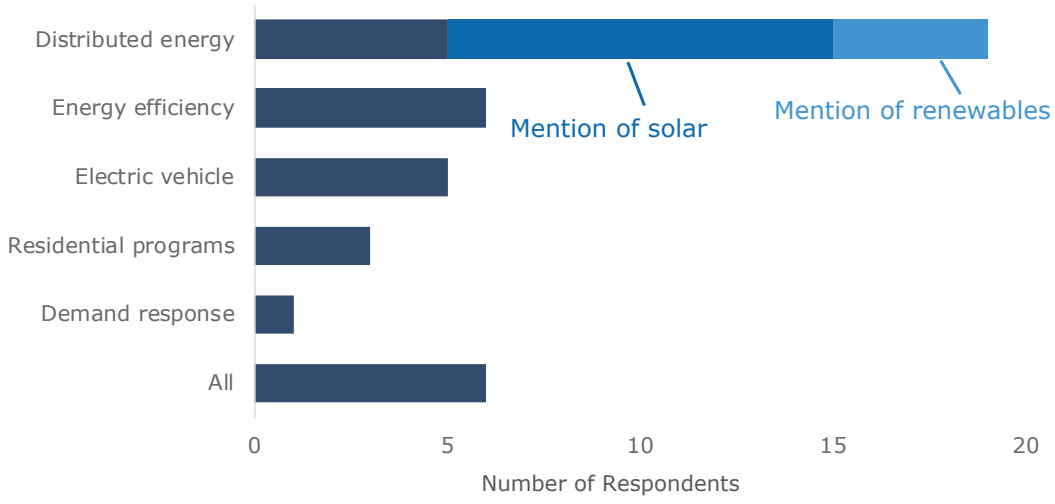
The evaluation team asked homeowners whether they were interested in learning more about other Xcel Energy residential products. As shown in Figure 3-21, 42% of homeowners surveyed reported they were interested in information about energy efficiency, electric vehicles, renewable energy, and/or distributed energy programs.

Figure 3-21. Homeowner Interest in Other Xcel Energy Products



When asked to specify which programs they were interested in receiving additional information about, homeowners gave a wide variety of responses, shown in Figure 3-22. Distributed energy programs were most interesting to homeowners, solar programs in particular. While the question wording did include distributed energy as an example of a residential product customers might be interested in, it did not include solar. Thus, all responses specifically mentioning solar were unprompted, indicating that interest in opportunities for crossover with solar programs in particular may be high. Interest in energy efficiency products was next most interesting after distributed energy. These products were much less interesting to homeowners, however, with just over one-third the number of respondents interested in distributed energy also reporting interest in efficiency programs.

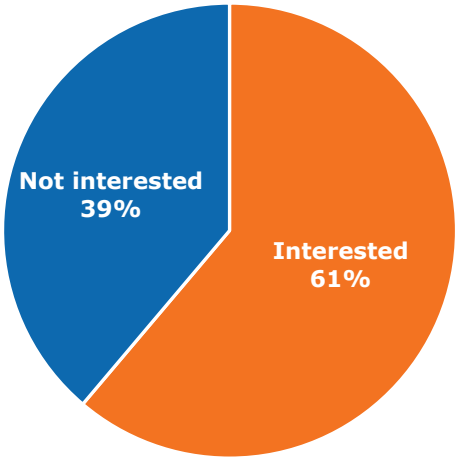
Figure 3-22: Homeowners: Interest in Residential Products



The evaluation team also asked homeowners whether they would have been interested in exploring premium electric technologies such as geothermal heating and cooling, heat pump water heaters, triple-paned windows or advanced wall

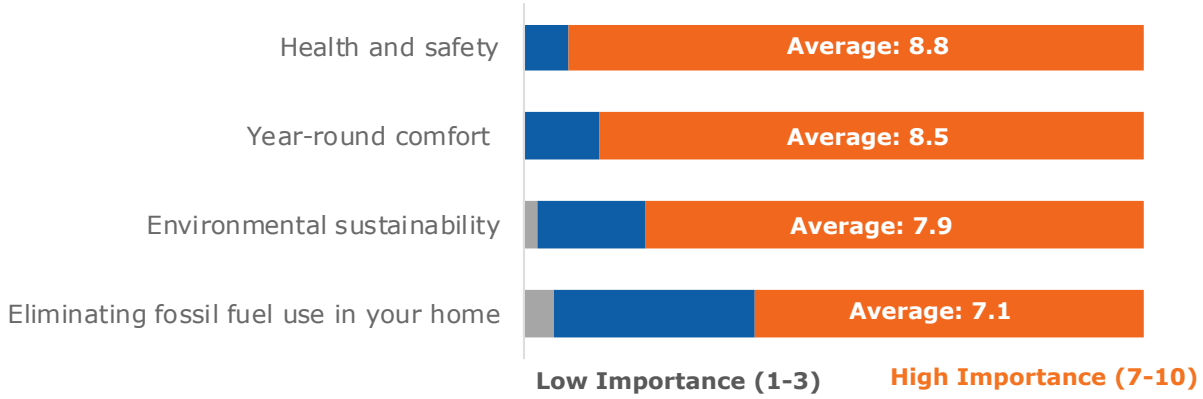
insulation assemblies prior to building their homes. As shown in Figure 3-23, 61% of homeowners reported they would have been interested in considering these options. Neither the Xcel Energy product nor peer utility products integrate premium electric technologies directly into their programs at this time. As will be detailed in the following subsection, builder interest in increased electrification was lower than all other possible program offerings. To help bridge this gap, Xcel Energy may consider helping builders understand that homeowners are interested in premium electric technologies and make it easier for them to install it in new homes.

Figure 3-23. Homeowner Interest in Premium Electric Technologies



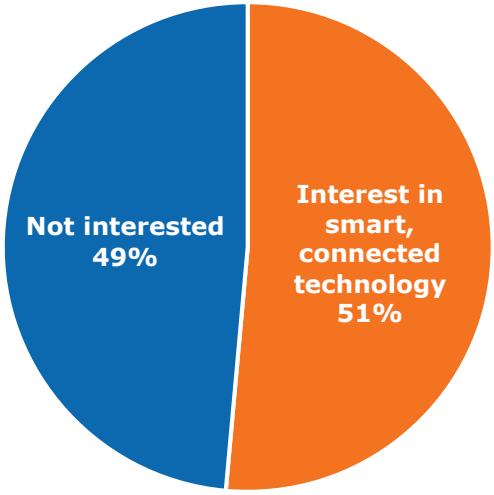
As the cost of premium electric technologies remains high, the evaluation team asked homeowners to consider what would be most important for them in deciding to purchase this sort of equipment. As shown in Figure 3-24, health and safety concerns rose to the top. While this result aligns with results from previous evaluations, environmental sustainability is relatively more important than previously known. This may be a result of this sample of homeowners intentionally purchasing efficient homes, and possibly being more environmentally-conscious than other populations. It indicates, however, that environmental sustainability may be an effective selling point for homeowners wishing to participate in the product.

Figure 3-24. Homeowner Considerations in Purchasing Premium Electric Technology



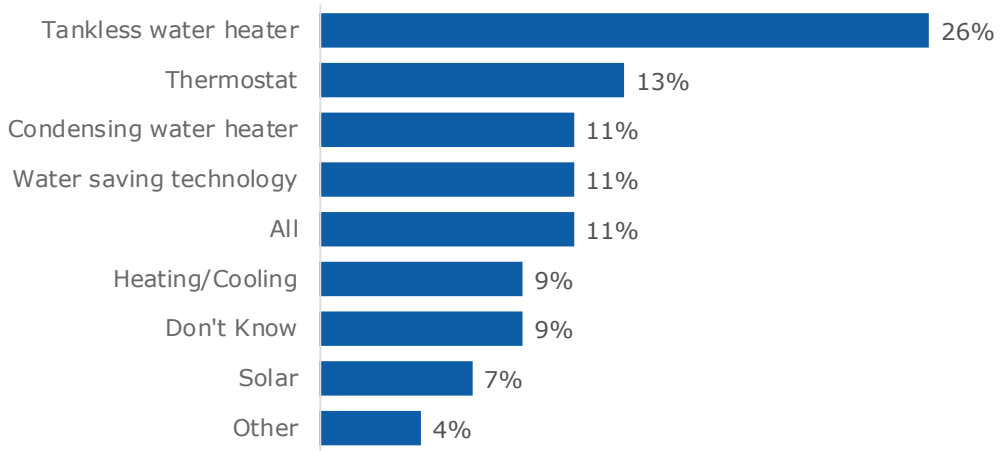
The evaluation team also asked homeowners whether they were interested in smart technologies. While interest in these technologies was slightly lower than interest in premium electric technologies, more than half of homeowners reported interest in these technologies as well (Figure 3-25).

Figure 3-25. Homeowner Interest in Smart, Connected Technology



Like with other residential products, the evaluation team asked homeowners who were interested in smart, connected technologies which technologies they were interested in learning about. These are shown below in Figure 3-26. Tankless water heaters were much more interesting to homeowners than other types discussed. The survey instrument specifically mentioned tankless water heaters as an example of technology type, which may have prompted some respondents to select this response.

Figure 3-26. Homeowner Interest in Smart Technology Type



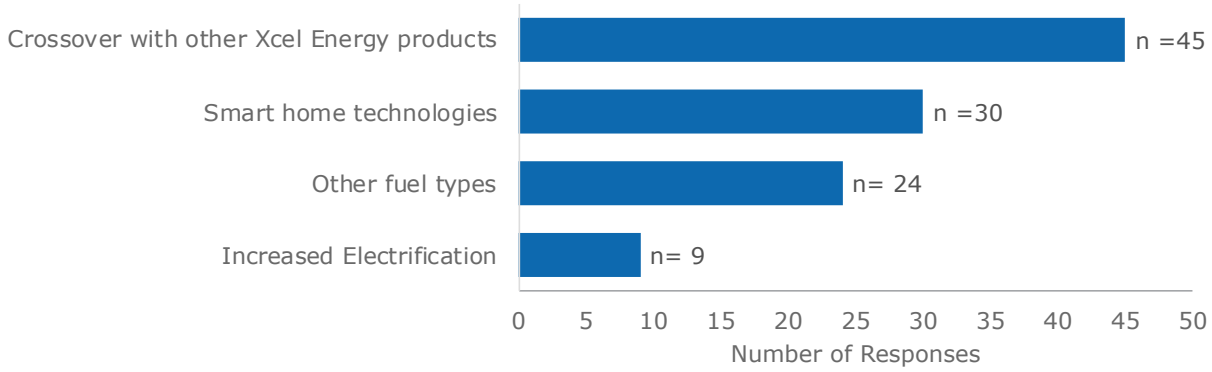
Note: Question text included condensing and tankless water heaters as well as increased electrification as examples of smart technologies.

BUILDERS

In addition to asking homeowners about the kinds of information they had received from their builders and what they were interested in learning more about, the evaluation team asked builders about potential additions to the program they would like to see. This section discusses builder preferences and compares them to homeowner preferences discussed above.

Overall, builders were most interested in crossover with other Xcel Energy energy efficiency products. As shown in Figure 3-27, 45 of the 66 builders surveyed expressed interest in crossover with other Xcel Energy products. Notably, where 61% of homeowners reported they were interested in premium electric technologies, builders ranked this lowest, with just nine expressing interest in incorporating increased electrification into the product.

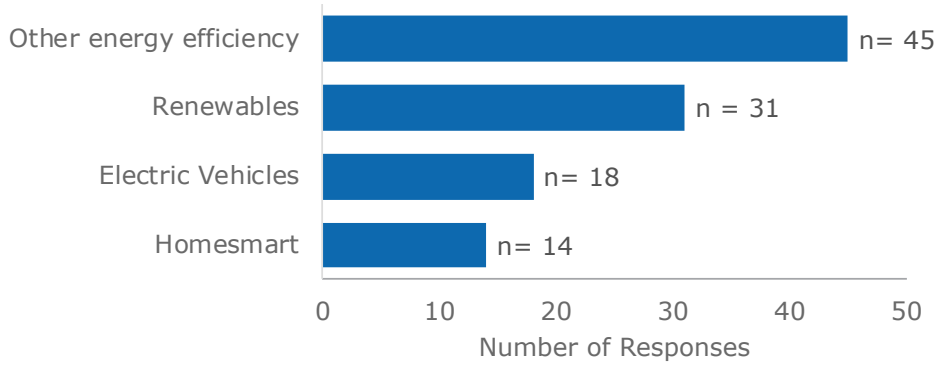
Figure 3-27. Builder Preferences for New Product Offerings



To better understand which Xcel Energy products builders might be interested in, the evaluation team asked builders to specify. As shown in Figure 3-28, other energy efficiency products were most interesting, but builders expressed interest in

crossover with all products discussed. The evaluation team did not explicitly discuss this question with homeowners, as the utility does not classify them as participants in this product and, as a result, they are not necessarily aware of available Xcel Energy products.

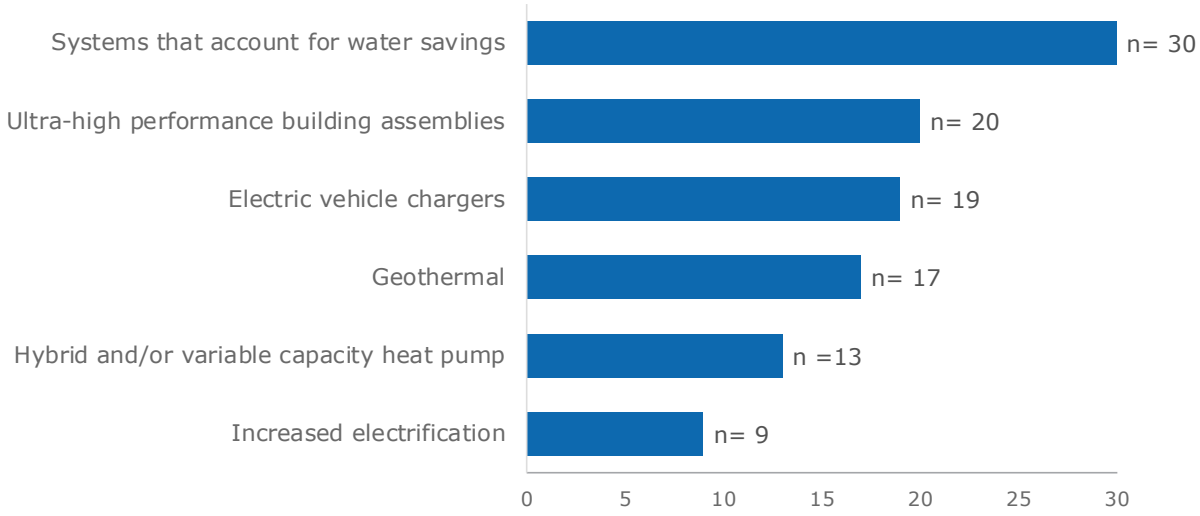
Figure 3-28. Builder Interest in Xcel Energy Products



While the Efficient New Home Construction Product relies primarily on builders constructing efficient homes at an envelope level, there is potential for integrating new technologies into these homes as well to make homes even more efficient. The evaluation team asked builders whether they saw potential for integrating each of these technologies into the product. The responses, shown in Figure 3-29, indicate that builders are interested in integrating some of these technologies into their new homes. Systems accounting for water savings rose to the top among surveyed builders, which aligns with homeowner interest in tankless water heaters discussed in the previous section.

The second-most interesting feature to builders was ultra-high performance building assemblies. This is a current program feature of one of the peer interviewed utilities, and a feature that two others are also considering. The utility that already offers this as a part of their program added an additional incentive tier for energy neutral homes as part of a reevaluation of baselines and incentives in 2017. While the standards to reach that incentive level are much higher than the other incentive tiers, that utility offers more than double the incentives for builders who do build energy neutral homes. At the time of interviewing, no homes had yet achieved that incentive level. Other peer utilities that are considering adding high-performance building assemblies are currently evaluating interest in such a feature.

Figure 3-29. Builder Interest in New Technology Integration



4. CONCLUSIONS AND RECOMMENDATIONS

This chapter presents the research team's key findings and associated recommendations regarding the Xcel Energy Efficient New Home Construction Product in Minnesota. All recommendations are based on key findings from our evaluation research and are designed to reflect the context of future product years, acknowledging expected changes in the market and planned product changes.

Overall, the evaluation team found that the Efficient New Home Construction Product is operating smoothly, with high levels of satisfaction among participating homeowners and builders. There is corresponding evidence from this evaluation that the product has had a positive net impact on energy efficiency within the Xcel Energy Minnesota service area, and that small changes to product processes may further increase this impact. Specific findings and recommendations follow.

- **Key Finding 1: The product shows influence in the market, with a retrospective NTGR of 0.79 for kWh.** Key drivers of product influence include the dollar amount of the rebate, previous experience with energy efficient equipment, and previous experience with the product. Builders suggested the product could be improved through additional rebates, better communication, and more information on program processes.
    - **Recommendation 1a: If the product design remains the same, the evaluation team recommends using a prospective NTGR of 0.79 for kWh. If the product incorporates the evaluation recommendations, the evaluation team estimates a prospective NTGR of .82.** To bring the prospective ratio closer to 1, the evaluation team recommends diluting free-riders by increasing product participation. This may be achieved by clarifying program processes and requirements through improved product materials and discussions, improving communication between product representatives and builders, and raising the rebate amount.
- **Key Finding 2: Builders and homeowners could benefit from additional support and training from Xcel Energy.** Homeowners reported they would like more training on their energy-efficient equipment and had lower satisfaction with builders than other aspects of the product. Builders reported they would appreciate additional support from Xcel Energy to train homeowners.
    - **Recommendation 2a. Create and provide training videos for both builders and homeowners.** Supporting builders in training homeowners may increase homeowner satisfaction with their builders as well as efficient use of their equipment. The evaluation team recommends training builders on best practices for interacting with homeowners and for providing in-person trainings to homeowners. For homeowners, the evaluation team recommends providing training on maintaining and using equipment to maximize savings and education on how energy-efficient equipment lowers energy costs.

- **Key Finding 3: Some builders were confused about the incentive structures; some did not understand how to reach higher rebate tiers and some were not aware of the existence of prescriptive rebates.** Though builders appreciated the rebates they received, they did not feel they had sufficient information to understand what to do to reach higher rebate tiers. Additionally, some builders, including some who had received them, were unaware of the existence of prescriptive rebates and said that they were not involved in decision making about appliances.
    - **Recommendation 3: Create program process documents to help clarify program processes, including rebate tier levels and prescriptive rebates.** Include information on sharing with homeowners the benefits of energy-efficient appliances rebated through the program for instances where the homeowner is the decision-maker about appliances.
- **Key Finding 4: Homeowners and builders both expressed interest in opportunities for smart homes and alternative fuel types, though builders were most interested in crossover with other Xcel Energy products.** Homeowners were more interested in new technologies and alternative fuel types than builders, though some builders also expressed interest in these. Builders saw more opportunity for crossover with other Xcel Energy products than other potential changes to the product. While it was not most important for either group, the environment was a factor for both builders and homeowners.
    - **Recommendation 4: Provide information for builders on premium electric options and smart technology that is easily shared with homeowners, and research opportunities for crossover with other Xcel Energy products.** Providing information to builders that may be interesting to homeowners could increase the adoption of premium electric and smart technology from homeowners with a low barrier to entry. Researching ways to work with other Xcel Energy products may increase portfolio-level savings. As both homeowners and builders named the environment as a reason for adopting energy-efficient equipment, using this when marketing new technologies and/or researching crossover with other products may prove effective.

XCEL ENERGY

MN Energy Efficient New Home Product Impact & Process Evaluation

APPENDICES

February 21, 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
83 Columbia St. Suite 400
Seattle, WA 98104

APPENDIX A: EVALUATION PLANNING DOCUMENTS

A.1 INTRODUCTION

To support the process and impact evaluation of the 2018 Xcel Energy efficiency products, the EMI Consulting evaluation team will be conducting a process and impact evaluation of the Xcel Energy MN Efficient New Home Construction Product. This memo provides an updated plan for the 2019 Xcel Energy MN Efficient New Home Construction Product evaluation based on staff feedback during the evaluation kick-off meetings and staff interview findings. This evaluation plan includes the following sections:

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

PRODUCT OVERVIEW

The Minnesota Efficient New Home Construction product provides incentives to encourage home builders to construct energy efficient residential homes. Builders of single-family, duplex, triplex, fourplex, town homes, and condo units with individual heating systems and residential meters may participate. Homes that achieve total energy savings of at least 10% better than code are eligible for rebates. Builders as well as HERS raters must be enrolled in the Product in order to participate. The Product's main offerings are:

Builder rebates for gas and electric homes. Homes that achieve energy savings of at least 10% above code may receive rebates.

- Gas and Gas/Electric Combo Homes: Homes must save a minimum of 10% above code and must have positive therm savings. Homes that do not reach the minimum are not eligible for participation. Builders are eligible for each completed new home in the gas service territory.
- Electric-only Homes: Builders receive rebates when the home achieves a minimum 10% total energy savings above code and has positive kWh savings.

Appliance Rebates. ENERGY STAR rated clothes washers and ENERGY STAR rated refrigerators are eligible for rebates in homes successfully participating in either of the above offers.

Rater Incentive. Raters receive an incentive for each eligible home they submit to the product.

Table 1. MN Efficient New Home Construction Savings by Measure, January – December 2018

Envelope Improvement	Units		kW		kWh		Therms		Total Rebate (Gas + Electric)	
	Quantity	% of total	Quantity	% of total	Quantity	% of total	Quantity	% of total	Total Rebate	% of total
Envelope Improvement 10% - 14.99%	785	27%	232.888	20%	618609	21%	64217	18%	$146,900.00	15%
Envelope Improvement 15% - 19.99%	1375	48%	521.528	45%	1314600	45%	162287	47%	$422,655.00	43%
Envelope Improvement 20% - 24.99%	614	21%	318.139	28%	810640	28%	101830	29%	$346,590.00	35%
Envelope Improvement 25% - 29.99%	77	3%	52.075	5%	130504	4%	16971	5%	$52,435.00	5%
Envelope Improvement 30% - 34.99%	7	0%	5.392	0%	11851	0%	1804	1%	$6,310.00	1%
Envelope Improvement 35% & Higher	3	0%	23.756	2%	50529	2%	375	0%	$2,285.00	0%
Totals	**2861**	**100%**	**1153.78**	**100%**	**2936733**	**100%**	**347484.00**	**100%**	**$977,175.00**	**100%**

[a] This is the population of builders receiving rebates between January and December 2018. These numbers are based on aggregated data provided to EMI Consulting in April 2019.

The MN Efficient New Home Construction Product includes builder rebates in three categories: Gas-only or gas/electric combination homes, electric-only homes, and appliance rebates. Envelope improvement rebates start at $100 and reach up to $2,000 depending on total energy savings achieved better than code. The rebates range from $250 to $2,000 for gas-only and gas/electric combo homes. For electric-only homes, rebates are set at $100 for all qualifying homes. The appliance rebates for ENERGY STAR rated washers and dryers in qualifying homes range from $10 to $15. In addition to builders, the MN Efficient New Home Construction Product relies on raters. Each participating builder subcontracts with a rater of its choice, a change from the original Product process where Xcel Energy worked with one rater. Xcel Energy provides a $75 rebate per home per rater.

Currently, the Product is not actively considering modifications to the rebate structure for future cycles.

A.2 EVALUATION OVERVIEW

The 2019 evaluation will consist of a process evaluation and an impact evaluation. The process evaluation will focus on builder and market actor experiences with the Product, while the impact evaluation will focus on estimating a net-to-gross (NTG) ratio. This section presents the objectives of the two components of the evaluation. It is followed by a more detailed description of the evaluation activities.

PROCESS EVALUATION

The evaluation team discussed process evaluation priorities during the kickoff meeting[1] and staff interviews.[2] During those conversations, several themes emerged, primarily around product staff connections with end users, opportunities to incorporate new technology or practices, and the potential to expand and improve existing Product processes.

- The first topic, **connections with end users**, relates to the Product's current focus on relationships with builders and potential advantages in extending those relationships to homeowners. The evaluation team will focus on understanding the extent to which the Product meets end users' needs in addition to identifying how it might cater to further needs.

- The second topic, **opportunities to incorporate new technology or practices,** relates to how builders can improve efficiency through alternative fuel types and smart connected homes.

- The third topic, **potential for Product expansion and improvement**—reflects positive feedback in previous years while acknowledging the potential for process improvement. As the Product has already recruited the majority of eligible builders, this portion of the evaluation will focus primarily on maintaining those relationships and ensuring that processes are efficient for builders, homeowners, implementers, and Utility staff.

These topics are mapped to the following **objectives of the process evaluation**:

- Connect the link between customers and the utilities, two parties which do not *have* to communicate to make the Product work. Research questions include:
  - How exactly do builders and customers interact?
  - How much of the technology do the customers know to use?
  - Are builders providing training to customers or should the Product work with occupants after their houses are set up to educate them?

[1] Held via telephone on February 25, 2019.
[2] Staff interviews took place in March and April 2019.

    - Identify opportunities related to the uptick in website clicks from the parade and understand how to take advantage of increased web interest.
- Identify whether the Product paperwork is a barrier for Product participation by builders.
- Identify opportunities for the Product to work with alternative fuel types, whether it be geothermal or electric vehicle chargers, hybrid, and/or variable capacity heat pump technology.
- Identify opportunities for smart connected homes, including systems for homes that account for water savings, including condensing water heaters or tankless, and increased electrification.
- Identify whether there is potential future coordination with other Xcel Products and other utility areas.
- Identify opportunities for enhancing the incentive design bucket structure, including where there might be gaps that can be met with prescriptive opportunities similar to the current ENERGY STAR appliance rebates.
- Identify motivations and barriers of homeowners/end-users.

IMPACT EVALUATION

The objective of the impact evaluation of the MN Efficient New Home Construction Product is to develop a net-to-gross (NTG) ratio documenting the extent to which product activities influenced builder design decisions. The evaluation team proposes to use participant self-report surveys to estimate the MN Efficient New Home Construction Product NTG. Additionally, the evaluation team will also conduct a small number of interviews with other influencers, including raters. The evaluation team will determine the specific interviewees from information learned during the participating builders surveys, but will focus on the largest projects from 2018 since these will have the largest impact on the overall NTG ratio. Accordingly, the **objectives of the impact evaluation** include:

- Estimate a NTG ratio documenting the product's influence on builders' (and other influencers') decisions.
- Identify major drivers of free ridership.
- Assess market effects of the MN Efficient New Home Construction Product.

A.3 DATA COLLECTION ACTIVITIES AND SAMPLING PLANS

To meet the above objectives, we will conduct a variety of data collection activities. These are listed in Table 2 and explored more in this section. The evaluation team has already conducted interviews with Xcel Energy staff members (task reference A in Table 2) to help understand specific needs for this evaluation.

For participant research, the evaluation team will conduct phone surveys with participating builders (task reference B), as well as follow-up interviews with any builders who provide conflicting information during the survey research and/or other influencers determined during the participating builders survey (task

reference C). These surveys and interviews will inform prospective and retrospective NTG estimates, as well as research questions around perceptions/awareness, builder decision making, and general Product experiences. Additionally, the evaluation team will conduct phone surveys with homeowners (task reference D) to round out the process research surrounding barriers to participation.

We will also benchmark the product against four to six peer utilities, assessing plans for future product designs and NTG estimates (task reference E). Table 2 outlines each research task and the associated research objectives; details on each data collection activity are provided in the sections that follow. Differing size or scope are marked as "enhanced scope" in the table below.

Table 2. Efficient New Home Construction Research Summary

Task Ref.	Research Task	Sample Size	Enhanced Scope?	Research Objective(s)
A	Staff Interviews	6 (7 staff)		Inform evaluation plan, NTG
B	Participating Builders Surveys (telephone)	70		Perceptions/awareness, builder decision making & barriers, Product experience/satisfaction, NTG
C	Influencer Interviews	10		Perceptions/awareness, builder decision making & barriers, Product experience/satisfaction, NTG
D	Homeowner Surveys	70		Perceptions/awareness, decision making, training, & barriers
E	Peer Utility Benchmarking	4-6 utilities		Best practices, NTG, potential for Product expansion

STAFF INTERVIEWS

In March and April 2019, the evaluation team conducted six interviews with three Xcel Energy staff and four implementer staff to inform this evaluation plan, discuss product goals, and review product processes, challenges, and successes. Those interviewed at Xcel Energy included the current Product Manager, a current Team Lead, and Engineer. Implementer staff included one Trade Ally Account Manager, two Product Staff Members, and one Senior Manager. All interviewees were selected by the Product Manager. These interviews were conducted over the telephone or in person, 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.

B/C. PARTICIPATING BUILDER SURVEYS AND INFLUENCER INTERVIEWS

The evaluation team will use participating builder telephone surveys and interviews to meet both process and impact objectives. These surveys and interviews will focus on the following three topics: perceptions/awareness, builder decision-making and barriers, potential for Product expansion, and NTG impacts.

- Perceptions/Awareness: The evaluation team will assess builder perceptions and awareness of energy efficient technologies to better understand how this may hinder greater Product participation.
- Builder Decision-Making and Barriers: The evaluation team will discuss the motivation behind building energy efficient homes as well as barriers to pursuing efficient designs.
- Product Experience/Satisfaction: The evaluation team will discuss builders' experience with and satisfaction with the Product, including experience with the application process.
- NTG: The team will ask questions on product attribution, or the impact the product had on builders' decision to build high-efficient homes.

Additionally, we will select up to 10 participating builders from the surveys who provide conflicting answers in the net-to-gross battery and conduct in-depth interviews with these builders so that the evaluation team can dive deeper into their decision-making and clarify their free-ridership. If it is determined during the surveys that raters or other influencers would be beneficial to interview, the evaluation team will interview

D. HOMEOWNER SURVEYS

The evaluation team will use homeowner telephone surveys to meet process objectives. These surveys will be conducted over the phone and will focus on the following topics: perceptions/awareness, decision making, training, and barriers.

