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MidAmerican Energy Company

Nonresidential Equipment Program Impact and Process Evaluation

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We would like to acknowledge the many individuals who contributed to this Nonresidential Equipment program evaluation. This evaluation effort would not have been possible without their help and support.

MidAmerican's Nonresidential Equipment product managers and energy efficiency director provided substantial counsel and input throughout the evaluation and reporting processes. These individuals participated in on-going evaluation deliverable reviews and discussions, and graciously responded to follow-up questions and documentation requests. We would like to specifically thank Tina Yoder, Amber Moser, Dave McCammant, Erin Rasmussen, and Keiji Szalo.

The Tetra Tech team was made up of the following individuals: Sue Hanson, Kendra Mueller, Theresa Holmes, Adam Jablonski, Shaadie Ali, and Dayna Ball of Tetra Tech.

1.0 EXECUTIVE SUMMARY

MidAmerican Energy Company (MidAmerican) offers energy efficiency programs to their customers throughout their Iowa and Illinois service territories. These programs cover electric and natural gas energy efficiency measures and the Nonresidential Equipment program provides incentives for equipment upgrades. This report details the activities, results, and recommendations from the evaluation of program years (PY) 2019 for Iowa and Illinois and the first quarter (Q1) of PY2020 for Iowa[1].

1.1 BACKGROUND

The Nonresidential Equipment program promotes the purchase of energy efficient equipment to MidAmerican's nonresidential customers by offering financial incentives for the installation of energy efficient equipment in existing buildings. Program measures must save energy supplied directly by MidAmerican. Transportation gas customers with daily metering are ineligible for incentives for gas measures; however, customers with monthly metering under the Monthly Metered Transportation Service gas tariff are eligible for energy efficiency incentives.

The program is available to all nonresidential customers in existing buildings in MidAmerican's Iowa and Illinois service area. Energy efficient equipment installed in newly constructed commercial buildings or multi-family housing facilities is not eligible for rebates through the Nonresidential Equipment program. In Illinois, the program also includes a custom rebate option that allows customers to implement new technologies and alternate strategies not currently eligible for prescriptive rebates. In Iowa, cost-effective qualifying energy efficiency measures not listed as a prescriptive measure below may be eligible for a custom incentive through the Nonresidential Energy Solutions program.

1.2 EVALUATION METHODOLOGY

The evaluation included both impact and process components. To help guide both, the Tetra Tech team conducted interviews with MidAmerican program staff and implementation staff from Nexant. For the impact evaluation, the Tetra Tech team reviewed the applicable savings algorithm source, using MidAmerican's tracked "install date" as the key reference point to determine the prescribed energy savings and to confirm tracked savings were appropriately calculated (see Table 1). Additionally, the Tetra Tech team conducted both primary net-to-gross (NTG) research with Illinois program participants and a literature review to help inform NTG findings.

Table 1. Prescribed Savings Source

State	Install Date Range Evaluated	Technical Reference Manual Version
Iowa	4/1/2019 to 12/31/2019	Iowa, Version 3
Iowa	1/1/2020 to 4/1/2020	Iowa, Version 4
Illinois	1/1/2019 to 12/31/2019	MidAmerican's Appendix A[2]

[1] Due to legislative changes in Iowa in 2019, MidAmerican refiled their 2019-2023 program plan resulting in a delayed launch of programs in Iowa. Therefore, for Iowa only, the Tetra Tech team assessed program activities from April 1, 2019 through December 31, 2019 of PY2019 and additionally assessed the first quarter activities of PY2020 (January 1, 2020 through March 31, 2020).

[2] Lighting projects in Illinois utilize the Iowa V3 TRM algorithms and assumptions rather than Appendix A.

For the process evaluation, the Tetra Tech team reviewed program materials and conducted interviews with PY2019 and PY2020 Q1 participating trade allies and customers. The Tetra Tech team also included equipment-related questions in an omnibus telephone survey of MidAmerican nonresidential customers who had not participated in an energy efficiency program in the previous two years based on the time they were surveyed. Results were analyzed to better understand the current state of the equipment market and consumers' understanding, use, and purchasing behaviors.

1.3 SUMMARY OF KEY FINDINGS AND RECOMMENDATIONS

Overall, it is the opinion of the Tetra Tech team that the MidAmerican Nonresidential Equipment program team has worked diligently and effectively to keep the program running smoothly, particularly given the change in policy and implementer, as well as the recent transition to a new tracking database. The Tetra Tech team found generally high levels of satisfaction among surveyed participating customers and trade allies. There is evidence that program continues to have a positive net impact on energy efficiency within MidAmerican's service territory—eight of the 14 trade allies that were interviewed said that the program does affect their sales and recommendations practices.

A high proportion of customers continue to become aware of the program and rebate opportunities through an equipment vendor or contractor, typically receiving the details for program eligibility, equipment recommendations, and rebate amounts from their interaction with trade allies. In particular, as part of the NTG questions, 93 percent of Illinois surveyed participants said they learned about MidAmerican's Nonresidential Equipment program before they finalized project specifications. The trade allies noted that they receive the information they need to accurately inform customers of the program, and also provided a few suggestions for improvements. Increased awareness and uptake by trade allies in the newly available online application will benefit some of the contractors we spoke with, improve the accuracy of the information collected, and largely improve the speed of incentive payments.

The impact evaluation resulted in high realization rates overall. Realization rates for therms and peak therms in both Iowa and Illinois ranged from 99.3 to 101.5 percent. Realization rates for energy (kWh) and demand (kW) varied from 93.9 to 99.9 percent by state. The 93.9 realization rate for peak demand was primarily impacted by exterior lighting measures calculated demand savings using the building type rather than the 0.0 percent coincident factor as specified in the Iowa Technical Reference Manual (TRM). The 96.7 percent realization rate for kWh in was driven by corrections to the lighting hours of use from the application to the tracked data and subsequent calculations. All realization rates were impacted by minor corrections to waste heat or interaction factors based on project documentation.

Table 2. Savings Impacts*

Impact	Tracked Gross Savings**	Evaluated Gross Realization Rate***	Evaluated Gross Savings	NTG Ratio****	Evaluated Net Savings*****
Iowa – PY2019 and PY2020 Q1					
kWh	28,359,891	99.9%	28,325,834	75%	21,244,376
Peak kW	4,620	97.5%	4,503	75%	3,377
Therms	-27,231	99.3%	-27,029	75%	-20,272
Peak Therms	97	101.5%	99	75%	74
Illinois – PY2019					
kWh	5,088,893	96.7%	4,922,279	75%	3,691,709
Peak kW	848	93.9%	796	75%	597
Therms	-7,397	99.9%	-7,390	75%	-5,542
Peak Therms	123	100.0%	123	75%	92

* Numbers in the table are rounded—savings values are rounded to the nearest whole number and the realization rate is rounded to the nearest tenth of a percent. As a result, numbers may not calculate exactly in the table.

** Tracked savings shown are from PY2019 and PY2020 tracking data received from MidAmerican on October 7, 2020.

*** The realization rate is the ratio of evaluated gross savings to claimed gross savings.

**** NTG ratio is based on primary data collection conducted with Illinois program participants. The NTG information in Iowa is for informational and program design only.

***** Evaluated net savings are derived by multiplying the evaluated gross savings by the NTG ratio.

Next, we present the key findings from the evaluation and associated recommendations.

Finding #1: Exterior lighting projects used an incorrect coincident factor across all projects in Illinois and all Iowa 2019 projects.

The Tetra Tech team found that 181 projects across Iowa and Illinois were using a coincident factor determined by the building type from the Iowa TRM, rather than the coincident factor of 0 percent as specified for exterior lighting. In discussing with MidAmerican, the coincident factors were adjusted for the PY2020 Iowa population, and a new data extract was submitted, in which the Tetra Tech found that the savings had been calculated correctly. It was decided that these variances would not be changed for the PY2019 projects, and as result, represent the largest adjustment to the peak demand savings across both Iowa and Illinois.

> *Recommendation #1: Continue to ensure exterior lighting fixtures use the parameters for outdoor lighting rather than interior lighting.*

Finding #2: Multiple projects used waste heat or interaction factors in their lighting savings calculations rather than the factors specified in the tracking system.

The Tetra Tech team found 27 projects across Iowa and Illinois that were using an interaction factor in their energy and demand savings calculations that differed from the values that were tracked in the tracking system. In discussing with MidAmerican, the savings for the measures where this occurred in the PY2020 Iowa population were corrected, and a new data extract was submitted, in which the Tetra Tech found that the savings had been calculated correctly. It was decided to not make adjustments to the PY2019 populations in both Iowa and Illinois.

> *Recommendation #2: Continue to ensure the savings calculations use the tracked interaction factors for energy and demand savings.*

Finding #3: The NTG research indicates moderate overall program influence on customer decision-making. However, in looking more specifically at "small" versus "large" businesses, NTG values are higher among the small business sector.

The program-level calculated NTG is a weighted value comprising both free-ridership and spillover. Program participants interviewed as part of this evaluation generally agreed that the rebates offered have had some effect on their decision to install high efficiency equipment. However, the magnitude of this effect varied by customer, with some surveyed participants indicating that they likely would have installed the same equipment even without the rebate. This is not surprising given awareness trends across the country, including for businesses to increase their sustainability practices, for which energy efficiency can play a key role. Very few, if any, similar types of programs across the country have a NTG value of 100 percent. Interviews with trade allies corroborated the finding that the rebates are having some influence on customer decisions around high efficiency equipment in MidAmerican's service territory. The Tetra Tech team did review NTG for the small business sector. In analyzing the NTG value for the "small" versus "large" businesses, the Tetra Tech team found higher NTG values for small businesses—values ranged from 73 percent to 89 percent, depending on the question and methodology.

It is important to note that the NTG estimates are subject to multiple sources of uncertainty, including sampling error and measurement error due to problems of respondent recall, the challenge of answering hypothetical questions about actions they might have taken in the absence of the program, and the assumption that a 0 to 10 influence score is linear and accurately reflects the impact of the program on the customer's decision. The Tetra Tech team has taken multiple steps to mitigate this uncertainty by adhering to best practices in the design of representative samples, the use of the self-report approach in estimating NTG, the use of effective strategies to minimize non-response, and the testing of NTG questions to ensure construct validity.

> *Recommendation #3: We recommend a NTG ratio of 75 percent for the Nonresidential Equipment program in Illinois. Additionally, continue outreach to the small businesses, as there is indication that rebates are effective for making energy efficiency improvements in this sector.*

Finding #4: Trade allies who have worked with a Trade Ally Ambassador are more likely to say they are adequately informed of program changes.

Six of the 14 trade allies interviewed indicated they are adequately informed of program changes, and most of these six trade allies say they have worked with a Trade Ally Ambassador. All found the Trade Ally Ambassadors knowledgeable and services helpful. Of another six who said they are not adequately informed of program changes, only one said they have worked with a Trade Ally Ambassador, but it has been some time since they had that interaction. These six are also smaller contractors, with all but one having a staff of less than 12.

> *Recommendation #4: Trade Ally Ambassadors should continue to try to connect with smaller trade allies. In addition, the program should continue with regular electronic communications and training, which are particularly helpful for smaller contractors.*

Finding #5: Portfolio-level marketing and outreach efforts remain successful in raising general customer awareness of program rebates, though trade allies continue to contribute heavily to awareness.

Respondents to the participant survey most commonly reported learning about the Nonresidential Equipment program through an equipment vendor, contractor, or other professional (64 percent for Iowa participants and 48 percent for Illinois participants). As illustrated in the participant survey results, trade allies continue to play a key role in customer outreach for the Nonresidential Equipment program.

Most trade allies interviewed reported routinely discussing program rebates with MidAmerican customers and incorporating MidAmerican rebates into price estimates and comparisons. Most trade ally impressions of customer awareness of the program was that customers are not aware of the program. Customers may ask if there is a rebate available, knowing it is a possibility, but they really are unaware of the program itself.

> *Recommendation #5: Continue portfolio-level marketing efforts and engaging trades to help educate customers on program offerings.*

Finding #6: Surveyed participants and trade allies continue to be satisfied with the program. However, there were indications that satisfaction is lower compared to the last evaluation cycle and could be driven by the decrease in rebate amounts—the amount of the incentive received was the lowest rated program aspect among surveyed participants.

Participant survey respondents generally expressed high satisfaction with the program overall, as well as individual aspects of their participation experience. Over 80 percent of both Iowa and Illinois survey respondents rated their satisfaction with the program overall as a 3 or 4 on a scale of 1 to 4 where 1 was “not at all satisfied” and 4 was “very satisfied.” Using the same scale, eight of the 14 trade allies provided a rating of 3 or 4. Of the individual aspects of the program asked in the survey, both Iowa and Illinois participants gave the highest satisfaction ratings to the contractor who installed the equipment, followed by the type of equipment eligible for the program. The lowest rated item was the amount of incentive received.

High satisfaction with the program is also represented by the propensity to recommend the program to others. Based on participant survey respondent answers, 65 percent of Iowa respondents and 83 percent of Illinois respondents were “extremely likely” to recommend the program (9 or 10 on a scale of 0 to 10 where 0 was "extremely unlikely" and 10 was "extremely likely"). Trade allies were also asked how likely they are to recommend the program to a peer using the same scale. Nine trade allies rated their likelihood a 10 (none rated their likelihood a 9).

> *Recommendation #6: Continue current levels of program support and continue to find opportunities to educate customers about the value of energy efficiency.*

2.0 INTRODUCTION

This report presents the detailed Nonresidential Equipment program impact and process evaluation results for PY2019 in Iowa and Illinois and PY2020 Q1 for Iowa.

2.1 PROGRAM DESCRIPTION

The Nonresidential Equipment program promotes the purchase of energy efficient equipment to MidAmerican's nonresidential customers by offering financial incentives for the installation of energy efficient equipment in existing buildings. Program measures must save energy supplied directly by MidAmerican. Transportation gas customers with daily metering are ineligible for incentives for gas measures; however, customers with monthly metering under the Monthly Metered Transportation Service gas tariff are eligible for energy efficiency incentives.

The program is available to all nonresidential customers in existing buildings in MidAmerican's Iowa and Illinois service area. Energy efficient equipment installed in newly constructed commercial buildings or multi-family housing facilities is not eligible for rebates through the Nonresidential Equipment program. In Illinois, the program also includes a custom rebate option that allows customers to implement new technologies and alternate strategies not currently eligible for prescriptive rebates. In Iowa, cost-effective qualifying energy efficiency measures not listed as a prescriptive measure below may be eligible for a custom incentive through the Nonresidential Energy Solutions program.

The Nonresidential Equipment program offers rebates for the following measures:

- Heating and cooling equipment, including:
    - Central air conditioners
    - Natural gas furnaces
    - Natural gas boilers
- Retrofit lighting equipment, including:
    - LED lamps
    - LED fixtures
    - LED retrofit kits
- In Illinois, these measures are also offered:
    - Thermostats
    - Air Source Heat Pumps
    - Furnace Blower Motor
    - Refrigerator
    - Water Heater

MidAmerican staff provides overall strategic direction for the program, conducts research and development, and provides promotion, trade ally support, evaluation, and other administrative functions. MidAmerican currently contracts with Nexant for call center and rebate processing services,

as well as trade ally outreach and support. In 2019, MidAmerican also contracted The Energy Group for custom rebates.

- **Nexant** has been responsible for handling customer calls, reviewing project applications, tracking results, and processing customer rebates since early 2019 (as part of the new Iowa Energy Efficiency Plan cycle). Nexant continues to oversee all trade ally outreach for MidAmerican's programs, including providing Trade Ally Ambassadors as the main trade ally point of contact.
- **The Energy Group** managed projects requiring pre-approval for custom rebates through 2019. If the project required a custom review, The Energy Group worked directly with customers to help identify the technical information necessary for project evaluation, performed technical analyses of applications to confirm scope, cost and potential energy savings, performed field verification on completed projects and calculated revised expected annual energy savings from installed projects, if appropriate.

Trade allies continue to play a key role in the delivery of the program, as they are one of the primary customer outreach arms, informing customers of the program and available rebates for qualifying energy efficient equipment. Trade allies are varied, and include HVAC equipment distributors, dealers, and service providers, plumbing and mechanical contractors, lighting distributors and dealers, electrical contractors, boiler distributors and dealers, engineering firms, and architects. MidAmerican maintains an active trade ally program to keep participating contractors informed of program opportunities and changes. Specific outreach efforts include MidAmerican's Trade Ally Central website, a trade ally newsletter, and Trade Ally Ambassadors. Direct program customer outreach is primarily driven through traditional portfolio-level mass marketing and outreach efforts, such as quarterly newsletters, the MidAmerican website, targeted direct marketing targeting specific nonresidential segments through direct mail, phone calls, or emails, and utilization of social media channels.

Key steps in program participation include:

- **Pre-Notification submittal.** Prescriptive projects with projected rebate amounts greater than or equal to $25,000 require pre-notification to MidAmerican to reserve funds. MidAmerican provides pre-notification approval prior to the purchase and installation of equipment or systems. Funds that have been reserved for specific applications are not transferable to other projects, facilities/ campuses, and/or customers. A reservation does not guarantee an incentive.
- **Project qualification.** The project, including documentation submitted, goes through a series of reviews by both Nexant and MidAmerican to ensure it meets program eligibility requirements. Once the reviews are completed, the customer receives notification that the project can move forward. Nexant may conduct additional verification activities on existing equipment prior to new equipment being installed and/or the new equipment, once installed.
- **Project installation.** The customer may begin installation of equipment after receiving pre-notification approval. For PY2019 projects, customers had to complete installation within 90 days of pre-notification approval. For PY2020 projects, customers have up to six months of the dealer invoice, or by December 31, 2020, to complete and submit projects.
- **Final application submittal.** The customer submits a final application with the required documentation after installation of qualifying energy efficiency equipment has been completed. Trade allies may assist a customer with this step.
- **Quality assurance/quality control review.** The application and supporting documentation are reviewed by both MidAmerican and Nexant to ensure all required project documentation has

been submitted before the financial incentive payment is issued. Nexant may conduct additional verification activities post-installation.

- **Rebate processing and database maintenance.** Nexant and MidAmerican process rebates and maintain the database for tracking and reporting purposes.

There were a couple of changes made to the program for PY2020. First, to allow customers more time to submit their applications, the application submittal timeframe was changed from 90 days to six months of the dealer invoice, or by December 31, 2020. Second, the following primary use designations were retired by the DesignLights Consortium (DLC), and therefore removed from the program:

- Retrofit kits for 1'x4', 2'x2', and 2'x4' luminaires for ambient lighting of interior commercial spaces.
- Lamp-style retrofit kits for linear panels (1'x4', 2'x2', and 2'x4' troffers).

2.1.1 Summary of Researchable Questions and Evaluation Activities

This section describes the analytic methods and data collection activities implemented as part of the PY2019 and PY2020 Q1 impact and process evaluation of the MidAmerican Nonresidential Equipment program. The Tetra Tech team designed a methodology to evaluate the program and address the researchable questions outlined in the program's Detailed Evaluation Plan[3], as well addressed other issues that became relevant during the evaluation process.

2.1.1.1 Key Researchable Questions

Based on discussions with the MidAmerican product managers, energy efficiency director, implementation contractor, key researchable questions were developed and prioritized for the evaluation of the Nonresidential Equipment program, and then addressed within the customer and trade ally research as well as the impact evaluation activities. The table below outlines the researchable questions that this evaluation examined.

Table 3. Nonresidential Equipment Program Researchable Questions

Researchable Questions	Activity to Support the Question
Program Design	
What are the primary barriers preventing customers from installing program-qualifying equipment? What are the primary barriers for trade allies? How effective has the program been at addressing these barriers?	• Participant surveys • General population survey • Trade ally ambassador interviews • Trade ally interviews
What, if any, are the impacts of the change to project installation requirements from 90 days to six months?	• Program and implementation staff interviews • Participant surveys
Are there any opportunities for adjustments to program offerings or eligible measures? Are there any opportunities to lower administrative costs?	• Program and implementation staff interviews • Secondary research

[3] A select group of Iowa and Illinois Stakeholders were provided an opportunity to review and comment on the draft Nonresidential Equipment Detailed Evaluation Plan in June of 2020.

Researchable Questions	Activity to Support the Question
Customer Education, Outreach, and Marketing	
How effective are marketing efforts undertaken as part of the program? What would be effective marketing tools to use with a limited budget?	• Participant customer survey • General population survey • Trade ally ambassador interviews • Trade ally interviews
How effective is education of trade allies on program requirements? What additional support could be provided?	• Program and implementation staff interviews • Trade ally ambassador interviews • Trade ally interviews
Are program requirements clear to customers and trade allies?	• Participant surveys • Trade ally interviews
What is the level of customer awareness of the program? What more can/should MidAmerican do to increase program awareness among customers?	• General population survey • Trade ally interviews
Program Administration, Processes, and Resources	
Are program quality assurance and quality control processes adequate and effective?	• Program and implementation staff interviews • Trade ally interviews • Program information review
Are there any program processes that could be more efficient and/or effective? If so, how can those processes be improved?	• Program and implementation staff interviews • Participant surveys • Trade ally interviews • Program information review
Program Satisfaction	
What is the level of satisfaction with the program? How can satisfaction be improved, if at all?	• Participant survey • Trade ally interviews
How satisfied are customers with MidAmerican?	• Participant survey
How satisfied are customers with their contractor?	• Participant survey
Program Impacts	
What assumptions were used to develop savings estimates? Are there any updates that should be made?	• Program tracking data review • Review of the Iowa TRM
What are the program's verified gross savings for Iowa and Illinois for the evaluation period?	• Program database review • Project-level engineering desk reviews • Project verification
What is an appropriate NTG ratio for the program in Iowa and Illinois?	• Participant survey • Trade ally interviews • Literature review

2.1.2 Detailed Evaluation Activities

Table 5 documents the activities that were completed as part of this evaluation. The evaluation focused on estimating and verifying program impacts and providing key feedback on the functionality of program processes.