- Perceptions/Awareness: The evaluation team will assess builder perceptions and awareness of the Product and energy efficient building practices to better understand how this may hinder greater product participation.
- Builder Decision-Making and Barriers: The evaluation team will discuss the motivation behind barriers to pursuing efficient designs.

Homeowners are defined as the end-users living in the energy efficient new home.

F. PEER UTILITY BENCHMARKING

The objective of the peer utility benchmarking task is to understand how residential new construction programs are approaching key issues by comparing the Xcel Energy MN Efficient New Home Construction Product with four to six similar peer utility products. The evaluation team will strive to select a comparable cohort so that Xcel Energy has an "apples-to-apples" comparison, and evaluate the set of circumstances that impact product plans at the peer utilities (including context for the NTG values). The interviews will generally focus on the same discussion topics being explored in the interviews and surveys with Xcel Energy customers and market actors.

We will work with Xcel Energy to identify an appropriate peer cohort of four to six utilities for the benchmarking study, as well as the critical product components to be compared. We will then 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, we will summarize the results of our benchmarking analysis in a summary within the final evaluation report. The summary will include a description of the comparability of each utility, based on the factors identified during the planning task.

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 sections below. To do so, the evaluation team will primarily use participant builder 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)[3] 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 2017-2018 Xcel Energy Product evaluations.

The evaluation team will estimate a retrospective and prospective NTG value. Using multiple sources of information, including surveys with participating builders, the evaluation team will synthesize available data to develop the final NTG ratios to ensure that we provide the most accurate and reliable estimate of NTG.

This section presents the evaluation teams method to estimate retrospective and prospective NTG ratio and concludes by describing how the evaluation team will synthesize data to estimate the NTG ratio for this Product.

RETROSPECTIVE NTG

The evaluation team will estimate a retrospective NTG by examining free ridership, spillover, and market effects. The evaluation team will rely primarily on data collected from participating builders. The evaluation team will then synthesize these results to estimate NTG ratio at the product level. This section describes how the evaluation team will estimate these components of the retrospective NTG ratios.

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. 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.

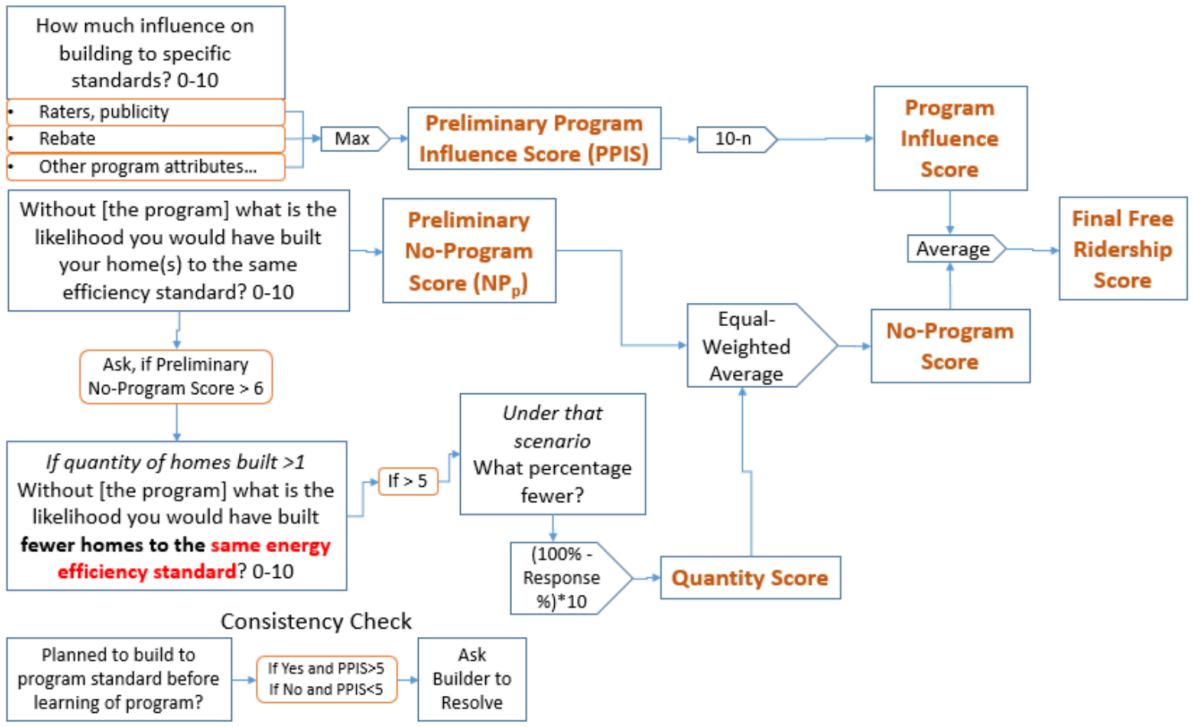
[3] Illinois Energy Efficiency Stakeholder Advisory Group. Illinois Statewide Technical Reference Manual, Version 7.0, Volume 4, Attachment A: IL-NET-TO-GROSS Methodologies, Section 4. September 28, 2018. http://www.ilsag.info/il_trm_version_7.html

To determine free-ridership, the evaluation team will apply the Core Residential Protocol from the Illinois TRM, and write specific questions to assess two free-ridership components:

- A **Product Components Score**, based on the participating builder's perception of the importance of various Product components in their decision to build to specific energy efficiency standards; and
- A **No-Product Score**, based on the participating builder's intention to build homes to the same standard before learning of the product.

When scored, these components assess the likelihood of free-ridership on a scale of 0 to 10, with the two scores averaged and the timing adjustment applied to create a final free-ridership score.

Figure 1. Efficient New Home Construction Free-Ridership Algorithm[4]



Participant Spillover. The spillover metric represents additional savings achieved as a result of product activities, outside of rebated measure savings, by product participating builders. The evaluation team will incorporate two measure attribution scores; the first incorporates the influence the product had on the energy efficiency standards of non-product homes after participating in the product (practice attribution score #1), the second incorporates likely actions taken in absence of product participation (practice attribution score #2). The spillover score, as

[4] IL TRM Version 7, Volume 4, page 73.

calculated below,[5] must be greater than five in order for the additional measure to qualify for spillover. When this criterion is met, the savings are added to product attributable savings.

$$Spillover\ Score = \frac{Practice\ Attribution\ Score_1 + (10 - Practice\ Attribution\ Score_2)}{2}$$

Market Effects. The participating builder interviews will offer important insights into market effects of the Efficient New Home Construction Product. Our interviews with builders will ask about what portion of customers purchase highly-efficient homes, but do not receive an Xcel Energy rebate. These additional energy efficient purchases will be considered as product impacts through the market effects assessment. The prospective NTG (described below) may also provide valuable insights into the remaining savings potential of the residential new construction market.

Refrigerator and clothes washer NTG. The Product provides additional incentives for builders installing ENERGY STAR® refrigerators and clothes washers in participating efficient new homes, however, the evaluation team will not estimate an independent NTG for these measures. The incentives for these measures are very small ($10 for clothes washers and $15 for refrigerators) and savings from these measures represent less than 2% of Product savings. In lieu of an independent NTG for these measures, the evaluation team will include an open-ended question regarding the influence of the Efficient New Home Construction Product on builders to purchase ENERGY STAR® clothes washers and refrigerators for participating homes. The evaluation team will provide a qualitative analysis these responses and include the results in the process findings, if warranted.

PROSPECTIVE NTG

The team will attempt to adjust the retrospective NTG estimate to provide a more accurate forward-looking, or prospective NTG value. We will use input from the staff interviews to inform potential future changes to the Product, and incorporate those into the final NTG estimate. We may also incorporate results from the benchmarking research into prospective NTG values used in other states to inform the estimate.

.

[5] IL TRM Version 7, Volume 4, page 74-75.

APPENDIX B: DATA COLLECTION DOCUMENTS

B.1 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 2017 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.[6] 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 for possible revisions to the evaluation plan

INTERVIEW

SECTION A: INTRODUCTION

[If staff was not included in kick-off meetings:] 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 program operations and delivery. EMI Consulting is sub-contracting with other leading national firms to perform this evaluation- including Evergreen Economics, Rick Ridge and Associates, and Apex Analytics. 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.

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

[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 <PROGRAM NAME>. We are interested in asking you some questions about <PROGRAM NAME> so we can benefit from your knowledge and experience to improve our understanding of the program. I have a set of questions that should take approximately 45 - 60 minutes, depending upon your experiences and involvement with the program. All the information provided is anonymous, we will be weaving it 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]

Any other names this product goes by?

A1. [If needed] First, can you take a moment and explain your role and scope of responsibilities with respect to Energy Efficient New Homes? [IF ALREADY KNOWN, REWORD TO CONFIRM]

A2. [IF NOT KNOWN] What role do third party implementers play in program implementation?

Section B: Program Goals

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

[TAILOR BASED ON WHAT IS ALREADY KNOWN]

B1. Can you take me through the key goals for <PROGRAM NAME>?

B1a. Can you describe any savings goals? Do you have specific goals for individual components of the program (e.g., upstream vs. downstream, by measure type)?

B1b. Any other, non-energy goals?

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. What are interim indicators that the program is or is not meetings its objectives or goals?

B3. Have any of these goals changed in the last few years? Savings goals have changed but have other goals changed?

B3a. What was the rationale for changing them?

B3b. In your opinion, how have these changes affected the program's operations or its outcomes?

B4. What influences do you think this program has had on the market?

SECTION C: PROGRAM ACTIVITIES

I would like to make sure I have a solid understanding of how this program 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.

[TAILOR BASED ON WHAT IS ALREADY KNOWN]

C1. What are the different components of the program?

C1a. What, if any, incentives and/or tools does the program use to achieve its goals?

C1b. What activities do program and implementer staff engage in to achieve program goals?

- Marketing?
- Financial assistance?
- Applications?
- Technical assistance?
- Education?
- Contractor/Trade Partner support?
- Drop ship/direct install?

C1c. What tools are used to reach out to customers and/or market partners?

C1d. What are the participation steps from a customer perspective?

C2. Are these program activities modeled on another program or set of programs?

C3. Have any of these incentives changed in the last few years? What was the rationale for changing them?

C4. Have any of these activities changed in the last few years?

C4a. What was the rationale for changing them?

C4b. In your opinion, how have these changes affected the program's operations or its outcomes?

C4c. Have you measured how these changes impacted savings or participation?

Section D: Resources

D1. What resources do you rely on to implement the program?

D1a. Program, implementer, sales staff?

D1b. Management and program direction?

D1c. IT tools and data tracking tools?

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 understand that you are using Salesforce as your primary program tracking tool. I'd like to understand how program activities are tracked to understand what data might be available to us in our evaluation.

[TAILOR BASED ON WHAT IS ALREADY KNOWN]

E1. What kind of documentation is available for the program? Implementation plans? Program manuals? Process maps?

E2. What kinds of data are collected for <PROGRAM>?

E3. Are there any data that you would like to collect for <PROGRAM>, but haven't been able to?

E4. Are there any data/documentation not tracked in Salesforce that might be helpful for the evaluation?

E5. As part of our evaluation, we will likely want to speak to "near-participants," customers/distributors that were eligible to participate in the program, showed some interested in program participation, but didn't participate for whatever reason. Would these customers all be tracked in Salesforce?

SECTION F: STRENGTHS AND CHALLENGES

Next, I'd like to get your feedback on how the program is running.
[TAILOR BASED ON WHAT IS ALREADY KNOWN]

F1. In your opinion, what are the strengths of <PROGRAM> 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 market partners on the program? (PROBE FOR CUSTOMER ENGAGEMENT/ CUSTOMER SATISFACTION)

F4. What do you believe are the biggest barriers to getting customers and/or market partners to participate in this program?

F5. Are there any specific opportunities for improvement in the design or implementation of the program? Please describe.

F6. What would you like to see changed in how the program is designed or run, if anything?

F6a. Do you think there are any roadblocks preventing these changes from happening?

SECTION G: CLOSING

G1. Based on the kickoff meeting, we are planning to prioritize <RESEARCH PRIORITIES>, does align with your understanding? Do you have anything you would like to add to these priorities, remove from this set of priorities, or change about these priorities?

G2. Do you have particular questions that you would like to see answered by the evaluation? Why are these questions important?

G3. Do you have any other comments, concerns or suggestions about the program that we didn't discuss that you would like to make sure I know about?

B.2 PARTICIPANT BUILDER SURVEY GUIDE[7]

INTRODUCTION

To support the process and impact evaluation of the 2018 Xcel Energy energy efficiency programs, the EMI Consulting evaluation team will conduct telephone surveys with participants. For the purposes of this survey, the evaluation team defined a participating customer as any customer that closed a MN Efficient New Home Construction project between January 2018 and December 2018. The research will be conducted to assess key process and impact evaluation objectives, including builders' perceptions and awareness, decision-making and barriers, potential for Product expansion, and NTG impacts, such as free-ridership and spillover.

The remainder of the introduction provides the research questions which the participant builder survey is designed to address, a description of the sample population and the target number of completes, a description of the sample variables to support programming the survey, and fielding instructions for the survey house.

EVALUATION OBJECTIVES

The objectives for the MN Efficient New Home Construction product evaluation are to:

- Connect the link between customers and the utilities, two parties which do not *have* to communicate to make the Product work.
- Identify whether the Product paperwork is a barrier for Product participation by builders.
- Identify opportunities for the Product to work with alternative fuel types, whether it be geothermal or electric vehicle chargers, hybrid, and/or variable capacity heat pump technology.
- Identify opportunities for smart connected homes, including systems for homes that account for water savings, including condensing water heaters or tankless, and increased electrification.
- Identify whether there is potential future coordination with other Xcel Products and other utility areas.
- Identify opportunities for enhancing the incentive design bucket structure, including where there might be gaps that can be met with prescriptive opportunities similar to the current ENERGY STAR appliance rebates.
- Identify motivations and barriers of homeowners/end-users.
- Estimate a NTG ratio documenting the product's influence on builder decisions.

[7] Some participants received questions in this survey in a slightly different order with different question numbers. Numbering and wording for some questions were altered after survey testing to facilitate respondent understanding. This document shows the finalized numbering and wording after alterations took place.

- Identify major drivers of free ridership.
- Assess market effects of the Efficient New Home Construction Product.

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

Table 3: Efficient New Home Construction Evaluation Objectives

Evaluation Objective	Impact or Process Objective	Research Activity	Participant Builder Survey Objective
Estimate a NTG ratio documenting the product's influence on builders' (and other influencers') decisions.	Impact	Participant builder surveys and influencer interviews	✓
Identify major drivers of free ridership.	Impact	Participant builder surveys	✓
Assess market effects of the Efficient New Home Construction Product.	Impact	Participant builder surveys, influencer interviews	
Connect the link between customers and the utilities, two parties which do not *have* to communicate to make the Product work.	Process	Participant builder surveys, Participant homeowner surveys	✓
Identify whether the Product paperwork is a barrier for Product participation by builders.	Process	Participant builder surveys	✓
Identify opportunities for the Product to work with alternative fuel types, whether it be geothermal or electric vehicle chargers, hybrid, and/or variable capacity heat pump technology.	Process	Participant builder surveys, participant homeowner surveys, benchmarking interviews, influencer interviews	✓
Identify opportunities for smart connected homes, including systems for homes that account for water savings, including condensing water heaters or tankless, and increased electrification.	Process	Participant builder surveys, participant homeowner surveys, benchmarking interviews, influencer interviews	✓
Identify whether there is potential future coordination with other Xcel Products and other utility areas.	Process	Participant builder surveys	✓
Identify opportunities for enhancing the incentive design bucket structure, including where there might be gaps that can be met with prescriptive opportunities similar to the current ENERGY STAR appliance rebates.	Process	Participant builder surveys, benchmarking interviews	✓
Identify motivations and barriers of homeowners/end-users.	Process	Participant homeowner surveys	

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

- How well are the program's processes working for builders?
- What aspects of the program are easy / challenging for builders?
- How exactly do builders and homeowners interact?
- Are builders providing training to homeowners? (or should the Product work with occupants after their houses are set up to educate them?)
- Identify opportunities related to the uptick in website clicks from the parade and understand how to take advantage of increased web interest.
- How many have participated in other energy efficiency programs?
- Does the program influence additional energy savings OUTSIDE of what is captured through the program (spillover)?
- Would program participants install identical measures without the program availability (free ridership)?

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

Table 4: Evaluation Objective, Research Question, and Survey Question Crosswalk

Evaluation Objective	Research Question	Survey Question Number(s)
Estimate a NTG ratio documenting the product's influence on builders' (and other influencers' decisions)	• Does the program influence additional energy savings OUTSIDE of what is captured through the program (spillover)?	Section D
Identify major drivers of free ridership.	• Would program participants install identical measures without the program availability (free ridership)?	Section C
Identify whether the Product paperwork is a barrier for Product participation by builders.	• What aspects of the program are easy / challenging for builders?	E1a
Connect the link between customers and the utilities, two parties which do not *have* to communicate to make the Product work.	• How exactly do builders and homeowners interact? • Are builders providing training to homeowners?	B2 – B6
Identify opportunities for the Product to work with alternative fuel types, whether it be geothermal or electric vehicle chargers, hybrid, and/or variable capacity heat pump technology.	• What other opportunities do you see that would help increase energy efficiency of new homes?	F4a
Identify opportunities for smart connected homes, including systems for homes that account for water savings, including condensing water heaters or tankless, and increased electrification.	• What other opportunities do you see that would help increase energy efficiency of new homes?	F4b
Identify whether there is potential future coordination with other Xcel Products and other utility areas.	• How many have participated in other energy efficiency programs?	A4
Identify opportunities for enhancing the incentive design bucket structure, including where there might be gaps that can be met with prescriptive opportunities similar to the current ENERGY STAR appliance rebates.	• How satisfied are you with the incentive structure? • What other opportunities do you see that would help increase energy efficiency of new homes?	E1d-e, E2d-e, F1e, F2e, F4c

Sample Population and Target Completes

The following table provides the sample population based on data provided to the evaluation team in April 2019. The population was established from the unique set of respondents in the Salesforce opportunity data. The population is broken out by the number of customer homes the builders served under the Product in the sample period (January 2018 to December 2018). Participant builders were binned based on the number of customer homes built in 2018 for which they received a Product rebate, with those at or exceeding 100 customer names binned as "Highly Active Participant Builders", those at less than 100 but at or exceeding 10 customer names as "Medium Active Participant Builders", and those with fewer than 10 customers as "Low Active Participant Builders."

Table 5: Sample Population and Target Completes by Strata

Number of Rebated Customer Homes in Sample Period	Population	Target Completes	Response Rate for Statistically Significant Results
Highly Active Participant Builders (x $\geq$ 100 customers)	5	5	
Medium Active Participant Builders (100 > x $\geq$ 5 customers)	77	32	N/A
Low Active Participant Builders (10 > x)	106	33	
Overall	**188**	**70**	**37%**

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.

Table 6: Sample Variables

Sample Variable	Variable Description	Potential Codes
Interviewer Name	Name of interviewer from Ewald and Wasserman	e.g. Nicole Thomas
Organization	Organization name	e.g. EMI Consulting
Contact	Contact at organization	e.g. Robert Saul
Year	Year builder completed projects through program	"2018"
Program	Program name	"Efficient New Home Construction"
Participation	Number of customer new homes built in 2018 for which the builder received a rebate	Numeric
Phone	Phone number for contact at organization	e.g. 555-555-5555
Average_Envelope_Tier	Average % energy savings above baseline for homes rebated through the program	e.g. "17%"
Average_Dollar_Amount	Average amount of rebate received through the program based on average envelope tier	Numeric

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 CLOSE1 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 5 PM MDT.

SURVEY SECTIONS

- **Intro.** Introduction and Screening
- **A.** Firmographics, Operations, Participation
- **B.** Awareness and Homeowner Interactions
- **C.** Free-ridership
- **D.** Spillover
- **E:** Program Implementation and Processes
- **F:** Satisfaction and Net Promotor
- **CLOSE:** Closing

SURVEY

SECTION INTRO: INTRODUCTION AND SCREENING

Intro1. Hello, this is **<INTERVIEWER NAME>** calling from Ewald and Wasserman, a national research firm working with Xcel Energy. I'm hoping to speak to someone at your organization who would be familiar with your participation in the Xcel Energy **<PROGRAM>** in **<YEAR>.** Our records show that you received at least one rebate from this program for building a new home that was at least 10% better than code. 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.-SET Callback
4. No, they are no longer employed by this organization.
5. No, other reason (SPECIFY).

DK **[TERMINATE]**
REF **[TERMINATE]**

[ASK IF INTRO1=1, 4, OR 5]
Intro2. Are you the person at **<ORGANIZATION>** who is most familiar with your participation in the Xcel Energy **<PROGRAM>** program, or at least as familiar as anyone else there?

1. Yes.(Skip to Intro6)
2. No, they are not available right now. (Skip to Intro4)
3. No, that's someone else. (Skip to Intro4)
4. No, that person no longer works here.
5. Not applicable – this organization 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 participation in the **<PROGRAM>** program?

1. Yes.

2. No **[TERMINATE]**
DK **[TERMINATE]**
REF **[TERMINATE]**

[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! (IF NEEDED: Again, we're Ewald and Wasserman, a national research firm calling on behalf of Xcel Energy). I would like to invite you to participate in a short survey that will help Xcel Energy improve the **<PROGRAM>** program to best suit the needs of businesses like yours. The survey takes about 15 minutes on average, and as a small token of appreciation, we are offering a $25 gift card that you will receive after completing the survey. Your responses will remain confidential, meaning that your name and company name will not be attributed to your answers.

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: FIRMOGRAPHICS, OPERATIONS, PARTICIPATION

First, I'd like to gather some information about your involvement with the Xcel Energy **<PROGRAM>** program and your role at your organization.

A1. What is your occupational title within your company? (**Ask Open-Ended**)

99. Prefer not to answer
DK

A2. Were you the primary contact between your organization and the Xcel Energy program staff?
1. Yes (Skip to A3)
2. No
DK (Skip to A3)
REF (Skip to A3)

[If A2 = 2]
A2a. Who was the primary contact?
1. Someone else at my firm (title) _____
2. Other _____
DK
REF

[ASK ALL]
A3. Has your organization previously participated in the **<PROGRAM>** program or any other Xcel Energy energy efficiency program before 2018?
1. Yes, the **<PROGRAM>** program and other Xcel Energy energy efficiency program(s) **[SPECIFY OTHER]**
2. Yes, only the **<PROGRAM>** program
3. No, only another Xcel Energy Program, specify
4. No, never participated in an Xcel Energy program
DK
REF

[ASK ALL]
A4. Given your knowledge of other Xcel Energy energy programs (whether as a participant or otherwise), do you see an opportunity for the **<PROGRAM>** program to work with these other programs? **(Probe: Other program examples include: programs related to energy efficiency, renewables, HomeSmart (Xcel Energy home warranty), and electric vehicles)**
1. Yes **[SPECIFY]**
2. No
DK
REF

Section B: Awareness and Homeowner Interactions

[ASK ALL]
B1. Next, I'd like to understand a little more about how you first became aware of Xcel Energy rebates for **<PROGRAM>** . Was it from……
[Read answering options. Select one]
1. Xcel Energy program staff
2. Xcel Energy website, media promotions (TV, mass media ads) or other marketing materials
3. Xcel Energy event, expo, or demonstration
4. Xcel Energy staff at a trade show or other industry event

5. Another business, rater, or other word of mouth
6. Other _____

DK
REF

[ASK ALL]

B2. Do you, or someone from your organization, interact with the homeowner/end-users?

1. Yes, all of the time
2. Yes, some of the time **[SPECIFY WHEN]**
3. No (Skip to B6)

DK (Skip to B6)
REF (Skip to B6)

[If B2 = 1 or 2]

B3. What do those interactions involve?

1. Administrative topics (e.g. schedule) (Skip to B6)
2. Training on energy efficient equipment / materials
3. Both 1 & 2
4. Other **[SPECIFY]** (Skip to B6)

DK (Skip to B6)
REF (Skip to B6)

[If B3 = 2, 3]

B4. What type of training do you provide? [Select all that apply]

1. Information on how the energy efficient equipment / materials lowers energy costs
2. How to properly use the energy efficient equipment to maximize savings
3. How to properly maintain the energy efficient equipment
4. Other **[SPECIFY]**

DK
REF

[If B3 = 2, 3]

B5. How do you deliver the training you provide? [Select all that apply]

1. In-person demonstration
2. Printed materials
3. Videos
4. Other **[SPECIFY]**

DK
REF

[ASK ALL]

B6. Do you believe there are opportunities to improve the interactions with homeowners that would increase energy savings ?

1. Yes **[SPECIFY]**
2. No

DK
REF

SECTION C: FREE-RIDERSHIP

Included as background only, NOT to be read during the survey: Free-ridership is a measure of the amount of a Product's claimed savings that would have occurred in the absence of the program. 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.

To determine free-ridership, the evaluation team will apply the Core Residential Protocol from the Illinois TRM, and write specific questions to assess two free-ridership components:

- A **Product Components Score**, based on the participating builder's perception of the importance of various Product components in their decision to build to specific energy efficiency standards; and
- A **No-Product Score**, based on the participating builder's intention to build homes to the same standard before learning of the product.

When scored, these components assess the likelihood of free-ridership on a scale of 0 to 10, with the two scores averaged and the timing adjustment applied to create a final free-ridership score.

[ASK ALL]

C0. In your own words, how would you describe the influence that the Xcel Energy <PROGRAM> had on your decision to build new home(s) better than baseline?
1. [RECORD VERBATIM]
DK
REF

C0_1. (INTERVIEWER: PLEASE READ THE FOLLOWING SLOWLY AND CAREFULLY) Making decisions can sometimes be relatively simple, involving one major factor, like price. Or, they can be relatively complex involving multiple factors, such as cost, information provided by your utility, and meeting customer preferences.

[SELECT HALF OF PARTICIPANTS TO RANDOMLY SHOW C0_2 BEFORE C0_3; FOR THE OTHER HALF, SHOW C0_3 BEFORE C0_2]

C0_2. **[SHOW IF C0_2 SHOWN SECOND:** There might be other things that influenced your decision such as…] For each eligible new home, you received:

- An incentive of [INSERT <AVERAGE_DOLLAR_AMOUNT>]

C0_3. **[SHOW IF C0_3 SHOWN SECOND:** There might be other things, not related to the program that might also **[SHOW IF C0_3 SHOWN FIRST:** Many factors may**]** have influenced your decision to build new home(s) to an

average **<AVERAGE_ENVELOPE_TIER>** above baseline. For example, maybe

- Customer preference,
- Company policies,
- Your own experiences with energy efficient equipment and/or materials, or
- Your own research on energy efficiency equipment and/materials.

C1. There are of course many other possible reasons.

Next, I'm going to ask a few questions about your decision to build new homes at an average energy savings of **<AVERAGE_ENVELOPE_TIER>** above the baseline**.** Please rate the importance of each of the following factors on your decision using a scale from 0 to 10, where 0 means "not at all important" and 10 means "extremely important". The bigger the number, the greater the influence. If you don't know, just say "I don't know". If a factor is not applicable, say "Not applicable". Now, how important was… (RANDOMIZE C1a-Ch, REPEAT SCALE AS NECESSARY)

1. [NUMERIC OPEN END, 0 – 10, 77=NA 88=DK, 99=REF]
DK
REF

C1a. The dollar amount of the rebate [NUMERIC OPEN END, 0 – 10, 77=NA 88=DK, 99=REF]
C1b. An endorsement or recommendation by Xcel Energy staff [NUMERIC OPEN END, 0 – 10, 77=NA 88=DK, 99=REF]
C1c. Information from Xcel Energy marketing or informational materials [NUMERIC OPEN END, 0 – 10, 77=NA 88=DK, 99=REF]
C1d. Previous experience with energy efficient equipment or materials installed in the new home [NUMERIC OPEN END, 0 – 10, 77=NA 88=DK, 99=REF**]**

[ASK IF C1d>5 and C1d<77]
C1d_1. Was this experience through an Xcel Energy program?
1. Yes
2. No
DK
REF

C1e. Customer preference or request [NUMERIC OPEN END, 0 – 10, 77=NA 88=DK, 99=REF]
C1f. Margin to install energy efficient equipment / materials [NUMERIC OPEN END, 0 – 10, 77=NA 88=DK, 99=REF]
C1g. Your previous participation in an Xcel Energy program [NUMERIC OPEN END, 0 – 10, 77=NA 88=DK, 99=REF]
C1h. Information received from any training or events conducted by Xcel Energy [NUMERIC OPEN END, 0 – 10, 77=NA 88=DK, 99=REF]

C1o. Were there any other factors that were important to your decision to participate in the program? **(ASK OPEN END)**

1. Yes (SPECIFY, RECORD OPEN END)
2. No additional factors

DK
REF

[ASK IF C1o=1]

C1o_1. On the same scale from 0 to 10, how would you rate the importance of that factor? [NUMERIC OPEN END, 0 – 10, 77=NA 88=DK, 99=REF]

1. [NUMERIC OPEN END, 0 - 10]

DK
REF

[CREATE INTERNAL VARIABLE: Max_ProgramFactor.
IF C1d_1=1, SET Value = max(C1a, C1b, C1c, C1d, C1g, C1h).
ELSE, SET Value= max(C1a, C1b, C1c, C1g, C1h).]

C5a. If the incentive, information, and support from the Xcel Energy **<PROGRAM>** was not available, would you have built the new homes to the *exact same efficiency level* of **<AVERAGE_ENVELOPE_TIER> above baseline**? If you are not sure, please let me know.

1. Yes
2. Maybe / not sure
3. No (Skip to D1)

77. Would not have built homes above baseline at all (Skip to D1)
REF

[ASK IF C5a=1,2,REF, ELSE SKIP TO D1]

C5b. Using a scale from 0 to 10, where 0 means "not at all likely" and 10 means "extremely likely", please rate the likelihood that you would have built the new homes to the *exact same efficiency level* of **<AVERAGE_ENVELOPE_TIER> above baseline** if the Xcel Energy **<PROGRAM>** was not available.

1. [NUMERIC OPEN END, 0 - 10]

DK
REF

PROGRAMMING NOTE:
if (ans = 0) skp C5d
if (ans = 1) skp C5d
if (ans = 2) skp C5d
if (ans = 3) skp C6
if (ans = 4) skp C6
if (ans = 5) skp C6
if (ans = 6) skp C6
if (ans = 7) skp C5e
if (ans = 8) skp C5e
if (ans = 9) skp C5e

if (ans > 76) skp C6

[ASK IF C5b=10]

C5c. To clarify, you just told me that it is extremely likely that you would have built new homes to the *exact same efficiency level* of **<AVERAGE_ENVELOPE_TIER> above baseline** if you did not have any support, information, or rebates from the Xcel Energy **<PROGRAM>** program.

Is that correct, or do you want to change the likelihood that you would have built the new homes to the *exact same efficiency level* of **<AVERAGE_ENVELOPE_TIER> above baseline** without support from Xcel?

1. Yes, rating is correct [Skip to C6]
2. No, rating is incorrect, want to change likelihood **[LOOP BACK TO C5b]**

DK [Skip to C6]
REF [Skip to C6]

[ASK IF C5b < 3 and Max_ProgramFactor > 7]

C5d. You just rated your likelihood to have built new homes to the *exact same efficiency level* of **<AVERAGE_ENVELOPE_TIER> above baseline** without any support or incentives from the **<PROGRAM>** as a(n) **<RESTORE RESPONSE FROM C5b>** out of 10, suggesting that the program was not very important. Earlier, when I asked you to rate the importance of each program factor on your decision, the highest rating you gave was a **<Max_ProgramFactor>** out of 10, suggesting that the program was very important. Is this correct or should I go back and change one of your answers?

1. Correct – leave answers as is [Skip to C6]
2. Change the likelihood of building new homes to the *exact same efficiency level* of **<AVERAGE_ENVELOPE_TIER> above baseline** without the program **[RETURN TO C5b]**
3. Change the influence of the program factors **[C5FactorUpdate]**

DK [Skip to C6]
REF [Skip to C6]

[ASK IF C5b = 7-9 and Max_ProgramFactor < 3]

C5e. You just rated your likelihood to have built new homes to the *exact same efficiency level* of **<AVERAGE_ENVELOPE_TIER> above baseline** without any support or incentives from the **<PROGRAM>** as a(n) **<RESTORE RESPONSE FROM C5b>** out of 10, suggesting that the program was very important. Earlier, when I asked you to rate the importance of each program factor on your decision, the highest rating you gave was a **<Max_ProgramFactor>** out of 10, suggesting that the program was not very important. Is this correct or should I go back and change one of your answers?

1. Correct – Leave answers as is [Skip to C6]

2. Change the likelihood of building new homes to the *exact same efficiency level* of **<AVERAGE_ENVELOPE_TIER> above baseline** without the program **[RETURN TO C5b]**
3. Change the influence of the program factors
DK [Skip to C6]
REF [Skip to C6]

[ASK IF C5d = 3 OR C5e = 3]
C5FactorUpdate. You said you would like to change the influence of program factors. Which factor(s) would you like to change and what would you like to change them to? (Lower # = Lower importance, Higher # = Higher importance)
1. The dollar amount of the rebate (you said %C1a%/10):
2. An endorsement or recommendation by Xcel Energy staff (you said %C1b%/10):
3. Information from Xcel Energy marketing or informational materials (you said %C1c%/10):
4. Your previous participation in an Xcel Energy program (you said %C1g%/10)
5. Information received from any training or events conducted by Xcel Energy (you said %C1h%/10)

IF C1d_1=1
6. Previous experience with energy efficient equipment or materials installed in the new home (you said %C1d%/10):

[ASK IF C5b > 6 and <PARTICIPATION> > 1], Else skip to C8
C6. In absence of the Xcel Energy program, what is the likelihood you would have built fewer homes to the *exact same efficiency level* of **<AVERAGE_ENVELOPE_TIER> above baseline** you built through the **<PROGRAM>**? Please use a scale from 0 to 10, where 0 means "not at all likely" and 10 means "extremely likely".
1. [NUMERIC OPEN END, 0 - 10]
DK
REF

[ASK IF C6 > 5 and NOT DK or REF], Else Skip to C8
C7. Under that scenario, what percentage fewer homes?
1. [NUMERIC % OPEN END, 0 - 100]
DK
REF

C8. Did you install ENERGY STAR® clothes washers and refrigerators in the participating new homes in 2018?
1. Yes
2. No (Skip to C11)
DK (Skip to C11)
REF (Skip to C11)

[ASK IF C8=1]

C9. Please rate the importance of the <PROGRAM> program on your decision to install ENERGY STAR® clothes washers and refrigerators using a scale from 0 to 10, where 0 means "not at all important" and 10 means "extremely important". The bigger the number, the greater the influence. If you don't know, just say "I don't know".
1. [NUMERIC OPEN END, 0 - 10]
DK
REF

[ASK IF C8=1]

C10. Using a scale from 0 to 10, where 0 means "not at all likely" and 10 means "extremely likely", please rate the likelihood that you would have installed the exact same number of ENERGY STAR® clothes washers and refrigerators.
1. [NUMERIC OPEN END, 0 - 10]
DK
REF

C11. Before learning of the **<PROGRAM>** program, did you plan to build new homes to the same efficiency standard as you did as a participant in the program, **<AVERAGE_ENVELOPE_TIER> above baseline**?
1. Yes
2. No
DK
REF

[ASK IF C11=1 and <Max_ProgramFactor> > 5]

C11a. To clarify, you planned to build new homes to the *same efficiency level* of **<AVERAGE_ENVELOPE_TIER> above baseline** before learning of the **<PROGRAM>** program. Earlier, when I asked you to rate the importance of each program factor on your decision, the highest rating you gave was a **<Max_ProgramFactor>** out of 10, suggesting that the program was very important in your decision-making. Is this correct or should I go back and change one of your answers?
1. Correct – Leave answers as is
2. Change the plan of building new homes to the *same efficiency level* of **<AVERAGE_ENVELOPE_TIER> above baseline** before learning of the program **[RETURN TO C11]**
3. Change the influence of the program factors **[SKIP TO C11FactorUpdate]**
DK
REF

[ASK IF C11=2 and <Max_ProgramFactor> < 5]

C11b. To clarify, you did not plan to build new homes to the *same efficiency level* of **<AVERAGE_ENVELOPE_TIER> above baseline** before learning of the **<PROGRAM>** program. Earlier, when I asked you to rate the importance of each program factor on your decision, the highest rating you gave was a **<Max_ProgramFactor>** out of 10, suggesting that the program was not very important in your decision-making. Is this correct or should I go back and change one of your answers?

1. Correct – Leave answers as is
2. Change the plan of building new homes to the *same efficiency level* of **<AVERAGE_ENVELOPE_TIER> above baseline** before learning of the program **[RETURN TO C11]**
3. Change the influence of the program factors **[SKIP TO C11FactorUpdate]**

DK
REF

C11FactorUpdate. You said you would like to change the influence of program factors. Which factor(s) would you like to change and what would you like to change them to? (Lower # = Lower importance, Higher # = Higher importance)

1. The dollar amount of the rebate (you said %C1a%/10):
2. An endorsement or recommendation by Xcel Energy staff (you said %C1b%/10):
3. Information from Xcel Energy marketing or informational materials (you said %C1c%/10):
4. Your previous participation in an Xcel Energy program (you said %C1g%/10)
5. Information received from any training or events conducted by Xcel Energy (you said %C1h%/10)

IF C1d_1=1

6. Previous experience with energy efficient equipment or materials installed in the new home (you said %C1d%/10):

SECTION D: SPILLOVER

[ASK ALL]

D1. Since your participation in the **<PROGRAM>** program in **<YEAR>,** has your company built any efficient new homes without applying for a rebate from Xcel Energy? When I say "efficient new homes", I mean new homes that were built in Xcel Energy service territory and would've been eligible for an Xcel Energy **<PROGRAM>** rebate.

1. Yes
2. No (Skip to E1)

DK (Skip to E1)
REF (Skip to E1)

[ASK IF D1=1, ELSE SKIP TO SECTION E]

D1a. For these efficient new homes in Xcel Energy territory that you did not receive a rebate for, why did you not apply an Xcel Energy rebate?
1. [OPEN END]
DK
REF

[ASK IF D1=1, ELSE SKIP TO SECTION E]

D2. For these new homes in Xcel Energy territory that you did not receive a rebate for, did your experience with the efficient equipment and/or materials you installed through the Xcel Energy **<PROGRAM>** influence your decision to install some or all of the additional efficient equipment?
1. Yes
2. No (Skip to E1)
DK (Skip to E1)
REF (Skip to E1)

[ASK IF D2=1, ELSE SKIP TO SECTION E]

D3. What type of efficient equipment did you install? For example, was it…
[LIST ALL TYPES, ALLOW MULTIPLE]
1. LEDs
2. Furnaces >92% AFUE
3. Central air conditioners >14 SEER
4. Air sealing measures targeting a specific CFM50 value?
5. Advanced framing or wall assemblies, not including changing from 2x4 to 2x6 studs?
6. Or something else? **<SPECIFY>**
DK
REF

D4. Approximately, what percent better than code were these homes you built that were not rebated by the Xcel Energy **<PROGRAM> program**? (Select one)
1.. < 10% better than baseline
2.. 10% - 19% better than baseline
3. 20%-29% better than baseline
4. > 30% better than baseline
DK
REF

[ASK IF D3=1-6, ELSE SKIP TO SECTION E]

D5. How important was your experience in the **<PROGRAM>**, including the equipment and/or materials you installed through the program, in your decision to install the additional equipment and/or materials in other new homes not rebated by the **<PROGRAM>**,? Please use a scale from 0 to 10, where 0 is "not at all important" and 10 is "extremely important".
1. [NUMERIC OPEN END (0-10)]
DK
REF

[ASK IF D3=1-6 ELSE SKIP TO SECTION E]

D6. If you had not participated in the **<PROGRAM>**, how likely is it that your organization would have installed these additional efficient equipment and/or materials, using a scale from 0 to 10, where 0 means you definitely WOULD NOT have installed and 10 means you definitely WOULD have installed them?
1. [NUMERIC OPEN END (0-10)]
DK
REF

D7. Are you familiar with Xcel Energy talking with trade groups, state legislation, or otherwise influencing the residential new homes construction market?
1. Yes [SPECIFY]
2. No
DK
REF

Section E: Program Implementation and Processes

[ASK ALL]
Next, I want to ask you a few questions about your experience with the program, and how the program's processes worked for you.

E1. I am going to ask you to rate how easy or difficult the following tasks associated with the **<PROGRAM>** were to complete, using a scale from 1 to 5, where 1 is "very difficult" and 5 is "very easy". You may also tell me if something was not applicable to your experience. How easy it was to…
(PAUSE AFTER EACH FOR RESPONSE. REPEAT SCALE IF NEEDED).
1. [NUMERIC OPEN END, 1 – 5]
77. Not applicable
DK
REF

(RANDOMIZE)
E1a. Complete program applications, rebate forms, or other program paperwork
E1b. Get in touch with an Xcel Energy representative
E1c. Determine eligibility and rebate tier
E1d. Meet your desired rebate tier
E1e. Meet program requirements
E1f. Process of selecting rater

[For any E1 < 3]
E2a – E2f. Why was it not easy to **<RESTORE QUESTION WORDING FROM E1A – E1F>**
E3a – E3f. Would you consider not participating in the **<PROGRAM>** program because of this challenge?

1. Yes
2. No
DK
REF

[ASK ALL]
E4. From the time you applied for **<PROGRAM>** to the time you received your rebate, did the project take less or more time than you expected to complete? Please answer using a scale from 1 to 5, where 1 means the project took "much less time than expected" and 5 means it took "much more time than expected".
1. [NUMERIC OPEN END, 1 – 5]
77. Have not completed project / received rebate
DK
REF

SECTION F: SATISFACTION (PROGRAMS AND COMPONENTS) AND NET PROMOTER

[ASK ALL]
F1. Thank you for your patience; we have only a few questions left.

I'm going to ask you to rate your satisfaction with various aspects of the program. For each, please rate your satisfaction on a scale from 1 to 5, where 1 is "very dissatisfied" and 5 is "very satisfied", or let me know if it is not applicable to your project. How would you rate your satisfaction with: **[RANDOMIZE, PAUSE AFTER EACH FOR RATING, REPEAT SCALE IF NECESSARY]**

1. [NUMERIC OPEN END, 1 – 5]
77. Not applicable
DK
REF

(RANDOMIZE)
F1a. The amount of time it took to receive your rebate
F1b. The dollar amount of the rebate
F1c. Your interactions with program staff
F1d. Your interactions with your rater
F1e. The structure of the rebate levels varying by percent better than baseline
[For any F1 < 3]
F2a – F2e. Why weren't you satisfied with **<RESTORE QUESTION WORDING FROM F1A – F1E>**

[ASK ALL]
F3. Thinking about your experience from start to finish, how would you rate your satisfaction with the **<PROGRAM>** as a whole? (IF NEEDED: Please use the

same scale from 1 to 5, where 1 is "very dissatisfied" and 5 is "very satisfied")
1. [NUMERIC OPEN END, 1 – 5]
77. Not applicable
DK
REF

If (ans = 3, 4) skip to F3b
If (ans = 5, 77, DK or REF) skip to F4

[ASK IF F3 <3]
F3a. Why weren't you satisfied with your experience with the **<PROGRAM>?**
1. [OPEN END]
DK
REF

[ASK IF F3 = 3-4]
F3b. What else could Xcel Energy do to improve your satisfaction with the **<PROGRAM>?**
1. [OPEN END]
DK
REF

[ASK ALL]
F4. What opportunities should the **<PROGRAM>?** research in regards to:

F4a. Working with alternative fuel types [OPEN END]
(Probe if necessary: geothermal, electric vehicles chargers, hybrid and/or variable capacity heat pump technology, Ultra-high performance building assemblies such as passive house or ACH50 <1.0)
F4b. Incorporating smart connected technology [OPEN END]
(Probe if necessary: systems that account for water savings, increased electrification)
F4c. Adding additional prescriptive opportunities similar to the current ENERGY STAR appliance rebates [OPEN END]
77. Not applicable
DK
REF

Closing

CLOSE1. These are all the questions I have. As a thank you for your input, we'd like to send you a $25 Amazon gift card or donate the money to your local United Way in your name. Let me ask the information we need to email the gift card to the intended recipient—this could be you, personally, or anyone else of your choosing. **[COLLECT CONTACT INFORMATION]**

B.3 PARTICIPANT HOMEOWNER SURVEY

INTRODUCTION

To support the process and impact evaluation of the 2018 Xcel Energy energy efficiency programs, the EMI Consulting evaluation team will conduct telephone surveys with participants. For the purposes of this survey, the evaluation team defined a participant homeowner as any customer that owns a MN Efficient New Home Construction product-qualified home which the builder was rebated for between January 2018 and December 2018. The research will be conducted to assess key process evaluation objectives, including customer awareness, motivations and barriers, and potential for Product improvement.

The remainder of the introduction provides the research questions which the participant homeowner survey is designed to address, a description of the sample population and the target number of completes, a description of the sample variables to support programming the survey, and fielding instructions for the survey house.

EVALUATION OBJECTIVES

The objectives for the MN Efficient New Home Construction product evaluation are to:

- Connect the link between customers and the utilities, two parties which do not *have* to communicate to make the Product work.
- Identify whether the Product paperwork is a barrier for Product participation by builders.
- Identify opportunities for the Product to work with alternative fuel types, whether it be geothermal or electric vehicle chargers, hybrid, and/or variable capacity heat pump technology.
- Identify opportunities for smart connected homes, including systems for homes that account for water savings, including condensing water heaters or tankless, and increased electrification.
- Identify whether there is potential future coordination with other Xcel Products and other utility areas.
- Identify opportunities for enhancing the incentive design bucket structure, including where there might be gaps that can be met with prescriptive opportunities similar to the current ENERGY STAR appliance rebates.
- Identify motivations and barriers of homeowners/end-users.
- Estimate a NTG ratio documenting the product's influence on builder decisions.
- Identify major drivers of free ridership.
- Assess market effects of the Efficient New Home Construction Product.

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

Table 7: Efficient New Home Construction Evaluation Objectives

Evaluation Objective	Impact or Process Objective	Research Activity	Participant Homeowner Survey Objective
Estimate a NTG ratio documenting the product's influence on builders' (and other influencers') decisions.	Impact	Participant builder surveys, influencer interviews	
Identify major drivers of free ridership.	Impact	Participant builder surveys	
Assess market effects of the Efficient New Home Construction Product.	Impact	Participant builder surveys, influencer interviews	
Connect the link between customers and the utilities, two parties which do not *have* to communicate to make the Product work.	Process	Participant builder surveys, Participant homeowner surveys	✓
Identify whether the Product paperwork is a barrier for Product participation by homeowners.	Process	Participant builder surveys	
Identify opportunities for the Product to work with alternative fuel types, whether it be geothermal or electric vehicle chargers, hybrid, and/or variable capacity heat pump technology.	Process	Participant builder surveys, participant homeowner surveys, benchmarking interviews, influencer interviews	✓
Identify opportunities for smart connected homes, including systems for homes that account for water savings, including condensing water heaters or tankless, and increased electrification.	Process	Participant builder surveys, participant homeowner surveys, benchmarking interviews, influencer interviews	✓
Identify whether there is potential future coordination with other Xcel Products and other utility areas.	Process	Participant builder surveys	
Identify opportunities for enhancing the incentive design bucket structure, including where there might be gaps that can be met with prescriptive opportunities similar to the current ENERGY STAR appliance rebates.	Process	Participant builder surveys, benchmarking interviews	
Identify motivations and barriers of homeowners/end-users.	Process	Participant homeowner surveys	✓

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

- Are homeowners aware they are in an efficient new home?
- Identify opportunities related to the uptick in website clicks from the parade and understand how to take advantage of increased web interest.
- What were the motivations and barriers to buying and living in this particular home?
    - How much, if at all, did the energy efficiency of the home influence their purchasing decision?
- How exactly do homeowners and builders interact?
- Are builders providing training to homeowners?
    - How satisfied are homeowners with that training?
    - If builders are not providing training, should the Product work with homeowners afterwards to provide education? How?
- How satisfied are homeowners with interactions with builders?
- How satisfied are homeowners with the comfort-level in the home (e.g. consistent temperature, any health and safety issues) and quality of construction, including maintenance issues related to health and safety.
- What additional efficient equipment are homeowners researching or installing in their homes?
- Are homeowners interested in information on other Xcel Energy programs, such as renewable energy programs, EVs, maintenance packages (HomeSmart) or solar?

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

Table 8: Evaluation Objective, Research Question, and Survey Question Crosswalk

Evaluation Objective	Research Question	Survey Question Number(s)
Connect the link between customers and the utilities, two parties which do not *have* to communicate to make the Product work.	• How exactly do homeowners and homeowners interact? • Are builders providing training to homeowners? How satisfied are homeowners with that training? • If builders are not providing training, should the Product work with homeowners afterwards to provide education? How? • How satisfied are homeowners with interactions with builders? • How satisfied are homeowners with the comfort-level in the home (e.g. consistent temperature, any health and safety issues) and quality of construction, including maintenance issues related to health and safety.	Section B; Section D
Identify opportunities for the Product to work with alternative fuel types, whether it be geothermal or electric vehicle chargers, hybrid, and/or variable capacity heat pump technology.	• What additional efficient equipment are homeowners researching or installing in their homes? • Are homeowners interested in information on other Xcel Energy programs?	Section C
Identify opportunities for smart connected homes, including systems for homes that account for water savings, including condensing water heaters or tankless, and increased electrification.	• What additional efficient equipment are homeowners researching or installing in their homes? • Are homeowners interested in information on other Xcel Energy programs?	Section D
Identify motivations and barriers of homeowners/end-users.	• Are homeowners aware they are in an efficient new home? • Identify opportunities related to the uptick in website clicks from the parade and understand how to take advantage of increased web interest. • What were the motivations and barriers to buying and living in this particular home? • How much, if at all, did the energy efficiency of the home influence their purchasing decision?	Section A

Sample Population and Target Completes

The following table provides the sample population based on data provided to the evaluation team in July 2019. The population is the number of homeowners served under the Product in the sample period (January 2018 to December 2018). Participant homeowners were binned based on the envelope improvement tier.

Table 9: Sample Population and Target Completes by Strata

Customer Per Envelope Tier	Population	Target Completes	Response Rate for Statistically Significant Results
Envelope Improvement 10% - 14.99%	403	18	N/A
Envelope Improvement 15% - 19.99%	778	34	
Envelope Improvement >20%	416	18	
Overall	**1597**	**70**	**4.4%**

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.

Table 4: Sample Variables

Sample Variable	Variable Description	Potential Codes
Interviewer Name	Name of interviewer from Ewald and Wasserman	e.g. Nicole Thomas
Contact	Customer contact name	e.g. Robert Saul
Program	Program name	e.g. "Efficient New Home Construction"
Phone	Phone number for contact at organization	e.g. 555-555-5555
Envelope_Improvement_Tier	% energy savings above baseline for homes rebated through the program	e.g. "10% - 14.99%"

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 CLOSE1 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 CST.

SURVEY SECTIONS

- **Intro.** Introduction and Screening
- **A.** Awareness and Purchasing Decision
- **B.** Builder Interactions
- **C:** Implementation
- **D:** Satisfaction
- **CLOSE:** Closing

SURVEY

SECTION INTRO: INTRODUCTION AND SCREENING

Intro1. Hello, this is **<INTERVIEWER NAME>** calling from Ewald and Wasserman, a national research firm working with Xcel Energy. Our records show that you bought a new home in 2018 or after, and I'm hoping to speak to someone in your household who would be familiar with your home-purchasing decision. As a thank you, we are offering a $25 gift card that you will receive after completing the survey. May I speak with **<CONTACT>?**

1. Yes, that would be me.
2. No, they are not available right now.
3. No, they no longer live here.
4. No, other reason (SPECIFY).

DK **[TERMINATE]**
REF **[TERMINATE]**

Intro2. Are you the person in the household who is most familiar with your home purchasing decision, or at least as familiar as anyone else there?

1. Yes.
2. No, they are not available right now.
3. No, that's someone else.

DK **[TERMINATE]**
REF **[TERMINATE]**

[ASK IF INTRO1= 2-4 AND INTRO2=1]
Intro3. May I please have your name?
1. [RECORD SPEAKER'S NAME AS **<CONTACT>**]
DK **[TERMINATE]**
REF **[TERMINATE]**

[ASK IF INTRO2=2-3]
Intro3. What is this person's name?
1. [RECORD CORRECT PERSON'S NAME AS **<CONTACT>**]
DK **[TERMINATE]**
REF **[TERMINATE]**

[ASK IF INTRO3=1]
Intro4. 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]
Intro5. Great! (IF NEEDED: Again, we're Ewald and Wasserman, a national research firm calling on behalf of Xcel Energy). I would like to invite you to participate in a short survey that will help Xcel Energy improve one of its residential programs to best suit the needs of customers like you. The survey takes about 15 minutes on average, and as a small token of appreciation, we are offering a $25 gift card that you will receive after completing the survey. Your responses will remain confidential, meaning that your name and home address will not be attributed to your answers.

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 Purchasing Decision

A1. First, I'd like to understand your decision to purchase the new home you are living in.

Please rate the importance of each of the following factors on your decision using a scale from 0 to 10, where 0 means "not at all important" and 10 means "extremely important". The bigger the number, the greater the influence. If you don't know, just say "I don't know". If a factor is not applicable, say "Not applicable". Now, how important was…
(RANDOMIZE A1a-A1f, REPEAT SCALE AS NECESSARY)

1. [NUMERIC OPEN END, 0 – 10, 77=NA 88=DK, 99=REF]
DK
REF

A1a. Buying a brand new home vs a pre-owned home [NUMERIC OPEN END, 0 – 10, 77=NA 88=DK, 99=REF]
A1b. The specific builder of the home [NUMERIC OPEN END, 0 – 10, 77=NA 88=DK, 99=REF]
A1c. The energy efficiency of the home [NUMERIC OPEN END, 0 – 10, 77=NA 88=DK, 99=REF]
A1d. The location of the home [NUMERIC OPEN END, 0 – 10, 77=NA 88=DK, 99=REF]
A1e. The price of the home [NUMERIC OPEN END, 0 – 10, 77=NA 88=DK, 99=REF]
A1f. The home's participation in the Xcel Energy Efficient New Home Construction program [NUMERIC OPEN END, 0 – 10, 77=NA 88=DK, 99=REF]

A2. Was there another top priority factor that was important to your decision to buy your new home? (Please limit to 1 other factor) **(ASK OPEN END)**

1. Yes (SPECIFY, RECORD OPEN END)
2. No additional priority factor
DK
REF

[ASK IF A2=1]
A2a. On the same scale from 0 to 10, how would you rate the importance of that factor? [NUMERIC OPEN END, 0 – 10, 77=NA 88=DK, 99=REF]

1. [NUMERIC OPEN END, 0 - 10]
DK
REF

A3. Would you consider your new home to be an energy efficient home?

1. Yes
2. No
DK
REF

[ASK IF A3 = 1]
A4. Were there any particular energy efficient upgrades that were important in your decision to purchase your new home?

1. Yes

2. No
DK
REF

[ASK IF A4 = 1]

A4a. Which of the following energy efficient equipment was important in your decision to purchase your new home? (Select all that apply)
1. Clothes Washer
2. Refrigerator
3. LED Lighting
4. Furnance
5. Central air conditioner
6. Other (Please specify)
DK
REF

[ASK IF A3 = 1 and A1d > 4]

A5. Please rate the importance of each of the following factors on your decision to purchase a home with energy efficient equipment and/or materials using a scale from 0 to 10, where 0 means "not at all important" and 10 means "extremely important". The bigger the number, the greater the influence. If you don't know, just say "I don't know". If a factor is not applicable, say "Not applicable". Now, how important was…
(RANDOMIZE A6a-A6f, REPEAT SCALE AS NECESSARY)
1. [NUMERIC OPEN END, 0 – 10, 77=NA 88=DK, 99=REF]
DK
REF

A5a. Lower energy costs [NUMERIC OPEN END, 0 – 10, 77=NA 88=DK, 99=REF]
A5b. Better for the environment
[NUMERIC OPEN END, 0 – 10, 77=NA 88=DK, 99=REF]
A5c. Better resale value [NUMERIC OPEN END, 0 – 10, 77=NA 88=DK, 99=REF]
A5d. Fewer maintenance concerns [NUMERIC OPEN END, 0 – 10, 77=NA 88=DK, 99=REF]
A5e. Comfort [NUMERIC OPEN END, 0 – 10, 77=NA 88=DK, 99=REF]
A5f. Safety and health concerns [NUMERIC OPEN END, 0 – 10, 77=NA 88=DK, 99=REF]

A6. Did you attend a Parade of Homes tour ?
1. Yes
2. No **[Skip to A10]**
3.
DK
REF

[ASK IF A6 = 1]

A7. After attending the Parade of Homes, did you visit the Parade of Homes website or any websites of the builders you found through the tour?
1. Yes
2. No

DK
REF

[ASK IF A7 = 1]

A8. Do you remember finding information on the benefits of energy efficient new homes on these websites?
1. Yes
2. No

DK
REF

[ASK IF A7 = 1]

A9. What website information related to energy efficiency, if any, would have been useful in helping you make your purchasing decision?
1. [Open ended]

DK
REF

A10. In the end, how did you find your new home?
1. Online real estate database, such as Zillow, Redfin, or Trulia
2. Real estate agent
3. Parade of Homes [Only ask if A7 = 1]
4. Other (Specify)

DK
REF

SECTION B: BUILDER INTERACTIONS

Now, I'd like to talk about your experiences with the builder.

B1. Did you, or someone from your household, interact with the builder of your home?
4. Yes, all of the time
5. Yes, some of the time
6. No **[Skip to B5]**

DK
REF

[If B1 = 1 or 2]

B2. What did those interactions involve?

5. Administrative topics (e.g. schedule) **[Skip to B5]**
6. Training on energy efficient equipment / materials
7. Both 1 & 2
8. Other **[SPECIFY] [Skip to B5]**

DK
REF

[If B2 = 2, 3]

B3. What type of energy efficiency training did you receive? [Select all that apply]

5. Information on how the energy efficient equipment / materials lowers energy costs
6. How to properly use the energy efficient equipment to maximize savings
7. How to properly maintain the energy efficient equipment
8. Other **[SPECIFY]**

DK
REF

[If B2 = 2, 3]

B4. How did you receive the training provided? [Select all that apply]

5. In-person demonstration
6. Printed materials
7. Videos
8. Live Webinars
9. Other **[SPECIFY]**

DK
REF

[If B1 = 3 or B2 = 1, 4, DK]

B5. What education related to energy efficiency would you have liked to receive? [Select all the apply]

1. Information on how the energy efficient equipment / materials lowers energy costs
2. How to properly use the energy efficient equipment to maximize savings
3. How to properly maintain the energy efficient equipment
4. Other **[SPECIFY]**

DK
REF

B6. What is your most preferred way to receive training on how to use new home equipment?

1. In-person demonstration
2. Printed materials
3. Videos
4. Live Webinars
5. Other **[SPECIFY]**

DK

REF

SECTION C: IMPLEMENTATION

Next, I want to ask you a few questions about your experience with the equipment in your home.

C1. Please rate how easy or difficult the following tasks associated with purchasing or living in your home, using a scale from 1 to 5, where 1 is "very difficult" and 5 is "very easy". You may also tell me if something was not applicable to your experience. How would you rate how easy it was to…
(PAUSE AFTER EACH FOR RESPONSE. REPEAT SCALE IF NEEDED).