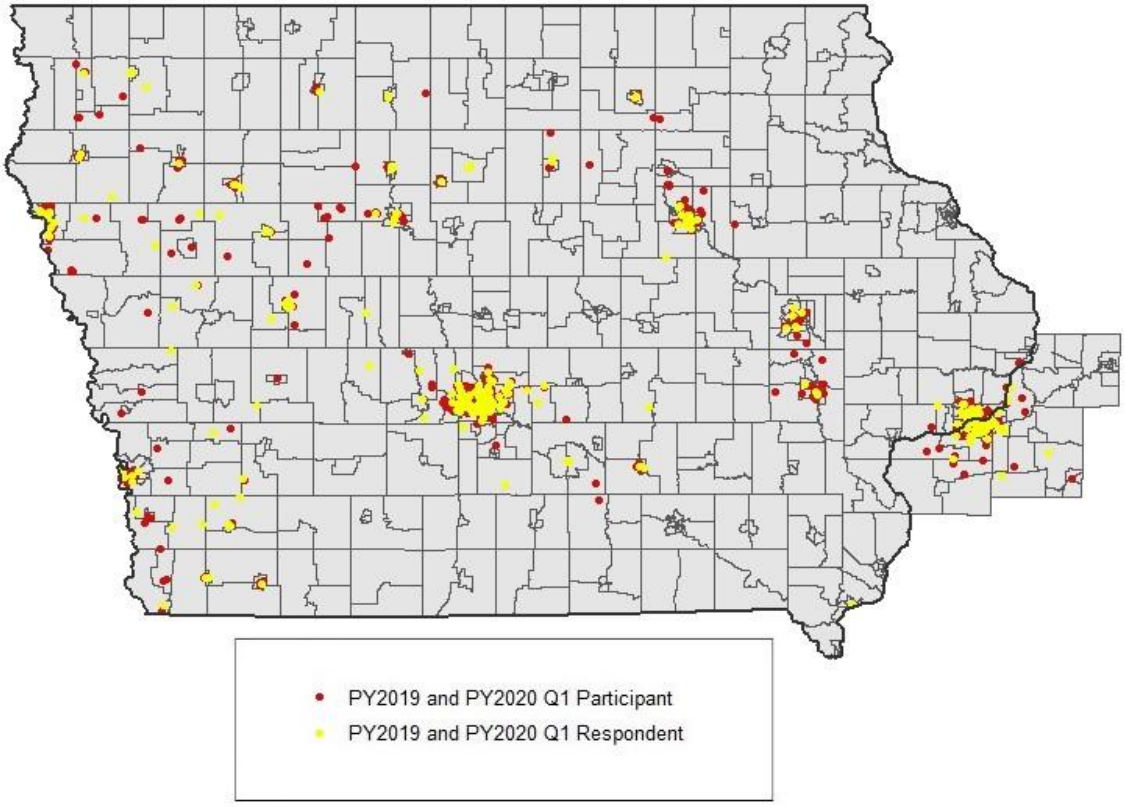
Table 4. Summary of Nonresidential Equipment Program Evaluation Activities

	Activities
Overarching Evaluation Activities	**Program staff interviews:** Conducted in-depth interviews with the product managers and energy efficiency director, the program implementation contractor, and trade ally ambassadors. **Tracking system review:** Analyzed the tracking database, savings tracked, and documentation for consistency. This included a full replication of savings for the Iowa projects. **Program documentation review:** Assessed completeness of program documentation. **Net-to-gross:** Estimated free-ridership and spillover effects from Illinois participant customer self-reports, triangulated with trade ally views (qualitative only), and a secondary review of NTG values in Illinois.
Impact Evaluation Activities	**Engineering desk reviews:** Conducted engineering desk reviews of 46 prescriptive projects—26 in Iowa and 20 in Illinois—for a total of 109 tracking system line items, representing 5,730 installed units. This included reviewing engineering inputs, assumptions, calculations, and documentation, comparing those to the Iowa TRM V3 and V4 and to MidAmerican's Appendix A, as appropriate. **Program participant survey:** As part of the program participant survey, respondents were asked to confirm equipment installations.
Process Evaluation Activities	**Program participant survey:** Completed 239 surveys with Iowa participants and 47 surveys with Illinois participants. Based on the number of unique participants in the available sample frame, we included a census of all PY2019 and PY2020 Q1 participants. **Nonparticipant customer survey:** Completed 165 customer surveys with a random sample of nonresidential customers in MidAmerican's Iowa service territory who had not participated in a MidAmerican energy efficiency program in the past two years. **Trade ally interviews:** Conducted 14 semi-structured interviews with participating contractors in Iowa and Illinois.

The figure below shows the location of MidAmerican's customers who participated in the Nonresidential Equipment program in red and the participants who responded to the telephone surveys in yellow by county to show where program opportunity exists and where program activity has been achieved[4]. The Tetra Tech team notes that the map reflects a dense are of yellow dots assembled in the far-right side of the map. These survey completes are in MidAmerican's Illinois service territory. Because Illinois requires a NTG ratio, the Tetra Tech team completed surveys in MidAmerican's small Illinois service territory, which created the concentration of survey completes in this geographic area.

[4] This information is also tracked in MidAmerican's database by zip code. Information can be provided at this level, if desired.

Figure 1. Nonresidential Equipment Participants and Surveyed Respondents by County



Below is more detail related to the methodologies used for the different evaluation activities associated with MidAmerican's Nonresidential Equipment program evaluation.

- **Program and implementation staff interviews.** Tetra Tech team members interviewed the MidAmerican product managers, representatives from the implementer, and trade ally ambassadors to understand the program design, delivery protocols, and customer and trade ally touchpoints.
- **Participant data tracking review.** The Tetra Tech team assessed MidAmerican's tracking database inputs for Nonresidential Equipment prescriptive measures based on the Iowa TRM V3 and V4, and MidAmerican's Appendix A (for select Illinois projects). The Nonresidential Equipment program tracking data provided information on participating customers, fuel type, incentives, and project level savings. The Tetra Tech team recalculated measure level energy savings for all Iowa projects. The recalculation was based on the appropriate Iowa TRM version and used the tracked data's attributes as needed. This task is implemented to help identify any potential systematic adjustments that may need to be made to the measure-level savings.
- **Participant customer survey.** The Nonresidential Equipment program evaluation included completing surveys with 239 PY2019 and PY2020 Q1 program participants in Iowa and 47 PY2019 program participants in Illinois. The participant customer survey was used to inform both process and impact evaluation objectives. The survey investigated program delivery processes, interactions with the program staff, preferred communication channels, NTG effects (free-ridership and spillover for Illinois participants), satisfaction with different facets of the program, and demographic information. The past survey instrument was leveraged to identify

questions that warranted tracking over time. The participant customer survey was administered through Tetra Tech's in-house survey research center between July 27 and September 11, 2020. A copy of the participant survey can be found in Appendix C.

- **Nonparticipant survey.** The Tetra Tech team conducted a nonparticipant survey, completing interviews with 165 nonresidential customers to support the evaluations of MidAmerican's nonresidential programs in its Iowa service territory. Among other items, the questions assessed consumer awareness of different program offerings, interest in program participation and rebates, energy efficiency attitudes, and any recent energy efficiency activity. The nonparticipant surveys were administered through Tetra Tech's in-house Survey Research Center in September 2020. A copy of the nonparticipant survey can be found in Appendix D.
- **Trade ally interviews.** The Tetra Tech team conducted a total of 14 semi-structured interviews with participating trade allies in Iowa and Illinois. In July 2020, MidAmerican provided the Tetra Tech team with participating trade ally tracking data. Interviews with participating trade allies explored perceptions of the program's design, interactions with the program staff, program operations, customer experiences, and market trends. Trade ally interviews were conducted by Tetra Tech team senior staff in August and September 2020. A copy of the trade ally interview guide can be found in Appendix E.
- **NTG assessment.** Primary NTG information was collected from the Illinois program participant survey from which the Tetra Tech team estimated free-ridership and participant spillover effects. The trade ally interviews also investigated qualitative indicators of the program's influence on customer decision-making and trade ally practices. Additionally, the Tetra Tech team conducted a secondary review of NTG values used by similar utility programs in Illinois.
- **Engineering desk reviews.** The Tetra Tech team reviewed a random sample of 46 projects[5]—26 prescriptive customer applications in Iowa and 20 prescriptive customer applications in Illinois. These reviews verified the documented installed equipment specifications to ensure the correct application of the savings algorithms and reviewed all available information regarding the efficiency of the existing equipment that was replaced. Project-specific results where adjustments were made can be found in Appendix A.

[5] A total of 50 desk reviews were conducted, however 46 were relevant to the final sample populations. One prescriptive project in Iowa was not part of the final tracking system, and this project was excluded from the desk review results since it was no longer part of the population. Three custom lighting projects were sampled in Iowa, but as part of the desk review process, the Tetra Tech team learned these projects were started in 2018. Because this evaluation is intended to be prospective, these three projects were excluded from the final results.

3.0 PROGRAM SAVINGS AND IMPACT EVALUATION FINDINGS

This section presents the results for the Nonresidential Equipment program impacts for PY2019 in Iowa and Illinois and PY2020 Q1 for Iowa. The impact evaluation was designed around the key researchable questions identified in the methodology section 2.1.1. First, we present the program savings and then discuss the tracking, engineering, and data reviews.

3.1 PROGRAM SAVINGS

In this subsection we present the electric and natural gas energy and demand savings results separately for Iowa and Illinois. For each service territory, the Tetra Tech team selected a sample of measures for review. In addition to the selected project measures, any other measure completed at the same customer premise was also reviewed to increase the number of measures reviewed.

3.1.1 Iowa

For Iowa in PY2019, the Nonresidential Equipment program had 547 unique program participants that installed 69,132 units, for an average of 126 installed units per participant[6]. In PY2020 Q1, 474 unique program participants installed 77,880 units, for an average of 164 installed units per participant, which is an increase over PY2019. The high number of installed units is driven by the lighting projects. The Tetra Tech team reviewed this data file and recalculated savings based on the appropriate Iowa TRM version for lighting, central air conditioners, and furnaces.

Next, the Tetra Tech team selected a sample of projects for desk reviews. The individual measures tracked in MidAmerican's database were classified by fuel source and technology strata, as shown in the table below ("Measure Category"). The sample was allocated among these strata based on the individual stratum savings and the expected uncertainty for each technology listed. Within each of the strata, the Tetra Tech team randomly selected individual projects to assess. However, as mentioned earlier, any additional measures completed at the same premise were also reviewed to increase the total number of measures reviewed and increase overall confidence and precision levels.

The Tetra Tech team completed desk reviews of 26 individual customer projects totaling 563 installed units (these correlate to the "Measure Count" information presented in the table below). Based on the desk reviews, the Tetra Tech team adjusted savings for seven electric savings projects in Iowa. Appendix A of this report provides detailed results for all projects where adjustments to savings were made.

The largest adjustments were to the peak demand savings for exterior lighting measures where peak demand savings was calculated using the building type coincident factor rather than the 0.0 percent coincident factor specified in the TRM for exterior lighting; this systemic finding was addressed by MidAmerican for PY2020 projects and a revised dataset was submitted to the Tetra Tech team. Realization rates reflect the revised dataset. Other additional adjustments included waste heat or interaction factors used in the savings calculations that did not match the tracked values, or mismatches between information entered on applications and what was entered into the tracking system and subsequently used for the savings calculations. Similarly, the issue with waste heat and

[6] For evaluation purposes, a unique participant is described as a unique premise ID. Therefore, customers who completed measures across multiple locations would be counted as multiple participants.

interaction factors used in calculations not matching the tracked values was discussed with MidAmerican and corrected in the PY2020 dataset resubmittal.

Table 5. Engineering Desk Reviews Sample by Category* - Iowa

Measure Category	Measure Count	Unique Participant Count**	Total Gross Savings (kWh)	Sampled Electric Measures	Total Gross Savings (Therms)	Sampled Gas Measures
Boiler	16	10	0	0	6,978	2
Central AC	70	58	34,606	9	0	0
Furnace	194	131	0	0	24,127	6
Exterior Lighting	4,932	296	5,364,909	4	0	0
LED Fixture***	141,800	624	22,960,376	15	-58,336	8
Total	**147,012**	**972**	**28,359,891**	**28**	**-27,231**	**16**

* Numbers reflected in this table are from tracking data received from MidAmerican on October 7, 2020.

** We note that the total unique participant count does not match the sum of the participants for the individual measure categories due to some customers completing measures across multiple strata.

*** All interior lighting projects include waste heat factors to account for the increased heating load caused by more efficient lighting products replacing older technologies. For this evaluation period, the magnitude of this additional heating load is greater than the total natural gas savings from other implemented measures, resulting in negative therms savings at the program level.

The Tetra Tech team's impact evaluation of Iowa projects resulted in an overall gross realization rate of 99.5 percent with 4.0 percent relative precision at the 90 percent confidence interval for kWh and 96.2 percent with 8.8 percent relative precision for kW. The realization rate for kW was driven mainly by exterior lighting projects that calculated demand savings for PY2019 projects. The overall realization rates gross realization rate was 99.3 percent for therms and 101.5 percent for peak therms, with both having 0.0 percent relative precision due to all adjustments coming from the tracking system review. Natural gas realization rates were impacted by minor adjustments to the PY2019 waste heat and interaction factors.

Table 6. PY2019 and PY2020 Q1 Program Tracked and Evaluated Impacts* – Iowa

Measure Category	Tracked kWh**	Evaluated kWh	kWh Realization Rate
Central AC	34,606	35,586	102.8%
Exterior Lighting	5,364,909	5,286,979	98.5%
LED Fixture	22,960,376	22,908,998	99.8%
All Projects	**28,359,891**	**28,231,564**	**99.5%**
Measure Category	**Tracked Peak kW****	**Evaluated Peak kW**	**Peak kW Realization Rate**
Central AC	21	21	99.8%
Exterior Lighting	449	0	0.0%
LED Fixture	4,150	4,422	106.6%
All Projects	**4,620**	**4,443**	**96.2%**

Measure Category	Tracked Therms**	Evaluated Therms	Therms Realization Rate
Boiler	6,978	6,978	100.0%
Furnace	24,127	24,127	100.0%
LED Fixture	-58,336	-58,134	99.7%
All Projects	**-27,231**	**-27,029**	**99.3%**
Measure Category	**Tracked Peak Therms****	**Evaluated Peak Therms**	**Peak Therms Realization Rate**
Boiler	79	79	100.6%
Furnace	315	315	100.0%
LED Fixture	-296	-295	99.7%
All Projects	**97**	**99**	**101.5%**

* Numbers in the table are rounded—savings values are rounded to the nearest whole number and the realization rate is rounded to the nearest tenth of a percent. As a result, numbers may not calculate exactly in the table.

** Reported savings shown are from tracking data received from MidAmerican on October 7, 2020.

3.1.1 Illinois

For Illinois in PY2019, the Nonresidential Equipment program had 226 unique program participants that installed 27,540 measures, for an average of 122 individual measures per participant. The Tetra Tech team assessed the PY2019 data tracking file but did not recalculate savings, like was done for Iowa. This is because the savings for most of the 2019 Illinois projects were calculated using MidAmerican's Appendix A. Knowing that MidAmerican had already updated the savings calculations for Illinois projects in 2020 to reflect those in the Iowa TRM, the Tetra Tech team did not believe it was necessary to recalculate savings for the 2019 projects. In addition to lighting, central air conditioners, and furnaces, completed measures in Illinois consisted of air source heat pumps, furnace blower motors, refrigerators, thermostats, and water heaters.

From the PY2019 population of participants, the Tetra Tech team selected a sample for desk reviews. The completed measures were classified by fuel source and technology strata, as shown in the table below ("Measure Category"). The sample was allocated among these strata based on the individual stratum savings and the expected uncertainty for each technology listed. Within each of the strata, the Tetra Tech team randomly selected measures. However, as mentioned earlier, any additional measures completed at the same premise were also reviewed to increase the total number of measures reviewed and increase overall confidence and precision levels.

The Tetra Tech team reviewed 20 projects with a total of 5,167 installed units (these correlate to the "Measure Count" information presented in the table below). Savings adjustments were made to five electric savings and one natural gas savings measures. Appendix A of this report provides details for those projects where adjustments to savings were made.

The largest adjustments were to the peak demand savings for exterior lighting measures where peak demand savings was calculated using the building type coincident factor rather than the 0.0 percent coincident factor specified in the IA TRM for exterior lighting, and to the hours of use for a project that calculated savings using an hours of use that was different from the application. Other additional adjustments included waste heat or interaction factors used in the savings calculations that did not match the tracked values. These findings for Illinois projects were largely systemic and mirrored the

findings for Iowa projects. Similar to Iowa, the Tetra Tech team discussed this issue with MidAmerican and changes have been made to the program tracking database for PY2020 and going forward. There were no adjustments made to any projects that used Appendix A as the basis for calculations.

Table 7. Engineering Desk Reviews Sample by Category* - Illinois

Measure Category	Measure Count	Unique Participant Count**	Total Gross Savings (kWh)	Sampled Electric Measures	Total Gross Savings (Therms)	Sampled Gas Measures
Air Source Heat Pump	10	9	23,228	0	0	0
Boiler	1	1	0	0	2,097	2
Central AC	30	8	60,359	5	0	0
Custom Lighting	4	4	1,274,595	0	0	0
Exterior Lighting	625	42	663,081	14	0	0
Furnace	38	32	0	0	13,902	5
Furnace Blower Motor	16	13	13,863	0	0	0
LED Exit Signs	51	4	8,935	0	0	0
LED Fixture***	26,734	88	2,959,435	15	-26,807	12
Refrigerator	15	14	72,541	1	0	0
Thermostat	15	10	12,856	2	1,719	4
Water Heater	1	1	0	7	1,692	7
Total	**27,540**	**226**	**5,088,893**	**44**	**-7,397**	**30**

* Numbers reflected in this table are from tracking data received from MidAmerican on DATE.

** We note that the total unique participant count does not match the sum of the participants for the individual measure categories due to some customers completing measures across multiple strata.

*** All interior lighting projects include waste heat factors to account for the increased heating load caused by more efficient lighting products replacing older technologies. For this evaluation period, the magnitude of this additional heating load is greater than the total natural gas savings from other implemented measures, resulting in negative therms savings at the program level.

The Tetra Tech team's impact evaluation of PY2019 Illinois projects resulted in overall gross realization rates for electric measures of 96.7 percent with 8.4 percent relative precision at the 90 percent confidence interval for kWh and 93.9 percent with less than 0.1 percent relative precision for kW. The realization rate for kW was driven mainly by exterior lighting projects that calculated demand savings. The realization rates for both kWh and kW were affected by an hours of use mismatch between the tracked data and the project documentation. The overall gross realization rates were 99.9 percent for therms and 100.0 for peak therms, with both having less than 0.1 percent relative precision. The therms realization rate was affected by in an in-service rate correction applied to a single project.

Table 8. PY2019 Program Tracked and Evaluated Impacts* – Illinois

Measure Category	Tracked kWh**	Evaluated kWh	kWh Realization Rate
Air Source Heat Pump	23,228	23,228	100.0%
Central AC	60,359	60,359	100.0%
Custom Lighting	1,274,595	1,274,595	100.0%
Exterior Lighting	663,081	632,583	95.4%
Furnace Blower Motor	13,863	13,863	100.0%
LED Exit Signs	8,935	8,935	100.0%
LED Fixture	2,959,435	2,823,319	95.4%
Refrigerator	72,541	72,541	100.0%
Thermostat	12,856	12,856	100.0%
All Projects	**5,088,893**	**4,922,279**	**96.7%**
Measure Category	**Reported Peak kW****	**Evaluated Peak kW**	**Peak kW Realization Rate**
Air Source Heat Pump	8	8	100.0%
Central AC	57	57	100.0%
Custom Lighting	155	155	100.0%
Exterior Lighting	52	0	0.0%
LED Exit Signs	1	1	100.0%
LED Fixture	555	555	100.0%
Refrigerator	11	11	100.0%
Thermostat	10	10	100.0%
All Projects	**848**	**796**	**93.9%**
Measure Category	**Reported Therms****	**Evaluated Therms**	**Therms Realization Rate**
Boiler	2,097	2,097	100.0%
Furnace	13,902	13,903	100.0%
LED Fixture	-26,807	-26,801	100.0%
Thermostat	1,719	1,719	100.0%
Water Heater	1,692	1,692	100.0%
All Projects	**-7,397**	**-7,390**	**99.9%**

Measure Category	Reported Peak Therms**	Evaluated Peak Therms	Peak Therms Realization Rate
Boiler	43	43	100.0%
Furnace	188	188	100.0%
LED Fixture	-136	-136	100.0%
Thermostat	23	23	100.0%
Water Heater	5	5	100.0%
All Projects	**123**	**123**	**100.0%**

* Numbers in the table are rounded—savings values are rounded to the nearest whole number and the realization rate is rounded to the nearest tenth of a percent. As a result, numbers may not calculate exactly in the table.

** Reported savings shown are from tracking data received from MidAmerican on October 7, 2020.

3.2 PROJECT LEVEL TRACKING DATA AND DOCUMENTATION

The engineering analysis included a documentation review of the Nonresidential Equipment program population data queried from MidAmerican's VisionDSM database. The Nonresidential Equipment program tracking data was provided at the measure level. The type of data that was captured and reviewed by the Tetra Tech team is further described below.

VisionDSM data that was key to the evaluation effort included:

- Customer information (e.g., address, site contact information)
- Activity codes for gas and electric projects (Activity E, Activity G)
- Project level energy savings by fuel type
- Project number
- Equipment model number (to crosscheck with application)
- Equipment size and efficiency information (to crosscheck with application)
- Dates (e.g., install date, date created, application date received, invoice date, check date).

Key project documentation captured and reviewed for each sampled project included (to the extent available):

- Program applications
- Contractor invoices
- Equipment specifications and certifications
- Project calculations
- Site energy use records
- Email correspondence with customer

The Tetra Tech team reviewed the project documentation to confirm equipment specifications, quantities, and that prescriptive measure savings recorded in the VisionDSM database aligned with Iowa TRM V3 and V4, or MidAmerican's Appendix A savings algorithms, as appropriate. The Tetra Tech team reviewed all information and crosschecked data sources for consistency. Customer information, equipment model numbers, capacities, and efficiencies recorded on the customer applications and invoices were compared to the supporting equipment specifications provided, as well as with the information entered in the database. In the event that equipment specifications were not provided with the project documents, the Tetra Tech team gathered this information through research based on the model number provided.

The general types of adjustments made are described below. Details on all adjustments can be found in Appendix A of this document.

- **Prescriptive lighting – exterior fixtures.** Across the Illinois tracking system, the Tetra Tech team found that exterior lighting projects had tracked demand savings using the coincident factor based on the building type, rather than 0 percent coincident factor specified for exterior lighting in the Iowa TRM. Because this finding was systemic, the Tetra Tech team discussed this with MidAmerican, who then made adjustments to the PY2020 projects and submitted a new data extract. The Tetra Tech team verified that the PY2020 projects in the updated database were calculated correctly. For PY2019 projects, the demand savings for these measures was adjusted to 0. This affected a total of 1,647 measures in Iowa.
- **Prescriptive lighting – waste heat or interaction factors.** The Tetra Tech team found multiple projects with discrepancies between the tracked data values for waste heat factors and the project savings calculations. For five building types, an interaction factor for heating of 0 was used even though the tracking system reported the building was heated using electric resistance. These findings were shared with MidAmerican and found to be systemic. As a result, the PY2020 projects were corrected and a new data extract was submitted by MidAmerican. The Tetra Tech team verified that the savings are now calculated correctly. For PY2019 projects, the Tetra Tech team applied the interaction factor based upon the building type for 215 measures.
- **Prescriptive lighting – TRM V3 and TRM V4 differences.** The Tetra Tech team found two projects, with a quantity of 3,600 installed items, which used the Iowa TRM specified values from the incorrect Iowa TRM based on their install dates. This affected one project installed in 2019, for which Iowa TRM v4 values were used, and one project in 2020, for which Iowa TRM v3 values were used. This is not a systemic issue, and the adjustments for the Iowa TRM version were very minor to the overall savings.

The results of the tracking system review adjustments to savings by measure category for Iowa are presented in the table below. The details for the adjustments can be found in Appendix A to this document.

Table 9. Tracking System Review Tracked and Evaluated Savings by Measure Category - Iowa

Measure Category	Electric Savings (kWh)		Demand Savings (Peak kW)		Gas Savings (Therms)		Gas Savings (Peak Therms)		Realization Rate			
	Tracked	Evaluated	Tracked	Evaluated	Tracked	Evaluated	Tracked	Evaluated	kWh	kW	Therms	Peak Therms
Boiler	0	0	0.00	0.00	6,978	6,978	78.83	79.29			100%	101%
Central AC	34,606	35,586	20.90	20.86	0	0	0.00	0.00	103%	100%		
Furnace	0	0	0.00	0.00	24,127	24,127	314.77	314.77			100%	100%
Exterior Lighting	5,364,909	5,279,038	449.36	0.00	0	0	0.00	0.00	98%	0%		
LED Fixture	22,960,376	22,870,121	4,149.94	4,301.16	-58,336	-58,134	-296.12	-295.10	100%	104%	100%	100%

3.3 ENGINEERING DESK REVIEWS

In addition to the documentation review, the Tetra Tech team completed an engineering review for each of the sampled projects. This review included a recalculation of the savings for each measure included in the project. The Tetra Tech team also reviewed the individual project files to assess the appropriateness of the information collected to support program quality assurance and quality control (QA/QC), as well as the impact evaluation activities. The information collected for the individual projects was found to be, in general, sufficient to support QA/QC efforts and fully verify project savings.

For prescriptive measures, the Tetra Tech team's analysis included recalculating the savings using the Iowa TRM V3, Iowa TRM V4, or Illinois Appendix A, and updating hours of operation or other relevant inputs based on customer interviews or on-site inspection. For custom projects, as needed, the analysis was updated to better reflect the actual project scope. The general types of adjustments made are described below. Project-specific adjustments can be found in Appendix A of this document.

- **Prescriptive lighting – exterior fixtures.** Across both Iowa and Illinois, the Tetra Tech team found that exterior lighting projects had claimed demand savings using the coincident factor based on the building type, rather than 0 percent coincident factor specified for exterior lighting in the Iowa TRM. All of these measures were adjusted to 0 demand savings as part of the tracking system review and confirmed for projects sampled as part of the desk reviews.
- **Prescriptive lighting – waste heat or interaction factors and hours of use.** The Tetra Tech team found multiple projects with discrepancies between the tracked data and project documentation. For three projects in Iowa, the application indicated the heating or cooling system that was present, which did not match the tracked values. For these three projects, the waste heat factors were adjusted to align with the application. In addition, two projects were found to have hours of use that did not align with the hours of use from the application. Both of these projects were adjusted to match the application values; this affected one project in Illinois and one in Iowa. For systemic issues with waste heat or interaction factors, the adjustments were made through the tracking system review. For individual project adjustments, such as discrepancies between the application and tracking system, those findings were adjusted at the desk review level.
- **Prescriptive lighting – in-service rates.** For two projects, one in Iowa and one in Illinois, an in-service rate (ISR) of 1.0 was applied to the savings calculations within the tracking database. For both of these projects, the ISR was adjusted to 0.95 to match the Iowa TRM prescribed value.

4.0 NET IMPACT EVALUATION

In addition to estimating evaluated gross savings, the Illinois Commerce Commission (ICC) requires that MidAmerican provide evaluated savings estimates with NTG adjustments and the Iowa Utility Board (IUB) has encouraged using NTG estimates for informational and program design purposes. To meet these requirements, the Tetra Tech team conducted primary and secondary research to recommend NTG ratios that would be appropriate to apply to MidAmerican's Nonresidential Equipment program evaluated program savings.

4.1 ESTIMATION PROCESS

The Tetra Tech team recommends an overall prospective NTG value[7] of 75 percent for the Nonresidential Equipment program in Illinois based on results from primary data collection with program participant, trade ally interviews, and a peer program review.

From an impact perspective, NTG represents a measurement of savings attributable to program interventions. It first accounts for free-ridership, which measures the savings claimed by participants who would have installed the same high-efficiency measure type on their own at that same time if the program had not been offered. We also accounted for participant spillover, which measures untracked and non-rebated savings resulting from program information and intervention. When free-ridership and spillover are captured, the NTG ratio is calculated. From a process perspective, NTG is one indicator related to what is driving the adoption of rebated equipment.

Because NTG is required in Illinois, the Tetra Tech team conducted primary NTG research with participating Illinois customers, as well as a secondary review of NTG values used by similar programs in nearby territories. Because MidAmerican's Nonresidential Equipment program operates similarly in both Iowa and Illinois, NTG results from Illinois were applied to Iowa data. The participant survey estimated free-ridership and participant spillover effects from customer self-reports following the same protocol as in the last evaluation cycle—those from the Illinois TRM protocol (Version 6.0)[8]. The trade ally interviews also investigated qualitative indicators of the program's influence on customer decision-making and trade ally practices. The secondary review focused on relevant studies addressing NTG for states or service territories with characteristics similar to MidAmerican's service territory and the Nonresidential Equipment program.

The customer self-reports resulted in a calculated program-level NTG ratio of 68 percent using both free-ridership scoring methodologies. The surveys estimated a free-ridership rate of 35 percent free-ridership using one scoring methodology outlined in the Illinois TRM, and the same percent using another. The surveys also resulted in an overall spillover rate of three percent. It is important to note that the spillover estimate from the participant survey is a conservative estimate of spillover. The participant survey assessed only "like" spillover—or attributable savings resulting from additional

[7] It is important to note that the NTG estimates are subject to multiple sources of uncertainty, including sampling error and measurement error due to problems of respondent recall, the challenge of answering hypothetical questions about actions they might have taken in the absence of the program, and the assumption that a 0 to 10 influence score is linear and accurately reflects the impact of the program on the customer's decision. The Tetra Tech team has taken multiple steps to mitigate this uncertainty by adhering to best practices in the design of representative samples, the use of the self-report approach in estimating NTG, the use of effective strategies to minimize non-response, and the testing of NTG questions to ensure construct validity

[8] Illinois Statewide Technical Reference Manual for Energy Efficiency. Version 6.0. Volume 4: Cross-Cutting Measures and Attachments. FINAL. February 8, 2017.

installations of the same type of energy efficient equipment customers' installed through the program. In addition, and similar to the last evaluation cycle, surveys were conducted with recent program participants to minimize recall issues, restricting the amount of time customers had to make additional energy efficiency improvements after their participation in the program. Therefore, the resulting like spillover rate from the participant survey is a conservative estimate of spillover.

The customer self-report results are in-line with, though on the lower end of, NTG ratios found for similar programs in nearby territories, which most commonly ranged from 70 percent to 86 percent[9]. This includes a review of NTG for the small business sector. The Nonresidential Equipment participant survey included three questions that provided some insight into the size of the business[10]. In analyzing the NTG value for the "small" versus "large" businesses, the Tetra Tech team found higher NTG values for small businesses—values ranged from 73 percent to 89 percent, depending on the question and methodology (Methodology 1 or Methodology 2).

Similar to the last evaluation cycle, feedback from surveyed trade allies suggests that the program influences trade ally sales processes and customer decision-making. Trade allies are a primary source of program awareness, and surveyed participants commonly mentioned the influence of contractor recommendations on their decision to install their rebated equipment. Participating trade allies we spoke with consistently reported informing customers about available rebates and using the rebates as part of their sales process. Trade allies also indicated that the program is increasing the interest and demand for energy efficient equipment.

4.2 CUSTOMER SELF-REPORTS

The participant survey asked customers a series of highly structured questions to estimate free-ridership and spillover effects based on the Illinois TRM self-report protocol.

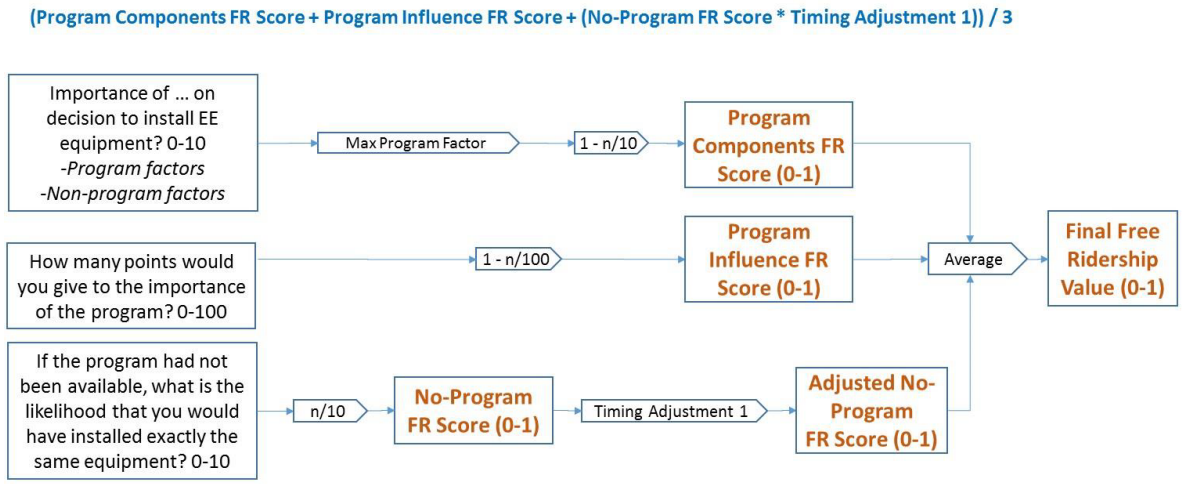
4.2.1 Free-Ridership

To assess free-ridership, the participant survey asked decision-makers a series of questions about the influence of the program on their decision to purchase qualifying equipment and actions that would have been taken in the absence of the program. A preliminary free-ridership rate was calculated for each participant, following the core nonresidential free-ridership scoring methodologies detailed in the Illinois TRM, which specifies two different core free-ridership scoring methodologies, shown below.

[9] In Illinois for example, prospective NTG values for ComEd's Business Midstream program ranged from 67 percent to 80 percent; Business Custom values ranged from 43 percent to 81 percent, Business Standard values ranged from 70 percent to 86 percent, and Small Business was 97 percent (all measures except thermostats). For Nicor Gas, NTG values were 86 percent for Business Prescriptive, 79 percent for Business Custom, and 83 percent for Small Business 83% (all measures except thermostats).

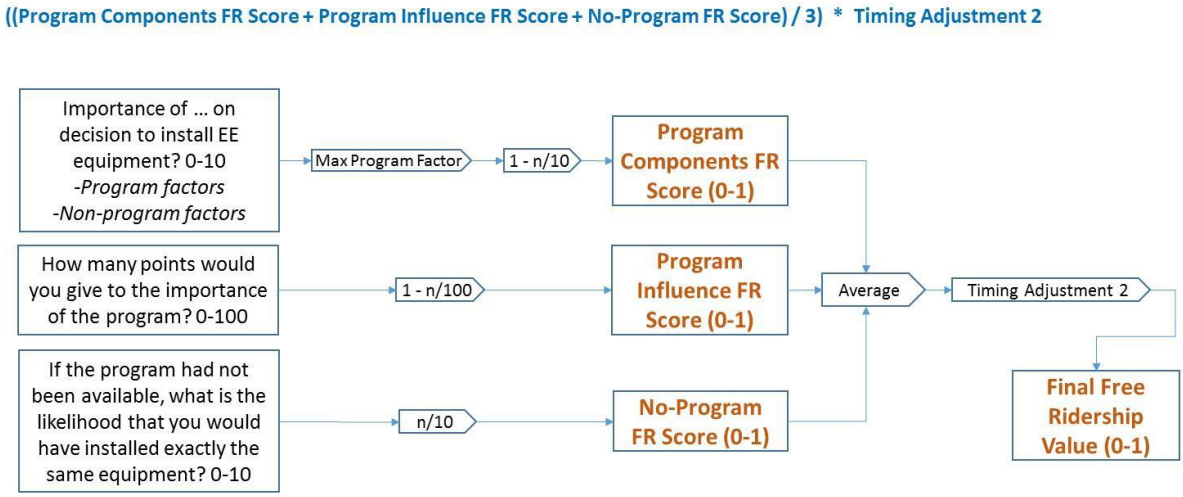
[10] Participant Survey variables FIRM5, FIRM10, and FIRM16.

Figure 2. Illinois TRM Core Nonresidential Free-Ridership Scoring Methodology 1



Where Timing Adjustment 1 = 1 – (Number of Months Expedited[11] – 6)/42
Source: Illinois TRM (Version 6.0)

Figure 3. Illinois TRM Core Nonresidential Free-Ridership Scoring Methodology 2



Where Timing Adjustment 2 = 1 – ((Number of Months Expedited – 6)/42) * ((10 – Likelihood of Implementing within One Year)/10)
Source: Illinois TRM (Version 6.0)

[11] The number of months expedited was based on the midpoint of pre-defined response categories in the participant survey. For example, if the respondent reported that in the absence of the program they would have installed the equipment "between 6 months and 1 year later", the estimated number of months expedited would be (6 + 12) / 2 = 9.

Based on the program's design and implementation, the Tetra Tech team defined the following as potential program-related factors: the availability of the program incentive, recommendation from an equipment vendor or contractor,[12] previous experience with a MidAmerican program, information from program marketing or informational materials, recommendations from MidAmerican staff, and payback on investment including the program incentive. Non-program related factors included corporate policy or guidelines, general concerns about the environment, payback on investment excluding the program incentive, and any other non-program related factors that were influential in the customer's decision-making process.

Calculated free-ridership scores were then reviewed for consistency with an additional question included in the participant survey asking respondents to state in their own words what influence the program had on their decision to implement the project.[13] Final individual free-ridership rates were then weighted to adjust for proportional sampling differences, non-response, and reported energy savings to calculate measure-category-level and program-level free-ridership rates.

The table below presents detailed free-ridership results from the participant survey by rebated measure category. The participant customer self-reports resulted in an overall free-ridership rate of 35 percent following Core Methodology 1 and 35 percent following Core Methodology 2. Measure-specific results should be viewed with caution due to small sample sizes for all measure categories.

Table 10. Self-Report Free-Ridership Results

Measure	Surveyed (n)	Population Reported Savings (MMbtu)	Core Methodology 1		Core Methodology 2	
			Free-ridership Estimate	90% CI (+/-)	Free-ridership Estimate	90% CI (+/-)
Central AC	1	1	2%	NA	2%	NA
Controls	2	1,521	20%	34%	18%	35%
Furnace	5	241	31%	19%	29%	21%
Heat pump	3	32	37%	16%	37%	18%
Insulation	4	93	23%	26%	17%	28%
Lighting	28	1,629	36%	5%	36%	6%
Thermostat	1	71	47%	NA	47%	NA
Overall	**44**	**3,588**	**35%**	**4%**	**35%**	**5%**

Eighty-two percent of the surveyed Illinois participants rated the importance of the recommendation from an equipment vendor or contractor as important (an 8, 9, or 10 on a 0 to 10 scale where 0 was "not at all important" and 10 was "very important"). When asked to rate the importance of the availability of the program rebate using the same scale, nearly three-quarters (71 percent) of the Illinois respondents rated the importance an 8, 9, or 10. Additionally, without the rebate, nearly two-thirds (63 percent) of surveyed participants said they would have postponed the installation of the same equipment by a year or more.

[12] MidAmerican actively maintains a robust trade ally network and trade allies play an integral role in customer communications and implementation for the program. Considering this, the Tetra Tech team believes it is most appropriate to treat contractor or vendor recommendations as a program influence.

[13] No individual free-ridership scores were adjusted based on the consistency check review.

4.2.2 Participant Spillover

In addition to free-ridership, the participant survey included a series of questions designed to measure participant spillover. Spillover refers to purchases of energy efficient equipment since participation that were made *without* any financial assistance from MidAmerican as a result of the customer's participation in the program. A participant spillover estimate is computed based on energy savings from energy efficient equipment the customer installed on their own since participating because of their experience with the program.

One of the issues with attempting to quantify spillover savings is how to value the savings of measures installed outside the program since we are relying on customer self-reports of the quantity and efficiency of any measures installed. We used a conservative approach and assessed only "like" spillover, or measures installed outside the program that were of the exact same type as the ones installed through the program. This, in turn, made it possible for us to use the estimated program savings for that measure (multiplied by the ratio of the quantity of equipment installed on their own versus through the program) to calculate the customer's like-spillover savings.

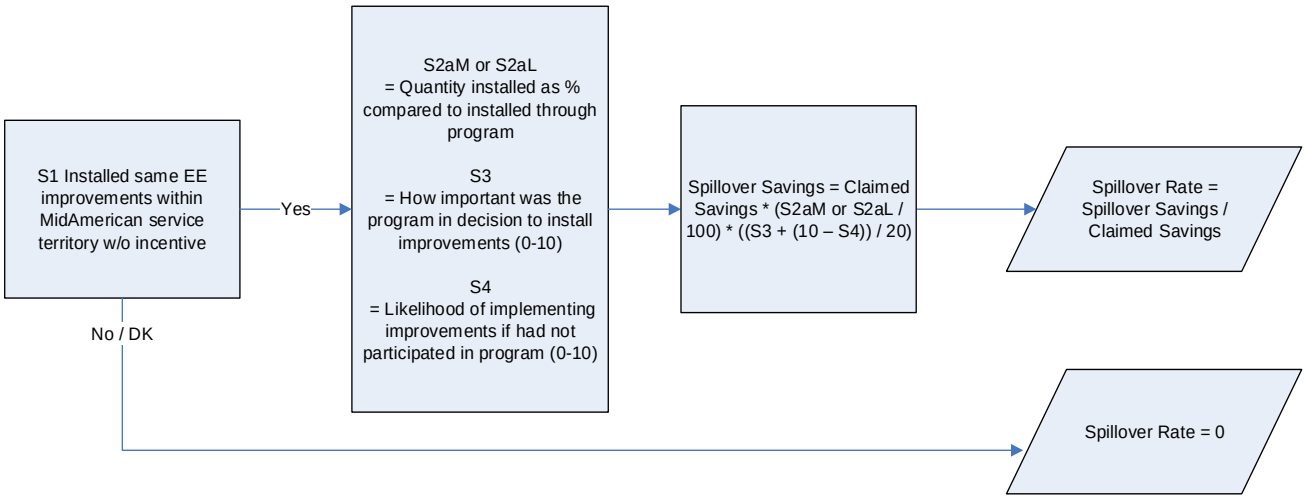
The Tetra Tech team determined the percentage of reported spillover savings that is attributable to the program using the following two survey questions, following the Illinois TRM Nonresidential Core Participant Spillover Protocol:

1) SP3: On a scale of 0 to 10 where 0 is "not at all important" and 10 is "extremely important," how important was your participation in the program on your decision to make additional energy efficiency improvements on your own?

2) SP12*:* If you had not participated in the program, how likely is it that you would still have implemented this equipment, using a 0 to 10, scale where 0 means you definitely WOULD NOT have implemented this equipment and 10 means you definitely WOULD have implemented this equipment?

A participant spillover rate was calculated for each participant surveyed at the measure-category level following the algorithm shown in the flowchart below. Individual spillover rates were then weighted based on the gross claimed energy savings for each participant and the distribution of program population savings by measure-category.

Figure 4. Participant Spillover Methodology



The following table presents self-report participant spillover results from the participant surveys by measure category. The participant survey resulted in an overall spillover rate of three percent. A total of eight survey respondents reported installing "like" spillover measures on their own within MidAmerican's service territory without receiving financial assistance from MidAmerican. Of these eight respondents, four resulted in attributable spillover savings based on the attribution criteria described above.

Table 11. Self-Report Participant Spillover Results

Measure	Surveyed (n)	Population Reported Savings (MMbtu)	Like Spillover Estimate	90% CI (+/-)
Central AC	1	1	0%	NA
Controls	2	1,521	0%	NA
Furnace	5	241	0%	NA
Heat pump	3	32	0%	NA
Insulation	4	93	0%	NA
Lighting	28	1,629	3%	6%
Thermostat	1	71	0%	NA
Overall	**44**	**3,588**	**3%**	**4%**

4.3 TRADE ALLY VIEWS

One potential issue with assessing free-ridership through customer self-reports for trade ally-influenced equipment is that programmatic influences on trade ally sales practices and recommendations are likely not fully captured in customer self-reports. The program relies heavily on trade allies for customer outreach and marketing. Recognizing this, interviews with participating trade allies investigated the program's influence on sales practices, recommendations, and market trends to support the NTG assessment.

The trade allies interviewed had anywhere from two to more than 20 years of experience with MidAmerican's rebate programs. Exposure to rebate programs has created an environment where many of the trade allies routinely include a recommendation for energy efficient equipment as an option for customers. Historically, their experience has been that few customers purchase the more expensive, higher efficiency equipment without the incentives. Trade allies offered a variety of comments when asked what would happen to equipment types and levels they typically recommend if MidAmerican's programs were not available.

> *"We would still recommend it. It's just with having that rebate, the price is what drives a lot of people to make that decision."*
>
> *"It would still be recommended, but there wouldn't be that incentive to move forward with something. We believe in LEDs the whole way."*
>
> *"With the rebate incentive, we put higher end incentives in a place, they're getting so much more back on the rebates they're fine with it, otherwise lower end fixtures."*
>
> *"I think customers would probably go with something lower in SEER or efficiency."*
>
> *"I don't know how much change it would actually have since ultimately I'm trying to look at what's best for the customer."*

5.0 PROCESS EVALUATION FINDINGS

This section presents the findings from the process evaluation activities and are detailed separately for Iowa and Illinois. The process evaluation was designed around the key researchable questions identified in the methodology section 2.1.1. Process evaluation activities involved interviews with program and implementation staff, participating customers, participating trade allies, and nonparticipating customers. The key process-related findings are detailed in the subsections below.