1. [NUMERIC OPEN END, 1 – 5]
77. Not applicable
DK
REF

(RANDOMIZE)
C1a. Decide whether or not to purchase an energy efficient home
C1b. Decide which energy efficient equipment and/or materials to have pre-installed in your new home vs. installing afterwards
C1c. Operate the energy efficient equipment in your home
C1d. Realize your target energy savings
C1e. Maintain the energy efficient equipment in your home

[If B2 = 2, 3]
C1f. Understand the energy efficiency training you received from the builder

[For any C1 < 3]
C2a – C2f. Why was it not easy to **<RESTORE QUESTION WORDING FROM C1a – C1f>**

_____

C3. Have you installed additional energy efficient equipment and/or materials beyond what the builder installed?

Probe: ENERGY STAR appliances, televisions, computers, efficient lighting, or any other items that were not pre-installed

5. Yes
6. No. **[Skip to C7]**
DK
REF

[If C3 = 1]

C4. Which additional energy efficient equipment and/or materials have you installed?
1. [Open-ended]
DK
REF

[If C3 = 1]
C5. Please rate the importance of each of the following factors on your decision to install additional energy efficient equipment and/or materials using a scale from 0 to 10, where 0 means "not at all important" and 10 means "extremely important". The bigger the number, the greater the influence. If you don't know, just say "I don't know". If a factor is not applicable, say "Not applicable". Now, how important was…
(RANDOMIZE C5a-C5e, REPEAT SCALE AS NECESSARY)
1. [NUMERIC OPEN END, 0 – 10, 77=NA 88=DK, 99=REF]
DK
REF

C5a. The installation cost compared to purchasing a home with the equipment/materials already installed [NUMERIC OPEN END, 0 – 10, 77=NA 88=DK, 99=REF]
C5b. Your positive experience with the energy efficient equipment/materials already installed in your home
C5c. A recommendation(s) from someone you know [NUMERIC OPEN END, 0 – 10, 77=NA 88=DK, 99=REF]
C5d. A recommendation(s) from your builder [NUMERIC OPEN END, 0 – 10, 77=NA 88=DK, 99=REF]
C5e. Information from Xcel Energy (e.g. talking with a representative, visiting the website, viewing marketing materials, etc)
[NUMERIC OPEN END, 0 – 10, 77=NA 88=DK, 99=REF]

C6. Was there another top priority factor that was important to your decision to install additional energy efficient equipment and/or materials? (Please limit to 1 other factor) **(ASK OPEN END)**
1. Yes (SPECIFY, RECORD OPEN END)
2. No additional priority factor
DK
REF

[ASK IF C6=1]
C6a. On the same scale from 0 to 10, how would you rate the importance of that factor? [NUMERIC OPEN END, 0 – 10, 77=NA 88=DK, 99=REF]
1. [NUMERIC OPEN END, 0 - 10]

DK
REF

[If C5e. > 4]

C7. Has your household participated in an Xcel Energy program related to energy efficiency, electric vehicles, or distributed energy (e.g. rooftop solar)?

1. Yes **[Specify]**
2. No

DK
REF

C8. Is your household interested in information on Xcel Energy energy efficiency, electric vehicle, renewable energy, or distributed energy residential programs?

1. Yes **[Specify]**
2. No

DK
REF

C9. Would you have been interested in exploring premium electric technology options before your new home was built?

For example, geothermal heating and cooling, heat pump water heaters, triple-paned windows, advanced wall insualtion assemblies, etc.

1. Yes
2. No

DK
REF

[If C9 = 1]

C9a. If upfront costs for premium electric technology were high, please rank the importance of the following factors in your decision to explore this technology. Use a scale from 0 to 10, where 0 means "not at all important" and 10 means "extremely important". If a factor is not applicable, say "Not applicable". How important was…

(RANDOMIZE C9a_1 – C9a_4, REPEAT SCALE AS NECESSARY)

1. [NUMERIC OPEN END, 0 – 10, 77=NA 88=DK, 99=REF]

DK
REF

(IF PROMPTED, SPECIFY HIGH UPFRONT COSTS IS AROUND $20,000)

C9a_1. Health and safety [NUMERIC OPEN END, 0 – 10, 77=NA 88=DK, 99=REF]
C9a_2. Year-round comfort
[NUMERIC OPEN END, 0 – 10, 77=NA 88=DK, 99=REF]
C9a_3. Potentially eliminate fossil fuel use in your home [NUMERIC OPEN END, 0 – 10, 77=NA 88=DK, 99=REF]
C9a_4. Environmental sustainability [NUMERIC OPEN END, 0 – 10, 77=NA 88=DK, 99=REF]

C10. Are you interested in smart, connected technology for your home?
For example, systems that account for water savings-- such as condensing water heaters or tankless-- and increased electrification)

1. Yes **[Specify]**
2. No
DK
REF

Section D: Satisfaction

D1. Thank you for your patience; we have only a few questions left. I'm going to ask you to rate your satisfaction with various aspects of the program. For each, please rate your satisfaction on a scale from 1 to 5, where 1 is "very dissatisfied" and 5 is "very satisfied", or let me know if it is not applicable to your project. How would you rate your satisfaction with: **[RANDOMIZE, PAUSE AFTER EACH FOR RATING, REPEAT SCALE IF NECESSARY]**

1. [NUMERIC OPEN END, 1 – 5]
77. Not applicable
DK
REF

(RANDOMIZE)
D1a. The quality of the construction of your home
D1b. The comfort-level of your home
D1c. Your interactions with your builder
D1d. The number of health and safety-related maintenance issues
D1e. Your home energy costs
[If B2 = 2, 3]
D1f. The training you received from builders
[For any D1 < 3]
D2a – D2f. Why weren't you satisfied with **<RESTORE QUESTION WORDING FROM D1A – D1F>**

D3. Thinking about your experience as a whole, how would you rate your satisfaction with the energy efficiency of your home? (Please use the same scale from 1 to 5, where 1 is "very dissatisfied" and 5 is "very satisfied")
1. [NUMERIC OPEN END, 1 – 5]

77. Not applicable
DK
REF

[ASK IF D3 < 3]
D3a. Why aren't you satisfied with the energy efficiency of your new home?
1. [OPEN END]
DK
REF

CLOSING

CLOSE1. These are all the questions I have. As a thank you for your input, we'd like to send you a $25 gift card. I'll complete the survey by asking the information we need to email the gift card to the intended recipient—this could be you, personally, or you can choose to donate the money to the United Way:
[COLLECT CONTACT INFORMATION]

B.4 PEER UTILITY BENCHMARKING INTERVIEW GUIDE

INTRODUCTION

To support the process and impact evaluation of the 2019 Xcel Energy 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 conduct secondary research on the peer utilities identified and perform in-depth interviews with program managers at the peer utilities.

This document presents the in-depth interview guide for MN Efficient New Home Construction Product peer utilities interviews. Interviews will be conducted with up to six of Xcel Energy's peer utilities detailed in Table 10 below. Target respondents are managers of Efficient New Home Construction energy efficiency programs.

Table 10: List of Peer Utilities

Utility	Program Name
PNM / New Mexico Gas Company	High Performance New Homes Program
Public Service Company of Oklahoma (PSO)	PowerForward New Homes Program
Focus on Energy	New Home Certification *
ComEd / Nicor Gas	Residential New Construction Program *
Rocky Mountain Power Utah	New Homes *
Black Hills Energy	Residential New Construction *
National Grid Rhode Island	Residential New Construction *
Idaho Power	Residential New Construction Pilot Program
AEP Texas	High Performance New Homes Program
Minnesota Energy Resources Corporation (MERC)	Home Energy Excellence Program
Consumers Energy	New Home Construction
Xcel Energy CO	ENERGY STAR New Homes

Table 2 below provides the evaluation efforts used for each evaluation objective and notes which are addressed by this peer utility interview guide.

Table 2: Efficient New Home Construction Evaluation Objectives

Evaluation Objective	Impact or Process Objective	Research Activity	Peer Utility Interview Guide Objective
Estimate a NTG ratio documenting the product's influence on builders' (and other influencers') decisions.	Impact	Participant builder surveys, influencer interviews	
Identify major drivers of free ridership.	Impact	Participant builder surveys	
Assess market effects of the Efficient New Home Construction Product.	Impact	Participant builder surveys, influencer interviews	
Connect the link between customers and the utilities, two parties which do not *have* to communicate to make the Product work.	Process	Participant builder surveys, Participant homeowner surveys	
Identify whether the Product paperwork is a barrier for Product participation by homeowners.	Process	Participant builder surveys	
Identify opportunities for the Product to work with alternative fuel types, whether it be geothermal or electric vehicle chargers, hybrid, and/or variable capacity heat pump technology.	Process	Participant builder surveys, participant homeowner surveys, benchmarking interviews, influencer interviews	✓
Identify opportunities for smart connected homes, including systems for homes that account for water savings, including condensing water heaters or tankless, and increased electrification.	Process	Participant builder surveys, participant homeowner surveys, benchmarking interviews, influencer interviews	✓
Identify whether there is potential future coordination with other Xcel Products and other utility areas.	Process	Participant builder surveys	
Identify opportunities for enhancing the incentive design bucket structure, including where there might be gaps that can be met with prescriptive opportunities similar to the current ENERGY STAR appliance rebates.	Process	Participant builder surveys, benchmarking interviews	✓
Identify motivations and barriers of homeowners/end-users.	Process	Participant homeowner surveys	

Table 3 identifies the interview questions related to each key performance indicator.

Table 3: Mapping of interview questions to indicators

Key Performance Indicator	Data Needed	Interview Question
Program energy savings goals	• 2018 program energy savings goals • 2018 program's savings • 2018 total energy efficiency portfolio goal	B2, B4, B5
Program budget - cost of acquisition (e.g. $/MWh, $/Mcf)	• 2018 program budget • 2018 total gross energy savings for each peer program	B6, B4
Participation Levels	• Number of incentive applications submitted 2018 • Number of participating builders in 2018 • Number of rebates issued in 2018	B1, C2
Net-to-gross ratios (NTGRs)	• NTG methods	B3
Societal cost test (SCT)	• SCT values	B7

Table 4 identifies the interview questions related to each contextual theme.

Table 4: Mapping of interview questions to contextual themes

Contextual themes	Data Needed	Interview Question
Program description	• Overall program objectives, implementation strategies, participation target types • Program staffing, any recent changes that have been made to the program, and future outlook.	A1, A2,
Program processes	• Rater selection processes • Baseline setting process	A2, A4
Net-to-gross (NTG) savings approach	• NTG method, ratio applied, calculation details	B3
Homeowner engagement practices	• Methods used to engage homeowners	C4
Builder engagement practices	• Methods to engage builders	C3
Measure types and incentives	• Rebate structure and incentive levels • Prescriptive offerings	A3

RECRUITING INSTRUCTIONS

The research team plans to send advance emails to any program managers with available emails. 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.

Potential respondents will be recruited by consultants on the research team who will be conducting interviews and have been trained on the purpose and goals of the Efficient New Home Construction Product qualitative research. The research 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 research 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 research team will strive to attempt to contact each peer utility a minimum of 4 times before giving up on that particular contact, but depending on each unique situation, the research team may need to attempt some contacts more times to ultimately reach the correct person.

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 residential Efficient New Home Construction energy efficiency programs. As part of this study, we are reaching out to leaders of residential efficient new construction programs to learn about innovations and best practices in the field.

We would like to include **<UTILITY>** in this study, as your residential Efficient New Home Construction program has been identified as an **[innovative/peer]** program. In your interview, we would talk about your Efficient New Home Construction program's design and implementation, as well as its successes and challenges. We would be very happy to share an anonymized version of our report on peer Efficient New Home Construction programs with you once we've completed our research.

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

INTRO 3 Can we include your utility in the 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 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?

b. Is your program run by utility staff or a third-party implementer? *(ex: Franklin Energy, DNVGL, Clear Result)*

c. How many PROGRAM STAFF OR IMPLEMENTER STAFF members support the program? *(ex: Prog. Manager, Field Rep., engineer, others? %FTE on this program?)*

d. Have there been any recent changes to the program?

e. What will the program be like in the near future?

f. How is the program incorporating premium electric technology, such as Passive House certification (iPHA or PHIUS), ground source heat pumps, air source heat pumps, EV chargers, or PV (if at all)?

g. How is the program incorporating grid responsive technology (if at all)?

h. Is fuel switching or substitution (e.g. propane to electric, electric to natural gas) permitted in new homes? If yes, how is this applied to baselines for new construction?

i. Is fuel switching or substitution permitted for other energy efficiency programs in your jurisdiction?

A2. Can you describe the implementation strategies used by staff or implementers?

a. What is the typical length of a project? *(from initial contact through installation)*

b. Does program staff or implementers provide training to participants? (*Format, content, and clarify who and whether it's to builders or homeowners*)

c. How are raters selected?

A3. 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. What types of measures do you offer? [PROBE**:** Whole-building, Prescriptive, Rater]

b. Can you recommend a web page or other resource where I can find a list of your available measures and their incentive values?

    a. If "NO": What specific measures are offered? What are the incentive levels for each measure?

A4. How do you set baselines?

Section B: Savings Goals/Cost

Next, I'd like to talk about the participation and energy savings achieved through the program in 2018.
[ASK/CONFIRM BASED ON HOLES IN BACKGROUND RESEARCH. CAN ASK QUESTIONS BELOW OR ASK RESPONDENT IF OK TO FOLLOW UP VIA EMAIL]

B1. How many projects were completed in 2018?

a. How many incentive applications were submitted in 2018?

B2. What were the program's energy savings goals in 2018? (MWh)?

B3. Are these goals based on gross or net savings?

a. Did/will you apply a NTG ratio to these savings?

b. What NTG ratio do you use?

c. What methods are used to calculate NTG ratio?

d. Are NTG ratios estimated at the program level, measure level, or both?

B4. How much net/gross energy savings did the program report in 2018?

B5. What was the total energy efficiency portfolio goal in 2018?

B6. We'd like to know more about the budget or total operating costs of your program to get a sense of the utility cost of energy savings. Ideally, this includes program incentives, salaries of program staff (including support staff who may not work on the project full-time), marketing, consulting, and other overhead.

a. What is the program's total operating budget?

B7. What type of cost effectiveness test is applied to the program?

a. If Societal Cost Test, what was the program's SCT in 2018?

Section C: Program Participation

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

C1. Who are the program participants? By participants, we mean who are all the actors involved in the program? (probe: builder, home-buyers, raters)

C1a. Which participants receive rebates from the program?

C2. Approximately how many builders are active in the program?

C3. What activities do program staff conduct to engage builders?

Probes: Provide training?
Allow rater selection?
Support connections between contractors and homeowners?

C4. What activities do program staff conduct to engage homeowners?

Probes: Provide training?

SECTION D: CLOSING

D1. Great! Thank you so much for your time. Those are all the questions we have for you today. Before we finish, do you have any questions for me, or anything else you would like to add?

APPENDIX C: DATA COLLECTION FINDINGS

C.1 STAFF INTERVIEW FINDINGS

INTRODUCTION

To support the process and impact evaluation of the 2018 Xcel Energy MN Efficient New Home Construction product, the EMI Consulting evaluation team conducted telephone interviews with key staff managing and implementing the Minnesota Efficient New Home Construction Product. The interview objectives were to collect staff feedback on product experiences and evaluation priorities. Members of the EMI Consulting evaluation team interviewed the following key staff managing and implementing the Efficient New Home Construction Product. When the Product Manager desired feedback from more than one staff member within a team, the evaluation team conducted the interview as a group.

Xcel Energy

- 1 Product Manager
- 1 Team Lead, selected by Product Manager
- 1 Engineer, selected by Product Manager

ICF (Implementer)

- 1 Trade Ally Account Manager, selected by Product Manager
- 2 Program Staff (1 Program Manager, 1 Program Support), selected by Product Manager
- 1 Senior Manager, selected by Product Manager

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

KEY TAKEAWAYS

Below are key takeaways from staff experiences with the Minnesota Efficient New Home Construction 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.

- **The product is experiencing success in recent years.** Supported by a healthy housing market, the product has built participation to include almost all local builders and increased the number of participating raters dramatically. Staff notice the product's clear impact on market transformation.
- **Product staff maintain helpful communication and collaboration with builders.** Through multiple communication paths, product staff and builders

are communicating as necessary to keep up with ever-changing codes and technologies.

- **Product staff are interested in obtaining more direct feedback from end users, the home buyers, than is possible by communicating almost exclusively with builders.** It is not entirely clear to product staff if end users are satisfied or need education about how to best use their efficient homes.
- **Interviewee responses indicated that the product changes regularly to keep up with the fast changing housing market**. The product started off modeled after the Energy Star program. It has since diverged from that model as it has added features that work specifically for this product's service territory, some of which were inspired by other programs.

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

- Xcel Energy rolls out the MN Efficient New Home Construction in conjunction with partner utility CenterPoint Energy. Both utilities work with implementer ICF. Utility and implementer staff interface primarily with builders, who are the incentive recipients. Builders are allowed to hire their own rater/auditor, which was a new change as of 2017.
- Once enrolled in the program, raters complete insulation and final diagnostic inspections at the house and submit the REM/Rate or Ekotrope file along with supporting documentation to ICF. ICF reviews all documentation to ensure it is complete and accurate before submitting the application to Xcel Energy.
- Xcel Energy processes savings and incentives. After receiving an invoice for a home, Xcel Energy pays ICF who cuts the check to the builder. ICF also pays $75 rebates to raters if Xcel Energy provides the heating fuel. Raters receive their incentive roughly at the same time as the builders – after the homes they've rated have been completed through the program.
- Some of the applications are selected for ICF QA, of which there are two types: Desktop and Field. Desktop QA involves a thorough review of each tab of the files and supporting documentation. Field QA (about 5% of the homes) involves insulation inspection, walk-through, or diagnostic testing.
- ICF administers the day-to-day responsibilities, including recruiting and data managing and reporting. Data reporting focuses on enrollment, participation, and goal achievement.
- Data issues and quality assurance responsibilities roll up to the Xcel Energy Product Manager. Xcel Energy looks at the data with larger perspective, with respect to forecasting yearly participation, savings, and performance incentives.
- The product's performance incentives are ordered by percent energy savings buckets as shown in Tables 1, 2, and 3 on the next page. The pay-for-

performance model is measure-agnostic; builders may use any combination of measures to achieve the required savings. There is also a low-income tier that does not specify savings by percent. The energy savings are primarily in gas savings from heating.

- To measure performance, ICF tracks each builder's equipment efficiencies over time, including conducting small focus groups with builders to review these changes in the past few years.

MARKETING-SPECIFIC ACTIVITIES

- One of the main marketing efforts to home buyers is a biannual parade of homes. Yard signs and flags, flyers, and window cling advertisements are also created by ICF and planted by builders.
- Marketing efforts list basic product information and direct customers towards the product website, which launched last year. The product website is home-buyer facing, which includes education about energy efficiency in homes and information about how to hire builders. There's an option for: "The builder tool" where home buyers can enter their zip code and find builders that build in the area that they're looking to buy. It links them to the builders' website and contact information. Last year, ICF conducted a keyword search analysis for how customer journeys start online and end at the product website.
- Builder-facing product efforts include trainings, public meetings, and award ceremonies, in addition to regular communication about product specifics or questions over email, phone, and in-person. Award winners are listed on the website. Xcel Energy conducts webinars to educate and receive feedback from builders.
- The utility staff try to gauge customer satisfaction and interest in the product, but not through a formal survey.
- One Xcel Energy interviewee acknowledged that the product is not really marketed, with only a little focus on awareness-building as the Product does not have a large advertising budget.

Table 11. Xcel Energy Gas-only or Xcel Energy Gas/Electric Combo Homes

Percent Energy Savings Tier	Incentive ($)
Total energy savings less than 10% better than baseline and/or negative therm savings	Not Eligible
Income-eligible home with positive gas savings and total energy savings more than 10% above baseline	$500
Positive gas savings with at least 10% but less than 14.9% total energy savings better than baseline	$250
15-19.9% total energy savings better than baseline	$500
20-24.9% total energy savings better than baseline	$1,000
25-29.9% total energy savings better than baseline	$1,200
30-34.9% total energy savings better than baseline	$1,500
35% and above total energy savings better than baseline	$2,000

Table 12. Xcel Energy Electric-only Homes

Percent Energy Savings Tier	Incentive ($)
Total energy savings less than 10% better than baseline and/or negative kwh savings	Not Eligible
Positive kwh savings and total energy savings 10% or better than baseline	$100

Table 13. Xcel Energy Appliance Rebates

Percent Energy Savings Tier	Incentive ($)
ENERGY STAR® rated Clothes Washer	$10
ENERGY STAR rated Refrigerator (must have Xcel Energy electric service)	$15

Goals

- The product's goals track key performance indicators of gas and electric savings, participation, and market transformation. The savings goals are based on surpassing standards from codes.
- All interviewees who spoke to goal development acknowledged that what was a priority in the past, recruiting more builders, is no longer a priority as the builder market has been recruited almost completely. There are 272 builders involved right now.
- Having multiple building raters, or auditors, in the market is also a goal. ICF has increased the number of HERS raters from one (before ICF) to about 8 or 9, which has brought market prices down.

Table 4. Xcel Energy MN Energy Efficient New Homes Energy Goals and Actuals.

	kW	kWh	Electric Participants	Budget/ Spend	Dth	Gas Participants	Budget/ Spend
2018 Goals	974	952,129	2024	$752,322	30,514	960	$1,573,425
2018 Actuals	1084	3,206,095	2551	$714,140	34,748	1425	$1,248,699

- The new product focus is to improve the performance of participating builders. ICF tracks the changing quality of mechanical equipment efficiency for each builder. They will meet with a handful of builders to reflect on changing efficiencies in the last few years.
- A non-energy goal is to measure end-user awareness of the product, since the rebate is paid upstream of the customers.
- Generally, the program staff has a goal of encouraging and supporting builders, while empowering homeowners with helpful product features and educating the marketplace.

RESOURCES

Product staff rely on the following resources to implement the product:

- Salesforce - An integral tool for tracking product data.
- Pronto Forms – Utility staff use this to track documents and create spreadsheet reports for data quality assurance.
- ICF - Its experience with other products in the energy efficiency market can be a useful resource.
- Builders and raters - A resource for expert insights.
- Multiple approved software technologies - Used for calculating home energy savings with respect to energy code requirements, including REMRate and, more recently, Ekotrope.
- Marketing collateral - Utility and implementer staff analyze home buyer interface with marketing attractions, such as the housing parades and website, to gather data on how and why home buyers become interested in the product.
- Webinars and other trainings - These meetings with builders and raters are a place to exchange industry information and improve collective understanding of the product's offerings and future needs.

PRODUCT STRENGTHS AND CHALLENGES

During interviews, staff identified the following strengths and challenges to implementing the Minnesota Efficient New Home Construction Product in 2018. 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

- Multiple interviewees cited the strong, mutually beneficial relationships between Xcel Energy and CenterPoint Energy, between the utilities and implementer ICF, and between product staff and builders.
- The product has shown agility in adjusting to specific market segment codes that had jumped ahead of the market. For example, when builders weren't meeting lighting codes in 2017: "we were able to push them to meet that code minimum and go beyond it and just drop the incandescents completely." Another example is the effectiveness of the product's recent encouragement for builders to move to higher efficiency furnace packages. This is a good sign for market transformation.
- Product staff feel that builders are involved, interested, appreciative of the rebate, and satisfied with their raters, the product, and the utilities.
- The website home buyer tool was also mentioned as a new strength.

CHALLENGES

- There are several regulatory codes at play that vary by measure type, territory, and regulatory body. Keeping up with these codes is a challenge. "The HERS raters are governed by RESNET. RESNET has guidelines, and sometimes those guidelines don't sync with IECC, and/or National Standard"
    - Risks include: potential free ridership, falling behind in any one measure category, and not staying neutral on political matters. The utilities' pace may not align with the market's.
- The software being used to calculate savings must also keep up with the codes, and product staff must adapt the software's results to match up with the product's specific territory.
- Multiple interviewees mentioned the challenge of an expensive housing market, where housing affordability and demand can be influx or at an extreme that's inconvenient for the product. The affordability issue is exacerbated by a housing labor shortage.
- Two interviewees mentioned that raters (auditors) are becoming more competitive with each other. Utilities are in the awkward position of not having the flexibility to get involved with these relationships that are producing suboptimal market effects.
- Meeting electricity savings goals as well as gas savings goals.
- Maintaining a healthy diverse number of builders and raters.
- Improving the year-to-year performance of each builder.

- Modeling. It's a blind spot for the utility to not know exactly how each builder meets the energy mark, although this is an inherent feature of the product.
    - "What are they really choosing, and it varies by builder what they want to do and how cost effective it is for them to purchase into if they go to the thicker wall or if they want to put a continuous insulation on the outside. And in the end we don't know exactly what any one builder does so what we've had to do is model the most likely list of things and then build a cost curve"

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 2018 Minnesota Efficient New Home Construction Product.

- Connect the link between customers and the utilities, two parties which do not *have* to communicate to make the product work. Research questions include:
    - How exactly do builders and customers interact?
    - How much of the technology do the customers know to use?
    - Are builders providing training to customers or should the product work with occupants after their houses are set up to educate them?
    - Identify opportunities related to the uptick in website clicks from the parade and understand how to take advantage of increased web interest.
- Identify whether the product paperwork is a barrier for product participation by builders.
- Identify opportunities for the Product to work with alternative fuel types, whether it be geothermal or electric vehicle chargers, hybrid, and/or variable capacity heat pump technology.
- Identify opportunities for smart connected homes, including systems for homes that account for water savings, including condensing water heaters or tankless, and increased electrification.
- Identify whether there is potential future coordination with other Xcel products and other split utility service territories.
- Identify opportunities for enhancing the incentive design bucket structure, including where there might be gaps that can be met with prescriptive opportunities similar to the current ENERGY STAR appliance rebates.

C.2 PARTICIPANT BUILDER SURVEY RESULTS

The following is the raw survey data from the participant builder survey conducted in August 2019.

A1. What is your occupational title within your company?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Administrative Assistant	1	1.5	1.5	1.5
	AUTOCAD Drafter and River Modeler	1	1.5	1.5	3.0
	Builder	1	1.5	1.5	4.5
	CEO	2	3.0	3.0	7.6
	Construction Specialist	1	1.5	1.5	9.1
	Controller	3	4.5	4.5	13.6
	Department Manager	1	1.5	1.5	15.2
	Design Consultant /Office Manager	1	1.5	1.5	16.7
	Director of Residential Construction	1	1.5	1.5	18.2
	Marketing and Design	1	1.5	1.5	19.7
	Office Assistant	1	1.5	1.5	21.2
	Office Manager	4	6.1	6.1	27.3
	Operations Manager	1	1.5	1.5	28.8
	Owner	14	21.2	21.2	50.0
	Owner/CEO	1	1.5	1.5	51.5
	Owner/Contractor/General decision maker	1	1.5	1.5	53.0
	Owner/President	1	1.5	1.5	54.5
	President	13	19.7	19.7	74.2
	President / Owner	1	1.5	1.5	75.8
	President and CEO	1	1.5	1.5	77.3
	President/Owner	1	1.5	1.5	78.8
	Production Manager	1	1.5	1.5	80.3
	Project Director	1	1.5	1.5	81.8
	Project Manager	3	4.5	4.5	86.4
	Secretary	2	3.0	3.0	89.4
	Secretary of Corp/ Purchasing	1	1.5	1.5	90.9

	Senior Project Manager	2	3.0	3.0	93.9
	Vice President	4	6.1	6.1	100.0
	Total	66	100.0	100.0	

A2. Were you the primary contact between your organization and the Xcel Energy program staff?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	55	83.3	83.3	83.3
	No	9	13.6	13.6	97.0
	Don't know	2	3.0	3.0	100.0
	Total	66	100.0	100.0	

A2a. Who was the primary contact?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Someone else at my firm [title]:	4	6.1	44.4	44.4
	Other, specify	3	4.5	33.3	77.8
	Don't know	2	3.0	22.2	100.0
	Total	9	13.6	100.0	
Missing	System	57	86.4		
Total		66	100.0		

A2a_1_Text. Who was the primary contact? Someone else at my firm [Title]

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		62	93.9	93.9	93.9
	[Name]	1	1.5	1.5	95.5
	[Name]	1	1.5	1.5	97.0
	Energy Auditor	1	1.5	1.5	98.5
	Multiple people	1	1.5	1.5	100.0
	Total	66	100.0	100.0	

A2a_2_Text. Who was the primary contact? Other, specify

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		63	95.5	95.5	95.5
	Another company	1	1.5	1.5	97.0
	Independent company	1	1.5	1.5	98.5
	We have a service doing this - we coordinate with them to do the testing and rebates	1	1.5	1.5	100.0
	Total	66	100.0	100.0	

A3. Has your organization previously participated in the <PROGRAM> program before 2018?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	51	77.3	77.3	77.3
	No	10	15.2	15.2	92.4
	Don't Know	5	7.6	7.6	100.0
	Total	66	100.0	100.0	

A4. Has your organization participated in any other Xcel Energy energy efficiency program?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	13	19.7	19.7	19.7
	No	39	59.1	59.1	78.8
	Don't Know	14	21.2	21.2	100.0
	Total	66	100.0	100.0	

A5a. Do you have an interest in working with any the following Xcel Energy programs in the future? Other energy efficiency programs

	Frequency	Percent	Valid Percent	Cumulative Percent

Valid	Yes	45	68.2	80.4	80.4
	No	4	6.1	7.1	87.5
	Don't Know	7	10.6	12.5	100.0
	Total	56	84.8	100.0	
Missing	System	10	15.2		
Total		66	100.0		

A5b. Do you have an interest in working with any the following Xcel Energy programs in the future? Renewable programs

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	32	48.5	57.1	57.1
	No	19	28.8	33.9	91.1
	Don't Know	5	7.6	8.9	100.0
	Total	56	84.8	100.0	
Missing	System	10	15.2		
Total		66	100.0		

A5c. Do you have an interest in working with any the following Xcel Energy programs in the future? HomeSmart program (the Xcel Energy home warranty program)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	14	21.2	25.0	25.0
	No	34	51.5	60.7	85.7
	Don't Know	8	12.1	14.3	100.0
	Total	56	84.8	100.0	
Missing	System	10	15.2		
Total		66	100.0		

A5d. Do you have an interest in working with any the following Xcel Energy programs in the future? Electric vehicle programs

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	19	28.8	33.3	33.3
	No	38	57.6	66.7	100.0
	Total	57	86.4	100.0	
Missing	System	9	13.6		
Total		66	100.0		

A6a. Would you like more information on Xcel Energy's other energy efficiency programs?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	41	62.1	83.7	83.7
	No	6	9.1	12.2	95.9
	Don't know	2	3.0	4.1	100.0
	Total	49	74.2	100.0	
Missing	System	17	25.8		
Total		66	100.0		

A5b. Do you have an interest in working with any the following Xcel Energy programs in the future?