The participating customer survey was used to understand the perspectives of program participants; questions explored consumers' awareness, reasons for participation, program experiences, and satisfaction with the Nonresidential Equipment program. The participating trade ally interviews investigated trade ally awareness, experiences, and satisfaction with the program. In addition, training, education, and outreach[14] were further explored with trade allies, as well as the program's impact on increasing the interest and demand for energy efficient equipment. Illinois program participants surveyed were asked NTG questions, as were all trade allies surveyed.

5.1 INTERVIEWED PARTICIPANT AND TRADE ALLY CHARACTERISTICS

The Tetra Tech team interviewed a total of 239 participating customers in Iowa and 47 participating customers in Illinois, as well as 14 participating trade allies to support the process evaluation. In addition, the Tetra Tech team conducted a nonparticipant survey with 165 nonresidential customers to support all Iowa nonresidential program evaluations.

5.1.1 Participant Characteristics

The table below summarizes the number of PY2019 and PY2020 Q1 Nonresidential Equipment program participants surveyed and the number of participants in the survey population by rebated measure category by state. For evaluation purposes, PY2019 program participants selected for sampling included those who had equipment installed between January 1, 2019 and December 31, 2019 in Illinois and April 1, 2019 to March 31, 2020 in Iowa[15].

[14] Training, education, and outreach findings will be summarized as part of the Education program report.
[15] Date of participation was identified using Date Installed in VisionDSM and INSTALL_DATE in TrakSmart.

Table 12. Summary of PY2019 and PY2020 Participants Surveyed

Measure Category	Iowa			Illinois		
	Surveyed Participants	Measure Count	Billing Accounts*	Surveyed Participants	Measure Count	Billing Accounts*
Boiler	3	16	10	1	3	2
Central Air Conditioner	17	64	53	2	36	12
Furnace	23	171	111	5	48	38
Custom Lighting	3	15	15	0	1	1
Lighting	193	1,576	732	28	254	123
Thermostat	0	1	1	1	20	18
Controls	N/A	N/A	N/A	2	12	6
Heat Pump	N/A	N/A	N/A	3	12	10
Insulation	N/A	N/A	N/A	4	20	18
Water Heater	N/A	N/A	N/A	1	1	1
Furnace Fan	N/A	N/A	N/A	0	21	17
Custom HVAC	N/A	N/A	N/A	0	2	2
Custom Motors and Drives	N/A	N/A	N/A	0	1	1
Custom Project	N/A	N/A	N/A	0	1	1
Refrigeration	N/A	N/A	N/A	0	16	13
Total	**239**	**1,843**	**922**	**47**	**448**	**263**

*Participants that had more than one measure are counted more than once in this column.

As shown the table below, the most common business activity among surveyed participants[16] was office space (21 percent in Iowa, 28 percent in Illinois, and 27 percent of nonparticipants), followed by retail (15 percent in Iowa, 20 percent in Illinois, and 9 percent of nonparticipants). Most survey respondents reported that their company owns and operates their facility (72 percent in Iowa, 80 percent in Illinois, and 67 percent of nonparticipants), as opposed to owning and renting to someone else or renting the facility from someone else. Nonparticipant survey respondents were more likely than surveyed participants to rent their facility from someone else (24 percent versus 15 percent and 11 percent, respectively).

[16] Note that these results are reported in aggregate across all customers interviewed, are unweighted, and are representative of the survey sample only.

Table 13. Firm Characteristics

Firm Characteristics	Iowa Participants	Illinois Participants	Nonparticipants
Business activity*			
Office	21.3%	28.3%	26.9%
Retail	15.2%	19.6%	8.8%
Industrial/Manufacturing	14.3%	6.5%	5.6%
Religious worship	5.2%	6.5%	2.5%
Warehouse or distribution center	6.1%	4.3%	8.1%
Other healthcare	4.8%	4.3%	6.3%
School K-12	4.3%	2.2%	1.9%
Lodging	3.9%	4.3%	4.4%
Institution/government	3.0%	0.0%	2.5%
Agricultural	3.0%	0.0%	8.8%
Restaurant	2.6%	4.3%	6.9%
Grocery	2.2%	0.0%	0.6%
Other (specify)	10.4%	15.2%	12.5%
Respondents (n)	**230**	**46**	
Ownership			
Your company owns and occupies this facility	72.2%	80.4%	66.5%
Your company owns this facility but it is rented to someone else	12.6%	8.7%	9.3%
Your company rents this facility from someone else	15.2%	10.9%	24.2%
Respondents (n)	**230**	**46**	**161**

* Responses from less than three percent of survey respondents are not listed in the table
Source: Question FIRM1, FIRM2 (Participant and Nonparticipant Survey)
Don't know and refused responses are excluded

Over three-quarters of surveyed participants and nonparticipants use natural gas for space heating (67 percent in Iowa, 88 percent in Illinois, and 85 percent of nonparticipants). Using a furnace to heat the business space (55 percent in Iowa, 39 percent in Illinois, and 66 percent of nonparticipants) and either a “residential-style” air conditioner for cooling (41 percent in Iowa and 48 percent of nonparticipants) or rooftop unit (44 percent Illinois participants) were the most commonly mentioned heating and cooling equipment.

Table 14. Energy Use Characteristics

Energy Use Characteristics	Iowa Participants	Illinois Participants	Nonparticipants
Equipment used for heating*			
Furnace	55.0%	39.1%	66.0%
Rooftop unit	16.6%	13.0%	14.7%
Infrared heaters/tube heaters	6.6%	4.3%	6.4%
Steam Boiler	6.6%	21.7%	9.6%
Conventional hot water boiler	6.1%	6.5%	5.1%
Heat pump	3.1%	2.2%	5.8%
Electric resistance	3.9%	2.2%	4.5%
High efficiency/condensing boiler	1.3%	4.3%	0.6%
None	0.4%	0.0%	0.6%
Other	19.2%	23.9%	4.5%
Respondents (n)	**229**	**46**	**156**
Main fuel used for heating			
Natural gas	67.4%	87.5%	85.3%
Electricity	14.0%	12.5%	11.2%
Fuel oil	4.7%	0.0%	1.4%
Other	14.0%	0.0%	2.1%
Respondents (n)	**43**	**8**	**143**
Equipment used for cooling*			
“Residential-style” air conditioner	40.6%	34.8%	47.8%
Rooftop unit with compressor	31.0%	43.5%	27.0%
None	8.3%	6.5%	6.9%
Water-cooled chiller	4.8%	6.5%	3.1%
Heat pump	3.5%	4.3%	4.4%
Air-cooled chiller	2.2%	4.3%	1.3%
Fans	0.0%	0.0%	3.8%
Commercial air conditioning	0.0%	0.0%	5.0%
Other	17.0%	17.4%	5.0%
Respondents (n)	**229**	**46**	**159**

* Respondents could provide more than one answer to these questions
Source: Question FIRM13, FIRM14, FIRM15 (Participant and Nonparticipant Survey)
Don't know and refused responses are excluded

As shown in the table below, most key facility characteristics were similar among participants surveyed and those interviewed in the nonparticipant survey. One key difference is that nonparticipant companies were smaller than the participant group—44 percent of nonparticipants were in buildings under 5,000 square feet (compared to Iowa participants at 26 percent and Illinois participants at 16 percent). Additionally, nonparticipants surveyed had fewer employees than participants surveyed—almost two thirds of nonparticipants had less than 10 employees, compared to Iowa participants at 44 percent and Illinois participants at 50 percent.

Table 15. Facility Characteristics

Facility Characteristics	Iowa Participants	Illinois Participants	Nonparticipants
Buildings occupied by firm			
1 building	71.7%	76.1%	64.6%
2 to 5 buildings	22.6%	19.6%	26.1%
6 to 10 buildings	4.8%	0.0%	6.2%
11 to 20 buildings	0.0%	2.2%	2.5%
21 to 50 buildings	0.4%	2.2%	0.6%
Over 50 buildings	0.4%	0.0%	0.0%
Respondents (n)	**230**	**46**	**161**
Size of facility			
Under 5,000 sq. ft.	25.7%	16.3%	43.5%
5,000 to just under 10,000 sq. ft.	18.1%	18.6%	25.2%
10,000 to just under 25,000 sq. ft.	27.6%	30.2%	16.3%
25,000 to just under 50,000 sq. ft.	11.4%	4.7%	5.4%
50,000 sq. ft. or more	17.1%	30.2%	9.5%
Respondents (n)	**210**	**43**	**147**
Time business has occupied location			
Less than a year	4.8%	2.2%	5.8%
1 through 5 years	12.6%	15.6%	17.4%
6 through 10 years	9.1%	17.8%	12.9%
11 through 20 years	17.8%	20.05	16.1%
More than 20 years	55.7%	44.4%	47.7%
Respondents (n)	**230**	**45**	**155**

Facility Characteristics	Iowa Participants	Illinois Participants	Nonparticipants
Age of (newest) building			
Less than 2 years	5.6%	2.8%	4.7%
2 to 4 years	6.0%	8.4%	5.4%
5 to 9 years	4.5%	0.0%	6.1%
10 to 19 years	18.2%	8.4%	17.6%
20 to 29 years	14.1%	14.0%	15.5%
30 years or more	51.6%	66.4%	50.7%
Respondents (n)	**196**	**36**	**148**
Number of employees			
Less than 10	44.3%	50.0%	60.8%
10 to 49	40.2%	27.1%	26.6%
50 to 99	5.2%	9.2%	6.3%
100 to 249	7.0%	4.6%	3.8%
250 to 499	1.9%	4.6%	2.5%
500 or more	1.4%	4.5%	0.0%
Respondents (n)	**214**	**44**	**158**
Facility description			
Your company's only location	46.3%	39.1%	52.5%
The headquarter location of your company with several locations	13.1%	10.95	17.1%
One of several locations owned by your company	40.6%	50.0%	30.4%
Respondents (n)	**229**	**46**	**158**
Operate facility depending on season or production cycle			
Yes	18.1%	31.1%	30.0%
No	81.9%	68.9%	70.0%
Respondents (n)	**227**	**45**	**160**

Source: Question FIRM4, FIRM5, FIRM6, FIRM7, FIRM8, FIRM9, FIRM10, FIRM12 (Participant and Nonparticipant Survey)

Don't know and refused responses are excluded.

5.1.2 Trade Ally Characteristics

The Tetra Tech team interviewed 14 participating trade allies across MidAmerican's Iowa and Illinois territories and mostly consisted of HVAC, lighting, and electrical businesses. The trade allies varied from smaller individual businesses with a single employee to larger firms with up to 90 employees. Some businesses were newer to working with MidAmerican's energy efficiency programs (two years) and others have been working with the programs for 20 to 25 years. There was also a range among interviewed trade allies of the percentage of projects submitted to MidAmerican for rebates—anywhere from one project to 85 percent of projects for the largest business. Two of the 14 trade allies were more involved in residential than commercial projects.

5.2 PROGRAM PROCESSES

5.2.1 Program Design

5.2.1.1 Motivations for Participation

Participants surveyed were most commonly motivated by the efficiency level of new equipment and financial factors in pursuing rebates for program-qualifying equipment. When asked about factors considered when deciding to participate in the Nonresidential Equipment program, the vast majority of Iowa surveyed participants considered their desire to reduce energy costs (82 percent), followed by the capital investment or available budget (81 percent). For Illinois surveyed participants, the top two motivations were the capital investment or available budget (86 percent) and operating cost (84 percent).

One of the objectives of the nonparticipant survey was to better understand the relative importance of different factors in business' equipment purchase decisions and barriers to implementing energy saving actions. Feedback from survey respondents indicated that the rebates offered through the Nonresidential Equipment program work to address key barriers customers face to implementing energy saving improvements. The nonparticipant survey asked customers to rate the importance of the same factors as participants related to what their business considers in an equipment purchase. Among these factors, respondents attributed the highest importance to operating cost (84 percent) and the efficiency level of new equipment (81 percent). These were followed by compatibility with existing equipment, initial purchase cost, the capital investment or budget availability, the length of the payback period, and the availability of the rebate. Offering rebates to help offset the cost of high efficiency equipment directly target these decision-making factors, as well as continuing to promote the higher efficiency equipment.

Table 16. Importance of Different Factors When Considering an Equipment Purchase

Factor	Iowa Participants		Illinois Participants		Nonparticipants	
	Respondents (n)	Percent Rating 3 or 4	Respondents (n)	Percent Rating 3 or 4	Respondents (n)	Percent Rating 3 or 4
Efficiency level of new equipment	229	81.6%	44	75.0%	164	81.1%
Capital investment or budget availability	228	80.7%	44	86.3%	160	67.6%
Operating cost	230	77.4%	44	84.1%	164	83.5%
Compatibility with existing equipment	227	74.0%	43	72.1%	165	75.4%
Initial purchase cost	229	70.3%	44	77.2%	164	70.7%
Availability of a rebate	229	54.1%	44	54.5%	165	51.6%
Length of payback period	228	40.4%	43	46.5%	162	53.1%

Source: Question D4 (Participant Survey) and I1 (Nonparticipant Survey)
Don't know and refused responses are excluded
Rated on a scale of 1 to 4, where 1 was "not at all important" and 4 was "extremely important"

5.2.1.2 Program-Specific Marketing

The top sources of program awareness were similar for both participants and nonparticipants. Respondents to the participant survey most commonly reported learning about the Nonresidential Equipment program through an equipment vendor, contractor, grant writer, or other professional (64 percent for Iowa participants and 48 percent for Illinois participants). Another 14 percent (Iowa) and 18 percent (Illinois) reported learning about the program through previous experience with another MidAmerican program. For Illinois participant respondents, MidAmerican Key Account Managers were also a more common source of program awareness (11 percent). Nonparticipants were also likely to hear about the program through an equipment vendor, contractor, grant writer, or other professional (11 percent), and also from other businesses (11 percent). The high proportion of participants reporting that an equipment vendor, contractor, grant writer, or other professional was a source of program awareness indicates that trade allies continue to help drive program participation.

Table 17. Source of Program Awareness

Source	Iowa Participants	Illinois Participants	Nonparticipants
Equipment vendor, contractor, grant writer, or other professional	63.5%	47.7%	11.4%
Previous experience with a MidAmerican program	14.3%	18.2%	4.4%
Friend/family member/other business	8.7%	9.1%	10.8%
MidAmerican website	8.7%	9.1%	3.8%
MidAmerican utility bill insert	4.3%	4.5%	8.5%
MidAmerican brochure	3.9%	0.0%	2.5%
MidAmerican Key Account Manager	4.3%	11.4%	1.9%
Television	0.4%	0.0%	3.8%
Energy advisor, energy engineer	5.7%	6.8%	0.0%
MidAmerican call center representative	3.9%	4.5%	3.8%
Radio	0.4%	0.0%	0.0%
Retail store	2.2%	2.3%	0.0%
Newspaper	0.4%	0.0%	1.3%
Other	8.3%	2.3%	5.1%
Respondents (n)	**230**	**44**	**158**

Source: Question P1 (Participant Survey), P4 (Nonparticipant Survey)
Don't know and refused responses are excluded.

As illustrated in the participant survey results, trade allies continue to play a key role in customer outreach for the Nonresidential Equipment program. Most trade allies interviewed reported routinely discussing program rebates with MidAmerican customers and incorporating MidAmerican rebates into price estimates and comparisons. Most trade ally impressions of customer awareness of the program was that customers are not aware of the program. Customers may ask if there is a rebate available, knowing it is a possibility, but they really are unaware of the program itself. One trade ally mentioned that their customers are typically not aware of the program, but they have been using the program less because so much of their work requires immediate equipment replacements and the rebate process tends to add too much time to accommodate these types of projects. On the other end of the spectrum, one trade ally noted they use the program a fair amount, and it is a selling point for them.

When asked about how effective the MidAmerican marketing efforts have been in making nonresidential customers aware of the program, almost all trade allies said they were unsure. Most are focused on what MidAmerican provides to them, as a trade ally, rather than on what the customer is receiving. Two trade allies did note they think the marketing efforts to the nonresidential sector has been effective, as their customers ask about the rebates. No interviewees offered specific recommendations on ways MidAmerican can increase customer awareness beyond their current marketing and outreach efforts.

5.2.1.3 Trade Ally Outreach and Support

MidAmerican has a robust process in place for trade ally outreach, including providing multiple support avenues for trade allies such as annual trade ally meetings, communication emails, trade ally ambassadors, a dedicated phone number they can call with questions, and periodic trainings. These outreach efforts also include providing information on both electric and natural gas incentives. Six of the 14 trade allies indicated they are adequately informed of program changes, and most of these six trade allies say they have worked with a Trade Ally Ambassador. All found the Trade Ally Ambassadors knowledgeable and services helpful. Of another six who said they are not adequately informed of program changes only one said they have worked with a Trade Ally Ambassador, but it has been some time since they had that interaction. These six are also smaller contractors, with all but one having a staff of less than 12, and most suggested that emailing information would be a good way to keep them informed of program changes. Five of the 14 trade allies interviewed have attended trainings, and all found them useful. Three of these five trade allies have over 20 employees. While there were no specific suggestions for types of trainings MidAmerican could offer, two trade allies mentioned that having online trainings would be ideal. These two trade allies are smaller businesses and as such, are less likely to have time to attend training sessions, thus they tend to prefer emails or other forms of electronic communications that are less of a time commitment.

5.2.2 Program Administration, Processes, and Resources

5.2.2.1 Customer Support

Participant survey respondents were asked if there is any additional support that MidAmerican could offer to assist them in their energy efficiency projects. One third of all participant respondents said yes (33 percent of both Iowa and Illinois participants). From those providing suggestions as to what support MidAmerican could provide, the most common responses were offering additional rebates (either higher dollar rebate amounts or on additional equipment) (20 respondents), continuing to make customers aware of the program (14 respondents), reducing rates (11 respondents), and offering consulting services to make recommendations (9 respondents).

5.2.2.2 Program Administrative Requirements

Most of the trade allies felt they had a good understanding of the rebate process and all of them said they fill out the program application for their customers. Five of the 14 trade allies said they have dedicated staff (other than themselves) to fill out the application for the customers, and eight trade allies have signed up to submit the applications electronically. Of these eight, six said the process has gone well. One trade ally mentioned that it “would be better if the PDF version was a little more friendly to use,” and the other said it “would be nice for whole application to be online.” One trade ally mentioned they are unable to participate in the electronic application submission process because they are not a “trade ally member.” Of the six trade allies who have not participated in the online application process, all said they would be interested in doing so.

When asked if they have had any issues gathering all of the information required on the application, most have had no issues. Two mentioned they sometimes have challenges with the DesignLights Consortium (DLC) requirements and one mentioned that the Air Conditioning, Heating, and Refrigeration Institute (AHRI) directory is occasionally down. In the last evaluation of this program, trade ally interviews reflected that lighting vendors were generally very familiar with the DLC requirements and that other trade allies continued to become more familiar with the DLC requirements over time. During the MidAmerican program staff interview, staff also mentioned that one of the

biggest challenges with lighting applications is the DLC requirement. While somewhat cumbersome to collect, the DLC information is a key piece of project documentation to collect.

Seven trade allies mentioned they have had applications declined or returned for more information—one mentioned this happened "a lot" and two others mentioned it happens to them 50 percent of the time. On trade ally who has not had applications returned noted:

> *"No, I dotted my I's and crossed my T's to make sure hopefully I didn't get it back because I understand where MidAmerican is coming from. If you don't have the right information, why would you pay for it. I tried to make sure I could send it off and not have to worry about it again."*

When asked what MidAmerican could do to make it easier to complete the applications, most trade allies interviewed had no concrete suggestions. Two trade allies said the online application would probably make the process easier. One trade ally suggested bolding what needs to be returned so when someone is going through doing the application, they can do a check mark to make sure everything is with the application. Another trade ally suggested eliminating the customer authorization step, as the application can sometimes get caught in email spam folders or they do not know what the email is for.

Twelve of the 14 trade allies have contacted the energy efficiency call center, and eight of those noted their experience with the call center was "good" or that they were "very satisfied" with the interactions. One trade ally mentioned that when they have a complicated issue they go to a Trade Ally Ambassador instead of the call center. The two trade allies that have not had contact with the call center are medium-sized contractors (nine to 12 employees) who have been working with the program for at least three years.

5.2.3 Market Response

Fifteen percent of Iowa respondents and 23 percent of Illinois respondents indicated their companies had policies in place related to energy efficiency or sustainability. Of these respondents (33 in Iowa and 10 in Illinois), both Iowa and Illinois respondents said their firms purchase energy efficient equipment if it meets payback or return on investment criteria (72 percent in Iowa and 78 percent in Illinois). Across nonparticipant survey respondents, nine percent (n=14) and of those, 42 percent said they also purchase energy efficient equipment if it meets payback or return on investment criteria.

Trade allies were also asked how much influence the nonresidential energy efficiency programs have had on the services and equipment they offer. Eight of the 14 trade allies that were interviewed said that the program does affect their sales and recommendations practices. Two more said it does "a little bit."

> *"Allows me to differentiate myself from other contractors. I always prefer to spend a utility's money if at all possible."*

> *"We don't rely on that. It's more of a on top of, this you'll also get the rebate. I guess if there's a rebate, that probably helps a little bit obviously since that saves them a little bit more money."*

When asked if they see the program increasing the interest and demand for energy efficient equipment, 10 trade allies said "yes." However, when asked if MidAmerican's programs were not available, would the equipment types or efficiency levels typically recommended be any different, responses ranged from "yes" to "probably" to "not necessarily" and "no."

"We would still recommend it. It's just with having that rebate, the price is what drives a lot of people to make that decision."

"I think customers would probably go with something lower in SEER or efficiency."

"I don't know how much change it would actually have since ultimately I'm trying to look at what's best for the customer."

5.2.3.1 Barriers to Installing Energy Efficient Equipment

The nonparticipant survey also asked businesses what some of the major challenges are that their business faces when considering implementing energy efficient improvements at their facility. Respondents most frequently mentioned a lack of capital budget (39 percent), followed by a lack of awareness or knowledge about equipment (eight percent), and time constraints of internal staff to implement (seven percent). These responses closely matched those of the participant survey, presented in the table below, where the barriers with the highest mean scores were the cost of equipment (4.86 mean in Iowa and 5.45 mean in Illinois) and access to financing (4.11 mean in Iowa and 5.86 in Illinois). Again, the rebates provided through the Nonresidential Equipment program have been designed to help overcome these barriers.

Table 18. How Much of a Barrier Various Factors are to Installing Energy Efficient Equipment

Barrier	Iowa		Illinois	
	Mean Rating	Respondents (n)	Mean Rating	Respondents (n)
The higher cost of energy efficient equipment	4.86	105	5.45	44
Access to financing or capital for energy improvements	4.11	105	5.86	44
Resources to assess the relative benefits of energy efficient options	3.94	102	3.86	43
Knowledge of energy efficient equipment options	3.70	104	3.41	44
Resources to plan and implement efficiency projects	3.66	106	4.28	43
Uncertainty about the savings from energy efficient improvements	3.47	106	3.98	43
Difficulty finding qualified contractors	2.51	105	1.48	44

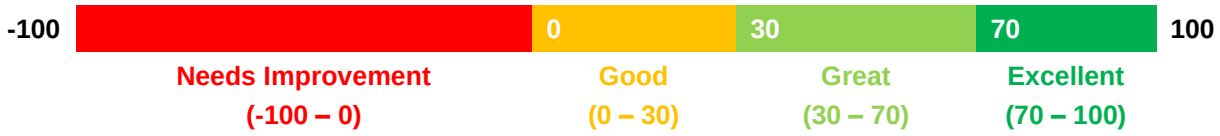
Source: Question FF4 (Participant Survey)
Don't know and refused responses are excluded.
Rated on a scale of 0 to 10, where 0 was "not a barrier at all" and 10 was "a major barrier"

5.2.4 Program Satisfaction

5.2.4.1 Net Promoter Score

A new metric being presented for MidAmerican programs in this evaluation cycle is the Net Promoter or Net Promoter Score (NPS)[17]. The NPS is calculated based on responses to a single question: How likely is it that you would recommend our company/product/service to a friend or colleague? The NPS is then the percentage of customers rating their likelihood to recommend a company, a product, or a service to a friend or colleague as 9 or 10 ("promoters") minus the percentage rating this at 6 or below ("detractors") on a scale from 0 to 10. Respondents who provide a score of 7 or 8 are referred to as "passives." The result of the calculation is expressed without the percentage sign. Promoters are considered likely to exhibit value-creating behaviors, such as buying more, remaining customers for longer, and making more positive referrals to other potential customers. Detractors are believed to be less likely to exhibit the value-creating behaviors.

Figure 5. Net Promoter Score Scale



Based on telephone survey respondent answers, the Nonresidential Equipment program in Iowa has an NPS of 52 (65 percent – 13 percent = 52) and an NPS of 78 in Illinois: 83 percent – 5 percent = 78).

Table 19. Iowa and Illinois NPS

NPS Score and Category	Iowa Participants	Illinois Participants
NPS Score	**52**	**78**
Promoters (rating 9 or 10)	65%	83%
Passives (rating 7 or 8)	22%	12%
Detractors (rating 0 – 6)	13%	5%
Respondents	**222**	**42**

Source: SAT4 (Participant Survey)
Don't know and refused responses are excluded.
Rated on a scale of 0 to 10, where 0 was "extremely unlikely" and 10 was "extremely likely."

Trade allies were also asked how likely they are to recommend the program to a peer using the same scale. Nine trade allies rated their likelihood a 10, four rated their likelihood a 7 or 8, and one trade ally rated their likelihood a 1.

[17] NPS is a management tool used as a measure of customer satisfaction and has been shown to correlate with revenue growth relative to competitors. NPS has been widely adopted by Fortune 500 companies and other organizations. Scores vary substantially among industries, so a good score is simply one whose trend is better than that of competitors in the same industry, as measured by double-blind benchmark research. The metric was developed by (and is a registered trademark of) Fred Reichheld, Bain & Company and Satmetrix. It was introduced by Reichheld in his 2003 Harvard Business Review article, "The One Number You Need to Grow". Its popularity and broad use have been attributed to its simplicity and its openly available methodology.

5.2.4.2 Customer Satisfaction

Overall, 90 percent of Iowa participant survey respondents and 88 percent of Illinois survey respondents said they were either extremely satisfied or very satisfied with the service provided by MidAmerican. These results are comparable to responses from the nonparticipant survey, where 88 percent of respondents said they were either extremely satisfied or very satisfied. Additionally, almost all respondents indicated that they would be likely to use a MidAmerican program again in the future—93 percent of Iowa survey respondents and 91 percent of Illinois survey respondents said they would be extremely likely or very likely to participate again.

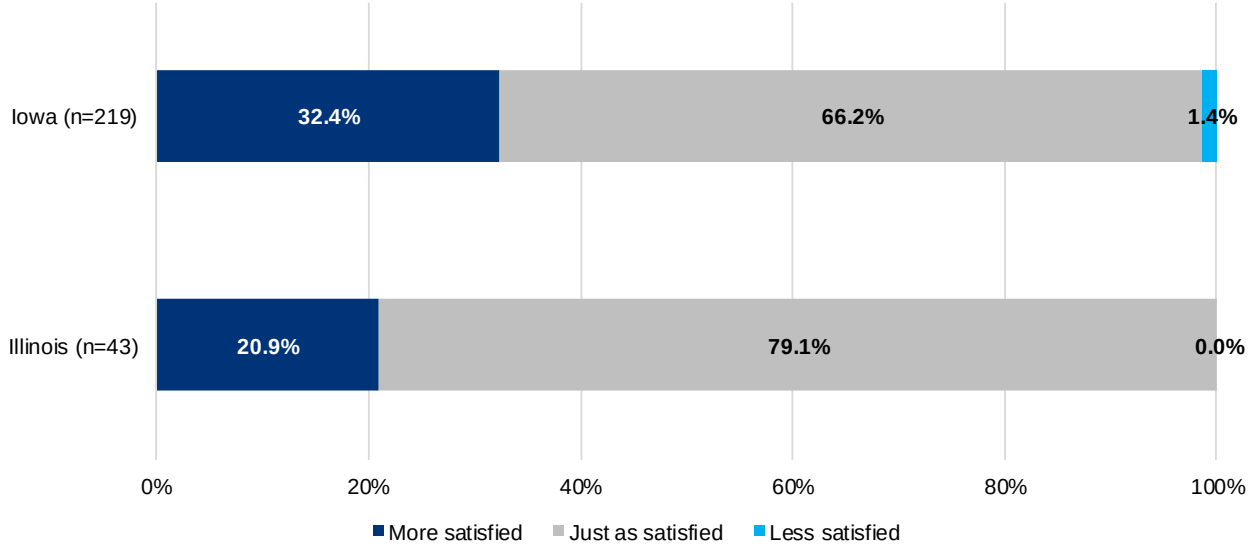
Table 20. Satisfaction with Service Provided by MidAmerican

Satisfaction Level	Iowa Participants	Illinois Participants	Nonparticipants
Extremely satisfied	35.9%	42.9%	26.2%
Very satisfied	53.8%	45.2%	61.6%
Somewhat satisfied	9.9%	11.9%	11.0%
Not at all satisfied	0.4%	0.0%	1.2%
Respondents (n)	**223**	**42**	**164**

Source: Question SAT5 (Participant Survey) and SAT1 (Nonparticipant Survey)
Don't know and refused responses are excluded
Rated on a scale of 1 to 4, where 1 was "not at all satisfied" and 4 was "extremely satisfied"

Additionally, 32 percent of Iowa and 21 percent of Illinois surveyed participants indicated they were more satisfied with MidAmerican since their participation in the Nonresidential Equipment program.

Figure 6. Change in Satisfaction with Service Provided by MidAmerican since Participation



Source: Question SAT6 (Participant Survey)
Don't know and refused responses are excluded.

Participant survey respondents generally expressed high satisfaction with the program overall, as well as individual aspects of their participation experience. Over 80 percent of both Iowa and Illinois survey respondents rated their satisfaction with the program overall as a 3 or 4 on a scale of 1 to 4 where 1 was “not at all satisfied” and 4 was “very satisfied.”

Of the individual aspects of the program asked in the survey, both Iowa and Illinois participants gave the highest satisfaction ratings to the contractor who installed the equipment, followed by the type of equipment eligible for the program. The lowest rated item was the amount of incentive received.

Table 21. Participant Satisfaction

Program Aspect	Iowa		Illinois	
	Respondents (n)	Percent Rating 3 or 4	Respondents (n)	Percent Rating 3 or 4
The program overall	**228**	**83.8%**	**44**	**86.4%**
The contractor who installed the equipment	215	94.4%	41	90.2%
The type of equipment eligible for the program	216	78.7%	43	79.1%
The length of time to receive the rebate	212	72.6%	42	71.4%
The rebate application process	213	70.4%	42	73.8%
The amount of the incentive received	223	61.9%	43	67.5%

Source: Question SAT1, SAT3 (Participant Survey)
Don't know and refused responses are excluded
Rated on a scale of 1 to 4, where 1 was "not at all satisfied" and 4 was "extremely satisfied"

The 16 percent of Iowa respondents (n=37) and 14 percent of Illinois respondents (n=6) who provided a less than satisfied response (1 or 2 on the 4-point scale) and were asked why they rated their satisfaction that way. Nineteen survey respondents (all three respondents who rated their satisfaction a 1 and 16 of the respondents who rated their satisfaction a 2) noted it was because they thought they were going to get a larger rebate. Eight respondents who rated their satisfaction a 2 said it was due to paperwork—either they had paperwork sent back to them or they felt filling out the paperwork was a cumbersome process.

> *“Because I think some of the rebates were lower than expected. It is better than nothing but it was lower than expected.”*
>
> *“Because they reduced the amount from the previous year.”*
>
> *“Just because in the process there where some hiccups with the equipment being installed. So the contractor ordered the wrong equipment the first time and did not return that order, and that delayed the process a bit.”*
>
> *“It was hard to get the rebate from them, and we had to redo the paperwork for them.”*

Survey respondents who provided a rating of 3 or 4 (191 Iowa respondents and 38 Illinois respondents) were also asked why they rated their satisfaction that way. Thirty-nine percent (n=89) of these survey respondents noted it was because they thought the process went well and met their expectations. Another 28 percent (n=65) respondents said it was due to the rebate amount or the effect of the rebate amount, such as saving them money on their utility bill or being happy with the equipment that was installed.

"Because I deal with multiply project each year and MidAmerican is the easiest to work with when dealing with these programs."

"Because everything in the process was seamless and everything has worked out fine."

"Because I got a rebate, which made it affordable to put in new lights that saved me money."

"Well, I'm happy with the lighting system. I'm happy that I'm saving money and that I got a rebate."

5.2.4.3 Trade Ally Satisfaction

When asked to rate their overall satisfaction with MidAmerican's Nonresidential Equipment program, eight trade allies provided a rating of 3 or 4 on a scale of 1 to 4, where 1 was "not at all satisfied" and 4 was "extremely satisfied."

"Everything I've done with the rebates has seemed to have gone pretty good. I haven't had issues and if I do, I usually call and get the answers and move forward. I haven't had any problems where rebates don't go through."

"Haven't had any trouble with MidAmerican at all."

When asked for additional recommendations for program improvement, most had no suggestions. One trade ally suggested that the call center needs to return calls sooner and that a "fully online application" would be helpful. Another trade ally noted that MidAmerican should have a custom program that applies to large scale projects. In the last evaluation of this program, trade allies seemed concerned about the continuation of rebates. This concern did not arise during any of the trade allies interviews for this evaluation.

"Moving applications online made it easy."

"I really don't have any issues. The guys that I deal with from MidAmerican in Iowa always seem to know their stuff and they got a good crew working."

5.2.5 Future Plans and COVID-19 Affects

With all the restrictions put in place in response to COVID-19, trade allies were asked how this has affected their business and if they expect it to impact their projects over the next six months. Five trade allies said COVID-19 had not affected their business at all and six other trade allies said it has had a little impact, sometimes in regards to getting materials in a timely manner. One trade ally said it has impacted their business "greatly," and had to cut their workforce in half. In terms of the effect COVID-19 will have on them over the next six months, most trade allies anticipate operating in the "new normal" for the foreseeable future. Three trade allies mentioned prices for equipment will likely continue to go up, as supply chains remain stressed.

APPENDIX A: PROJECT REVIEW RESULTS

As noted earlier, the PY2019 and PY2020 Q1 Nonresidential Equipment Program impact evaluation efforts included an engineering analysis for a sample of measures completed for 46 customer sites and for 109 tracking system line items, with a total installed quantity of 5,842 items reviewed at these sites. Based on findings for the desk reviews, adjustments were made to both electric and gas projects in Iowa and Illinois. The two tables and first two lists present the desk review projects with savings adjustments, and the details for each adjustment, by state.

In addition to the desk reviews, a complete tracking system review was conducted for Iowa. The tracking system verified the measure savings calculations for each line item in the tracking system. Through the tracking system review, the Tetra Tech team was able to determine that some findings were systemic, including the finding for exterior lighting tracking peak demand savings. For others, the tracking system review determined the findings did not apply uniformly, such as the discrepancies with waste heat factors and in-service rates. The numeric results of the tracking system, independent of the desk reviews, are presented in Section 3.2 and a list of measure-level adjustments is included in this section.

Table A-1. Project Level Tracked and Evaluated Gross Energy Savings - Iowa

Project ID	Electric Savings (kWh)		Demand Savings (Peak kW)		Gas Savings (Therms)		Gas Savings (Peak Therms)		Realization Rate			
	Tracked	Evaluated	Tracked	Evaluated	Tracked	Evaluated	Tracked	Evaluated	kWh	kW	Therms	Peak Therms
1004	311	150	0.01	0.01	0	0	0.00	0.00	48%	100%		
1005	125	106	0.04	0.04	0	0	0.00	0.00	85%	100%		
1011	1,657	1,657	0.28	0.00	0	0	0.00	0.00	100%	0%		
1016	12,674	12,674	4.29	4.21	-193	-193	-0.98	-0.98	100%	98%	100%	100%
1027	1,203	1,203	0.30	0.00	0	0	0.00	0.00	100%	0%		
1039	33,742	38,128	6.63	9.41	0	0	0.00	0.00	113%	142%		
1045	6,024	2,295	2.71	1.87	0	0	0.00	0.00	38%	69%		

Table A-2. Project Level Tracked and Evaluated Gross Energy Savings - Illinois

Project ID	Electric Savings (kWh)		Demand Savings (Peak kW)		Gas Savings (Therms)		Gas Savings (Peak Therms)		Realization Rate			
	Tracked	Evaluated	Tracked	Evaluated	Tracked	Evaluated	Tracked	Evaluated	kWh	kW	Therms	Peak Therms
1021	221,465	221,465	18.13	2.06	0	0	0.00	0.00	100%	11%		
1023	14,666	14,666	2.92	0.99	0	0	0.00	0.00	100%	34%		
1032	447,680	447,680	62.40	44.84	-4,117	-4,117	-20.90	-20.90	100%	72%	100%	100%
1037	84,813	46,447	14.01	14.01	0	0	0.00	0.00	55%	100%		
1043	41,910	41,837	9.46	9.44	-711	-710	-3.61	-3.60	100%	100%	100%	100%

Iowa Desk Review Project Adjustments

- **Project ID 1004:** This was a prescriptive lighting project. The tracked savings used an IFkWh of 0. An IFkWh of 0.57 was used for Lodging facility because the tracking data and project documentation reported that this building was heated using electric resistance heat. This reduced energy savings for this project. This finding was observed during the tracking system review as well.
- **Project ID 1005:** This was a prescriptive lighting project. Tracked savings use a IFkWh of 0. An IFkWh of 0.17 was used for Office-Small facility because the tracking data and project documentation reported that this building was heated using an electric heat pump. This reduced energy savings for this project. This finding was observed during the tracking system review as well.
- **Project ID 1011:** This was a prescriptive lighting project. Tracked savings calculated demand savings for this measure using the building type coincident factor, however, documentation provided indicated that all lighting was installed in an exterior location. The Tetra Tech team calculated zero demand savings for this measure. No adjustment to energy savings
- **Project ID 1016:** This was a prescriptive lighting project. Tracked savings calculated demand savings for this measure using the building type coincident factor for all lights, however, documentation provided indicated that a portion of the lighting was installed in an exterior location. The Tetra Tech team calculated zero demand savings for the exterior lighting measures. This reduced demand savings for this measure. No adjustment to energy savings.
- **Project ID 1027:** This was a prescriptive lighting project. Tracked savings calculated demand savings for this measure using the building type coincident factor, however, documentation provided indicated that the lighting was installed in an exterior location. This reduced demand savings for this measure. No adjustment was made to energy savings
- **Project ID 1039:** This was a prescriptive lighting project. Tracking data indicated that some lights were installed in exterior locations. The application reported these to be interior lights while the tracking data indicated these were exterior lights. No photos were included in project documentation to verify the location of the installation, but secondary online research showed that the make and model of light are intended for interior use only, and photos online of the facility show the location of the high bay lights to be inside the facility. The Tetra Tech team adjusted these lights from exterior to interior, and applied waste heat and interaction factors. This increased energy and demand savings.
- **Project ID 1045:** This was a prescriptive lighting project. Two adjustments to savings were made. The application noted that this agricultural facility was not heated or cooled, however, tracking data noted that it was both heated and cooled. The Tetra Tech team adjusted savings to account for the facility to be neither heated nor cooled. The annual hours of operation were also adjusted from the tracking data value of 1,780 to 780 based on the actual reported AOH captured in the application. Overall, these adjustments reduced energy and demand savings.

Illinois Desk Review Project Adjustments

- **Project ID 1021:** This was a prescriptive lighting project. Tracked savings calculated demand savings for this measure using the building type coincident factor for demand savings for all lights, however, documentation provided indicated that a portion of the lighting was installed in an exterior location. The Tetra Tech team calculated zero demand savings for the exterior lighting measures. This reduced demand savings for this measure. No adjustment to energy savings.

- **Project ID 1023:** This was a prescriptive lighting project. Tracked savings calculated demand savings for this measure using the building type coincident factor for demand savings for all lights, however, documentation provided indicated that a portion of the lighting was installed in an exterior location. The Tetra Tech team calculated zero demand savings for the exterior lighting measures. This reduced demand savings for this measure. No adjustment to energy savings.
- **Project ID 1032:** This was a prescriptive lighting project. Tracked savings calculated demand savings for this measure using the building type coincident factor for demand savings for all lights, however, documentation provided indicated that a portion of the lighting was installed in an exterior location. The Tetra Tech team calculated zero demand savings for the exterior lighting measures. This reduced demand savings for this measure. No adjustment to energy savings.
- **Project ID 1037:** This was a prescriptive lighting project. The annual hours of operation were also adjusted from the tracking data reported 5,478 to 3,000 based on the actual reported AOH captured in the application. The tracking data AOH is 5,478, even though the project documentation included a stipulated AOH of 3,000 hours. This reduced energy savings.
- **Project ID 1043:** This was a prescriptive lighting project. For the LED troffer measures, tracked savings used an in-service rate (ISR) of 1.0. The Tetra Tech team adjusted the ISR to 0.95 in accordance with the Iowa TRM prescriptive ISR. This slightly reduced energy, demand, therms and peak therms savings.

Iowa Tracking System Review Adjustments

- **Exterior Lighting:** Quantities of 1,647 measures were identified as exterior lighting and also tracked peak demand savings. The Tetra Tech team used the 0 percent coincident factor from the Iowa TRM to calculate 0 demand savings for each of these measures. This represented the largest adjustment to demand savings from the tracking system review. This only impacted projects from the PY2019 data extract[18]. This issue was also observed in the PY2020 data extract but was corrected by MidAmerican and a new PY2020 dataset was provided to the Tetra Tech team[19].
- **Exterior Lighting:** Three exterior lighting measures were used a waste heat factor for energy (WHFe) of 1.1 and claimed demand savings. Evaluated savings used a waste heat factor for energy of 1.0, effectively removing the waste heat savings, and used the 0 percent coincident factor from the Iowa TRM for exterior fixtures to recalculate demand savings for these measures. This reduced energy savings and eliminated demand savings for these measures.
- **LED Fixture:** 215 lighting measures were used incorrect waste heat factor for energy and demand:
    - For four measures, tracked savings used an interaction factor for heating (IFkWh) of 0. Evaluated savings used an IFkWh of 0.17 for Office-Small facility because the tracking data reported that this building was heated using an electric heat pump. This reduced energy savings.
    - For 167 measures, tracked savings used an interaction factor for heating (IFkWh) of 0. Evaluated savings used an IFkWh of 0.37 for an Industrial facility because the tracking

[18] Detailed_Report_Projects_Paid_No_Voids_NonRes_Equipment_17805_98858_04012019-12312019.xlsx
[19] Detailed_Report_NonRes_Equipment_17805_98858_Paid_01012020-08312020_10.5.20_NEW.xlsx

data reported that this building was heated using electric resistance heat. This reduced energy savings.

  - For 11 measures, tracked savings used an interaction factor for heating (IFkWh) of 0. Evaluated savings used an IFkWh of 0.46 for a Retail-Small facility because the tracking data reported that this building was heated using electric resistance heat. This reduced energy savings.
  - For seven measures, tracked savings used an interaction factor for heating (IFkWh) of 0. Evaluated savings used an IFkWh of 0.57 for a Lodging facility because the tracking data reported that this building was heated using electric resistance heat. This reduced energy savings.
  - For 26 measures, tracked savings used an interaction factor for heating (IFkWh) of 0. Evaluated savings used an IFkWh of 0.44 for a Warehouse facility because the tracking data reported that this building was heated using electric resistance heat. This reduced energy savings.

- **Central AC:** For one central air conditioning measure, tracked savings used an incorrect equivalent full load hours (EFLH) and coincidence factor (CF). The Tetra Tech team found the reported EFLH to be from the Room AC Iowa TRM measure instead of the Central AC measure and tracked savings is using a CF of 1.0 instead of the Iowa TRM CF for a Grocery Store of 90.6 percent. The Tetra Tech team used the EFLH and CF values from the Central AC Iowa TRM measure for a Grocery store. This increased energy and reduced demand savings.
- **LED Fixture:** For one project totaling 1,000 lighting measures, tracked savings used waste heat factors for energy and demand (WHFe and WHFd) consistent with the 2019 Iowa TRM (TRM V3). The installation date of this project was in January 2020 and thus should be following Iowa TRM V4. The Tetra Tech team changed the WHFe and WHFd to those from TRM V4. This reduced energy and demand savings.
- **LED Fixture:** For one project totaling 2,600 lighting measures, tracked savings used waste heat factors for energy and demand (WHFe and WHFd) consistent with the 2020 Iowa TRM (TRM V4). The installation date of this project was in September 2019 and thus should be following Iowa TRM V3. The Tetra Tech team changed the WHFe and WHFd to those from TRM V3. This increased energy and demand savings.
- **LED Fixture:** For one project totaling 16 lighting measures, tracked savings used an incorrect coincidence factor (CF). This facility was reported to be a warehouse, however, a CF of 91.8 percent consistent with an Industrial facility was used instead of the Iowa TRM CF for a warehouse of 61.8 percent. The Tetra Tech team adjusted the CF to 61.8 percent which reduced demand savings.
- **LED Fixture:** For six projects totaling 579 lighting measures, an unknown kW discrepancy was observed which resulted in an increase in evaluated energy and demand savings when compared to tracked savings. After discussion with MidAmerican, it was discovered that this was due to the projects utilizing Appendix A calculations instead of the Iowa TRM. This issue was also corrected by MidAmerican for PY2020 projects and a new dataset was provided to the Tetra Tech team.
- **LED Fixture:** For 41 projects totaling 1,050 lighting measures, tracked savings indicated that an ISR of 1.0 was used. An ISR of 0.95 was captured in the tracking system, but not utilized in savings calculations. The Tetra Tech team used an ISR of 0.95 in evaluated savings calculations which reduced energy and demand savings.