Renewable programs

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	29	43.9	54.7	54.7
	No	19	28.8	35.8	90.6
	Don't know	5	7.6	9.4	100.0
	Total	53	80.3	100.0	
Missing	System	13	19.7		
Total		66	100.0		

A6b. Would you like more information on Xcel Energy's renewable programs?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	31	47.0	91.2	91.2
	No	1	1.5	2.9	94.1
	Don't know	2	3.0	5.9	100.0
	Total	34	51.5	100.0	
Missing	System	32	48.5		
Total		66	100.0		

A5c. Do you have an interest in working with any the following Xcel Energy programs in the future? HomeSmart program (the Xcel Energy home warranty program)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	11	16.7	20.8	20.8
	No	34	51.5	64.2	84.9
	Don't know	8	12.1	15.1	100.0
	Total	53	80.3	100.0	
Missing	System	13	19.7		
Total		66	100.0		

A6c. Would you like more information on Xcel Energy's HomeSmart program (the Xcel Energy home warranty program)?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	15	22.7	78.9	78.9
	No	3	4.5	15.8	94.7
	Don't know	1	1.5	5.3	100.0
	Total	19	28.8	100.0	
Missing	System	47	71.2		
Total		66	100.0		

A5d. Do you have an interest in working with any the following Xcel Energy programs in the future? Electric Vehicle programs

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	15	22.7	28.3	28.3
	No	38	57.6	71.7	100.0
	Total	53	80.3	100.0	
Missing	System	13	19.7		
Total		66	100.0		

A6d. Would you like more information on Xcel Energy's Electric Vehicle programs?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	15	22.7	100.0	100.0
Missing	System	51	77.3		
Total		66	100.0		

B1. How did you first become aware of Xcel Energy rebates for <PROGRAM>?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Xcel Energy program staff	10	15.2	15.2	15.2
	Xcel Energy event, expo, or demonstration	3	4.5	4.5	19.7
	Xcel Energy staff at a trade show or other industry event	2	3.0	3.0	22.7
	Another business, rater, or other word of mouth	45	68.2	68.2	90.9
	Other, specify	5	7.6	7.6	98.5
	Don't know	1	1.5	1.5	100.0
	Total	66	100.0	100.0	

B1_6_Text. How did you first become aware of Xcel Energy rebates for <PROGRAM>? Other, specify

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		61	92.4	92.4	92.4
	Energy Testing Company	1	1.5	1.5	93.9
	I am working with Xcel for more than 12 years	1	1.5	1.5	95.5
	[Name] and code requirements	1	1.5	1.5	97.0
	Subcontractor	2	3.0	3.0	100.0
	Total	66	100.0	100.0	

B2. Do you, or someone from your organization, interact with the homeowner/end-users?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes, all of the time	47	71.2	71.2	71.2
	Yes, some of the time [Specify WHEN]	17	25.8	25.8	97.0
	No	2	3.0	3.0	100.0
	Total	66	100.0	100.0	

B2_2_Text. Do you, or someone from your organization, interact with the homeowner/end-users? Some of the time, specify

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		49	74.2	74.2	74.2
	After we get new service installed we work with customers and connect them with who they need to talk to.	1	1.5	1.5	75.8
	At the walk through when they buy the house	1	1.5	1.5	77.3
	Before, during and after sale	1	1.5	1.5	78.8
	During a walk-through	1	1.5	1.5	80.3
	Follow-ups after moving in	1	1.5	1.5	81.8
	Getting electric bill information	1	1.5	1.5	83.3
	If the homeowner has a question within the first year of purchase (warranty period)	1	1.5	1.5	84.8
	Instruction process /purchase or in the construction	1	1.5	1.5	86.4
	It depends	1	1.5	1.5	87.9
	Throughout the project	1	1.5	1.5	89.4
	Warranties	1	1.5	1.5	90.9
	We let them know what the scores are and give them results printed out from the company that does the testing.	1	1.5	1.5	92.4
	When designing a home customer will let us know what they are looking for.	1	1.5	1.5	93.9
	When the home is sold - have a walk through	1	1.5	1.5	95.5

	When they call in for help or warranty issues	1	1.5	1.5	97.0
	When they first purchase	1	1.5	1.5	98.5
	When they purchase	1	1.5	1.5	100.0
	Total	66	100.0	100.0	

B3. What do those interactions involve?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Administrative topics (e.g. schedule)	9	13.6	14.1	14.1
	Training on energy efficient equipment / materials	11	16.7	17.2	31.3
	Both 1 & 2	29	43.9	45.3	76.6
	Other, specify	14	21.2	21.9	98.4
	Don't know	1	1.5	1.6	100.0
	Total	64	97.0	100.0	
Missing	System	2	3.0		
Total		66	100.0		

B3_4_Text. What do those interactions involve? Other, specify

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		52	78.8	78.8	78.8
	Closing on house and follow-up	1	1.5	1.5	80.3
	Code issues/ PERS Calculations	1	1.5	1.5	81.8
	Discuss energy efficiency in new homes vs older homes. Tell them what's different about houses.	1	1.5	1.5	83.3
	Help them with the repairs and install of certain equipment	1	1.5	1.5	84.8

	Just educate them on use of furnace and HRV	1	1.5	1.5	86.4
	New home orientation when they close, advertise e star green pass compliance.	1	1.5	1.5	87.9
	People will let us know what they are looking for/depends	1	1.5	1.5	89.4
	Questions about the house itself	1	1.5	1.5	90.9
	Rater scores /results printed out from the company that does the testing.	1	1.5	1.5	92.4
	Subcontractors come to train client on how to use equipment	1	1.5	1.5	93.9
	Telling them the long term benefits of spending on the initial investment for upgraded home/energy efficient features	1	1.5	1.5	95.5
	Walk through explaining everything in the house	1	1.5	1.5	97.0
	Warranty issues	1	1.5	1.5	98.5
	Working with warranties	1	1.5	1.5	100.0
	Total	66	100.0	100.0	

B4_1. What type of training do you provide? First answer

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Information on how the energy efficient equipment / materials lowers energy costs	12	18.2	30.0	30.0

	How to properly use the energy efficient equipment to maximize savings	12	18.2	30.0	60.0
	How to properly maintain the energy efficient equipment	15	22.7	37.5	97.5
	Other, specify	1	1.5	2.5	100.0
	Total	40	60.6	100.0	
Missing	System	26	39.4		
Total		66	100.0		

B4_2. What type of training do you provide? Second answer

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1. Information on how the energy efficient equipment / materials lowers energy costs	1	1.5	3.8	3.8
	2. How to properly use the energy efficient equipment to maximize savings	15	22.7	57.7	61.5
	3. How to properly maintain the energy efficient equipment	9	13.6	34.6	96.2
	4. Other, specify	1	1.5	3.8	100.0
	Total	26	39.4	100.0	
Missing	System	40	60.6		
Total		66	100.0		

B4_3. What type of training do you provide? Third answer

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1. Information on how the energy efficient equipment / materials lowers energy costs	6	9.1	35.3	35.3
	2. How to properly use the energy efficient equipment to maximize savings	2	3.0	11.8	47.1
	3. How to properly maintain the energy efficient equipment	9	13.6	52.9	100.0
	Total	17	25.8	100.0	
Missing	System	49	74.2		
Total		66	100.0		

B4_4_Text. What type of training do you provide? Other, specify

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		64	97.0	97.0	97.0
	How to use HVAC equipment	1	1.5	1.5	98.5
	New home orientation, overview of home as a package	1	1.5	1.5	100.0
	Total	66	100.0	100.0	

B5_1. How do you deliver the training you provide?

First answer

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	In-person demonstration	37	56.1	92.5	92.5
	Printed materials	1	1.5	2.5	95.0
	Other, specify	2	3.0	5.0	100.0
	Total	40	60.6	100.0	
Missing	System	26	39.4		
Total		66	100.0		

B5_2. How do you deliver the training you provide?

Second answer

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	In-person demonstration	1	1.5	16.7	16.7
	Printed materials	4	6.1	66.7	83.3
	Other, specify	1	1.5	16.7	100.0
	Total	6	9.1	100.0	
Missing	System	60	90.9		
Total		66	100.0		

B5_3. How do you deliver the training you provide?

Third answer

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Videos	1	1.5	50.0	50.0
	Other, specify	1	1.5	50.0	100.0
	Total	2	3.0	100.0	
Missing	System	64	97.0		
Total		66	100.0		

B5_4_Text. How do you deliver the training you provide? Other, specify

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		62	93.9	93.9	93.9
	Pre-closing walk through to look for changes	1	1.5	1.5	95.5
	Pre-move in walk through	1	1.5	1.5	97.0
	Through subcontractors	1	1.5	1.5	98.5
	With literature	1	1.5	1.5	100.0
	Total	66	100.0	100.0	

B6. Do you believe there are opportunities to improve the interactions with homeowners that would increase energy savings?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes, specify	41	62.1	62.1	62.1
	No	16	24.2	24.2	86.4
	Don't know	9	13.6	13.6	100.0
	Total	66	100.0	100.0	

B6_1_Text. Do you believe there are opportunities to improve the interactions with homeowners that would increase energy savings? Yes, specify

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		25	37.9	37.9	37.9
	A video would be great	1	1.5	1.5	39.4
	All a matter of education on Xcel's end, monthly mail only aggravates clients	1	1.5	1.5	40.9
	Always room for improvement	1	1.5	1.5	42.4
	Awareness of what is available	1	1.5	1.5	43.9

Better teaching on how to conserve energy more	1	1.5	1.5	45.5
Can't think of anything specific	1	1.5	1.5	47.0
DK	1	1.5	1.5	48.5
Educating the homeowners on simple things	1	1.5	1.5	50.0
Energy efficient products and understanding their willingness to buy them	1	1.5	1.5	51.5
Equipment may be	1	1.5	1.5	53.0
Get more information to the homeowners	1	1.5	1.5	54.5
I think there might be an opportunity to increase awareness by advertising the program more	1	1.5	1.5	56.1
I think they could do a better job of educating the public.	1	1.5	1.5	57.6
If there's a way to demonstrate value of energy savings	1	1.5	1.5	59.1
If we had more literature or video to give to homeowners	1	1.5	1.5	60.6
In general,	1	1.5	1.5	62.1
It can always be improved	1	1.5	1.5	63.6
Making rebates known and energy efficient, better education to help clients	1	1.5	1.5	65.2
Maybe if Xcel representative would stop by the home	1	1.5	1.5	66.7
More our responsibility--better training employees	1	1.5	1.5	68.2

More tools that we could give the handouts so they are easy to understand	1	1.5	1.5	69.7
Most people need longer training than we provide	1	1.5	1.5	71.2
Not sure about specifics	1	1.5	1.5	72.7
Nothing specific comes to mind	1	1.5	1.5	74.2
Offer hot water heater, HVAC system etc.	1	1.5	1.5	75.8
Overall usage of home infrastructure	1	1.5	1.5	77.3
Probably more printed material to give them	1	1.5	1.5	78.8
Rebate comes to us not to homeowners.	1	1.5	1.5	80.3
Remodeling	1	1.5	1.5	81.8
Some care about it, some don't	1	1.5	1.5	83.3
Someone from Xcel should directly communicate with the homeowner	1	1.5	1.5	84.8
Spend more time to educate	1	1.5	1.5	86.4
They could understand how things work in the home	1	1.5	1.5	87.9
Videos or something	1	1.5	1.5	89.4
We could always use improvements in energy efficiency	1	1.5	1.5	90.9
We could send reminders	1	1.5	1.5	92.4
We would take more time with the clients but they are always in a rush	1	1.5	1.5	93.9

	Xcel could provide information on their website or pamphlet or folder	1	1.5	1.5	95.5
	Xcel could send someone to help train the homeowners	1	1.5	1.5	97.0
	Yes, if they were aware of opportunities that are out there	1	1.5	1.5	98.5
	YouTube videos on maintaining and operating the equipment	1	1.5	1.5	100.0
	Total	66	100.0	100.0	

C0. In your own words, how would you describe the influence that the Xcel Energy <PROGRAM> had on your decision to build new home(s) better than baseline?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	A rebate program is I guess what drives a lot of us.	1	1.5	1.5	1.5
	Amount of rebate is worth the work that is done	1	1.5	1.5	3.0
	Attractive to most new home builders to be more energy efficient and save on electricity.	1	1.5	1.5	4.5
	Beneficial	1	1.5	1.5	6.1
	Big impact	1	1.5	1.5	7.6
	BPIS presented a package and took care of filing paperwork with Xcel	1	1.5	1.5	9.1

	Definitely makes it more incentivized for us to build a better home, and brings to light the little things we can do that make a difference	1	1.5	1.5	10.6
	Didn't have an impact but it's a good perk.	1	1.5	1.5	12.1
	Direct influence in a sense of being able to make changes to some standard construction concepts to meet requirements. Change construction systems to meet requirements.	1	1.5	1.5	13.6
	DK	2	3.0	3.0	16.7
	Don't know if it makes a big difference	1	1.5	1.5	18.2
	Education received on building better homes	1	1.5	1.5	19.7
	For our business end it gives us more information to give a homebuyer to build with us.	1	1.5	1.5	21.2
	Good impact based on rebates, Green path program meeting that was very significant.	1	1.5	1.5	22.7
	Had a good effect on us that is why we use the materials we use	1	1.5	1.5	24.2

	Hard question. Honestly MN codes require codes that are better than baseline so we would do it anyway, the program has helped us as we become more versed in what the programs offer, we continue to offer better homes.	1	1.5	1.5	25.8
	Helped	1	1.5	1.5	27.3
	Helps credibility of our company and gives buyers peace of mind that quality and equipment put in the home matters.	1	1.5	1.5	28.8
	I like the rebates, they encourage more energy efficient construction, marketing aspect for green bill, and shows proof that we are better than competitors.	1	1.5	1.5	30.3
	I think it's always an incentive when there's a rebate - it offsets the cost and sometimes it's even more than cost. It helps with the cost and creates a better house that's more energy efficient.	1	1.5	1.5	31.8
	Impacted	1	1.5	1.5	33.3
	It always helps to get a rebate and it's part of the reason why we do it.	1	1.5	1.5	34.8
	It didn't have any bearing because we were already meeting and exceeding the guidelines	1	1.5	1.5	36.4

It didn't influence our decision as we make the homes that way anyway	1	1.5	1.5	37.9
It didn't make any difference.	1	1.5	1.5	39.4
It helped	1	1.5	1.5	40.9
It is a pretty big motivator	1	1.5	1.5	42.4
It is an incentive but we would probably achieve close to baseline without it.	1	1.5	1.5	43.9
It justified what we were doing, we got a benefit from the subsidizing that the program delivered.	1	1.5	1.5	45.5
It probably didn't influence me at all. Nice to have incentives though.	1	1.5	1.5	47.0
It was a trend in the marketplace that people are looking to make homes more efficient. This was a selling point for us to prove that the homes are efficient.	1	1.5	1.5	48.5
It's a bonus but did not have any impact on the decision to build the house	1	1.5	1.5	50.0
It's a significant motivator to build smart	1	1.5	1.5	51.5
It's nice to have the kickback which offsets some of the cost	1	1.5	1.5	53.0
Limited. Not much influence.	1	1.5	1.5	54.5
Mandatory by the State	1	1.5	1.5	56.1
Minor to somewhat	1	1.5	1.5	57.6

No effect, we build only new homes	1	1.5	1.5	59.1
No impact, the program was just a nice benefit. We would have done the same thing with or without the program.	1	1.5	1.5	60.6
None	5	7.6	7.6	68.2
None. Our current practices are above baseline. So, we would have done it regardless.	1	1.5	1.5	69.7
Not a ton. The rebates are more of a bonus, we really do it because it's the right thing to do.	1	1.5	1.5	71.2
Offering rebate was helpful	1	1.5	1.5	72.7
Positive and influential	1	1.5	1.5	74.2
Provided incentive	1	1.5	1.5	75.8
Rebate	1	1.5	1.5	77.3
Rebates make things easier	1	1.5	1.5	78.8
The code is such that we have to do it that way	1	1.5	1.5	80.3
The rating systems allow us the see how we are performing...the measurements allow us to index how each house is made.	1	1.5	1.5	81.8
The rebate is an incentive, better rating better incentive.	1	1.5	1.5	83.3

	They did not need to influence me; I am small custom home builder and I make sure that they are energy efficient and top quality.	1	1.5	1.5	84.8
	Very little but added incentive.	1	1.5	1.5	86.4
	Was helpful	1	1.5	1.5	87.9
	We always wanted to try to do it better. The information they sent were helpful.	1	1.5	1.5	89.4
	We are a nonprofit so we are cost conscious and the rebate program is always an incentive	1	1.5	1.5	90.9
	We are committed to building better homes	1	1.5	1.5	92.4
	We are driven by not necessarily Xcel but testing company. The lower the score, the better it is for the builder which drives the company.	1	1.5	1.5	93.9
	We try to do the best we can to utilize what we put in our homes	1	1.5	1.5	95.5
	We would do it anyway but good to quantify the results.	1	1.5	1.5	97.0
	Well it has a significant influence because the more energy efficient they are, better for buyers.	1	1.5	1.5	98.5
	With Xcel not much of a rebate. It's the CenterPoint program that does.	1	1.5	1.5	100.0

	Total	66	100.0	100.0	

C1a. Rate the importance of the following factor on your decision: The dollar amount of the rebate

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not at all important	1	1.5	1.5	1.5
	1	1	1.5	1.5	3.0
	3	5	7.6	7.6	10.6
	4	1	1.5	1.5	12.1
	5	7	10.6	10.6	22.7
	6	6	9.1	9.1	31.8
	7	6	9.1	9.1	40.9
	8	13	19.7	19.7	60.6
	9	11	16.7	16.7	77.3
	Extremely important	15	22.7	22.7	100.0
	Total	66	100.0	100.0	

C1b. Rate the importance of the following factor on your decision: An endorsement or recommendation by Xcel Energy staff

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not at all important	7	10.6	10.6	10.6
	2	4	6.1	6.1	16.7
	3	4	6.1	6.1	22.7
	4	5	7.6	7.6	30.3
	5	15	22.7	22.7	53.0
	6	5	7.6	7.6	60.6
	7	6	9.1	9.1	69.7
	8	4	6.1	6.1	75.8
	9	3	4.5	4.5	80.3
	Extremely important	1	1.5	1.5	81.8
	Not applicable	8	12.1	12.1	93.9
	Don't know	4	6.1	6.1	100.0
	Total	66	100.0	100.0	

C1c. Rate the importance of the following factor on your decision: Information from Xcel Energy marketing or informational materials

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not at all important	7	10.6	10.6	10.6
	1	3	4.5	4.5	15.2
	2	7	10.6	10.6	25.8
	3	4	6.1	6.1	31.8
	4	6	9.1	9.1	40.9
	5	17	25.8	25.8	66.7
	6	3	4.5	4.5	71.2
	7	5	7.6	7.6	78.8
	8	10	15.2	15.2	93.9
	9	1	1.5	1.5	95.5
	Not applicable	1	1.5	1.5	97.0
	Don't know	2	3.0	3.0	100.0
	Total	66	100.0	100.0	

C1d. Rate the importance of the following factor on your decision: Previous experience with energy efficient equipment or materials installed in the new home

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not at all important	1	1.5	1.5	1.5
	2	2	3.0	3.0	4.5
	3	1	1.5	1.5	6.1
	5	7	10.6	10.6	16.7
	6	5	7.6	7.6	24.2
	7	18	27.3	27.3	51.5
	8	19	28.8	28.8	80.3
	9	2	3.0	3.0	83.3
	Extremely important	8	12.1	12.1	95.5
	Not applicable	2	3.0	3.0	98.5
	Don't know	1	1.5	1.5	100.0
	Total	66	100.0	100.0	

C1d_1. Was this experience through an Xcel Energy program?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	22	33.3	42.3	42.3
	No	22	33.3	42.3	84.6
	Don't know	8	12.1	15.4	100.0
	Total	52	78.8	100.0	
Missing	System	14	21.2		
Total		66	100.0		

C1e. Rate the importance of the following factor on your decision: Customer preference or request

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not at all important	7	10.6	10.6	10.6
	1	2	3.0	3.0	13.6
	2	1	1.5	1.5	15.2
	3	3	4.5	4.5	19.7
	4	1	1.5	1.5	21.2
	5	13	19.7	19.7	40.9
	6	4	6.1	6.1	47.0
	7	10	15.2	15.2	62.1
	8	7	10.6	10.6	72.7
	9	9	13.6	13.6	86.4
	Extremely important	5	7.6	7.6	93.9
	Not applicable	4	6.1	6.1	100.0
	Total	66	100.0	100.0	

C1f. Rate the importance of the following factor on your decision: Margin to install energy efficient equipment / materials

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not at all important	5	7.6	7.6	7.6
	1	1	1.5	1.5	9.1
	2	3	4.5	4.5	13.6
	3	2	3.0	3.0	16.7
	4	1	1.5	1.5	18.2

	5	9	13.6	13.6	31.8
	6	4	6.1	6.1	37.9
	7	10	15.2	15.2	53.0
	8	16	24.2	24.2	77.3
	9	3	4.5	4.5	81.8
	Extremely important	6	9.1	9.1	90.9
	Not applicable	3	4.5	4.5	95.5
	Don't know	3	4.5	4.5	100.0
	Total	66	100.0	100.0	

C1g. Rate the importance of the following factor on your decision: Your previous participation in an Xcel Energy program

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not at all important	5	7.6	7.6	7.6
	2	2	3.0	3.0	10.6
	3	2	3.0	3.0	13.6
	4	1	1.5	1.5	15.2
	5	12	18.2	18.2	33.3
	6	2	3.0	3.0	36.4
	7	13	19.7	19.7	56.1
	8	13	19.7	19.7	75.8
	9	4	6.1	6.1	81.8
	Extremely important	4	6.1	6.1	87.9
	Not applicable	6	9.1	9.1	97.0
	Don't know	2	3.0	3.0	100.0
	Total	66	100.0	100.0	

C1h. Rate the importance of the following factor on your decision: Information received from any training or events conducted by Xcel Energy

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not at all important	7	10.6	10.6	10.6
	1	3	4.5	4.5	15.2
	2	3	4.5	4.5	19.7

	3	5	7.6	7.6	27.3
	4	2	3.0	3.0	30.3
	5	14	21.2	21.2	51.5
	6	4	6.1	6.1	57.6
	7	4	6.1	6.1	63.6
	8	11	16.7	16.7	80.3
	Extremely important	1	1.5	1.5	81.8
	Not applicable	10	15.2	15.2	97.0
	Don't know	2	3.0	3.0	100.0
	Total	66	100.0	100.0	

C1o. Were there any other factors that were important to your decision to participate in the program?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes, please specify:	23	34.8	34.8	34.8
	No additional factors	42	63.6	63.6	98.5
	Don't know	1	1.5	1.5	100.0
	Total	66	100.0	100.0	

C1o_1_Text. Were there any other factors that were important to your decision to participate in the program? Yes, specify

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		43	65.2	65.2	65.2
	Being a better builder and tangible proof	1	1.5	1.5	66.7
	Climate change and global understanding	1	1.5	1.5	68.2
	Customer expectation	1	1.5	1.5	69.7
	Customer satisfaction in dwelling, better building practices, less callbacks from the customer	1	1.5	1.5	71.2
	Economic feasibility or payback	1	1.5	1.5	72.7

Exposing yourself to new product lines and opportunities	1	1.5	1.5	74.2
Following code	1	1.5	1.5	75.8
Government regulation was important	1	1.5	1.5	77.3
High grade equipment is company's policy, strive to be above average, user experience	1	1.5	1.5	78.8
High selling point to tell customers it's energy efficient	1	1.5	1.5	80.3
Homeowners' budget was higher so cost was no issue	1	1.5	1.5	81.8
How to work with energy auditors directly DPIS (very good to work with)	1	1.5	1.5	83.3
My own moral belief that you should build a better and healthier home for the client.	1	1.5	1.5	84.8
Our credibility and meeting and exceeding the requirements	1	1.5	1.5	86.4
Our typical building process	1	1.5	1.5	87.9
Potential for tax refund	1	1.5	1.5	89.4
Public perception of our company	1	1.5	1.5	90.9
Rebate and Green Pass award and building	1	1.5	1.5	92.4
Rebates	1	1.5	1.5	93.9
State mandate	1	1.5	1.5	95.5
To maintain a higher standard	1	1.5	1.5	97.0

	We are required by funding that we have to reach a certain standard	1	1.5	1.5	98.5
	We build to the green community criteria, so we use those energy standards and supplies by their standard	1	1.5	1.5	100.0
	Total	66	100.0	100.0	

C1o_1. On the same scale from 0 to 10, how would you rate the importance of <C1o_OTH>?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	8	4	6.1	17.4	17.4
	9	4	6.1	17.4	34.8
	Extremely important	14	21.2	60.9	95.7
	Not applicable	1	1.5	4.3	100.0
	Total	23	34.8	100.0	
Missing	System	43	65.2		
Total		66	100.0		

C5a. If the incentive, information, and support from the Xcel Energy <PROGRAM> was not available, would you have built the new homes to the exact same efficiency level?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	36	54.5	54.5	54.5
	Maybe/not sure (Don't know)	13	19.7	19.7	74.2
	No	17	25.8	25.8	100.0
	Total	66	100.0	100.0	

C5b. Using a scale from 0 to 10, please rate the likelihood that you would have built the new homes to the exact same efficiency level if the Xcel Energy <PROGRAM> was not available.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not at all likely	1	1.5	2.0	2.0

	5	3	4.5	6.1	8.2
	6	2	3.0	4.1	12.2
	7	5	7.6	10.2	22.4
	8	10	15.2	20.4	42.9
	9	7	10.6	14.3	57.1
	Extremely likely	15	22.7	30.6	87.8
	Not applicable	2	3.0	4.1	91.8
	Don't know	4	6.1	8.2	100.0
	Total	49	74.2	100.0	
Missing	System	17	25.8		
Total		66	100.0		

C5c. Do you want to change the likelihood that you would have built the new homes to the exact same efficiency level without support from Xcel?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes, rating is correct	15	22.7	100.0	100.0
Missing	System	51	77.3		
Total		66	100.0		

C5d. Do you want to change the likelihood of building new homes to the exact same efficiency level or the influence of the program factors?

(No responses)

C5d_1_Text. Do you want to go back and change the likelihood of building new homes to the exact same efficiency level or the influence of the program factor? Correct, record explanation

(No responses)

C5e_1_Text. Do you want to go back and change the likelihood of building new homes to the exact same efficiency level or the influence of the program factor? Correct, record explanation

(No responses)

C5e. Do you want to change the likelihood of building new homes to the exact same efficiency level or the influence of the program factors?

(No responses)

C6. In absence of the Xcel Energy program, what is the likelihood you would have built fewer homes to the exact same efficiency level?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not at all likely	11	16.7	47.8	47.8
	1	1	1.5	4.3	52.2
	2	2	3.0	8.7	60.9
	3	1	1.5	4.3	65.2
	5	1	1.5	4.3	69.6
	7	1	1.5	4.3	73.9
	8	1	1.5	4.3	78.3
	9	1	1.5	4.3	82.6
	Don't know	4	6.1	17.4	100.0
	Total	23	34.8	100.0	
Missing	System	43	65.2		
Total		66	100.0		

C7. Under that scenario, what percentage fewer homes?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	.00	1	1.5	50.0	50.0
	20.00	1	1.5	50.0	100.0
	Total	2	3.0	100.0	
Missing	System	64	97.0		
Total		66	100.0		

C8. Did you install ENERGY STAR® clothes washers and refrigerators in the participating new homes in 2018?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	42	63.6	85.7	85.7
	Don't know	7	10.6	14.3	100.0
	Total	49	74.2	100.0	
Missing	System	17	25.8		
Total		66	100.0		

C9. Please rate the importance of the <PROGRAM> program on your decision to install ENERGY STAR® clothes washers and refrigerators.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not at all important	8	12.1	19.0	19.0
	1	1	1.5	2.4	21.4
	5	4	6.1	9.5	31.0
	6	6	9.1	14.3	45.2
	7	3	4.5	7.1	52.4
	8	12	18.2	28.6	81.0
	9	1	1.5	2.4	83.3
	Extremely important	4	6.1	9.5	92.9
	Don't know	3	4.5	7.1	100.0
	Total	42	63.6	100.0	
Missing	System	24	36.4		
Total		66	100.0		

C10. Using a scale from 0 to 10, please rate the likelihood that you would have installed the exact same number of ENERGY STAR® clothes washers and refrigerators.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	1	1.5	2.4	2.4
	3	1	1.5	2.4	4.8
	4	1	1.5	2.4	7.1
	5	4	6.1	9.5	16.7
	6	1	1.5	2.4	19.0

	7	4	6.1	9.5	28.6
	8	7	10.6	16.7	45.2
	9	3	4.5	7.1	52.4
	Extremely likely	16	24.2	38.1	90.5
	Don't know	4	6.1	9.5	100.0
	Total	42	63.6	100.0	
Missing	System	24	36.4		
Total		66	100.0		

C11. Before learning of the <PROGRAM> program, did you plan to build new homes to the same efficiency standard as you did as a participant in the program?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	41	62.1	83.7	83.7
	No	5	7.6	10.2	93.9
	Don't know	3	4.5	6.1	100.0
	Total	49	74.2	100.0	
Missing	System	17	25.8		
Total		66	100.0		

C11a. Do you want to change the likelihood of building new homes to the exact same efficiency level or the influence of the program factors?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Correct - Leave answers as is	34	51.5	100.0	100.0
Missing	System	32	48.5		
Total		66	100.0		

C11b. Do you want to change the likelihood of building new homes to the exact same efficiency level or the influence of the program factors?