APPENDIX B: GROSS REALIZATION RATE CALCULATIONS

Per the Strategic Evaluation Plan[20] (SEP), the sampling design for each of MidAmerican's program-level impact evaluations will attempt to report verified program savings at a minimum 90% confidence (+/- 10% error). This confidence and precision level is an industry standard. However, error bands will vary somewhat by program due to sampling, program needs, and budgets. Additionally, the SEP noted that verified ex-post (evaluated) results will be presented numerically and by major measure category. The sampling process for the Nonresidential Equipment program desk reviews was designed to achieve this level of precision for evaluated savings estimates for the program.

The program tracking data provides detailed measure descriptions of equipment installed through the Nonresidential Equipment program. Per the SEP guidance, the Tetra Tech team collapsed the measures of the relevant activity codes into major end uses. Both the participating customer telephone surveys and the engineering desk reviews were sampled across these measure end use categories. The table below documents the measures defined within the program tracking system and their assignment into measure end use categories[21].

Table B-1. Equipment Measure End Use Categories

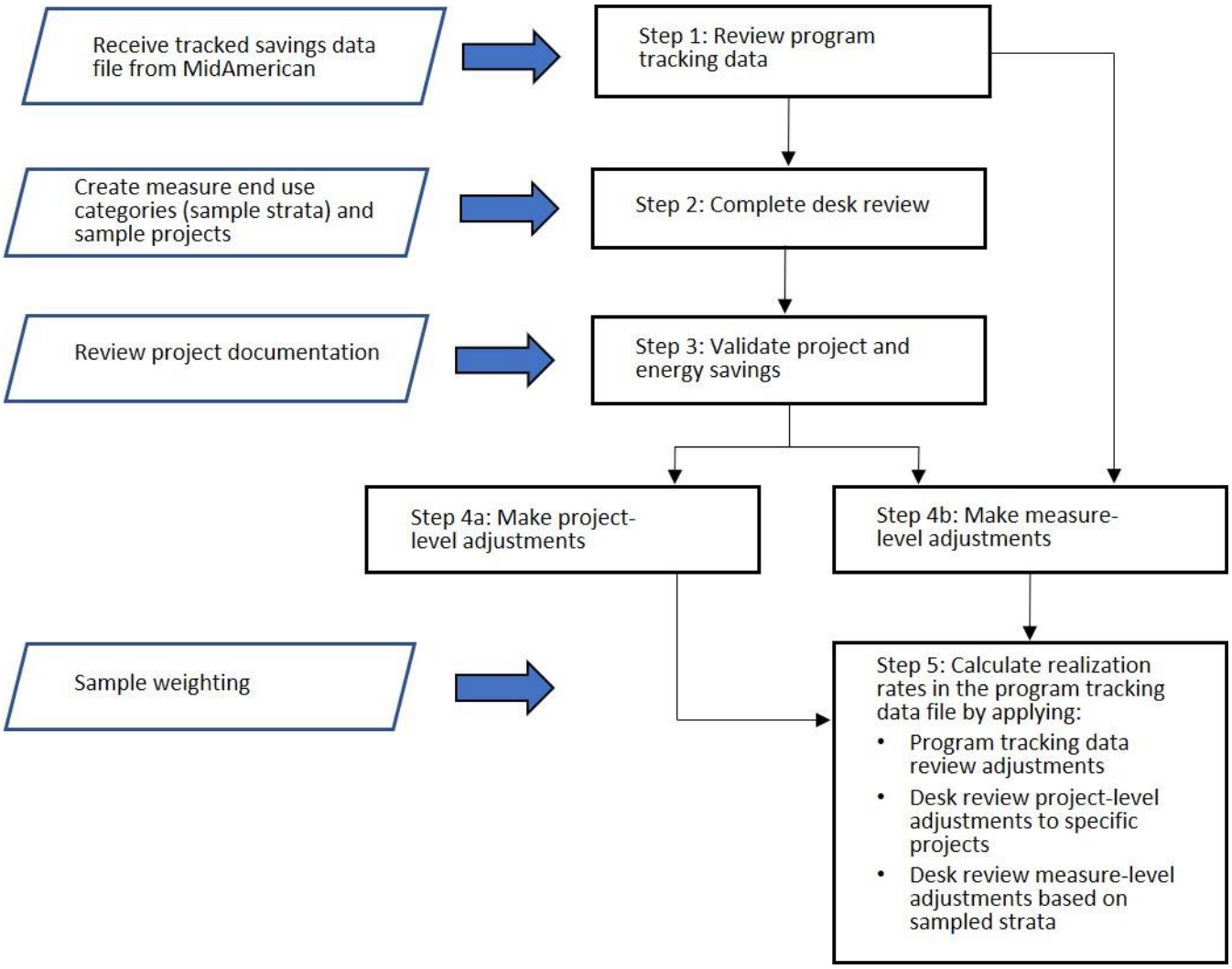
Measure Catalog Name	Measure End Use
IA - NR Boiler_TRM	Boiler
IA/IL - Boiler_A	Boiler
IA - Central Air Conditioner (Small)_TRM	Central AC
IA/IL - Central Air Conditioner (Large)_A	Central AC
IA/IL - Central Air Conditioner (Small)_A	Central AC
IA/IL - Occupancy Sensor_TRM	Controls
IA - NR Furnace_TRM	Furnace
IA/IL - NR Furnace < 225 MBtuh_A	Furnace
IA/IL - Furnace Blower Motor_A	Furnace Fan
IA/IL - Ductless Minisplit Air Source Heat Pump_A	Heat Pump
IA/IL - Attic/Roof/Ceiling Insulation_A	Insulation
IA - LED Fixture_TRM	Lighting
IA/IL - LED Fixture_TRM	Lighting
IA/IL/SD - LED Exit Sign_A	Lighting
LED Fixture	Lighting
IA/IL - Refrigerator - Transparent Door Cabinet_A	Refrigeration
IA/IL - Programmable Thermostats_A	Thermostat
IA/IL - Natural Gas Tankless Water Heater (Small)_A	Water Heater

Note: This table only includes measures with attributed savings that were installed in the program year being evaluated.

[20] MidAmerican Energy Company 2019-2023 Energy Efficiency Monitoring and Evaluation Strategic Evaluation Plan, dated May 1, 2020.
[21] This process was documented in the Sampling Memo provided to MidAmerican and finalized on July 2, 2020.

The evaluated savings results are based on both the program tracking data review and the sampled project-level adjustments. The Tetra Tech team calculated a realization rate based on the difference between the tracked savings and evaluated savings. The program tracking data and sampled project-level realization rates were weighted to represent program level realization rates. Program tracking data and project-level adjustments incorporated any changes related to items such as adjustments based on the application of deemed savings values from the Iowa TRM or MidAmerican's Appendix A and/or any project documentation inconsistencies. Each measure category's realization rate calculation varies somewhat due to the projects that were sampled and what was found across the database tracking system review and desk reviews. Where the Tetra Tech found systemic findings, both through the desk reviews and the tracking system review, these corrections were applied only through the tracking system review, so that there is no double counting through the realization rates. The flow chart below outlines the basic process for how the realization rate calculations were completed for sampled projects with desk reviews.

Figure B-1: Realization Rate Calculation—Projects with Desk Reviews



APPENDIX C: PARTICIPANT SURVEY

MidAmerican Energy Nonresidential Equipment Program
Process, Verification, and Net-to-Gross Participant Survey

(NOTE: Each respondent will only be asked the Free-Ridership questions for one sampled measure)

- Sample Variables
- Introduction
- Program Awareness
- Program Participation and Decision-Making
- Free-Ridership
- Consistency Check
- Like Spillover
- Financial Factors
- Program Satisfaction
- Firmographics
- Conclusion

SAMPLE VARIABLES

CASEID Unique case identifier

MULTID Multiple group identifier

MULTFLAG Flag for whether case is a multiple
0 Not part of a multiple
1 Part of a multiple

PRIMARY Flag for primary case in the multiple group (gets asked full survey)
0 Not the primary case
1 Primary case

MULTQTY Number of cases included in the multiple group

PHONE_NUM Contact's telephone number

CONTACT_NAME Contact name listed in participant database

COMPANY_NAME Name of Company from participant database

ADDRESS
STATE
CITY City where equipment was installed
ZIP

EEMEAS Sampled survey measure
- 1 Boiler
- 2 Central AC
- 3 Controls
- 4 Custom - HVAC equipment
- 5 Custom – Lighting/Sensors
- 6 Custom – Other
- 7 Custom – Motors and Drives
- 8 Furnace
- 9 Furnace Fan
- 10 Heat Pump
- 11 Insulation
- 12 Lighting
- 13 Refrigeration
- 14 Thermostat
- 15 Water Heater

EEMEAS_TXT Description of EEMEAS

MEASDESC Description of the equipment that is part of the sampled measure

SINGLE_MEAS Flag for whether MEAS_DESC differs from EEMEAS_DESC
- 0 MEAS_DESC contains different measures from EEMEAS
- 1 MEAS_DESC is the same as EEMEAS

REBAMT Recoded rebate dollar amount from participant database

CONTRAREB Rebate paid to contractor

TERRITORY Denotes which state
- 1 Iowa
- 2 Illinois

STRATA Groups by Territory and Measure

QUOTA
- 1 Iowa
- 2 Illinois

KWH_IMPACT kWh savings

THERM_IMPACT Therm savings

ACCOUNT_NUM Account number

MEAS_END_USE Measure used for sampling (DO NOT USE IN SURVEY)

REP Assigned replicate

INTRODUCTION

INTRO *[INTERVIEWER INSTRUCTION: Please dial the phone number <PHONE_NUM> and enter the call result.]*

01	Connected	*[PROCEED]*
02	Did not connect	*[DISPO CASE OUT]*

INT01 Hello, my name is _____ calling from Tetra Tech on behalf of MidAmerican Energy. This is not a sales call; we would just like to ask you some questions about MidAmerican's Nonresidential Equipment program. May I speak with the person most familiar with your company's participation in this program?

01	Yes	*[PROCEED]*
02	No, attempt to convert	*[DISPO CASE OUT]*

PREAMBLE

I'm with Tetra Tech, an independent research firm. I am calling to learn about your experiences with MidAmerican's Nonresidential Equipment program.

I'm not selling anything; I'd just like to ask your opinion about this program. Let me assure you that your responses will be kept confidential and your individual responses will not be revealed to anyone.

Before we start, I would like to inform you that for quality control purposes, this call will be recorded and monitored.

01	Continue

MULTCHK *[ASK IF MULTFLAG=1] [INTERVIEWER QUESTION:* Is this the first case of a multiple?*]*

01	Yes, first case	*[SKIP TO SCREEN1]*
02	No, subsequent case	*[SKIP TO Verification (* C_MULT_SKIP1 and then *VER1)]*
-6	Programmed skip	

FAQ *[THE FOLLOWING IS AVAILABLE ONLY IF NEEDED:*

Who is doing this study: MidAmerican Energy has hired our firm to evaluate this Nonresidential Equipment program. As part of the evaluation, we're talking with customers that participated in the program to understand their experiences with the program.

Why are you conducting this study: Studies like this help MidAmerican Energy better understand customers' need for energy efficiency programs and services.

Timing: This survey should only take about 20 minutes of your time. Is this a good time for us to speak with you? *[IF NOT, SET UP CALLBACK APPOINTMENT OR OFFER TO LET THEM CALL US BACK AT 1-800-454-5070.]*

Sales concern: I am not selling anything; we would simply like to learn about your experience with the program. Your responses will be kept confidential and not revealed to anyone unless you grant permission. If you would like to talk with someone from MidAmerican Energy about this study, feel free to call MidAmerican Energy's call center at (-8) 427-5632.]

SCREEN1 Our records indicate your firm at <ADDRESS> received a rebate for installing energy efficient measures through Nonresidential Equipment program.

Do you recall participating in this program?

01	Yes	*[SKIP TO SCREEN3]*
02	No, I don't recall participating / Didn't do those projects	*[SKIP TO OTHER_R]*
03	No, I recall participating but at a different address *[SPECIFY*: What was that other address?]	*[SKIP TO OTHER_R]*
-3	Multiples skip	
-8	Don't know	*[SKIP TO OTHER_R]*
-9	Refused	*[SKIP TO OTHER_R]*

OTHER_R Is there a better person to speak with regarding the program? *[PROBE:* Who in your firm was primarily responsible for the project or activities?*]*

01	Yes, there's somebody else	*[SKIP TO AVAILABLE_R]*
02	No	*[THANK AND TERMINATE, INT81]*
03	*[SHOW IF SCREEN1=3]* No, but R is still the person most responsible	*[SKIP TO SCREEN3]*
-8	Don't know	*[THANK AND TERMINATE, INT81]*
-9	Refused	*[THANK AND TERMINATE, INT81]*

AVAILABLE_R May I speak with this person?

01	Yes, currently available	*[SKIP TO INT01]*
02	Yes, but R is not currently available	*[SET CALLBACK]*
03	No	*[THANK AND TERMINATE, INT81]*
-8	Don't know	*[THANK AND TERMINATE, INT81]*
-9	Refused	*[THANK AND TERMINATE, INT91]*

SCREEN3 Did you have an active role in the project or activities that were supported by MidAmerican? *[PROBE:* Are you knowledgeable about your firm's decision to participate in the Nonresidential Equipment program?*]*

01	Yes	*[SKIP TO ROLE]*
02	No	*[SKIP TO OTHER_R]*
-3	Multiples skip	
-8	Don't know	*[SKIP TO OTHER_R]*
-9	Refused	*[THANK AND TERMINATE, INT91]*

ROLE Are you an owner or employee of <COMPANY_NAME>, or are you a contractor who provides design or installation services? *[INTERVIEWER NOTE: CODE UNPAID MEMBERS OF AN ADVISORY BOARD OR COMMITTEE AS EMPLOYEES]*

01 Owner
02 Employee
03 Volunteer
04 Vendor / Contractor *[TERMINATE AND TRY TO FIND EMPLOYEE, INT87]*
-3 Multiples skip

PROGRAM AWARENESS

C_MULT_SKIP1 [IF MULTCHK=2 SKIP TO VER1 OTHERWISE CONTINUE]

P1 How did you learn about MidAmerican's Nonresidential Equipment program rebates and services?
[DO NOT READ; SELECT ALL THAT APPLY]

For P1C01 to P1C88
0 Not mentioned
1 Mentioned
-3 Multiples skip

P1C01 MidAmerican Key Account Manager/Business Account Manager
P1C02 MidAmerican utility bill insert
P1C03 MidAmerican website
P1C04 MidAmerican brochure
P1C05 MidAmerican call center representative
P1C06 Retail store
P1C07 Equipment vendor, contractor, grant writer, or other professional
P1C08 Newspaper
P1C09 Radio
P1C10 Television
P1C11 Billboard
P1C12 Friend/family member/other business
P1C13 Energy advisor, energy engineer
P1C14 Previous experience with a MidAmerican program
P1C15 Other [SPECIFY]
P1C88 Don't know / Don't remember

P1C15O [ASK IF P1C15=1] Ways learned about program rebates [OTHER SPECIFY]

PROGRAM PARTICIPATION AND DECISION-MAKING

D1 When deciding whether or not to participate in the program, did you consider any of the following factors? Did you consider…*[READ LIST; SELECT ONE]*
[PROGRAMMER NOTE: RANDOMIZE D1a to D1d]

For D1a to D1e
01 Yes
02 No
-3 Multiples skip
-8 Don't know
-9 Refused

D1a the payback or return on investment?
D1b the age or poor condition of the equipment replaced?
D1c a need to expand capacity?
D1d a desire to reduce energy costs?
D1e anything else? *[SPECIFY]*

D1eO [ASK IF D1e = 1] Other factors described [OTHER SPECIFY]

Next I'd like to ask you some questions about the decision-making process at your business.

D2 Does your company have any corporate policies related to energy efficiency standards or sustainability plans that you need to consider when purchasing new equipment or making improvements to this facility? *[SELECT ONE]*

01 Yes
02 No
-3 Multiples skip
-8 Don't know
-9 Refused

D3 *[IF D2 = 01]* Which of the following best describes your firm's energy efficiency policy? *[READ LIST, SELECT ONE]*

01 We purchase energy efficient equipment regardless of cost
02 We purchase energy efficient equipment if it meets payback or return on investment criteria
03 We purchase standard efficiency equipment that meets code
04 Or something else *[SPECIFY]*
-3 Multiples skip
-6 Programmed skip
-8 *[DO NOT READ]* Don't know
-9 *[DO NOT READ]* Refused

D3O [ASK IF D3 = 4] Other factors described [OTHER SPECIFY]

D4 How important would each of the following be to your business when considering new energy-using equipment? Please respond with not at all important, somewhat important, very important, or extremely important. How important is… *[READ LIST; SELECT ONE]*
[PROGRAMMER NOTE: RANDOMIZE D4a – D4g]

For D4a to D4g
01 Not at all important
02 Somewhat important
03 Very important
04 Extremely important
-3 Multiples skip
-8 *[DO NOT READ]* Don't know
-9 *[DO NOT READ]* Refused

D4a the availability of a rebate?
D4b the compatibility with existing equipment?
D4c the initial purchase cost?
D4d the operating cost?
D4e the length of the payback period?
D4f the efficiency level of the new equipment?
D4g the capital investment or budget availability?

D5 What are some of the major obstacles that your business faces when considering implementing energy efficiency improvements at your facility? *[DO NOT READ; SELECT ALL THAT APPLY]*
[INTERVIEWER NOTE: IF RESPONDENT MENTIONS BUDGET, ASK THEM TO ELABORATE]

For D8C01 to D8C99
0 Not mentioned
1 Mentioned
-3 Multiples skip

D5C01 Need to incorporate purchases or plans into longer term budget
D5C02 Lack of capital budget
D5C03 Time constraints of internal staff to implement
D5C04 Lack of resources to implement
D5C05 Approval by decision-makers
D5C06 Uncertainty regarding return on investment
D5C07 Contractors aren't familiar with measures
D5C08 Lack of awareness of or knowledge about energy & money saving opportunities
D5C09 Lack of awareness/knowledge about equipment characteristics or performance
D5C10 Lack of knowledge about how to obtain assistance from MidAmerican
D5C11 Low prioritization of energy efficiency or conservation in firm
D5C12 Age of building
D5C13 Building is leased / rented
D5C14 Cost of equipment
D5C15 Other [SPECIFY]
D5C77 None
D5C88 Don't know
D5C99 Refused

D5C15O [ASK IF D5C15 = 1] Other obstacles described [OTHER SPECIFY]

D6 MidAmerican understands that the COVID-19 pandemic has affected businesses in many ways. We want to understand how MidAmerican's energy efficiency programs can best serve your businesses' needs during this time.

Thinking about your business over **the next six to 12 months**, are you not at all likely, somewhat likely, very likely, or extremely likely to do the following? How likely are you… *[SELECT ONE]*
[PROGRAMMER NOTE: ROTATE LIST]

For D6A to D6D
01 Not at all likely
02 Somewhat likely
03 Very likely
04 Extremely likely
-3 Multiples skip
-8 *[DO NOT READ]* Don't know
-9 *[DO NOT READ]* Refused

D6A to make energy efficiency improvements at your business?
D6B to look for additional ways to save energy in your business that are low cost or no cost?
D6C to undertake a renovation project at your business?
D6D to start a new construction project at your business?

C12 Thinking about the last four statements that I read to you, did the COVID-19 pandemic influence any of your responses? *[SELECT ONE]*

01 Yes
02 No
-3 Multiples skip
-8 Don't know

C13 *[ASK IF C12 = 01]* How did it influence your responses?
[RECORD VERBATIM]

D8 Is there any additional support that MidAmerican could offer to assist customers in their energy efficiency projects? *[SELECT ONE]*

01 Yes *[SPECIFY:* What kind of support?*]*
02 No
-3 Multiples skip
-8 Don't know
-9 Refused

D8O [ASK IF D8 = 01] Other support described [OTHER SPECIFY]

MEASURE VERIFICATION

VER1 [IF MULTCHK<>2 SHOW: "One of the things that we are trying to learn is if specific equipment is still installed through this program."]

Our records show that you received a rebate for <EEMEAS> at <ADDRESS> in <CITY>. Is the <EEMEAS> still installed at this location?

01 Yes, it is still installed
02 No, it is no longer installed *[SPECIFY:* Why was it removed?*]*
03 No, we never installed this equipment *[SKIP TO* FINANCIAL FACTORS SECTION*]*
-8 Don't know

VER1O [ASK IF VER1 = 02] Removal reason described [OTHER SPECIFY]

C_N_SKIP1 [IF TERRITORY = 1, SKIP TO FINANCIAL FACTORS SECTION]

MEASCHK *[ASK IF MULTCHK = 2]* [INTERVIEWER ONLY QUESTION] Is this case's <EEMEAS> variable the same as a previous case's <EEMEAS> variable?

01 Yes; duplicate measure
02 No; new measure
-6 Programmed skip

DECISIONCHK *[ASK IF MEASCHK = 1]* Now, thinking about the <EEMEAS> at <ADDRESS> in <CITY>, was the decision-making process the same or different from the previous <EEMEAS> we discussed?

01 Same decision-making process *[SKIP TO FINANCIAL FACTORS SECTION]*
02 Different decision-making process
-6 Programmed skip

DECISIONCHKO [ASK IF DECISIONCHK = 01] Record number of primary case.

FREE-RIDERSHIP – MEASURE SPECIFIC

C_N_SKIP2 *[IF REBAMT = 0 OR EEMEAS = 1 OR EEMEAS = 15, SKIP TO CC1]*

NINTRO For the next series of questions, I would like to focus on the <EEMEAS> improvements you purchased or implemented through the program *[IF SINGLE_MEAS=0, SHOW:* "that included <MEAS_DESC>"*]*.