(No responses)

D1. Since your participation in the <PROGRAM> program in <YEAR>, has your company built any efficient new homes without applying for a rebate from Xcel Energy?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	11	16.7	16.7	16.7
	No	49	74.2	74.2	90.9
	Don't know	6	9.1	9.1	100.0
	Total	66	100.0	100.0	

D1a. For these efficient new homes in Xcel Energy territory that you did not receive a rebate for, why did you not apply for an Xcel Energy rebate?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		55	83.3	83.3	83.3
	Built them for other developers, not the owner	1	1.5	1.5	84.8
	Clients sometimes are not willing to sacrifice on lighting or windows	1	1.5	1.5	86.4
	DK	3	4.5	4.5	90.9
	Missed opportunity, forgetting to apply	1	1.5	1.5	92.4
	Not remembering	1	1.5	1.5	93.9
	The paperwork and stuff.	1	1.5	1.5	95.5
	The program no longer existed	1	1.5	1.5	97.0
	We missed a couple of inspection deadlines so they did not qualify for rebates	1	1.5	1.5	98.5
	We were not familiar when we started the rebuilding	1	1.5	1.5	100.0
	Total	66	100.0	100.0	

D2. For these new homes in Xcel Energy territory that you did not receive a rebate for, did your experience with the Xcel Energy <PROGRAM> influence your decision to install some or all of the additional efficient equipment?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	6	9.1	54.5	54.5
	No	4	6.1	36.4	90.9
	Don't know	1	1.5	9.1	100.0
	Total	11	16.7	100.0	
Missing	System	55	83.3		
Total		66	100.0		

D6_1. What type of efficient equipment did you install? First answer

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	LEDs	4	6.1	66.7	66.7
	Furnaces >92% AFUE	1	1.5	16.7	83.3
	Advanced framing or wall assemblies, not including changing from 2x4 to 2x6 studs?	1	1.5	16.7	100.0
	Total	6	9.1	100.0	
Missing	System	60	90.9		
Total		66	100.0		

D6_2. What type of efficient equipment did you install? Second answer

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	LEDs	1	1.5	16.7	16.7
	Furnaces >92% AFUE	3	4.5	50.0	66.7
	Central air conditioners >14 SEER	1	1.5	16.7	83.3
	Air sealing measures targeting a specific CFM50 value?	1	1.5	16.7	100.0
	Total	6	9.1	100.0	
Missing	System	60	90.9		
Total		66	100.0		

D6_3. What type of efficient equipment did you install? Third answer

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Furnaces >92% AFUE	1	1.5	16.7	16.7
	Central air conditioners >14 SEER	4	6.1	66.7	83.3
	Air sealing measures targeting a specific CFM50 value?	1	1.5	16.7	100.0
	Total	6	9.1	100.0	
Missing	System	60	90.9		
Total		66	100.0		

D6_4. What type of efficient equipment did you install? Fourth answer

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Furnaces >92% AFUE	1	1.5	16.7	16.7
	Central air conditioners >14 SEER	1	1.5	16.7	33.3
	Air sealing measures targeting a specific CFM50 value?	4	6.1	66.7	100.0
	Total	6	9.1	100.0	
Missing	System	60	90.9		
Total		66	100.0		

D6_5. What type of efficient equipment did you install? Fifth answer

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	LEDs	1	1.5	25.0	25.0
	Advanced framing or wall assemblies, not including changing from 2x4 to 2x6 studs?	3	4.5	75.0	100.0
	Total	4	6.1	100.0	
Missing	System	62	93.9		

Total		66	100.0		

D6_6. What type of efficient equipment did you install? Sixth answer

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Or something else? Specify	1	1.5	100.0	100.0
Missing	System	65	98.5		
Total		66	100.0		

D6_6_Text. What type of efficient equipment did you install? Something else, specify

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		65	98.5	98.5	98.5
	Radiant floor heat, high efficiency boilers	1	1.5	1.5	100.0
	Total	66	100.0	100.0	

D4. Approximately, what percent better than code were these homes you built that were not rebated by the Xcel Energy <PROGRAM> program?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	10%-19% better than baseline	3	4.5	50.0	50.0
	20%-29% better than baseline	2	3.0	33.3	83.3
	Don't know	1	1.5	16.7	100.0
	Total	6	9.1	100.0	
Missing	System	60	90.9		
Total		66	100.0		

D5. How important was your experience in the <PROGRAM>, in your decision to install the additional equipment and/or materials in other new homes not rebated by the <PROGRAM>?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	5	1	1.5	16.7	16.7
	6	1	1.5	16.7	33.3
	7	1	1.5	16.7	50.0
	9	1	1.5	16.7	66.7
	Extremely important	2	3.0	33.3	100.0
	Total	6	9.1	100.0	
Missing	System	60	90.9		
Total		66	100.0		

D6. If you had not participated in the <PROGRAM>, how likely is it that your organization would have installed these additional efficient equipment and/or materials?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	5	1	1.5	16.7	16.7
	7	2	3.0	33.3	50.0
	8	2	3.0	33.3	83.3
	Extremely likely	1	1.5	16.7	100.0
	Total	6	9.1	100.0	
Missing	System	60	90.9		
Total		66	100.0		

D7. Are you familiar with Xcel Energy talking with trade groups, state legislation, or otherwise influencing the residential new homes construction market?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes, specify	3	4.5	50.0	50.0
	No	3	4.5	50.0	100.0
	Total	6	9.1	100.0	
Missing	System	60	90.9		
Total		66	100.0		

D7_1_Text. Are you familiar with Xcel Energy talking with trade groups, state legislation, or otherwise influencing the residential new homes construction market? Yes, specify

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		63	95.5	95.5	95.5
	Major sponsor of Trade Association	1	1.5	1.5	97.0
	Nothing specific	1	1.5	1.5	98.5
	Through Builders' Association	1	1.5	1.5	100.0
	Total	66	100.0	100.0	

E1a. Rate how easy or difficult the following task associated with the <PROGRAM> were to complete: Complete program applications, rebate forms, or other program paperwork

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2	1	1.5	1.5	1.5
	3	7	10.6	10.6	12.1
	4	13	19.7	19.7	31.8
	Very easy	27	40.9	40.9	72.7
	Not applicable	15	22.7	22.7	95.5
	Don't know	3	4.5	4.5	100.0
	Total	66	100.0	100.0	

E2a. Why was it not easy to complete program applications, rebate forms, or other program paperwork?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		64	97.0	97.0	97.0
	Disconnect from the field people to office people.	1	1.5	1.5	98.5
	Field people don't care about getting rebates as much. Going in hindsight instead.				
	DK	1	1.5	1.5	100.0
	Total	66	100.0	100.0	

E3a. Would you consider not participating in the <PROGRAM> program because of this challenge?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	1	1.5	50.0	50.0
	No	1	1.5	50.0	100.0
	Total	2	3.0	100.0	
Missing	System	64	97.0		
Total		66	100.0		

E1b. Rate how easy or difficult the following task associated with the <PROGRAM> were to complete: Get in touch with an Xcel Energy representative

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very difficult	4	6.1	6.1	6.1
	2	3	4.5	4.5	10.6
	3	8	12.1	12.1	22.7
	4	15	22.7	22.7	45.5
	Very easy	19	28.8	28.8	74.2
	Not applicable	15	22.7	22.7	97.0
	Don't know	2	3.0	3.0	100.0
	Total	66	100.0	100.0	

E2b. Why was it not easy to get in touch with an Xcel Energy representative ?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		59	89.4	89.4	89.4
	Difficulty reaching them	1	1.5	1.5	90.9
	Due to high turnover of staff	1	1.5	1.5	92.4
	Hard to get a hold of	1	1.5	1.5	93.9
	Having a lot of problems getting in touch, at first di	1	1.5	1.5	95.5
	It's a big company and hard to get a hold of anybody.	1	1.5	1.5	97.0

	Just can't get a hold of them	1	1.5	1.5	98.5
	Not very accessible	1	1.5	1.5	100.0
	Total	66	100.0	100.0	

E3b. Would you consider not participating in the <PROGRAM> program because of this challenge?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	2	3.0	28.6	28.6
	No	5	7.6	71.4	100.0
	Total	7	10.6	100.0	
Missing	System	59	89.4		
Total		66	100.0		

E1c. Rate how easy or difficult the following task associated with the <PROGRAM> were to complete: Determine eligibility and rebate tier

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2	5	7.6	7.6	7.6
	3	11	16.7	16.7	24.2
	4	15	22.7	22.7	47.0
	Very easy	23	34.8	34.8	81.8
	Not applicable	8	12.1	12.1	93.9
	Don't know	4	6.1	6.1	100.0
	Total	66	100.0	100.0	

E2c. Why was it not easy to determine eligibility and rebate tier?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		61	92.4	92.4	92.4
	Because a tester gave us erroneous information about the program.	1	1.5	1.5	93.9

	Hard to know what score you are going to get before the home is complete	1	1.5	1.5	95.5
	It was complicated to understand	1	1.5	1.5	97.0
	No one really explained to me how to change it per say. Better if there would be financial benefit to do so.	1	1.5	1.5	98.5
	That's still unknown. We do not have the software to understand the rebate scoring system and rebate tier.	1	1.5	1.5	100.0
	Total	66	100.0	100.0	

E3c. Would you consider not participating in the <PROGRAM> program because of this challenge?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	1	1.5	20.0	20.0
	No	4	6.1	80.0	100.0
	Total	5	7.6	100.0	
Missing	System	61	92.4		
Total		66	100.0		

E1d. Rate how easy or difficult the following task associated with the <PROGRAM> were to complete: Meet your desired rebate tier

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2	6	9.1	9.1	9.1
	3	7	10.6	10.6	19.7
	4	19	28.8	28.8	48.5
	Very easy	26	39.4	39.4	87.9
	Not applicable	6	9.1	9.1	97.0
	Don't know	2	3.0	3.0	100.0

	Total	66	100.0	100.0	

E2d. Why was it not easy to meet your desired rebate tier?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		60	90.9	90.9	90.9
	DK	1	1.5	1.5	92.4
	It's hard to figure out what I need to do in order to get a better rebate, depending on cubic volume and home size	1	1.5	1.5	93.9
	No one's telling me how to manage the tier	1	1.5	1.5	95.5
	Rebates are a lot more difficult to use because of the disconnect from the field people to office people.	1	1.5	1.5	97.0
	Too many variables in the end product being size and type of home, and type of clientele makes a difference, too. Asians like a vented hood smoke pulled outside.	1	1.5	1.5	98.5
	Trying to get the building performance higher	1	1.5	1.5	100.0
	Total	66	100.0	100.0	

E3d. Would you consider not participating in the <PROGRAM> program because of this challenge?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	1	1.5	16.7	16.7
	No	5	7.6	83.3	100.0
	Total	6	9.1	100.0	
Missing	System	60	90.9		

Total	66	100.0		

E1e. Rate how easy or difficult the following task associated with the <PROGRAM> were to complete: Meet program requirements

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	3	12	18.2	18.2	18.2
	4	23	34.8	34.8	53.0
	Very easy	28	42.4	42.4	95.5
	Not applicable	1	1.5	1.5	97.0
	Don't know	2	3.0	3.0	100.0
	Total	66	100.0	100.0	

E2e. Why was it not easy to meet program requirements?

(No responses)

E3e. Would you consider not participating in the <PROGRAM> program because of this challenge?

(No responses)

E1f. Rate how easy or difficult the following task associated with the <PROGRAM> were to complete: Process of selecting Home Energy Rating System (HERS) rater

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2	1	1.5	1.5	1.5
	3	5	7.6	7.6	9.1
	4	19	28.8	28.8	37.9
	Very easy	37	56.1	56.1	93.9
	Not applicable	2	3.0	3.0	97.0
	Don't know	2	3.0	3.0	100.0
	Total	66	100.0	100.0	

E2f. Why was it not easy to process of selecting Home Energy Rating System (HERS) rater?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		65	98.5	98.5	98.5
	Because there wasn't a good one in my close geographic area. We had to abandon the one that was in our area, who told us we wouldn't qualify.	1	1.5	1.5	100.0
	Total	66	100.0	100.0	

E3f. Would you consider not participating in the <PROGRAM> program because of this challenge?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	1	1.5	100.0	100.0
Missing	System	65	98.5		
Total		66	100.0		

E4. From the time you applied for <PROGRAM> to the time you received your rebate, did the project take less or more time to complete?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Took much less time than expected	1	1.5	1.5	1.5
	2	16	24.2	24.2	25.8
	3	30	45.5	45.5	71.2
	4	10	15.2	15.2	86.4
	Took much more time than expected	5	7.6	7.6	93.9
	Don't know	4	6.1	6.1	100.0
	Total	66	100.0	100.0	

F1a. Using a scale of 1 to 5, rate your satisfaction with: The amount of time it took to receive your rebate

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very dissatisfied	2	3.0	3.0	3.0
	2	6	9.1	9.1	12.1
	3	24	36.4	36.4	48.5
	4	15	22.7	22.7	71.2
	Very satisfied	14	21.2	21.2	92.4
	Not applicable	1	1.5	1.5	93.9
	Don't know	4	6.1	6.1	100.0
	Total	66	100.0	100.0	

F2a. Why weren't you satisfied with the amount of time it took to receive your rebate?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		58	87.9	87.9	87.9
	It takes too long. 45 - 60 days is too long	1	1.5	1.5	89.4
	It took a lot longer than I thought. I was wondering if it was still coming.	1	1.5	1.5	90.9
	It took a while	1	1.5	1.5	92.4
	REF	1	1.5	1.5	93.9
	Too long to get the rebates. Still waiting for one from January.	1	1.5	1.5	95.5
	Too long. We had our house tested 2 months ago - still no rebate.	1	1.5	1.5	97.0
	Took a month longer than expected.	1	1.5	1.5	98.5
	Took too long	1	1.5	1.5	100.0
	Total	66	100.0	100.0	

F1b. Using a scale of 1 to 5, rate your satisfaction with: The dollar amount of the rebate

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very dissatisfied	1	1.5	1.5	1.5
	2	4	6.1	6.1	7.6
	3	13	19.7	19.7	27.3
	4	28	42.4	42.4	69.7
	Very satisfied	19	28.8	28.8	98.5
	Don't know	1	1.5	1.5	100.0
	Total	66	100.0	100.0	

F2b. Why weren't you satisfied with the dollar amount of the rebate?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		61	92.4	92.4	92.4
	By the time you factor all the human resources to tracking one of these things it is not enough money	1	1.5	1.5	93.9
	Everybody likes higher rebate	1	1.5	1.5	95.5
	I think they could give us more money	1	1.5	1.5	97.0
	Not enough money. It only covers the costs of testing so don't see a financial return.	1	1.5	1.5	98.5
	Would like more	1	1.5	1.5	100.0
	Total	66	100.0	100.0	

F1c. Using a scale of 1 to 5, rate your satisfaction with: Your interactions with program staff

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	3	8	12.1	12.1	12.1
	4	22	33.3	33.3	45.5
	Very satisfied	21	31.8	31.8	77.3
	Not applicable	13	19.7	19.7	97.0
	Don't know	2	3.0	3.0	100.0
	Total	66	100.0	100.0	

F2c. Why weren't you satisfied with your interactions with program staff?

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	66	100.0	100.0	100.0

F1d. Using a scale of 1 to 5, rate your satisfaction with: Your interactions with your rater

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	3	6	9.1	9.1	9.1
	4	19	28.8	28.8	37.9
	Very satisfied	39	59.1	59.1	97.0
	Not applicable	1	1.5	1.5	98.5
	Don't know	1	1.5	1.5	100.0
	Total	66	100.0	100.0	

F2d. Why weren't you satisfied with your interactions with your rater?

(No responses)

F1a. Using a scale of 1 to 5, rate your satisfaction with: The structure of the rebate levels varying by percent better than baseline

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2	1	1.5	1.5	1.5
	3	16	24.2	24.2	25.8
	4	26	39.4	39.4	65.2
	Very satisfied	15	22.7	22.7	87.9
	Not applicable	1	1.5	1.5	89.4
	Don't know	7	10.6	10.6	100.0
	Total	66	100.0	100.0	

F2e. Why weren't you satisfied with the structure of the rebate levels varying by percent better than baseline?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		65	98.5	98.5	98.5
	The whole process hasn't been explained so I don't know how to better.	1	1.5	1.5	100.0
	Total	66	100.0	100.0	

F3. How would you rate your satisfaction with the <PROGRAM> as a whole?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	3	5	7.6	7.6	7.6
	4	39	59.1	59.1	66.7
	Very satisfied	22	33.3	33.3	100.0
	Total	66	100.0	100.0	

F3a. Why weren't you satisfied with your experience with the <PROGRAM>?

(No responses)

F3b. What else could Xcel Energy do to improve your satisfaction with the <PROGRAM>?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		22	33.3	33.3	33.3
	4.50 rating is more appropriate, I don't have any problems with it, NFI	1	1.5	1.5	34.8
	Better explain the reward for doing a better job.	1	1.5	1.5	36.4
	Cost effective and easy to explain to the homeowner.	1	1.5	1.5	37.9
	Could do a quicker turn around rebate	1	1.5	1.5	39.4
	Could offer more rebates	1	1.5	1.5	40.9
	DK	11	16.7	16.7	57.6
	Expanding the rebates that we are eligible for.	1	1.5	1.5	59.1
	Give us more money	1	1.5	1.5	60.6
	I can't think of anything. I just don't like paperwork.	1	1.5	1.5	62.1
	Increase the rebate	2	3.0	3.0	65.2
	Make the program available to us, it isn't anymore	1	1.5	1.5	66.7
	More communication	1	1.5	1.5	68.2
	More on-hand site construction with general contractors and subcontractors	1	1.5	1.5	69.7
	Nothing	8	12.1	12.1	81.8
	Offer more money	1	1.5	1.5	83.3
	Offer more training	1	1.5	1.5	84.8
	Overall it is great	1	1.5	1.5	86.4

	Overall, they do a really good job, but more communication on how long it would take to get the rebate	1	1.5	1.5	87.9
	Probably have more communication with contractors and better outline how the program works. Getting information from third party rater is a bit confusing.	1	1.5	1.5	89.4
	Quicker rebate and additional information on how to score better	1	1.5	1.5	90.9
	Release more information about what they are offering to builders	1	1.5	1.5	92.4
	They are good	1	1.5	1.5	93.9
	They could deliver the rebate quicker	1	1.5	1.5	95.5
	They could equal it to the cost for testing. Higher rebate.	1	1.5	1.5	97.0
	They could improve communication	1	1.5	1.5	98.5
	We got most of our information from third party of how to do this so maybe have it more direct from Xcel because without them it would've been very confusing	1	1.5	1.5	100.0
	Total	66	100.0	100.0	

F4a. Do you have an interest in working with any of the following premium electric technologies? Geothermal technology

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	17	25.8	30.9	30.9
	No	36	54.5	65.5	96.4
	Don't Know	1	1.5	1.8	98.2
	Refused	1	1.5	1.8	100.0
	Total	55	83.3	100.0	
Missing	System	11	16.7		
Total		66	100.0		

F4c. Do you have an interest in working with any of the following premium electric technologies? Electric vehicles chargers

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	19	28.8	35.2	35.2
	No	31	47.0	57.4	92.6
	Don't Know	3	4.5	5.6	98.1
	Refused	1	1.5	1.9	100.0
	Total	54	81.8	100.0	
Missing	System	12	18.2		
Total		66	100.0		

F4c. Do you have an interest in working with any of the following premium electric technologies? Hybrid and/or variable capacity heat pump technology

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	15	22.7	28.3	28.3
	No	30	45.5	56.6	84.9
	Don't know	7	10.6	13.2	98.1
	Refused	1	1.5	1.9	100.0
	Total	53	80.3	100.0	
Missing	System	13	19.7		
Total		66	100.0		

F4d. Do you have an interest in working with any of the following premium electric technologies?

Ultra-high performance building assemblies such as passive house or ACH50 <1.0

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	20	30.3	37.0	37.0
	No	27	40.9	50.0	87.0
	Don't Know	6	9.1	11.1	98.1
	Refused	1	1.5	1.9	100.0
	Total	54	81.8	100.0	
Missing	System	12	18.2		
Total		66	100.0		

F5a. Do you have an interest in working with any of the following smart connected technology?

Systems that account for water savings

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	30	45.5	55.6	55.6
	No	21	31.8	38.9	94.4
	Don't Know	2	3.0	3.7	98.1
	Refused	1	1.5	1.9	100.0
	Total	54	81.8	100.0	
Missing	System	12	18.2		
Total		66	100.0		

F5b. Do you have an interest in working with any of the following smart connected technology?

Increased electrification

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	9	13.6	17.0	17.0
	No	24	36.4	45.3	62.3
	Don't know	19	28.8	35.8	98.1
	Refused	1	1.5	1.9	100.0
	Total	53	80.3	100.0	

Missing	System	13	19.7		
Total		66	100.0		

F6. Are there other technologies you are interested in but weren't previously mentioned?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		13	19.7	19.7	19.7
	DK	1	1.5	1.5	21.2
	High efficiency air exchange systems	1	1.5	1.5	22.7
	No	42	63.6	63.6	86.4
	PV	1	1.5	1.5	87.9
	Solar	4	6.1	6.1	93.9
	Solar technology	2	3.0	3.0	97.0
	Well water pumps	1	1.5	1.5	98.5
	Wind energy	1	1.5	1.5	100.0
	Total	66	100.0	100.0	

F7. Would you be interested in additional prescriptive opportunities similar to the current ENERGY STAR appliance rebates for ENERY STAR Clothes Washers and Refrigerators?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	35	53.0	66.0	66.0
	No	15	22.7	28.3	94.3
	Don't know	3	4.5	5.7	100.0
	Total	53	80.3	100.0	
Missing	System	13	19.7		
Total		66	100.0		

C.3 PARTICIPANT HOMEOWNER SURVEY RESULTS

The following is the raw data from the participant homeowner survey, fielded in August 2019.

A1a. Rate the importance of the following factor on your decision to purchase a new home: Buying a brand new home vs a pre-owned home

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not at all important	2	2.9	2.9	2.9
	4	2	2.9	2.9	5.7
	5	8	11.4	11.4	17.1
	6	3	4.3	4.3	21.4
	7	11	15.7	15.7	37.1
	8	12	17.1	17.1	54.3
	9	4	5.7	5.7	60.0
	Extremely important	27	38.6	38.6	98.6
	Not applicable	1	1.4	1.4	100.0
	Total	70	100.0	100.0	

A1b. Rate the importance of the following factor on your decision to purchase a new home: The specific builder of the home

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not at all important	5	7.1	7.1	7.1
	2	4	5.7	5.7	12.9
	3	2	2.9	2.9	15.7
	4	2	2.9	2.9	18.6
	5	11	15.7	15.7	34.3
	6	9	12.9	12.9	47.1
	7	9	12.9	12.9	60.0
	8	6	8.6	8.6	68.6
	9	4	5.7	5.7	74.3
	Extremely important	16	22.9	22.9	97.1
	Not applicable	2	2.9	2.9	100.0
	Total	70	100.0	100.0	

A1c. Rate the importance of the following factor on your decision to purchase a new home: The energy efficiency of the home

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not at all important	3	4.3	4.3	4.3
	2	1	1.4	1.4	5.7
	4	1	1.4	1.4	7.1
	5	8	11.4	11.4	18.6
	6	5	7.1	7.1	25.7
	7	13	18.6	18.6	44.3
	8	13	18.6	18.6	62.9
	9	6	8.6	8.6	71.4
	Extremely important	18	25.7	25.7	97.1
	Not applicable	1	1.4	1.4	98.6
	Don't know	1	1.4	1.4	100.0
	Total	70	100.0	100.0	

A1d. Rate the importance of the following factor on your decision to purchase a new home: The location of the home

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	5	2	2.9	2.9	2.9
	6	4	5.7	5.7	8.6
	7	7	10.0	10.0	18.6
	8	15	21.4	21.4	40.0
	9	9	12.9	12.9	52.9
	Extremely important	32	45.7	45.7	98.6
	Not applicable	1	1.4	1.4	100.0
	Total	70	100.0	100.0	

A1e. Rate the importance of the following factor on your decision to purchase a new home: The price of the home

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not at all important	1	1.4	1.4	1.4
	2	1	1.4	1.4	2.9

	3	1	1.4	1.4	4.3
	5	3	4.3	4.3	8.6
	6	6	8.6	8.6	17.1
	7	9	12.9	12.9	30.0
	8	16	22.9	22.9	52.9
	9	12	17.1	17.1	70.0
	Extremely important	21	30.0	30.0	100.0
	Total	70	100.0	100.0	

A1f. Rate the importance of the following factor on your decision to purchase a new home: The homes participation in the Xcel Energy Efficient New Home Construction program

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not at all important	12	17.1	17.1	17.1
	1	1	1.4	1.4	18.6
	4	4	5.7	5.7	24.3
	5	7	10.0	10.0	34.3
	6	4	5.7	5.7	40.0
	7	2	2.9	2.9	42.9
	8	7	10.0	10.0	52.9
	9	1	1.4	1.4	54.3
	Extremely important	5	7.1	7.1	61.4
	Not applicable	13	18.6	18.6	80.0
	Don't know	14	20.0	20.0	100.0
	Total	70	100.0	100.0	

A2. Was there another top priority factor that was important to your decision to buy your new home?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes, specify	43	61.4	61.4	61.4
	No additional priority factor	27	38.6	38.6	100.0
	Total	70	100.0	100.0	

A2_1_Text. Was there another top priority factor that was important to your decision to buy your new home? Yes, specify

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		27	38.6	38.6	38.6
	A main level with no upstairs and a main walk-out	1	1.4	1.4	40.0
	Available hiking paths in the area.	1	1.4	1.4	41.4
	Build time	1	1.4	1.4	42.9
	Came with everything included and smart home	1	1.4	1.4	44.3
	Children's school	1	1.4	1.4	45.7
	Culture and family	1	1.4	1.4	47.1
	Design	2	2.9	2.9	50.0
	Design of the home	1	1.4	1.4	51.4
	Downsize from previous home	1	1.4	1.4	52.9
	Family	1	1.4	1.4	54.3
	Having an attached garage	1	1.4	1.4	55.7
	Home repairs	1	1.4	1.4	57.1
	Just the timing was right	1	1.4	1.4	58.6
	Land	1	1.4	1.4	60.0
	Layout of home	1	1.4	1.4	61.4
	Location. Also, we wanted Xcel Energy as our energy provider.	1	1.4	1.4	62.9
	Maintain building well	1	1.4	1.4	64.3
	Maintenance fees	1	1.4	1.4	65.7
	Maintenance for the yard	1	1.4	1.4	67.1
	No steps and no basement	1	1.4	1.4	68.6

	Number of bedrooms	1	1.4	1.4	70.0
	Open floor plan	1	1.4	1.4	71.4
	Our age and handicap accessibility.	1	1.4	1.4	72.9
	Proximity to parks	1	1.4	1.4	74.3
	Public school access	1	1.4	1.4	75.7
	Quality of the home and brand of home	1	1.4	1.4	77.1
	Retiring	1	1.4	1.4	78.6
	School district	5	7.1	7.1	85.7
	Schools	1	1.4	1.4	87.1
	Solar rating	1	1.4	1.4	88.6
	The external air taking of property during all seasons	1	1.4	1.4	90.0
	The floorplan	2	2.9	2.9	92.9
	The home was all on one level	1	1.4	1.4	94.3
	The layout of the house	1	1.4	1.4	95.7
	The size of the house	1	1.4	1.4	97.1
	The square footage of the home and the layout.	1	1.4	1.4	98.6
	We wanted a single-level home	1	1.4	1.4	100.0
	Total	70	100.0	100.0	

A2a. On the same scale of 0 to 10, how would you rate the importance of the factor: <A2_1_Text>?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	7	1	1.4	2.3	2.3
	8	3	4.3	7.0	9.3
	9	11	15.7	25.6	34.9
	Extremely important	28	40.0	65.1	100.0
	Total	43	61.4	100.0	
Missing	System	27	38.6		

Total		70	100.0		

A3. Would you consider your new home to be an energy efficient home?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	65	92.9	92.9	92.9
	No	2	2.9	2.9	95.7
	Don't know	3	4.3	4.3	100.0
	Total	70	100.0	100.0	

A4. Were there any particular energy efficient upgrades that were important in your decision to purchase your new home?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	31	44.3	47.7	47.7
	No	30	42.9	46.2	93.8
	Don't know	4	5.7	6.2	100.0
	Total	65	92.9	100.0	
Missing	System	5	7.1		
Total		70	100.0		

A4a_1. Which of the following energy efficient equipment was important in your decision to purchase your new home? First answer

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Clothes Washer	4	5.7	12.9	12.9
	LED Lighting	3	4.3	9.7	22.6
	Furnace	8	11.4	25.8	48.4
	Central air conditioner	6	8.6	19.4	67.7
	Other, specify	9	12.9	29.0	96.8
	88	1	1.4	3.2	100.0
	Total	31	44.3	100.0	
Missing	System	39	55.7		
Total		70	100.0		

A4a_2. Which of the following energy efficient equipment was important in your decision to purchase your new home? Second answer

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Clothes Washer	1	1.4	4.2	4.2
	Refrigerator	5	7.1	20.8	25.0
	LED Lighting	1	1.4	4.2	29.2
	Furnace	7	10.0	29.2	58.3
	Central air conditioner	6	8.6	25.0	83.3
	Other, specify	4	5.7	16.7	100.0
	Total	24	34.3	100.0	
Missing	System	46	65.7		
Total		70	100.0		