01 Continue
-6 Programmed skip

N1 Did you learn about MidAmerican's Nonresidential Equipment program BEFORE or AFTER you finalized your project specifications? *[SELECT ONE]*

01 Before
02 After
-6 Programmed skip
-8 Don't know
-9 Refused

N2 Using a 0 to 10 scale where 0 is "not at all important" and 10 is "very important," please rate the importance of each of the following in your decision to implement the <EEMEAS>.
[IF NEEDED: How important in your DECISION to implement the project was…*]*
[PROGRAMMER NOTE: RANDOMIZE LIST]

For N2b to N2j
__ *[RECORD 0-10]*
-6 Programmed skip
-7 Not Applicable
-8 Don't Know
-9 Refused

N2b the availability of the program incentive?
N2c the information provided through the technical assistance you received from MidAmerican or other program staff?
N2d the recommendation from an equipment vendor or contractor that helped you with the choice of the equipment?
N2e your previous experience with a MidAmerican program?
N2f the information from the Nonresidential Equipment program or MidAmerican marketing materials?
N2g the endorsement or recommendation by a MidAmerican staff or key account manager?
N2h your corporate policy or guidelines?
N2i the payback on the investment?
N2j general concerns about the environment, global warming, or energy independence?

N2kask Were there any other factors we haven't discussed that were influential in your decision to install the <EEMEAS>? *[SELECT ONE]*

01 Yes *[SPECIFY]*
02 No

N2kaskO [ASK IF N2kask = 01] Other factors described [OTHER SPECIFY]

N2k *[ASK IF N2kask = 01]* Using the same 0 to 10 scale, where 0 is "not at all important" and 10 is "very important," how would you rate the importance of this factor on your decision?

__ *[RECORD 0-10]*
-6 Programmed skip
-8 Don't know
-9 Refused

N3 *[ASK IF N2i =08,09,10]* Did you consider the incentive when determining the <EEMEAS>'s payback on investment? *[SELECT ONE]*

01 Yes
02 No
-6 Programmed skip
-8 Don't know
-9 Refused

N4 Now I'd like to understand the importance of the Nonresidential Equipment program in your decision relative to deciding factors not related to the program. Keep in mind the program can include rebates, technical assistance, and informative marketing materials. Other factors include things such as *[SHOW HIGHEST RATED OF N2h, N3j, IF TIE SHOW MULTIPLE RESPONSES].*

Consider you have 100 points. How many points would you give to the importance of the program and then how many points would you give to the importance of the other factors so that, when combined, they total 100? *[IF NEEDED*: Provide a response between 0 and 100 for each, which when added should total 100*]*.

[IF NEEDED: For example, if the MidAmerican Program was more important, it should receive a higher score. If the factors outside of the program were more important, it should receive a higher score, if the program and factors outside of the program were of equal importance, the scores should be the same. The two scores must add up to 100*]*

N4_PSC ___ Rating of the importance of the Nonresidential Equipment program [0-100]
-6 Programmed skip
-8 Don't know

N4_OSC ___ Rating of the importance of most important other factor [0-100]
-6 Programmed skip
-8 Don't know

N5 If you had not received the information and/or assistance through the Nonresidential Equipment program, how likely is it that your organization would still have implemented this measure, using a 0 to 10, scale where 0 means you "definitely WOULD NOT have implemented this measure" and 10 means you "definitely WOULD have implemented this measure"?

__ *[RECORD 0-10]*
-6 Programmed skip
-8 Don't know
-9 Refused

N6 Now I would like you to think about the action you would have taken if the Nonresidential Equipment program had not been available.

Using a 0 to 10 scale, where 0 is "not at all likely" and 10 is "extremely likely," how likely is it that you would have purchased or implemented the exact same equipment had the program not been available?

__ *[RECORD 0-10]*
-6 Programmed skip
-8 Don't know
-9 Refused

N7 *[ASK IF N6=1,2,3,4,5,6,7,8,9,10, ELSE SKIP TO CC1]* Without the program, when do you think you would have installed this equipment? Would you say at the same time, earlier, or later? *[SELECT ONE]*

01 At the same time
02 Earlier
03 Later
-6 Programmed skip
-7 *[DO NOT READ]* Never *[SKIP TO CC1]*
-8 *[DO NOT READ]* Don't know
-9 *[DO NOT READ]* Refused

N8 *[ASK IF N7 = 3]* Would you say you would have installed the equipment … *[READ LIST; SELECT ONE]*

01 Within 6 months
02 Between 6 months and less than 1 year later
03 Between 1 and less than 2 years later
04 Between 2 and less than 3 years later
05 Between 3 and less than 4 years later
06 4 or more years later
07 or when equipment fails?
08 *[DO NOT READ]* Never
-6 Programmed skip
-8 *[DO NOT READ]* Don't know
-9 *[DO NOT READ]* Refused

N9 On a scale of 0 to 10, where 0 is "not at all likely" and 10 is "extremely likely," how likely is it you would have installed the exact same equipment in 12 months without the program?

__ *[RECORD 0-10]*
-6 Programmed skip
-8 Don't know
-9 Refused

CONSISTENCY CHECK

CC1 Could you please tell me in your own words what influence the MidAmerican Nonresidential Equipment program had in your decision to purchase or implement the <EEMEAS>?

[RECORD VERBATIM]
-6 Programmed skip

LIKE SPILLOVER – MEASURE SPECIFIC

S1 [SKIP TO NEXT SECTION IF MEASCHK=01] Since participating in the Nonresidential Equipment program, have you installed or implemented any of the exact same energy efficient <EEMEAS> on your own WITHOUT any financial assistance from a MidAmerican program at this facility or at other locations served by MidAmerican? *[SELECT ONE]*

01	Yes	
02	No	*[SKIP TO NEXT SECTION]*
-3	Multiples skip	
-6	Programmed skip	
-8	Don't know	*[SKIP TO NEXT SECTION]*
-9	Refused	*[SKIP TO NEXT SECTION]*

S2a Thinking of the <EEMEAS> that you installed on your own, how does the additional quantity compare to what you installed through the program at <ADDRESS>? Did you install more, less or the same amount of <EEMEAS>?

[PROBE: We're looking for a percent compared to the amount installed through the program. For example, was it about 25% of what you installed through the program, 50% of what you installed through the program, the same (100%) amount as you installed through the program, twice as much as what you installed through the program (200%) or some other amount?*]*
[SELECT ONE]

01	More
02	Less
03	Same amount (100%)
-3	Multiples skip
-6	Programmed skip
-8	Don't know

S2aM *[ASK IF S2a = 01]* Compared to the amount of <EEMEAS> that you installed through the program at <ADDRESS>, how much <EEMEAS> equipment did you install on your own?

We're looking for a percent compared to the amount installed through the program. For example, if it was about twice as much as what you installed through the program you would say 200%.

___	*[RECORD PERCENTAGE: 101% - 900%]*
-8	Don't know
-3	Multiples skip
-6	Programmed skip
-9	Refused

S2aL *[ASK IF S2a = 02]* Compared to the amount of <EEMEAS> that you installed through the program at <ADDRESS>, how much <EEMEAS> equipment did you install on your own?

We're looking for a percent compared to the amount installed through the program. For example, if it was about half as much as what you installed through the program you would say 50%.

___ *[RECORD PERCENTAGE: 1% - -9%]*
-3 Multiples skip
-6 Programmed skip
-8 Don't know
-9 Refused

S2aa *[ASK IF S2a = 01 or 02]* Just to make sure we understand and interpret that correctly, would you be able to tell me the **quantity** you installed outside the program? *[PROBE:* We are looking for a number as opposed to a percentage.*]*

___ *[RECORD NUMBER/QUANTITY 1-500]*
-3 Multiples skip
-6 Programmed skip
-8 Don't know
-9 Refused

S2b *[ASK IF S2a =01 or 02]* So the amount of additional energy efficient equipment you bought on your own was *[IF S2A=1 SHOW S2AM; IF S2a=2 SHOW S2AL]* of what you got through the program at <ADDRESS>? *[SELECT ONE]*

01 Yes
02 No *[SKIP BACK TO CORRECT S2a]*
-3 Multiples skip
-6 Programmed skip

S3 On a scale of 0 to 10 where 0 is "not at all important" and 10 is "extremely important," how important was your participation in the Nonresidential Equipment program on your decision to make additional energy efficiency improvements on your own?

__ *[RECORD 0-10]*
-3 Multiples skip
-6 Programmed skip
-8 Don't know
-9 Refused

S4 If you had not participated in the program, how likely is it that you would still have implemented this measure, using a 0 to 10, scale where 0 means you "definitely WOULD NOT have implemented this measure" and 10 means you "definitely WOULD have implemented this measure"?

__ *[RECORD 0-10]*
-3 Multiples skip
-6 Programmed skip
-8 Don't know
-9 Refused

S5 Why did you purchase or implement this energy efficiency measure without going through a MidAmerican program? *[DO NOT READ; SELECT ALL THAT APPLY]*

For S5C01 to S5C99
01 Yes
02 No
-3 Multiples skip
-6 Programmed skip

S5C01 Application process too burdensome / Too much paperwork
S5C02 Takes too long to receive the rebate
S5C03 No time to participate, needed equipment immediately
S5C04 The program had ended
S5C05 The equipment would not qualify
S5C06 The rebate amount wasn't large enough
S5C07 Did not know program was available for this equipment
S5C08 There was no program available
S5C09 Outside of MidAmerican territory
S5C10 Other *[SPECIFY]*
S5C88 Don't know
S5C99 Refused

S5C05O [ASK IF S5C05=1] Why would the equipment not qualify?

[RECORD RESPONSE VERBATIM]
-6 Programmed skip

S5C10O [ASK IF S5C10=1] Other factors described [OTHER SPECIFY]

FINANCIAL FACTORS

C_MULT_SKIP2 [IF MULTCHK=02 SKIP TO FIRM1 OTHERWISE CONTINUE]

*** added skip on 8/24
C_FF_SKIP1 [IF TERRITORY = 2, SKIP TO SATISFACTION SECTION]

FF4 I am going to read a list of barriers that may prevent some organizations from installing energy efficient equipment. Please indicate how much of a barrier each is to installing energy efficient equipment at your facility, using a scale from 0 to 10 where 0 is "not a barrier at all" and 10 is "a major barrier." How much of a barrier is… *[RANDOMIZE LIST]*

For FF4a to FF4g
__ *[RECORD 0-10]*
-3 Multiples skip
-7 Not applicable
-8 Don't know
-9 Refused

FF4a access to financing or capital for energy improvements?
FF4b knowledge of energy efficient equipment options?
FF4c resources to plan and implement efficiency projects?
FF4d resources to assess the relative benefits of energy efficient options?
FF4e the higher cost of energy efficient equipment?
FF4f uncertainty about the savings from energy efficient improvements?
FF4g difficulty finding qualified contractors?

PROGRAM SATISFACTION

SAT1 Thinking about any assistance you had, and any rebates you received, how satisfied are you with the Nonresidential Equipment program overall?

Are you not at all satisfied, somewhat satisfied, very satisfied, or extremely satisfied? *[SELECT ONE]*

01 Not at all satisfied
02 Somewhat satisfied
03 Very satisfied
04 Extremely satisfied
-3 Multiples skip
-7 Not applicable
-8 Don't know
-9 Refused

SAT2 [ASK IF SAT1=01,02,03,04] Why did you rate your satisfaction with the program in that way? *[RECORD VERBATIM]*

SAT3 How satisfied are you with the following aspects of the program? Please respond with not at all satisfied, somewhat satisfied, very satisfied, or extremely satisfied. *[READ LIST; SELECT ONE]* *[PROGRAMMER NOTE: ROTATE SAT3A – SAT3E]*

For SAT3A to SAT3H
01 Not at all satisfied
02 Somewhat satisfied
03 Very satisfied
04 Extremely satisfied
-1 Partially completed survey
-3 Multiples skip
-7 *[DO NOT READ]* Not applicable
-8 *[DO NOT READ]* Don't know
-9 *[DO NOT READ]* Refused

SAT3A the length of time it took to receive the rebate?
SAT3B the type of equipment eligible for the program?
SAT3C the contractor who installed the equipment?
SAT3D the rebate application process?
SAT3E the amount of incentive received through the program?

SAT4 How likely are you to recommend the Nonresidential Equipment program to a friend or colleague? Please answer on a scale of 0 to 10, where 0 is "extremely unlikely" and 10 is "extremely likely".

__ *[RECORD 0-10]*
-1 Partially completed survey
-3 Multiples skip
-8 Don't know
-9 Refused

SAT5 The next questions ask about your experience with MidAmerican in general as your energy provider.

How would you rate the service provided by MidAmerican? Would you say not at all satisfied, somewhat satisfied, very satisfied, or extremely satisfied? *[SELECT ONE]*

01 Not at all satisfied
02 Somewhat satisfied
03 Very satisfied
04 Extremely satisfied
-1 Partially completed survey
-3 Multiples skip
-8 Don't know
-9 Refused

SAT6 Compared to prior to your participation in the Nonresidential Equipment program, are you more satisfied, just as satisfied, or less satisfied with MidAmerican as your energy provider? *[SELECT ONE]*

01 More satisfied
02 Just as satisfied
03 Less satisfied
-1 Partially completed survey
-3 Multiples skip
-8 Don't know
-9 Refused

SAT7 *[IF SAT6 = 01 OR 03]* Why do you say that?
[RECORD VERBATIM]

SAT8 How likely are you to use MidAmerican's energy-efficiency programs in the future, should the opportunity arise? Would you say not at all likely, somewhat likely, very likely, or extremely likely? *[SELECT ONE]*

01 Not at all likely
02 Somewhat likely
03 Very likely
04 Extremely likely
-1 Partially completed survey
-3 Multiples skip
-8 Don't know
-9 Refused

FIRMOGRAPHICS

My final questions are about your organization and facility and will help us to compare your responses about your program experiences with those of other participants.

FIRM1 What business activity accounts for most of the floor space covered by your MidAmerican bill at <ADDRESS> in <CITY>? *[DO NOT READ; SELECT ONE]*

01 Office
02 Retail
03 Industrial/Manufacturing
04 Agricultural
05 Warehouse or distribution center
06 Grocery
07 Hospital
08 Other healthcare
09 College/university
10 Institution/government
11 Lodging
12 Restaurant
13 School K-12
14 Religious worship
15 Public assembly
16 Vacant
17 Other *[SPECIFY]*
-1 Partially completed survey
-8 Don't know
-9 Refused

FIRM1O [ASK IF FIRM1=17] Other business activity described [OTHER SPECIFY]

FIRM2 Which of the following best describes *[IF COMPANY_NAME IS BLANK SHOW* "your company's" ELSE SHOW COMPANY_NAME*]* ownership of this facility? *[READ LIST; SELECT ONE]*

01 Your company owns and occupies this facility *[SKIP TO FIRM4]*
02 Your company owns this facility, but it is rented to someone else
03 Your company rents this facility from someone else
-1 Partially completed survey
-8 *[DO NOT READ]* Don't know
-9 *[DO NOT READ]* Refused

FIRM3 Does *[IF COMPANY_NAME IS BLANK SHOW* "your company" ELSE SHOW COMPANY_NAME*]* pay the electric bill at <ADDRESS>, or is it included in your rent? *[SELECT ONE]*

01 Company pays bill
02 Electricity is included in the rent
03 Other payment *[SPECIFY]*
-1 Partially completed survey
-6 Programmed skip
-8 Don't know
-9 Refused

FIRM3O [ASK IF FIRM3=03] Other payment described [OTHER SPECIFY]

FIRM4 How many buildings are occupied by your firm at this location? *[READ LIST UNTIL R ANSWERS; SELECT ONE]*

01 1 building
02 2 to 5 buildings
03 6 to 10 buildings
04 11 to 20 buildings
05 21 to 50 buildings
06 Over 50 buildings
-1 Partially completed survey
-8 *[DO NOT READ]* Don't know
-9 *[DO NOT READ]* Refused

FIRM5 What's your best guess as to the size of this facility—the approximate square footage of the space that is cooled or heated. *[SHOW IF FIRM4<>1:* Please tell us the total for all of the buildings.*]* Is it*…[READ LIST UNTIL R ANSWERS; SELECT ONE]*

01 Under 5,000 sq. ft.
02 5,000 to just under 10,000 sq. ft.
03 10,000 to just under 25,000 sq. ft
04 25,000 to just under 50,000 sq. ft
05 50,000 sq. ft. or more
-1 Partially completed survey
-8 *[DO NOT READ]* Don't know
-9 *[DO NOT READ]* Refused

FIRM6 How long has the business occupied this location? *[READ LIST; SELECT ONE]*

01 Less than a year
02 1 through 5 years
03 6 through 10 years
04 11 through 20 years
05 More than 20 years
-1 Partially completed survey
-8 *[DO NOT READ]* Don't know
-9 *[DO NOT READ]* Refused

FIRM7 *[IF FIRM4 = 1 SHOW:* "In what year was the building at this location constructed?"*]*
[IF FIRM4 <>1, SHOW: "Please tell us the year when the newest building at this location was constructed."*]*

____ *[RECORD YEAR 1800 – 2020]*
-1 Partially completed survey
-8 Don't know
-9 Refused

FIRM8 *[ASK IF FIRM7 = -8 or -9]* Do you know the approximate age? Is it… *[READ LIST; SELECT ONE]*

01 Less than 2 years
02 2 to 4 years
03 5 to 9 years
04 10 to 19 years
05 20 to 29 years
06 30 or more years
-1 Partially completed survey
-8 *[DO NOT READ]* Don't know
-9 *[DO NOT READ]* Refused

FIRM9 Approximately how many full-time and part-time employees work at this location most of the year?

____ *[RECORD NUMBER OF EMPLOYEES 0 - 2000] [SKIP TO FIRM10]*
-1 Partially completed survey
-8 Don’t know
-9 Refused

FIRM9_B *[ASK IF FIRM9 = -8 or -9]* Do you know the approximate number of employees? Is it… *[READ LIST; SELECT ONE]*

01 Less than 10
02 10 to 49
03 50 to -9
04 100 to 249
05 250 to 4-9
06 500 or more
-1 Partially completed survey
-6 Programmed skip
-8 *[DO NOT READ]* Don't know
-9 *[DO NOT READ]* Refused

FIRM10 Which of the following best describes the facility? This facility is… *[READ LIST; SELECT ONE]*

01 Your company's only location
02 The headquarter location of your company with several locations
03 One of several locations owned by your company
-1 Partially completed survey
-8 *[DO NOT READ]* Don't know
-9 *[DO NOT READ]* Refused

FIRM12 Do you operate your facility differently depending on the season or production cycle? *[SELECT ONE]*

[PROBE: A business cycle refers to time periods when your business' activities might be significantly different. For example, a school might have to wait until summer to implement projects, while a manufacturing facility might wait until production is lower.*]*

01 Yes
02 No
-1 Partially completed survey
-8 Don't know
-9 Refused

FIRM13 What type of equipment is used to heat the space?
[READ IF NEEDED; SELECT ALL THAT APPLY]

For FIRM13C01 to FIRM13C99
0 Not mentioned
1 Mentioned
-1 Partially completed survey

FIRM13C01 Furnace
FIRM13C02 Rooftop unit
FIRM13C03 Infrared heaters/tube heaters
FIRM13C04 Steam Boiler
FIRM13C05 Conventional hot water boiler
FIRM13C06 High efficiency/condensing boiler
FIRM13C07 Heat pump
FIRM13C08 Electric resistance
FIRM13C09 Other *[SPECIFY]*
FIRM13C77 None *[SKIP TO FIRM15]*
FIRM13C88 Don't know *[SKIP TO FIRM15]*
FIRM13C99 Refused *[SKIP TO FIRM15]*

FIRM13C09O [ASK IF FIRM13C09=01] Other equipment described [OTHER SPECIFY]

FIRM14 [*IF MORE THAN ONE MENTIONED IN FIRM13]* What is the main fuel used for heating? *[DO NOT READ; SELECT ONE]*

01 No heating fuel used
02 Electricity
03 Natural gas
04 Fuel oil
05 Solar
06 Other *[SPECIFY]*
-8 Don't know
-9 Refused

FIRM14O [ASK IF FIRM14=06] Other fuel described [OTHER SPECIFY]

FIRM15 What type of equipment is used to cool the space?
[READ IF NEEDED; SELECT ALL THAT APPLY]

For FIRM15C01 to FIRM15C99
0 Not mentioned
1 Mentioned
-1 Partially completed survey

FIRM15C01 "Residential-style" air conditioner
FIRM15C02 Rooftop unit with compressor
FIRM15C03 Air-cooled chiller
FIRM15C04 Water-cooled chiller
FIRM15C05 Heat pump
FIRM15C06 Other *[SPECIFY]*
FIRM15C77 None
FIRM15C88 Don’t know
FIRM15C99 Refused

FIRM15C06O [ASK IF FIRM15C06=01] Other equipment described [OTHER SPECIFY]

FIRM16 *[IF FIRM5 = 1, 2, 3, OR 4]* Would you consider your firm a small business?

01 Yes
02 No
-6 Programmed skip
-8 Don’t know

CONCLUSION

C_MULT_SKIP3 [IF MULTCHK=02 SKIP TO INT-9 OTHERWISE CONTINUE]

C1 As part of our evaluation, we may need to follow-up on some specific information about the equipment you installed.

01 Continue
-3 Multiples skip

C2 Thank you for taking the time to complete this survey. Do you have any additional comments or questions?

01 Yes [SPECIFY COMMENT]
02 No
-3 Multiples skip

C2O [ASK IF C2=01] Other comment described [OTHER SPECIFY]
-3 Multiples skip

INT99 [SKIP IF MULTCHK=02] [End survey – primary case multiples and singles]

CP
-3 Multiples skip

INT98 [ASK IF MULTCHK=01] [End survey – subsequent case multiples]

CM

APPENDIX D: NONPARTICIPANT SURVEY

MidAmerican Energy
Nonresidential Nonparticipant Survey

Survey Sections:

- Sample Variables
- Introduction
- Program Awareness
- Decision-making
- Satisfaction
- Firmographics
- Conclusion

SAMPLE VARIABLES

CASEID Unique case identifier

PHONE_NUM Contact's telephone number

CONTACT_NAME Contact name listed in participant database

COMPANY Company name listed in participant database

ADDRESS
CITY
STATE
ZIP Address where equipment was installed

ACCOUNT_NUM Account number

TRF_TYPE_CD

METER_TYPE (Gas, Electric, Electric Lighting)

REP Assigned replicate

INTRODUCTION

INTRO [INTERVIEWER INSTRUCTION: Please dial the phone number [PHONE_NUM] and enter the call result.]

01	Connected	[PROCEED]
02	Did not connect	[DISPO CASE OUT]

INT01 Hello, my name is _____ calling from Tetra Tech on behalf of MidAmerican Energy. We are conducting a study about MidAmerican's energy efficiency offerings. This is not a sales call, and your responses will provide MidAmerican Energy with the opportunity to collect direct customer feedback that will inform and improve MidAmerican Energy's energy efficiency programs.

May I speak with the person who is responsible for purchasing and maintaining energy-using equipment for <COMPANY> at <ADDRESS>?