A4a_3. Which of the following energy efficient equipment was important in your decision to purchase your new home? Third answer

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Clothes Washer	1	1.4	8.3	8.3
	Refrigerator	1	1.4	8.3	16.7
	LED Lighting	5	7.1	41.7	58.3
	Furnace	2	2.9	16.7	75.0
	Central air conditioner	2	2.9	16.7	91.7
	Other, specify	1	1.4	8.3	100.0
	Total	12	17.1	100.0	
Missing	System	58	82.9		
Total		70	100.0		

A4a_4. Which of the following energy efficient equipment was important in your decision to purchase your new home? Fourth answer

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Clothes Washer	1	1.4	11.1	11.1
	Refrigerator	1	1.4	11.1	22.2

	LED Lighting	3	4.3	33.3	55.6
	Furnace	4	5.7	44.4	100.0
	Total	9	12.9	100.0	
Missing	System	61	87.1		
Total		70	100.0		

A4a_5. Which of the following energy efficient equipment was important in your decision to purchase your new home? Fifth answer

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Clothes Washer	1	1.4	12.5	12.5
	Refrigerator	2	2.9	25.0	37.5
	Furnace	1	1.4	12.5	50.0
	Central air conditioner	4	5.7	50.0	100.0
	Total	8	11.4	100.0	
Missing	System	62	88.6		
Total		70	100.0		

A4a_6. Which of the following energy efficient equipment was important in your decision to purchase your new home? Sixth answer

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Clothes Washer	2	2.9	40.0	40.0
	Other, specify	3	4.3	60.0	100.0
	Total	5	7.1	100.0	
Missing	System	65	92.9		
Total		70	100.0		

A4a_6_Text. Which of the following energy efficient equipment was important in your decision to purchase your new home? Other, specify

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		53	75.7	75.7	75.7

	Energy efficient appliances and insulation for windows	1	1.4	1.4	77.1
	Energy efficient water heater	1	1.4	1.4	78.6
	Energy efficient windows	1	1.4	1.4	80.0
	High end windows and poured concrete foundation	1	1.4	1.4	81.4
	Insulation	2	2.9	2.9	84.3
	Insulation for the garage	1	1.4	1.4	85.7
	Proper insulation having been installed	1	1.4	1.4	87.1
	The H.E.R.S. rating of 46 which was very good + tankless water heater	1	1.4	1.4	88.6
	The insulation	1	1.4	1.4	90.0
	The windows, dual zone heating.	1	1.4	1.4	91.4
	Water heater	3	4.3	4.3	95.7
	Water heater, Insulation	1	1.4	1.4	97.1
	Windows	2	2.9	2.9	100.0
	Total	70	100.0	100.0	

A5a. Rate the importance of the following factor on your decision to purchase a home with energy efficient equipment / materials: Lower energy costs

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	4	1	1.4	1.7	1.7
	5	2	2.9	3.4	5.1
	6	4	5.7	6.8	11.9
	7	2	2.9	3.4	15.3

	8	16	22.9	27.1	42.4
	9	10	14.3	16.9	59.3
	Extremely important	24	34.3	40.7	100.0
	Total	59	84.3	100.0	
Missing	System	11	15.7		
Total		70	100.0		

A5b. Rate the importance of the following factor on your decision to purchase a home with energy efficient equipment / materials: Better for the environment

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2	1	1.4	1.7	1.7
	3	2	2.9	3.4	5.1
	5	7	10.0	11.9	16.9
	6	8	11.4	13.6	30.5
	7	8	11.4	13.6	44.1
	8	9	12.9	15.3	59.3
	9	3	4.3	5.1	64.4
	Extremely important	18	25.7	30.5	94.9
	Not applicable	2	2.9	3.4	98.3
	Don't know	1	1.4	1.7	100.0
	Total	59	84.3	100.0	
Missing	System	11	15.7		
Total		70	100.0		

A5c. Rate the importance of the following factor on your decision to purchase a home with energy efficient equipment / materials: Better resale value

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2	3	4.3	5.1	5.1
	4	1	1.4	1.7	6.8
	5	6	8.6	10.2	16.9
	6	4	5.7	6.8	23.7
	7	5	7.1	8.5	32.2
	8	11	15.7	18.6	50.8
	9	7	10.0	11.9	62.7

	Extremely important	21	30.0	35.6	98.3
	Not applicable	1	1.4	1.7	100.0
	Total	59	84.3	100.0	
Missing	System	11	15.7		
Total		70	100.0		

A5d. Rate the importance of the following factor on your decision to purchase a home with energy efficient equipment / materials: Fewer maintenance concerns

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	4	2	2.9	3.4	3.4
	5	2	2.9	3.4	6.8
	6	1	1.4	1.7	8.5
	7	6	8.6	10.2	18.6
	8	10	14.3	16.9	35.6
	9	5	7.1	8.5	44.1
	Extremely important	33	47.1	55.9	100.0
	Total	59	84.3	100.0	
Missing	System	11	15.7		
Total		70	100.0		

A5e. Rate the importance of the following factor on your decision to purchase a home with energy efficient equipment / materials: Comfort

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	6	6	8.6	10.2	10.2
	7	2	2.9	3.4	13.6
	8	16	22.9	27.1	40.7
	9	11	15.7	18.6	59.3
	Extremely important	23	32.9	39.0	98.3
	Not applicable	1	1.4	1.7	100.0
	Total	59	84.3	100.0	
Missing	System	11	15.7		
Total		70	100.0		

A5f. Rate the importance of the following factor on your decision to purchase a home with energy efficient equipment / materials: Safety and health concerns

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	1	1.4	1.7	1.7
	5	2	2.9	3.4	5.1
	6	6	8.6	10.2	15.3
	7	9	12.9	15.3	30.5
	8	6	8.6	10.2	40.7
	9	5	7.1	8.5	49.2
	Extremely important	27	38.6	45.8	94.9
	Not applicable	3	4.3	5.1	100.0
	Total	59	84.3	100.0	
Missing	System	11	15.7		
Total		70	100.0		

A6. Did you attend a Parade of Homes tour ?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	28	40.0	40.0	40.0
	No	40	57.1	57.1	97.1
	Don't know	2	2.9	2.9	100.0
	Total	70	100.0	100.0	

A7. After attending the Parade of Homes, did you visit the Parade of Homes website or any websites of the builders you found through the tour?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	21	30.0	75.0	75.0
	No	5	7.1	17.9	92.9
	Don't know	2	2.9	7.1	100.0
	Total	28	40.0	100.0	
Missing	System	42	60.0		
Total		70	100.0		

A8. Do you remember finding information on the benefits of energy efficient new homes on these websites?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	12	17.1	57.1	57.1
	No	6	8.6	28.6	85.7
	Don't know	3	4.3	14.3	100.0
	Total	21	30.0	100.0	
Missing	System	49	70.0		
Total		70	100.0		

A9. What website information related to energy efficiency, if any, would have been useful in helping you make your purchasing decision?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		49	70.0	70.0	70.0
	Cared more about design of house	1	1.4	1.4	71.4
	DK	8	11.4	11.4	82.9
	Energy efficiency programs, info. on central air conditioning	1	1.4	1.4	84.3
	Equipment could've been mentioned	1	1.4	1.4	85.7
	Ganja homes, had sales website that points out their specialties and why you should choose them, beyond requirements that Minnesota uses, higher grade windows and zoned heating and cooling	1	1.4	1.4	87.1
	HERS rating	1	1.4	1.4	88.6

	How to be energy efficient in the household and how to choose appliances, general energy efficient education	1	1.4	1.4	90.0
	I think a lot about cost and cost savings, and information about the carbon footprint to compare homes	1	1.4	1.4	91.4
	Just providing information about central air conditioning, dual-zone heating, and temperature control.	1	1.4	1.4	92.9
	More info about energy efficiency options with cost benefit analysis of those options.	1	1.4	1.4	94.3
	More than mechanics of how everything worked	1	1.4	1.4	95.7
	None	1	1.4	1.4	97.1
	Parade of Homes	1	1.4	1.4	98.6
	The type of furnace and air conditioner and insulation	1	1.4	1.4	100.0
	Total	70	100.0	100.0	

A10. In the end, how did you find your new home?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Online real estate database, such as Zillow, Redfin, or Trulia	10	14.3	14.3	14.3
	Real estate agent	8	11.4	11.4	25.7
	Parade of homes	8	11.4	11.4	37.1

	Other, specify	41	58.6	58.6	95.7
	Don't know	3	4.3	4.3	100.0
	Total	70	100.0	100.0	

A10_4_Text. In the end, how did you find your new home? Other, specify

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		29	41.4	41.4	41.4
	Ad in newspaper	1	1.4	1.4	42.9
	Built own home	1	1.4	1.4	44.3
	Driving around	3	4.3	4.3	48.6
	Driving around and found	1	1.4	1.4	50.0
	Driving by	1	1.4	1.4	51.4
	Driving by and seeing a sign	1	1.4	1.4	52.9
	Driving in a neighborhood	1	1.4	1.4	54.3
	Drove around new developments/toured around	1	1.4	1.4	55.7
	Found a complex being built	1	1.4	1.4	57.1
	Found builder online	1	1.4	1.4	58.6
	Friends	2	2.9	2.9	61.4
	Google search	1	1.4	1.4	62.9
	I found this development on my own	1	1.4	1.4	64.3
	I picked and designed the home myself	1	1.4	1.4	65.7
	In-person open house	1	1.4	1.4	67.1
	Just driving around	1	1.4	1.4	68.6
	Lennar website	1	1.4	1.4	70.0
	MLS	1	1.4	1.4	71.4
	My daughter referred me to it.	1	1.4	1.4	72.9

My son found it and informed me of it.	1	1.4	1.4	74.3
Not applicable. I built my own home.	1	1.4	1.4	75.7
Our son found the location	1	1.4	1.4	77.1
Own search	1	1.4	1.4	78.6
Owned the property it was built on	1	1.4	1.4	80.0
Picked location and looked at markets/land. I am a real estate agent myself	1	1.4	1.4	81.4
Real estate agent, Trulia, Parade of Homes	1	1.4	1.4	82.9
Saw a model not too far from here	1	1.4	1.4	84.3
Saw a new development for active lifestyles	1	1.4	1.4	85.7
Through my own research for new construction through builder's website	1	1.4	1.4	87.1
We drove by and saw the model	1	1.4	1.4	88.6
We saw a sign for an open house	1	1.4	1.4	90.0
We've been looking at builders through our own research	1	1.4	1.4	91.4
Went through the builder	1	1.4	1.4	92.9
When we were out driving around in our neighborhood	1	1.4	1.4	94.3

	Word of mouth	2	2.9	2.9	97.1
	Word of mouth from a friend	1	1.4	1.4	98.6
	Word of mouth/advertising	1	1.4	1.4	100.0
	Total	70	100.0	100.0	

B1. Did you, or someone from your household, interact with the builder of your home?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes, all of the time	53	75.7	75.7	75.7
	Yes, some of the time	13	18.6	18.6	94.3
	No	4	5.7	5.7	100.0
	Total	70	100.0	100.0	

B2. What did those interactions involve?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Administrative topics (e.g. schedule)	12	17.1	18.2	18.2
	Training on energy efficient equipment / materials	6	8.6	9.1	27.3
	Both 1 & 2	29	41.4	43.9	71.2
	Other, specify	17	24.3	25.8	97.0
	Don't know	2	2.9	3.0	100.0
	Total	66	94.3	100.0	
Missing	System	4	5.7		
Total		70	100.0		

B2_4_Text. What did those interactions involve? Other, specify

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		53	75.7	75.7	75.7
	Administrative topics, prices/costs	1	1.4	1.4	77.1
	Building plans	1	1.4	1.4	78.6
	Change orders, design changes	1	1.4	1.4	80.0
	Clarifying which areas that we wanted to include with the additions.	1	1.4	1.4	81.4
	Codes they were building to; the style of the house, amenities etc...	1	1.4	1.4	82.9
	Communicating with the builder what we wanted.	1	1.4	1.4	84.3
	Design and upgrades and information on what appliances were being installed.	1	1.4	1.4	85.7
	Design of home	1	1.4	1.4	87.1
	Discussions around upgrades, training on energy efficient equipment, punch list	1	1.4	1.4	88.6
	Eye on construction process	1	1.4	1.4	90.0
	Finishes and changes to some layout of some doors, and scheduling.	1	1.4	1.4	91.4
	Mostly safety and design	1	1.4	1.4	92.9

	Not applicable. I built my own home.	1	1.4	1.4	94.3
	Scheduling, discussions on building process issues	1	1.4	1.4	95.7
	Scheduling, picking out cabinets/flooring/appliances, etc.	1	1.4	1.4	97.1
	The design and choice of the interior materials.	1	1.4	1.4	98.6
	The lighting, the water softener, and flooring.	1	1.4	1.4	100.0
	Total	70	100.0	100.0	

B3_1. What type of energy efficiency training did you receive? First answer

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Information on how the energy efficient equipment / materials lowers energy costs	13	18.6	37.1	37.1
	How to properly use the energy efficient equipment to maximize savings	6	8.6	17.1	54.3
	How to properly maintain the energy efficient equipment	13	18.6	37.1	91.4
	Other, specify	1	1.4	2.9	94.3
	Don't know	2	2.9	5.7	100.0
	Total	35	50.0	100.0	
Missing	System	35	50.0		
Total		70	100.0		

B3_2. What type of energy efficiency training did you receive? Second answer

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	How to properly use the energy efficient equipment to maximize savings	16	22.9	66.7	66.7
	How to properly maintain the energy efficient equipment	7	10.0	29.2	95.8
	Other, specify	1	1.4	4.2	100.0
	Total	24	34.3	100.0	
Missing	System	46	65.7		
Total		70	100.0		

B3_3. What type of energy efficiency training did you receive? Third answer

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Information on how the energy efficient equipment / materials lowers energy costs	4	5.7	30.8	30.8
	How to properly use the energy efficient equipment to maximize savings	1	1.4	7.7	38.5
	How to properly maintain the energy efficient equipment	7	10.0	53.8	92.3
	Other, specify	1	1.4	7.7	100.0
	Total	13	18.6	100.0	
Missing	System	57	81.4		
Total		70	100.0		

B3_4_Text. What type of energy efficiency training did you receive? Other, specify

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		67	95.7	95.7	95.7
	I installed programmable thermostats that I can run on my iPhone.	1	1.4	1.4	97.1
	Keep system on rather than powering down each time	1	1.4	1.4	98.6
	LED lights	1	1.4	1.4	100.0
	Total	70	100.0	100.0	

B4_1. How did you receive the training provided? First answer

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	In-person demonstration	27	38.6	77.1	77.1
	Printed materials	5	7.1	14.3	91.4
	Videos	1	1.4	2.9	94.3
	Don't know	2	2.9	5.7	100.0
	Total	35	50.0	100.0	
Missing	System	35	50.0		
Total		70	100.0		

B4_2. How did you receive the training provided? Second answer

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	In-person demonstration	2	2.9	20.0	20.0
	Printed materials	8	11.4	80.0	100.0
	Total	10	14.3	100.0	
Missing	System	60	85.7		

Total		70	100.0		

B4_3. How did you receive the training provided? Third answer

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Videos	2	2.9	100.0	100.0
Missing	System	68	97.1		
Total		70	100.0		

B4_4. How did you receive the training provided? Fourth answer

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Live Webinars	1	1.4	100.0	100.0
Missing	System	69	98.6		
Total		70	100.0		

B4_5. How did you receive the training provided? Fifth answer

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Other, specify	1	1.4	100.0	100.0
Missing	System	69	98.6		
Total		70	100.0		

B4_5_Text. How did you receive the training provided? Other, specify

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		69	98.6	98.6	98.6
	The main supervisor in-charge did a hands on and I also went on YouTube.	1	1.4	1.4	100.0
	Total	70	100.0	100.0	

B5_1. What education related to energy efficiency would you have liked to receive? First answer

	Frequency	Percent	Valid Percent	Cumulative Percent

Valid	Information on how the energy efficient equipment / materials lowers energy costs	14	20.0	40.0	40.0
	How to properly use the energy efficient equipment to maximize savings	6	8.6	17.1	57.1
	How to properly maintain the energy efficient equipment	4	5.7	11.4	68.6
	Other, specify	6	8.6	17.1	85.7
	Don't know	4	5.7	11.4	97.1
	Refused	1	1.4	2.9	100.0
	Total	35	50.0	100.0	
Missing	System	35	50.0		
Total		70	100.0		

B5_2. What education related to energy efficiency would you have liked to receive? Second answer

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	How to properly use the energy efficient equipment to maximize savings	10	14.3	66.7	66.7
	How to properly maintain the energy efficient equipment	4	5.7	26.7	93.3
	Other, specify	1	1.4	6.7	100.0
	Total	15	21.4	100.0	
Missing	System	55	78.6		
Total		70	100.0		

B5_3. What education related to energy efficiency would you have liked to receive? Third answer

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Information on how the energy efficient equipment / materials lowers energy costs	1	1.4	11.1	11.1
	How to properly maintain the energy efficient equipment	8	11.4	88.9	100.0
	Total	9	12.9	100.0	
Missing	System	61	87.1		
Total		70	100.0		

B5_4. What education related to energy efficiency would you have liked to receive? Fourth answer

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Other, specify	1	1.4	100.0	100.0
Missing	System	69	98.6		
Total		70	100.0		

B5_4_Text. What education related to energy efficiency would you have liked to receive? Other, specify

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		62	88.6	88.6	88.6
	Don't think there is any	1	1.4	1.4	90.0
	I attended numerous Xcel Energy efficiency conferences.	1	1.4	1.4	91.4

More explanation on basic maintenance for energy efficiency. We are first time homeowners and if someone could have explained some things in order to keep the house running efficiently and save energy. We had a little bit, but may be if we had a follow up thing where they check-in after it was built. I think this is something that could work on.	1	1.4	1.4	92.9
More options that compare and contrast the efficiency for the materials.	1	1.4	1.4	94.3
My husband works in a high energy efficiency environment	1	1.4	1.4	95.7
None	1	1.4	1.4	97.1
Printed materials about the building construction items	1	1.4	1.4	98.6
Would have liked to have explained to me about other energy efficiency equipment	1	1.4	1.4	100.0
Total	70	100.0	100.0	

B6. What is your most preferred way to receive training on how to use new home equipment?

	Frequency	Percent	Valid Percent	Cumulative Percent

Valid	In-person demonstration	33	47.1	47.1	47.1
	Printed materials	8	11.4	11.4	58.6
	Videos	13	18.6	18.6	77.1
	Live Webinars	3	4.3	4.3	81.4
	Other, specify	12	17.1	17.1	98.6
	Don't know	1	1.4	1.4	100.0
	Total	70	100.0	100.0	

B6_5_Text. What is your most preferred way to receive training on how to use new home equipment? Other, specify

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		58	82.9	82.9	82.9
	Combination of face-to-face, written materials, & video	1	1.4	1.4	84.3
	Depends on the equipment	1	1.4	1.4	85.7
	Email	2	2.9	2.9	88.6
	I actually really like YouTube	1	1.4	1.4	90.0
	In person and written and video resources	1	1.4	1.4	91.4
	In-person demo w/ videos	1	1.4	1.4	92.9
	Online materials	1	1.4	1.4	94.3
	Online videos and webinars	1	1.4	1.4	95.7
	Online videos on YouTube	1	1.4	1.4	97.1
	YouTube videos	1	1.4	1.4	98.6
	YouTube webinars	1	1.4	1.4	100.0
	Total	70	100.0	100.0	

C1a. Rate how easy or difficult the following task associated with purchasing or living in your home was: Decide whether or not to purchase an energy efficient home

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very difficult	1	1.4	1.4	1.4
	2	3	4.3	4.3	5.7
	3	3	4.3	4.3	10.0
	4	17	24.3	24.3	34.3
	Very easy	36	51.4	51.4	85.7
	Not applicable	9	12.9	12.9	98.6
	Don't know	1	1.4	1.4	100.0
	Total	70	100.0	100.0	

C2a. Why was it not easy to decide whether or not to purchase an energy efficient home?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		66	94.3	94.3	94.3
	Budgeting/ to decide if we can afford to get the most energy efficient equipment	1	1.4	1.4	95.7
	DK	1	1.4	1.4	97.1
	It was difficult to determine the cost benefit to us.	1	1.4	1.4	98.6
	The costs. I was limited in how much I could spend and had to stay within a budget.	1	1.4	1.4	100.0
	Total	70	100.0	100.0	

C1b. Rate how easy or difficult the following task associated with purchasing or living in your home was: Decide which energy efficient equipment and/or materials to have pre-installed in your new home vs. installing afterwards

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very difficult	2	2.9	2.9	2.9

	2	5	7.1	7.1	10.0
	3	10	14.3	14.3	24.3
	4	9	12.9	12.9	37.1
	Very easy	25	35.7	35.7	72.9
	Not applicable	16	22.9	22.9	95.7
	Don't know	3	4.3	4.3	100.0
	Total	70	100.0	100.0	

C2b. Why was it not easy to decide which energy efficient equipment and/or materials to have pre-installed in your new home vs. installing afterwards?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		63	90.0	90.0	90.0
	Cost.	1	1.4	1.4	91.4
	Didn't know there was an option to have energy efficient equipment installed after	1	1.4	1.4	92.9
	Lack of general knowledge to make a decision	1	1.4	1.4	94.3
	Not really knowing a lot about the equipment and the advantages and disadvantages.	1	1.4	1.4	95.7
	People go off of looks not energy efficient	1	1.4	1.4	97.1

	The energy equipment was not explained to me during the course of sale, and I had to learn how to use it on my own. And it was too late to make any changes to the document, otherwise I would have changed it. They should use a text writer.	1	1.4	1.4	98.6
	We didn't know all the options	1	1.4	1.4	100.0
	Total	70	100.0	100.0	

C1c. Rate how easy or difficult the following task associated with purchasing or living in your home was: Operate the energy efficient equipment in your home

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2	2	2.9	2.9	2.9
	3	10	14.3	14.3	17.1
	4	20	28.6	28.6	45.7
	Very easy	37	52.9	52.9	98.6
	Don't know	1	1.4	1.4	100.0
	Total	70	100.0	100.0	

C2c. Why was it not easy to operate the energy efficient equipment in your home?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		68	97.1	97.1	97.1
	Because some of it I didn't know anything about (no past experience)	1	1.4	1.4	98.6
	Lack of training	1	1.4	1.4	100.0
	Total	70	100.0	100.0	

C1d. Rate how easy or difficult the following task associated with purchasing or living in your home was: Realize your target energy savings

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very difficult	3	4.3	4.3	4.3
	2	5	7.1	7.1	11.4
	3	13	18.6	18.6	30.0
	4	14	20.0	20.0	50.0
	Very easy	12	17.1	17.1	67.1
	Not applicable	14	20.0	20.0	87.1
	Don't know	9	12.9	12.9	100.0
	Total	70	100.0	100.0	

C2d. Why was it not easy to realize your target energy savings?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		62	88.6	88.6	88.6
	Don't have a baseline to know what it would be to have energy savings in a home that size	1	1.4	1.4	90.0
	Have a growing family and house we bought is a lot bigger, so hard to gauge what electrical bill should be or if we are using energy efficiently	1	1.4	1.4	91.4
	I don't have a baseline to measure against	1	1.4	1.4	92.9
	I don't know how to use it	1	1.4	1.4	94.3

	It's really hard to tell how efficient an appliance is without instructions or benchmarks to compare it to.	1	1.4	1.4	95.7
	Never paid attention to it	1	1.4	1.4	97.1
	Not educated enough on the subject	1	1.4	1.4	98.6
	We didn't have any benchmark for comparisons for the equipment being installed.	1	1.4	1.4	100.0
	Total	70	100.0	100.0	

C1e. Rate how easy or difficult the following task associated with purchasing or living in your home was: Maintain the energy efficient equipment in your home

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very difficult	1	1.4	1.4	1.4
	2	1	1.4	1.4	2.9
	3	10	14.3	14.3	17.1
	4	19	27.1	27.1	44.3
	Very easy	36	51.4	51.4	95.7
	Not applicable	2	2.9	2.9	98.6
	Don't know	1	1.4	1.4	100.0
	Total	70	100.0	100.0	

C2e. Why was it not easy to maintain the energy efficient equipment in your home?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		68	97.1	97.1	97.1
	Lack of training	1	1.4	1.4	98.6

	Was not informed about filters that fridge and microwave had	1	1.4	1.4	100.0
	Total	70	100.0	100.0	

C1f. Rate how easy or difficult the following task associated with purchasing or living in your home was: Understand the energy efficiency training you received from the builder

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very difficult	1	1.4	2.9	2.9
	2	1	1.4	2.9	5.7
	3	5	7.1	14.3	20.0
	4	11	15.7	31.4	51.4
	Very easy	14	20.0	40.0	91.4
	Not applicable	3	4.3	8.6	100.0
	Total	35	50.0	100.0	
Missing	System	35	50.0		
Total		70	100.0		

C2f. Why was it not easy to understand the energy efficiency training you received from the builder?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		68	97.1	97.1	97.1
	DK	2	2.9	2.9	100.0
	Total	70	100.0	100.0	

C3. Have you installed additional energy efficient equipment and/or materials beyond what the builder installed?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	27	38.6	38.6	38.6
	No	43	61.4	61.4	100.0
	Total	70	100.0	100.0	

C4. Which additional energy efficient equipment and/or materials have you installed?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		43	61.4	61.4	61.4
	A humidifier and a nest thermostat which is connected to Wi-Fi.	1	1.4	1.4	62.9
	A washer and dryer	1	1.4	1.4	64.3
	All the appliance	1	1.4	1.4	65.7
	Changed to energy efficient lighting	1	1.4	1.4	67.1
	Dishwasher, refrigerator, microwave, oven, washer/dryer	1	1.4	1.4	68.6
	Efficient irrigation system.	1	1.4	1.4	70.0
	Electric LED bulb and shower heads for water conservation.	1	1.4	1.4	71.4
	Energy efficient lighting, energy efficient TVs	1	1.4	1.4	72.9
	Energy star appliances, tint put on windows, exterior lights on timers.	1	1.4	1.4	74.3
	Garage heater	1	1.4	1.4	75.7
	LED lights, refrigerator, washer and drier	1	1.4	1.4	77.1
	LEDs	1	1.4	1.4	78.6
	Lighting and we wrapped the pipes with insulation	1	1.4	1.4	80.0
	Micro boiler and floor heat	1	1.4	1.4	81.4
	Nest thermostat	1	1.4	1.4	82.9

	Programmable thermostats that are hooked up to Wi-Fi. Also installed the automated garage door which is hooked up to Wi-Fi. Also, added a programmable irrigation.	1	1.4	1.4	84.3
	Smart thermostats	1	1.4	1.4	85.7
	Smart TV	1	1.4	1.4	87.1
	Solar lighting for garden	1	1.4	1.4	88.6
	TV, water-softener etc.	1	1.4	1.4	90.0
	TVs	1	1.4	1.4	91.4
	TVs, computers	1	1.4	1.4	92.9
	TVs, energy efficient lighting	1	1.4	1.4	94.3
	Washer and dryer, water softener, energy efficient TVs, stand up freezer and refrigerator.	1	1.4	1.4	95.7
	Washer and dryer.	1	1.4	1.4	97.1
	Washer/dryer	1	1.4	1.4	98.6
	Water softener and irrigation meters.	1	1.4	1.4	100.0
	Total	70	100.0	100.0	

C5a. Rate the importance of the following factor on your decision to install additional energy efficient equipment and/or materials: The installation cost compared to purchasing a home with the equipment/materials already installed

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not at all important	1	1.4	3.7	3.7
	5	3	4.3	11.1	14.8
	7	2	2.9	7.4	22.2

	8	7	10.0	25.9	48.1
	9	2	2.9	7.4	55.6
	Extremely important	9	12.9	33.3	88.9
	Not applicable	3	4.3	11.1	100.0
	Total	27	38.6	100.0	
Missing	System	43	61.4		
Total		70	100.0		

C5b. Rate the importance of the following factor on your decision to install additional energy efficient equipment and/or materials: Your positive experience with the energy efficient equipment/materials already installed in your home

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not at all important	1	1.4	3.7	3.7
	6	1	1.4	3.7	7.4
	7	2	2.9	7.4	14.8
	8	5	7.1	18.5	33.3
	9	5	7.1	18.5	51.9
	Extremely important	12	17.1	44.4	96.3
	Don't know	1	1.4	3.7	100.0
	Total	27	38.6	100.0	
Missing	System	43	61.4		
Total		70	100.0		

C5c. Rate the importance of the following factor on your decision to install additional energy efficient equipment and/or materials: A recommendation(s) from someone you know

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not at all important	4	5.7	14.8	14.8
	4	1	1.4	3.7	18.5
	5	2	2.9	7.4	25.9
	6	3	4.3	11.1	37.0
	7	1	1.4	3.7	40.7
	8	3	4.3	11.1	51.9
	9	3	4.3	11.1	63.0
	Extremely important	8	11.4	29.6	92.6

	Not applicable	2	2.9	7.4	100.0
	Total	27	38.6	100.0	
Missing	System	43	61.4		
Total		70	100.0		

C5d. Rate the importance of the following factor on your decision to install additional energy efficient equipment and/or materials: A recommendation(s) from your builder

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not at all important	3	4.3	11.1	11.1
	4	2	2.9	7.4	18.5
	5	2	2.9	7.4	25.9
	6	1	1.4	3.7	29.6
	7	5	7.1	18.5	48.1
	8	6	8.6	22.2	70.4
	9	3	4.3	11.1	81.5
	Extremely important	4	5.7	14.8	96.3
	Not applicable	1	1.4	3.7	100.0
	Total	27	38.6	100.0	
Missing	System	43	61.4		
Total		70	100.0		

C5e. Rate the importance of the following factor on your decision to install additional energy efficient equipment and/or materials: Information from Xcel Energy (e.g. talking with a representative, visiting the website, viewing marketing materials, etc)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not at all important	2	2.9	7.4	7.4
	1	2	2.9	7.4	14.8
	2	1	1.4	3.7	18.5
	3	1	1.4	3.7	22.2
	4	1	1.4	3.7	25.9
	5	4	5.7	14.8	40.7
	7	1	1.4	3.7	44.4
	8	6	8.6	22.2	66.7
	Extremely important	4	5.7	14.8	81.5

	Not applicable	5	7.1	18.5	100.0
	Total	27	38.6	100.0	
Missing	System	43	61.4		
Total		70	100.0		

C6. Was there another top priority factor that was important to your decision to install additional energy efficient equipment and/or materials?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes, specify	14	20.0	51.9	51.9
	No additional priority factor	13	18.6	48.1	100.0
	Total	27	38.6	100.0	
Missing	System	43	61.4		
Total		70	100.0		

C6_1_Text. Was there another top priority factor that was important to your decision to install additional energy efficient equipment and/or materials? Yes, specify

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		56	80.0	80.0	80.0
	Cost	2	2.9	2.9	82.9
	Cost savings and helping the environment	1	1.4	1.4	84.3
	Ease of upgrading materials/equipment	1	1.4	1.4	85.7
	Ease of use	1	1.4	1.4	87.1
	Entertainment value	1	1.4	1.4	88.6
	Environmental/energy efficiency	1	1.4	1.4	90.0
	I wanted a smart home and that was more important than the non-smart controls.	1	1.4	1.4	91.4

	Lower costs, more efficient/longevity in terms of maintenance	1	1.4	1.4	92.9
	Product availability/selection	1	1.4	1.4	94.3
	Saving money	2	2.9	2.9	97.1
	The fact that the house didn't have a washer or dryer.	1	1.4	1.4	98.6
	Warranty	1	1.4	1.4	100.0
	Total	70	100.0	100.0	

C6a. On the same scale from 0 to 10, how would you rate the importance of that factor <C6_1_Text>?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not at all important	1	1.4	7.1	7.1
	7	1	1.4	7.1	14.3
	8	2	2.9	14.3	28.6
	9	2	2.9	14.3	42.9
	Extremely important	8	11.4	57.1	100.0
	Total	14	20.0	100.0	
Missing	System	56	80.0		
Total		70	100.0		

C7. Has your household participated in an Xcel Energy program related to energy efficiency, electric vehicles, or distributed energy (e.g. rooftop solar)?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes, specify	2	2.9	13.3	13.3
	No	13	18.6	86.7	100.0
	Total	15	21.4	100.0	
Missing	System	55	78.6		
Total		70	100.0		

C7_1_Text. Has your household participated in an Xcel Energy program related to energy efficiency, electric vehicles, or distributed energy (e.g. rooftop solar)?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		68	97.1	97.1	97.1
	Added insulation in the attic, new water heater	1	1.4	1.4	98.6
	Rooftop solar, saver switch	1	1.4	1.4	100.0
	Total	70	100.0	100.0	

C8. Is your household interested in information on Xcel Energy efficiency, electric vehicle, renewable energy, or distributed energy residential programs?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes, specify	29	41.4	41.4	41.4
	No	40	57.1	57.1	98.6
	Don't know	1	1.4	1.4	100.0
	Total	70	100.0	100.0	

C8_1_Text. Is your household interested in information on Xcel Energy energy efficiency, electric vehicle, renewable energy, or distributed energy residential programs? Yes, specify

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		41	58.6	58.6	58.6
	All programs	1	1.4	1.4	60.0
	Always curious about how I can save more money or energy	1	1.4	1.4	61.4
	Anything that can help save money.	1	1.4	1.4	62.9
	Anything that would help save energy and be friendly towards the environment.	1	1.4	1.4	64.3
	Distributed energy programs	1	1.4	1.4	65.7
	Distributed energy residential program	1	1.4	1.4	67.1

DK	1	1.4	1.4	68.6
Electrical vehicles, anything related to energy efficiency	1	1.4	1.4	70.0
Energy efficiency, solar	1	1.4	1.4	71.4
Energy efficient household stuff	1	1.4	1.4	72.9
I would be interested in solar panels.	1	1.4	1.4	74.3
Open to all of them	1	1.4	1.4	75.7
Programs that regulate air conditioning and energy distribution	1	1.4	1.4	77.1
Renewable energy maybe in future	1	1.4	1.4	78.6
Residential programs	2	2.9	2.9	81.4
Residential/home energy efficient info.	1	1.4	1.4	82.9
Rooftop solar	1	1.4	1.4	84.3
Rooftop solar programs	1	1.4	1.4	85.7
Solar	1	1.4	1.4	87.1
Solar energy, electric vehicles, any renewable energy	1	1.4	1.4	88.6
Solar panels	2	2.9	2.9	91.4
Solar power, hub for electric vehicles, common practices to reduce energy	1	1.4	1.4	92.9
Want to learn more. Curious about electric cars. Could send materials.	1	1.4	1.4	94.3
We're interested in installing solar panels.	1	1.4	1.4	95.7
Xcel energy efficiency program	1	1.4	1.4	97.1

	Xcel Energy efficiency, electric vehicles, renewable & distributed energy	1	1.4	1.4	98.6
	Xcel Energy efficiency, renewable energy, distributed energy residential	1	1.4	1.4	100.0
	Total	70	100.0	100.0	

C9. Would you have been interested in exploring premium electric technology options before your new home was built?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	41	58.6	58.6	58.6
	No	26	37.1	37.1	95.7
	Don't know	3	4.3	4.3	100.0
	Total	70	100.0	100.0	

C9a_1. Rate the importance of the following factor on your decision to explore premium electric technology: Health and safety

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	5	1	1.4	2.4	2.4
	6	2	2.9	4.9	7.3
	7	3	4.3	7.3	14.6
	8	11	15.7	26.8	41.5
	9	4	5.7	9.8	51.2
	Extremely important	20	28.6	48.8	100.0
	Total	41	58.6	100.0	
Missing	System	29	41.4		
Total		70	100.0		

C9a_2. Rate the importance of the following factor on your decision to explore premium electric technology: Year-round comfort

	Frequency	Percent	Valid Percent	Cumulative Percent

Valid	4	3	4.3	7.3	7.3
	5	1	1.4	2.4	9.8
	6	1	1.4	2.4	12.2
	7	1	1.4	2.4	14.6
	8	12	17.1	29.3	43.9
	9	8	11.4	19.5	63.4
	Extremely important	15	21.4	36.6	100.0
	Total	41	58.6	100.0	
Missing	System	29	41.4		
Total		70	100.0		

C9a_3. Rate the importance of the following factor on your decision to explore premium electric technology: Potentially eliminate fossil fuel use in your home

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not at all important	1	1.4	2.4	2.4
	2	1	1.4	2.4	4.9
	4	3	4.3	7.3	12.2
	5	7	10.0	17.1	29.3
	6	3	4.3	7.3	36.6
	7	5	7.1	12.2	48.8
	8	8	11.4	19.5	68.3
	9	1	1.4	2.4	70.7
	Extremely important	11	15.7	26.8	97.6
	Don't know	1	1.4	2.4	100.0
	Total	41	58.6	100.0	
Missing	System	29	41.4		
Total		70	100.0		

C9a_4. Rate the importance of the following factor on your decision to explore premium electric technology: Environmental sustainability

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2	1	1.4	2.4	2.4
	4	1	1.4	2.4	4.9
	5	4	5.7	9.8	14.6

	6	2	2.9	4.9	19.5
	7	8	11.4	19.5	39.0
	8	9	12.9	22.0	61.0
	9	2	2.9	4.9	65.9
	Extremely important	14	20.0	34.1	100.0
	Total	41	58.6	100.0	
Missing	System	29	41.4		
Total		70	100.0		

C10. Are you interested in smart, connected technology for your home?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes, specify	36	51.4	51.4	51.4
	No	34	48.6	48.6	100.0
	Total	70	100.0	100.0	

C10_1_Text. Are you interested in smart, connected technology for your home? Yes, specify

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		34	48.6	48.6	48.6
	Aftermarket products for the thermostats and tankless water heater	1	1.4	1.4	50.0
	All	1	1.4	1.4	51.4
	All of it.	1	1.4	1.4	52.9
	All programs	1	1.4	1.4	54.3
	All/any	1	1.4	1.4	55.7
	Any water reducing technology, low flow toilet, water saving shower heads	1	1.4	1.4	57.1
	Anything with water savings/thermostat	1	1.4	1.4	58.6
	Condensing water heater, tankless water heater	1	1.4	1.4	60.0

Condensing water heater, tankless water heaters	1	1.4	1.4	61.4
Condensing water heaters	1	1.4	1.4	62.9
Condensing water heaters or tankless	1	1.4	1.4	64.3
DK	1	1.4	1.4	65.7
Furnace	1	1.4	1.4	67.1
Have a lot already but perhaps more	1	1.4	1.4	68.6
Heating and cooling system	1	1.4	1.4	70.0
In general	1	1.4	1.4	71.4
Looked into tankless but decided not to continue	1	1.4	1.4	72.9
Nothing specific. I don't think I have that much of knowledge to answer this question specifically. But anything that would help us save energy and will be more friendly to the environment.	1	1.4	1.4	74.3
Programmable lighting, solar panels, programmable thermostats.	1	1.4	1.4	75.7
Programmable thermostats	1	1.4	1.4	77.1
Programmable thermostats and irrigation systems	1	1.4	1.4	78.6
Security	1	1.4	1.4	80.0
Smart lighting system	1	1.4	1.4	81.4

	Smart thermostats, IOT devices.	1	1.4	1.4	82.9
	Solar	1	1.4	1.4	84.3
	Tankless electric water heaters, and solar electric for water heaters.	1	1.4	1.4	85.7
	Tankless etc.	1	1.4	1.4	87.1
	Tankless water heater.	1	1.4	1.4	88.6
	Tankless, condensing water heaters	1	1.4	1.4	90.0
	Water and electric	1	1.4	1.4	91.4
	Water consumption and power savings.	1	1.4	1.4	92.9
	May be scheduled lightings that can switch off and on automatically.				
	Water heaters	1	1.4	1.4	94.3
	Water saving and heating and air conditioning	1	1.4	1.4	95.7
	Water saving technology, solar	1	1.4	1.4	97.1
	Water savings	1	1.4	1.4	98.6
	We had it before in Arizona and it operated the heating and cooling system	1	1.4	1.4	100.0
	Total	70	100.0	100.0	

D1a. Rate your satisfaction with the following aspect of the program: The quality of the construction of your home

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2	2	2.9	2.9	2.9
	3	8	11.4	11.4	14.3

	4	31	44.3	44.3	58.6
	Very satisfied	29	41.4	41.4	100.0
	Total	70	100.0	100.0	

D2a. Why weren't you satisfied with the quality of the construction of your home?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		68	97.1	97.1	97.1
	Attention to detail was an issue	1	1.4	1.4	98.6
	I think our builder is very lazy. The subtractor is lazy and the builder didn't hold them to a higher standard.	1	1.4	1.4	100.0
	Total	70	100.0	100.0	

D1b. Rate your satisfaction with the following aspect of the program: The comfort-level of your home

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	3	3	4.3	4.3	4.3
	4	20	28.6	28.6	32.9
	Very satisfied	47	67.1	67.1	100.0
	Total	70	100.0	100.0	

D2b. Why weren't you satisfied with the comfort-level of your home ?

(No responses)

D1c. Rate your satisfaction with the following aspect of the program: Your interactions with your builder

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very dissatisfied	3	4.3	4.3	4.3
	2	7	10.0	10.0	14.3

	3	10	14.3	14.3	28.6
	4	21	30.0	30.0	58.6
	Very satisfied	27	38.6	38.6	97.1
	Not applicable	2	2.9	2.9	100.0
	Total	70	100.0	100.0	

D2c. Why weren't you satisfied with your interactions with your builder?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		60	85.7	85.7	85.7
	Because the builder has yet to finish the work on the house.	1	1.4	1.4	87.1
	He was arrogant	1	1.4	1.4	88.6
	He's really very argumentative if you don't go with what he said and they don't stick to schedule	1	1.4	1.4	90.0
	It was the process in general we were not happy with	1	1.4	1.4	91.4
	There were issues with the building process and some things that were damaged that we had to fix ourselves or pay to have fixed	1	1.4	1.4	92.9
	They didn't get things done and I had to keep on them	1	1.4	1.4	94.3

	They keep trying to brush stuff up. I'm fighting them to finish up work that hasn't been completed. It doesn't seem like they actually care.	1	1.4	1.4	95.7
	They were not responsive to our needs and didn't fulfill what they said they were going to do. I would not use them again.	1	1.4	1.4	97.1
	They were not thorough enough nor complete as we found out later. They didn't have my best interest in mind.	1	1.4	1.4	98.6
	Very hard to contact and he doesn't follow through.	1	1.4	1.4	100.0
	Total	70	100.0	100.0	

D1d. Rate your satisfaction with the following aspect of the program: The number of health and safety-related maintenance issues

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2	1	1.4	1.4	1.4
	3	2	2.9	2.9	4.3
	4	14	20.0	20.0	24.3
	Very satisfied	40	57.1	57.1	81.4
	Not applicable	9	12.9	12.9	94.3
	Don't know	4	5.7	5.7	100.0
	Total	70	100.0	100.0	

D2d. Why weren't you satisfied with the number of health and safety-related maintenance issues ?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		69	98.6	98.6	98.6
	I was smelling burnt diesel and didn't know where that was coming from, the builder didn't know what it was our neighbors also smelled it	1	1.4	1.4	100.0
	Total	70	100.0	100.0	

D1e. Rate your satisfaction with the following aspect of the program: Your home energy costs

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2	3	4.3	4.3	4.3
	3	14	20.0	20.0	24.3
	4	29	41.4	41.4	65.7
	Very satisfied	23	32.9	32.9	98.6
	Don't know	1	1.4	1.4	100.0
	Total	70	100.0	100.0	

D2e. Why weren't you satisfied with your home energy costs?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		67	95.7	95.7	95.7

	Because it is not consistent. I understand it is going to be different in winter and summer. But even during summer months, it's not consistent. I see a huge difference from month to month.	1	1.4	1.4	97.1
	Has new appliances and everything but bill is still high, wants to know what is running to drive costs up	1	1.4	1.4	98.6
	We use a lot of electricity in the summer, so we are looking at very high costs. Feels like there aren't any options for us to lower our costs.	1	1.4	1.4	100.0
	Total	70	100.0	100.0	

D1f. Rate your satisfaction with the following aspect of the program: The training you received from builders

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very dissatisfied	5	7.1	14.3	14.3
	2	1	1.4	2.9	17.1
	3	4	5.7	11.4	28.6
	4	13	18.6	37.1	65.7
	Very satisfied	11	15.7	31.4	97.1
	Not applicable	1	1.4	2.9	100.0
	Total	35	50.0	100.0	
Missing	System	35	50.0		
Total		70	100.0		

D2f. Why weren't you satisfied with the training you received from builders?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		64	91.4	91.4	91.4
	It was so fast and general it just felt like a rush job.	1	1.4	1.4	92.9
	Not sure	1	1.4	1.4	94.3
	There was no training	1	1.4	1.4	95.7
	They could do better	1	1.4	1.4	97.1
	Training was not helpful	1	1.4	1.4	98.6
	Very little to nothing on energy related information from builder	1	1.4	1.4	100.0
	Total	70	100.0	100.0	

D3. How would you rate your satisfaction with the energy efficiency of your home?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	3	6	8.6	8.6	8.6
	4	38	54.3	54.3	62.9
	Very satisfied	26	37.1	37.1	100.0
	Total	70	100.0	100.0	

D3a. Why aren't you satisfied with the energy efficiency of your new home?

(No responses)

C.4 DECISION-MAKER INTERVIEW RESULTS

To support the process and impact evaluation of the Minnesota 2018 Xcel Energy Energy Efficient New Home Product, members of the EMI Consulting evaluation team conducted telephone interviews with decision makers at select new home construction companies that completed the builder survey. The evaluation team interviewed 7 decision makers as part of this effort, chosen because their responses to the builder survey suggested they were outliers compared to the rest of the population. The interview objectives were:

- NTG: The team asked questions on product attribution, or the impact the product had on builders' decision to build high-efficient homes. For decision maker interviews specifically, the evaluation team asked questions to better understand whether the free-ridership scores given during the survey were accurate or not, and made qualitative adjustments accordingly.
- Perceptions/Awareness: The evaluation team assessed builder perceptions and awareness of energy efficient technologies to better understand how this may hinder greater Product participation.
- Builder Decision-Making and Barriers: The evaluation team discussed the motivation behind building energy efficient homes as well as barriers to pursuing efficient designs.
- Product Experience/Satisfaction: The evaluation team discussed builders' experience with and satisfaction with the Product, including experience with the application process.

KEY TAKEAWAYS

- Homebuilders regularly participate in the product, but may not understand which concrete actions to take in order to reach higher incentive tiers. Instead, they accept and are appreciative of whichever tier each home qualifies for.
- Interviewed homebuilders were not aware of prescriptive rebates for washers and refrigerators, even in cases where they had received these rebates. Builders reported that homebuyers make decisions about these appliances in conjunction with showrooms rather than with the builder.
- The product motivates homebuilders to carry out HERS testing, and many have begun to conduct these tests outside of Xcel Energy territory due to the product.
- Some homebuilders reported they would benefit from more direct contact with Xcel Energy staff to understand how the tiered rebate system works and to have a contact for ongoing questions.

INTERVIEW FINDINGS BY RESEARCH QUESTION

This section describes the findings from the Xcel Energy Energy Efficient New Home Construction decision maker interviews. The results are organized by the research question used to address each of the research objectives outlined above.

Net-To-Gross Ratio of the Minnesota Energy Efficient New Home Construction Product

The evaluation team adjusted free-ridership ratios downwards for four of the seven interviewed builders. Reasons for adjustments are listed below.

- The builder began using HERS testing because of the product and reported that standardized scoring across builders leads to competition among them as they attempt to improve scores.
- One builder reported that homebuyers care and are educated about energy efficiency because of the product and reported using HERS ratings as a sales tool.
- One builder reported that the tiered incentive structure motivates them to build more efficiently. Without the product, the builder anticipated that efficiency standards would decrease throughout the market as builders would prioritize cost over efficiency.
- One builder reported that because the product covers costs associated with HERS testing, they are able to ensure they build to high standards each time rather than only carrying out standard testing as they would without the product.

Perceptions and Awareness of Energy Efficient Equipment

Builders reported that HERS testing required by the product increased their focus on overall home efficiency. On the other hand, builder reported that the product had no effect on washers and dryers installed in homes, and in many cases were not aware of these rebates.

- 3 of 7 builders reported that requiring HERS testing changed their testing process for new homes. While they did not report that this changed the efficiency of the homes, 2 of these 3 reported that HERS ratings has changed the way that builders and/or homeowners think about the overall efficiency of a new home.
- Of the four builders who discussed rebates for washers and refrigerators, none were aware they had received rebates, and all reported they did not impact decisions regarding these appliances. Instead, they reported that homebuyers purchase appliances in conjunction with showrooms. One builder who has received prescriptive rebates reported that the construction company is "not allowed to apply for rebates" for those appliances.

Builder Decision-Making and Barriers to Efficient Building

Builders reported their primary motivation for building efficient homes is compliance with building code standards. Some also indicated that the Xcel Energy product is

motivating, though they reported that a better understanding of the product tier structure may further motivate them.

- While 2 builders reported that their business practices involve regularly building homes to higher standards than required by Minnesota building code, all builders were primarily concerned with ensuring that homes meet the minimum code over meeting requirements for Xcel Energy's Energy Efficient New Home Construction Product.
- 3 builders reported that HERS testing requirements motivate them to build more efficient homes.
- 1 builder reported that the tiered incentive structure motivates them strongly to build efficiently because it ensures that the extra cost for more efficient materials will be covered and that home prices can remain competitive.
- 3 builders reported it would be useful to have more contact with Xcel Energy about concrete actions to bring homes to the next efficiency level and to help stay up to date on efficient equipment.

Product Experience and Satisfaction

Overall, builders were satisfied with the product and felt they received sufficient support from Xcel Energy. However, they also reported confusion about the tiered incentive structures and were not aware of the availability of prescriptive rebates.

- 5 of 7 builders indicated that the product has had a positive influence and motivates them to build more efficient homes.
- 3 builders indicated they do not understand the tiered incentive structure; in one case, the builder was not aware there were multiple incentive tiers.
- Of the four builders who discussed rebates for washers and refrigerators, none were aware they had received rebates, and all reported they did not impact decisions regarding these appliances. Instead, they reported that homebuyers purchase appliances in conjunction with showrooms. One builder who has received prescriptive rebates reported that the construction company is "not allowed to apply for rebates" for those appliances.

C.5 PEER BENCHMARKING FINDINGS

TO: Interviewees at Peer Utilities

FROM: Katherine Brown, EMI Consulting
Nicole Thomas, EMI Consulting

CC: Jeremy Kraft, EMI Consulting

DATE: January 28, 2020

RE: Xcel Energy Efficient New Home Construction– Peer Utility Benchmarking Memo

INTRODUCTION

To support the process and impact evaluation of the 2018 Xcel Energy energy efficiency programs, the EMI Consulting evaluation team benchmarked the Xcel Energy Minnesota Efficient New Home Construction program 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 programs based on a comparison of the program design, delivery, and processes. The evaluation team's findings are informed by in-depth interviews with program managers at four utilities, and by secondary research into the new construction programs offered by seven additional utilities. The criteria used to choose per utilities included:

- Comparable program designs to Xcel Energy's product,
- size,
- similar climate,
- combined electric and gas program,
- similar time in market.

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:

- Program descriptions including their objectives, relevant features of their implementation strategy, characteristics of their target customers, program staffing, recent changes to the program, and future outlook,
- Program processes including rater selection processes and baseline setting processes,
- Net-to-gross (NTG) savings approach and results,
- Homeowner and builder engagement methods,

- Measure types and incentive levels including whether peer utility programs offer prescriptive rebates, and how rebates and incentives are structured.

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. The final section provides a summary of incentive levels from each peer utility. The synthesis of findings places an emphasis on helping Xcel Energy interpret peer utility perspectives and identifying actionable opportunities for improving product operations and marketing by offering a comparison of how peer utilities are addressing key issues the new construction market is facing.

KEY FINDINGS

- All peer utilities interviewed have comparable program objectives and tiered incentive structures to the Minnesota Efficient New Home Construction Product.
- One of the two utilities interviewed that offers prescriptive rebates is sunsetting the program at the end of 2019. The program in development to replace it likely will include only prescriptive rebates.
- Most programs do not intentionally interact with homeowners. The one utility that does work directly with homeowners does so through a separate homeowner-facing program.
- No utilities interviewed are currently working with new technologies or alternative fuel types, though these technologies may contribute to overall home performance.

DETAILED FINDINGS

This section details findings from interviews with peer utilities. The findings are organized according to research themes identified above.

Peer Utility Descriptions

EMI Consulting conducted interviews with four of Xcel Energy's peer utilities with comparable residential new construction programs. Program savings goals, actuals, and budgets are shown below in Table 14.

Table 14: Peer Utility Savings Goals, Actuals, and Budgets

Energy Savings Goals and Actuals	2018 Program savings goal	2018 program savings actual	2018 Program Budget
Xcel Energy	**952,129 kWh**	**3,206,095 kWh**	**$2,325,747**
Utility A	5,765 Dth	14,080 Dth	$667,229
Utility B	491,000 kWh	543,000 kWh	$1,667,992
Utility C	878,000 kWh	470,194 kWh	Not provided
Utility D	Not provided	1,795,402 kWh	$2,686,000

Utility B's budget and savings goals align most closely with Xcel Energy's. However, as Table 15 indicates, participation levels of Utility D most closely resemble the Xcel Energy product.

Table 15: Utility Participation Levels

	Number of incentive applications submitted	Number of Participating Builders
Xcel Energy	**2,551**	**188**
Utility A	450	Not provided
Utility B	861 Energy Star and HERS, 1,001 Energy Star only	67
Utility C	660 Joint, 35 Gas-only	20-25
Utility D	2,405	185

Incentive structures across all interviewed peer utilities are similar to that of Xcel Energy. All four utilities have a whole house tiered system in which builders receive higher incentives for more efficient homes. The highest rebate tier that Utility D offers is for energy neutral homes. While incentives for these homes are more than double those for the next highest tier, requirements are also much more stringent. This tier was only recently introduced, and no homes have qualified for these incentives to this point.

Just one other utility currently offers prescriptive rebates in addition to the tiered rebate structure. These rebates are for efficient furnaces and water heaters. However, Utility C, which is sunsetting the program, plans to replace the former program with a new version that relies exclusively on prescriptive rebates. Prescriptive rebates under the Xcel Energy program are available for washers and refrigerators, appliances which builders reported are often chosen by homeowners.

Peer Utility Program Descriptions

All utilities interviewed shared similar goals to Xcel Energy in running their programs. Common themes included 1) promoting efficient new construction homes, 2) leveraging work and expertise of builders and raters, and 3) influencing and improving home performance measurement. Of the four utilities interviewed,

two implement the programs themselves (Utility A and Utility D), and two work with implementers to do so (Utility B and Utility C).

Three of the four utilities interviewed implement efficient new construction programs with fewer than three FTE staff members, but Utility D staffs the program with approximately 8 staff working at more than 25%. This staffing does not correlate with utilities implementing programs in-house versus with an implementer.

Utility C will be sunsetting the New Construction Program at the end of 2019 and is transitioning to a new model for a similar program that will exclusively offer prescriptive rebates. EMI Consulting discussed both the current model and future plans to understand which parts of the program had been working well and which parts require adjustment in the upcoming iteration. No other peer utilities are making significant changes to program structure, though Utility D recalibrated incentive levels in 2017 to align with a market characterization study that changed baselines for the program.

Baselines are set in various manners across utilities. Utilities A and C follow baselines set by state regulations, whereas Utility D set its baseline using a market categorization study. Utility B runs partially as an Energy Star program and derives baselines from there. Each utility works with raters, all of which must be certified through the program. Raters for Utilities B, C and D are self-selected, and those for Utility A are selected by homeowners. Utility C noted that the system of allowing raters to self-select has led to one rater conducting 80% of the ratings across the program.

Peer Utility Program Processes

EMI Consulting asked peer utilities about their program processes to understand which portions of the Xcel Energy product are most comparable to peer utilities and which portions differ. This section details these program processes and their relevance to the Xcel Energy product.

All utilities work primarily with builders and rely on these builders for outreach and education to homeowners about efficient homes. Two of the four utilities interviewed (B and C) noted that, like Xcel Energy, a significant portion of the savings achieved through their programs came from a small number of production builders. Both these utilities indicated that this has posed a problem in program implementation, and Utility C said it is one of the reasons for sunsetting the current program. All utilities but Utility D have limited training opportunities for builders, ranging from no trainings to attendance at builder events and conferences to one or two builder trainings per year. Utility D, however, conducts approximately 30 trainings each year to support the consultant model of their program. In this model, trainings are for building consultants who then work with builders throughout the building and rating process.

Just one of the utilities (Utility B) interviewed currently works with homeowners, and does so through a different program in which homeowners receive direct mail marketing that entitles them to a $500 rebate for building energy efficient homes. No utilities interviewed work with homeowners during or after their homes are built to provide education or additional points of contact. Utility D indicated that it does occasionally have contact with homeowners, but that this contact is initiated by the homeowners rather than by the utility. If Xcel Energy were to implement homeowner-facing components to the product, these components would be relatively unique in the industry.

SYNTHESIS OF FINDINGS

Overall, the Xcel Energy Efficient New Home Construction product is comparable to peer programs. It sits on the higher end of both participation levels and savings goals and actuals as compared to other programs 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 programs and make changes to implementation strategy that may make the product more effective.

Overall, though peer utilities have similar goals, there are important differences in implementation strategy. While some utilities implement their efficient new home construction programs themselves and others use implementers, no interviewees expressed particular concern or enthusiasm for either of these strategies. On the other hand, peer program managers did have strong beliefs regarding builder engagement. Two interviewees reported that their programs currently rely on or used to rely on the participation of a few large builders for more than 50% of the rebates provided through the programs. Both these utilities recommended strongly that Xcel Energy make efforts to prevent this situation, as it makes the utility program as reliant on these builders as some builders may become on the product.

One program element Xcel Energy is considering in the future is integrating smart technology and/or alternative fuel types. Though this change would differentiate the Xcel Energy product from peer products, it may be challenging to integrate with the current tiered envelope-level rebate structure. Peer program managers pointed out that because incentive levels are based on efficiency of the full home, they do not generally recommend specific equipment unless they also offer prescriptive rebates for it. Another road to incorporating more energy efficient technologies may be to follow Utility D's lead by offering a higher incentive tier for energy neutral homes. While this may not incentivize new technologies directly, to achieve extremely high efficiency, builders may be more likely to install smart measures and/or incorporate alternate fuel types into their homes. Based on the evaluation team's research with builders and homeowners involved in the Xcel Energy product, any marketing encouraging the adoption of smart technologies may land better with interested homeowners than with builders, who were not generally interested in smart technology integrations.

Xcel Energy is considering increasing homeowner involvement in the new construction product, a relatively untested approach among interviewed peer utilities. Just one utility the evaluation team spoke with involves homeowners in the new construction product, and this one does so through a separate, homeowner-facing program that primarily targets homeowners through marketing. Research with homeowner participants in the Xcel Energy product indicate, however, that homeowners are interested in energy efficiency, and in particular that they are more interested than builders in some product elements that Xcel Energy is considering. Additionally, both builders and homeowners indicated that support in training homeowners about the energy efficient equipment in their new homes would help improve the product. Thus, while peer utilities have not incorporated homeowner interaction into product design, doing so may be a successful and innovative approach to improving overall design.

Overall, the Xcel Energy product is comparable in design and structure to its peer programs. There were no program elements that all peer utilities shared that Xcel Energy has not also incorporated into its product. On the other hand, there are product elements Xcel Energy is considering that other utilities have not considered to this point. While these elements are relatively untested, other research from this evaluation suggests that they may be successful.