[IF CONTACT_NAME IS NOT BLANK SHOW "The name we have on record is <CONTACT_NAME>."]

01	Yes	
02	No, R not knowledgeable	[SKIP TO OTHER_R]
03	No, R is not currently available	[SCHEDULE CALLBACK]
04	Did not connect	[DISPO CASE OUT]

PREAMBLE

[IF NEEDED: I'm with Tetra Tech, an independent research firm. We are conducting a study about MidAmerican's energy efficiency offerings.

I'm not selling anything; I'd just like to ask your opinions. Let me assure you that your responses will be kept confidential and your individual responses will not be revealed to anyone unless you grant permission.]

Before we start, I would like to inform you that for quality control purposes, this call will be recorded and monitored.

01	Continue

C1 Before getting started, are you the person who is knowledgeable about the decision making process for purchasing new energy-using equipment for your company?

01	Yes	[SKIP TO S1]
02	Yes, but address is incorrect	[Specify: What is the correct address?] [SKIP TO S1]
03	The business no longer exists or functions at this address	
06	No	
-8	Don't know	
-9	Refused	[TERMINATE 91]

C1O [ASK IF C1=2] What is the correct address?

OTHER_R
Is there someone else at your business that would be more knowledgeable about your organization's decision making processes related to maintaining existing equipment or purchasing new energy using equipment at this location?

01	Yes	
02	No	[TERMINATE 81]
-8	Don't know	[TERMINATE 81]
-9	Refused	[TERMINATE 91]

AVAILABLE_R May I please speak with that person?

01	Yes	[SPECIFY NAME AND BEGIN THE SURVEY AGAIN WITH NEW RESPONDENT—SKIP TO INT01]
02	There is someone else, but not currently available	[SCHEDULE CALLBACK]
03	No	[TERMINATE 91]
-8	Don't know	[TERMINATE 81]
-9	Refused	[TERMINATE 91]

FAQ [THE FOLLOWING IS AVAILABLE ONLY IF NEEDED:
Who is doing this study: MidAmerican Energy has hired our firm to gather this information.

Why are you conducting this study: Studies like this help MidAmerican Energy better understand customers' need for energy efficiency programs and services.

Timing: This survey should take less than 15 minutes of your time. Is this a good time for us to speak with you? IF NOT, SET UP CALLBACK APPOINTMENT OR OFFER TO LET THEM CALL US BACK AT 1-800-454-5070.

Sales concern: I am not selling anything; we would simply like to hear about your experiences with MidAmerican and their programs. Your responses will be kept confidential and not revealed to anyone unless you grant permission. If you would like to talk with someone from MidAmerican Energy about this study, feel free to call the MidAmerican Energy customer experience team at 1-888-427-5632**.**

SCREENING QUESTIONS

S1 According to our records, your business has not received an energy audit or received a rebate from MidAmerican Energy for the installation of energy efficient equipment during the past two years, or 24 months.

Is that correct?

01	Yes	
02	No	[THANK AND TERMINATE 82]
-8	Don't know	[SKIP TO OTHER_R]
-9	Refused	[SKIP TO OTHER_R]

PROGRAM AWARENESS

P2 MidAmerican Energy provides incentives through their energy efficiency programs to assist customers in making energy savings improvements in their facilities.

Before today, were you aware of any incentives available from MidAmerican Energy for the installation of certain energy-efficient upgrades or equipment? [SELECT ONE]

01	Yes	
02	No	[SKIP TO P8]
-8	Don't Know	[SKIP TO P8]

P3 What services, upgrades, or equipment are you aware of that qualify for an incentive? [DO NOT READ; SELECT ALL EQUIPMENT/SERVICES MENTIONED].

For P3C01 through P3C99:

0	Not mentioned
1	Mentioned
-6	Programmed skip

P3C01	Engineering services (detailed study through Industrial Partners)
P3C02	Insulation / Shell
P3C03	Motors and Drives
P3C04	Lighting (NOT including occupancy sensors)
P3C05	HVAC (equipment and maintenance, thermostat)
P3C06	Water Heating (Water Heaters and water saving devices – aerators and showerheads)
P3C07	Appliances (kitchen appliances)
P3C08	Retrocommissioning
P3C09	Compressed air
P3C10	Process
P3C11	Controls (occupancy sensors, Energy Management System (EMS), etc.)
P3C12	Other: (specify)
P3C88	Don’t know
P3C99	Refused

P3C12O [ASK IF P3C12=1] What other items qualify for an incentive?

P4 How did you learn about the incentives available through MidAmerican Energy's energy efficiency programs? [DO NOT READ; SELECT ALL MENTIONED; PROBE: Any other way?]

For P4C01 through P4C99:
00 Not mentioned
01 Mentioned

P4C01 MidAmerican utility bill insert
P4C02 MidAmerican website
P4C03 MidAmerican brochure
P4C04 MidAmerican call center representative
P4C05 Previous program participation [PROBE: When, what program(s)?]
P4C06 Retail store
P4C07 Equipment vendor, contractor, grant writer, or other professional
P4C08 Conference/trade show
P4C09 Newspaper
P4C10 Radio
P4C11 Television
P4C12 Billboard
P4C13 Other business/ family member
P4C14 Key Account Manager
P4C15 Other, specify
P4C88 Don't know/don't remember [SKIP TO P6]
P4C99 Refused [SKIP TO P6]

P4C15O [ASK IF P4C15=1] How did you learn about the incentives?

P5 You said you received information from [IF SINGLE REPONSE IS GIVEN IN P4, FILL WITH RESPONSE; ELSE FILL WITH 'multiple sources']. Did this provide you with enough information to know how to participate in a MidAmerican energy efficiency program if you wanted to? [SELECT ONE]

01 Yes
02 No
-4 Interviewer mistake
-6 Programmed skip
-8 Don't Know
-9 Refused

P6 [SKIP IF P4 = 02, MidAmerican website] Have you ever visited MidAmerican Energy's website for information on energy efficiency and incentives that they offer for efficient equipment? [SELECT ONE]

01 Yes
02 No
-6 Programmed skip
-8 Don't Know
-9 Refused

P7a [IF P4 = 02, MidAmerican website OR IF P6 = 01, Yes] How easy was it to find the information you were looking for on MidAmerican Energy's website? Was it… [READ CATEGORIES; SELECT ONE].

01	Not at all easy
02	Somewhat easy
03	Very easy
04	Extremely easy
-6	Programmed skip
-8	Don't Know
-9	Refused

P7b [IF P4 = 02, MidAmerican website OR IF P6 = 01, Yes] How helpful was the information you found on the website? Was it not at all helpful, somewhat helpful, very helpful, or extremely helpful? [SELECT ONE]

01	Not at all helpful
02	Somewhat helpful
03	Very helpful
04	Extremely helpful
-6	Programmed skip
-8	Don't know

P8 Has your business replaced or upgraded equipment or made any other energy saving improvements over the past two years? [SELECT ONE]

01	Yes	
02	No	[SKIP TO C_P10_SKIP]
-8	Don't Know	[SKIP TO C_P10_SKIP]
-9	Refused	[SKIP TO C_P10_SKIP]

P9 What types of equipment did your business replace or upgrade in the past two years at this location? [DO NOT READ LIST; SELECT ALL THAT APPLY]

For P9C01 through P9C99:
00 Not mentioned
01 Mentioned
-6 Programmed skip

P9C01 Insulation / Shell
P9C02 Motors and Drives
P9C03 Lighting (NOT including occupancy sensors)
P9C04 HVAC (equipment and maintenance, thermostat)
P9C05 Water Heating (Water Heaters and water saving devices – aerators and showerheads)
P9C06 Appliances (kitchen appliances)
P9C07 Retrocommissioning
P9C08 Compressed air
P9C09 Process
P9C10 Controls (occupancy sensors, Energy Management System (EMS), etc.)
P9C11 Other: (specify)
P9C88 Don't know
P9C99 Refused

P9C11O [ASK IF P9C11=1] What other types of equipment did you replace or upgrade?

P9b [ASK FOR EACH MENTIONED IN P9] Was the [SHOW EQUIPMENT SELECTED IN P9] you installed high efficiency equipment or the standard equipment available in the market?

For P9b_01 to P9b_11
01 High efficiency
02 Standard efficiency
-6 Programmed skip
-8 Don't Know
-9 Refused

P9B_01 Insulation / Shell
P9B_02 Motors and Drives
P9B_03 Lighting (NOT including occupancy sensors)
P9B_04 HVAC (equipment and maintenance, thermostat)
P9B_05 Water Heating (Water Heaters and water saving devices – aerators and showerheads)
P9B_06 Appliances (kitchen appliances)
P9B_07 Retrocommissioning
P9B_08 Compressed air
P9B_09 Process
P9B_10 Controls (occupancy sensors, Energy Management System (EMS), etc.)
P9B_11 Other: (specify)

C_P10_SKIP [IF (P2 = 02 OR -8) SKIP TO P20]

P10 [IF P8 = 01] Did you consider participating in MidAmerican's energy efficiency programs before completing the replacements or upgrades? [CHECK ONE]

01 Yes
02 No
-6 Programmed skip
-8 Don't Know
-9 Refused

P14 Have you ever considered participating in a MidAmerican energy-efficiency program? [SELECT ONE]

01 Yes
02 No
-6 Programmed skip
-8 Don't Know
-9 Refused

P15 What has kept you from considering participating in one of MidAmerican's energy-efficiency programs? [DO NOT READ; SELECT ALL MENTIONED]

For P15C01 through P15C99:
0 Not mentioned
1 Mentioned
-6 Programmed skip

P15C01 Time required to participate
P15C02 The cost – high initial cost / incentives not enough
P15C03 Possible interruptions to our business
P15C04 The internal approval process / needs higher approval
P15C05 Not sure the savings would be worth the cost
P15C06 The facility is leased
P15C07 The required paperwork
P15C08 Confusing
P15C09 Other: (specify)
P15C88 Don't know
P15C99 Refused

P15C08O [ASK IF P15C08=1] What did you find confusing?

P15C09O [ASK IF P15C09=1] What keeps you from considering participating?

P16 [IF P14 = 01, ELSE SKIP TO P20] Was there anything that raised questions or concerns about participating in a MidAmerican program? [SELECT ONE]

01 Yes
02 No
-6 Programmed skip
-8 Don't Know
-9 Refused

P17 [IF P16 = 01] What raised concerns? [DO NOT READ; SELECT ALL MENTIONED]

For P17C01 through P17C99:
0 Not mentioned
1 Mentioned

P17C01 Time required to participate
P17C02 Possible interruptions to our business
P17C03 Incentives not enough
P17C04 Difficulty of participating
P17C05 Hard time getting approvals or getting everyone on board
P17C06 Not sure the savings would be worth the cost
P17C07 Confusing
P17C08 Hard to do things a new way
P17C09 Other: (specify)
P17C88 Don't know
P17C99 Refused

P17C09O What other items raised concerns?

P20 Have you ever contacted MidAmerican Energy or its representatives about ways to reduce your energy bill or about the energy efficiency services MidAmerican Energy offers? [SELECT ONE]

01 Yes
02 No
-8 Don't Know
-9 Refused

P21 [IF P20 = 01] Would you say you are not at all satisfied, somewhat satisfied, very satisfied, or extremely satisfied with the ease of finding the right person to speak with at MidAmerican Energy? [SELECT ONE]

01 Not at all satisfied
02 Somewhat satisfied
03 Very satisfied
04 Extremely satisfied
-6 Programmed skip
-8 Don't know
-9 Refused

P22 [IF P21 = 01 OR 02] What was the difficulty you encountered?
[RECORD VERBATIM]

P23 [IF P20 = 01] Would you say you are not at all satisfied, somewhat satisfied, very satisfied, or extremely satisfied with the usefulness of the information provided by the person you contacted? [SELECT ONE]

01 Not at all satisfied
02 Somewhat satisfied
03 Very satisfied
04 Extremely satisfied
-6 Programmed skip
-8 Don't Know
-9 Refused

P24 Are there any other services MidAmerican Energy could provide that would help your firm to become more energy efficient? [SELECT ONE]

01 Yes
02 No
-8 Don't Know
-9 Refused

P25 [IF P24 = 01] What services?
[RECORD VERBATIM]

P26 Would you say you are extremely likely, very likely, somewhat likely, or not at all likely to use MidAmerican's energy-efficiency programs in the future, should the opportunity arise? [SELECT ONE]

01 Not at all likely
02 Somewhat likely
03 Very likely
04 Extremely likely
-8 Don't Know
-9 Refused

DECISION-MAKING PROCESS

I1 Next I'd like to ask some questions about decision making at your business. How important would each of the following be to your business when considering new energy-using equipment? Please respond with not at all important, somewhat important, very important, or extremely important to you. How important is… [READ; ROTATE LIST]

For I1A through I1K:
01 Not at all important
02 Somewhat important
03 Very important
04 Extremely important
-8 Don't know
-9 Refused

I1A Availability of a rebate
I1B Recommendation of contractor or supplier
I1C Compatibility with existing equipment
I1D Initial purchase cost
I1E Operating cost
I1F Length of payback period
I1G Efficiency level of new equipment
I1H Environmental concerns
I1I Performance concerns
I1J Capital investment or budget availability
I1K Energy savings or reducing your energy bills

I1L [READ LAST] Are there any other considerations not already mentioned? [SPECIFY]

01 Yes, [RECORD RESPONSE VERBATIM]
02 No
-8 Don't know
-9 Refused

I1LO [ASK IF I1L=1] What considerations?

I2 [IF I1F = 01 or 02] You rated the length of the payback period a "<I1F>". What payback period do you strive for?

__ year(s)
77 Other (specify)
-6 Programmed skip
-8 Don't know
-9 Refused

I2O [ASK IF I2=77] What other payback period do you strive for?

I3 Does your company have any corporate policies related to energy efficiency standards or sustainability plans that you need to consider when purchasing new equipment or making improvements to this facility? [SELECT ONE]

01 Yes
02 No
-8 Don't Know
-9 Refused

DM1 [IF I3 = 1] Which of the following best describes your firm's energy efficiency policy? [READ LIST, SELECT ONE]

01 We purchase energy efficient equipment regardless of cost
02 We purchase energy efficient equipment if it meets payback or return on investment criteria
03 We purchase standard efficiency equipment that meets code
04 Something else [SPECIFY]
-6 Programmed skip
-8 Don't know
-9 Refused

DM1O [ASK IF DM1=4] How would you describe your firm's energy efficiency policy?

DM2 What are some of the major challenges that your business faces when considering implementing energy efficiency improvements at your facility? [DO NOT READ; SELECT ALLTHAT APPLY]

For DM2C01 through DM2C99:
00 Not mentioned
01 Mentioned

DM2C01 Need to incorporate purchases or plans into longer term budget
DM2C02 Lack of capital budget
DM2C03 Time constraints of internal staff to implement
DM2C04 Lack of resources to implement
DM2C05 Approval by decision-makers
DM2C06 Uncertainty regarding return on investment
DM2C07 Contractors aren't familiar with measures
DM2C08 Lack of awareness of or knowledge about energy and money saving opportunities
DM2C09 Lack of awareness/knowledge about equipment characteristics or performance
DM2C10 Lack of knowledge about how to obtain assistance from MidAmerican
DM2C11 Low prioritization of energy efficiency or conservation in firm
DM2C12 Other [SPECIFY]
DM2C88 Don't know
DM2C99 Refused

DM2C12O [ASK IF DM2C12=1] What other challenges does your business face?

C10 Thinking about your business over the next six months, are you not at all likely, somewhat likely, very likely, or extremely likely to do the following?
[PROGRAMMER NOTE: ROTATE A – E]

For C10A through C10C:
01 Not at all likely
02 Somewhat likely
03 Very likely
04 Extremely likely
-8 Don't know
-9 Refused

C10A To purchase new energy efficient equipment for my business?
C10B To allow a contractor into my business to service existing equipment?
C10C To look for additional ways to save energy at my business that are low cost or no cost?

C11 Thinking about the last three statements that I read to you, did the COVID-19 pandemic influence any of your responses? [SELECT ONE]

01 Yes
02 No
-8 Don't know

C12 [IF C11 = 01] How did it influence your responses?
[RECORD VERBATIM]

SATISFACTION

SAT1 The next questions ask about your experience with MidAmerican Energy in general as your energy provider. How would you rate the service provided by MidAmerican Energy? Would you say not at all satisfied, somewhat satisfied, very satisfied, or extremely satisfied? [SELECT ONE]

01 Not at all satisfied
02 Somewhat satisfied
03 Very satisfied
04 Extremely satisfied
-8 Don't know [SKIP TO FIRM1]
-9 Refused [SKIP TO FIRM1]

SAT2 Why did you rate your satisfaction with MidAmerican Energy as "<SAT1>"?
[RECORD VERBATIM]

FIRMOGRAPHICS

FIRM1 Finally, I have some general questions about your facility.
What business activity accounts for most of the floor space covered by your MidAmerican Energy bill? [DO NOT READ; SELECT ONE ANSWER]

01 Office
02 Retail
03 Industrial/Manufacturing
04 Agricultural
05 Warehouse or distribution center
06 Grocery
07 Hospital
08 Other healthcare
09 College/university
10 Institution/government
11 Lodging
12 Restaurant
13 School K-12
14 Religious worship
15 Public assembly
16 Vacant
17 Other [SPECIFY]
-1 Partially completed case
-8 Don't know
-9 Refused

FIRM1O [ASK IF FIRM1=17] What business activity?

FIRM2 Which of the following best describes <COMPANY>'s ownership of this facility? [READ LIST; SELECT ONE]

01 Your company owns and occupies this facility [SKIP TO FIRM4]
02 Your company owns this facility but it is rented to someone else
03 Your company rents this facility from someone else
-1 Partially completed case
-8 Don't know
-9 Refused

FIRM3 Does <COMPANY> pay the electric bill at <ADDRESS>? [SELECT ONE]

01 Yes
02 No
-1 Partially completed case
-8 Don't Know
-9 Refused

FIRM4 How many buildings are occupied by your firm at this location? [READ LIST; SELECT ONE]

01 1 building
02 2 to 5 buildings
03 6 to 10 buildings
04 11 to 20 buildings
05 21 to 50 buildings
06 Over 50 buildings
-1 Partially completed case
-8 Don't Know
-9 Refused

FIRM5 What's your best guess as to the size of this facility—the approximate square footage of the space that is cooled or heated. [DISPLAY IF FIRM4 >1] Please tell us the total for all of the buildings. Is it…[READ LIST; SELECT ONE]

01 Under 5,000 sq. ft.
02 5,000 to just under 10,000 sq. ft.
03 10,000 to just under 25,000 sq. ft.
04 25,000 to just under 50,000 sq. ft.
05 50,000 sq. ft. or more
-1 Partially completed case
-8 Don't Know
-9 Refused

FIRM6 How long has the business occupied this location? [READ LIST; SELECT ONE]

01 Less than a year
02 1 through 5 years
03 6 through 10 years
04 11 through 20 years
05 More than 20 years
-1 Partially completed case
-8 Don't Know
-9 Refused

FIRM7 [IF FIRM4 = 01 SHOW **"**In what year was the building at this location constructed?"]
[IF FIRM4 > 01 OR -8, Don't know OR -9, Refused SHOW "Please tell us the year when the newest building at this location was constructed."]

____ Record year [1800 - 2020]
-1 Partially completed case
-8 Don't Know
-9 Refused

FIRM8 [IF FIRM7 = -8 OR -9] Do you know the approximate age? Is it . . . ? [READ LIST; SELECT ONE]

01 Less than 2 years
02 2 to 4 years
03 5 to 9 years
04 10 to 19 years
05 20 to 29 years
06 30 years or more
-6 Programmed skip
-8 Don't Know
-9 Refused

FIRM9 Approximately how many full-time and part-time employees work at this location most of the year? [NUMERIC OPEN END, 0 TO 2000]

_____ [Number of employees]
-1 Partially completed case
-8 Don't know
-9 Refused

FIRM9_B [IF FIRM9 = -8] Do you know the approximate number of employees? Is it…? [READ LIST; SELECT ONE]

01 Less than 10
02 10 to 49
03 50 to 99
04 100 to 249
05 250 to 499
06 500 or more
-6 Programmed skip
-8 Don't know

FIRM10 Which of the following best describes the facility? This facility is… [READ LIST; SELECT ONE]

01 Your company's only location
02 The headquarter location of your company with several locations
03 One of several locations owned by your company
-1 Partially completed case
-8 Don't Know
-9 Refused

FIRM12 Do you operate your facility differently depending on the season or production cycle? [SELECT ONE]

[PROBE: A business cycle refers to time periods when your business' activities might be significantly different. For example, a school might have to wait until summer to implement projects, while a manufacturing facility might wait until production is lower."]

01 Yes
02 No
-1 Partially completed case
-8 Don't Know
-9 Refused

FIRM13 What type of equipment is used to heat the space? [SELECT ALL EQUIPMENT USED] [READ CHOICES IF NEED]

For FIRM13C01 through FIRM13C99:
0 Not mentioned
1 Mentioned
-1 Partially completed case

FIRM13C01 Furnace
FIRM13C02 Rooftop unit
FIRM13C03 Infrared heaters/tube heaters
FIRM13C04 Steam Boiler
FIRM13C05 Conventional hot water boiler
FIRM13C06 High efficiency/condensing boiler
FIRM13C07 Heat pump
FIRM13C08 Electric Resistance
FIRM13C09 Other: (specify)
FIRM13C77 None [SKIP TO FIRM15]
FIRM13C88 Don't know [SKIP TO FIRM15]
FIRM13C99 Refused [SKIP TO FIRM15]

FIRM13C09O [ASK IF FIRM13C09=1] What type of equipment?

FIRM14 [SKIP IF FIRM13 = 08 and is only one selected] What is the main fuel used for heating? [DO NOT READ; SELECT ONE]

01 No heating fuel used
02 Electricity
03 Natural gas
04 Fuel oil
05 Solar
06 Other: (specify)
-1 Partially completed case
-6 Programmed skip
-8 Don't Know
-9 Refused

FIRM14O [ASK IF FIRM14=6] What main fuel is used?

FIRM15 What type of equipment is used to cool the space? [SELECT ALL EQUIPMENT USED] [READ CHOICES IF NEEDED]

For FIRM15C01 through FIRM15C99:
0 Not mentioned
1 Mentioned
-1 Partially completed case

FIRM15C01 "Residential-style" air conditioner
FIRM15C02 Rooftop unit
FIRM15C03 Air-cooled Chiller
FIRM15C04 Water-cooled Chiller
FIRM15C05 Heat Pump
FIRM15C06 Other: (specify)
FIRM15C77 None
FIRM15C88 Don't know
FIRM15C99 Refused

FIRM15C06O [ASK IF FIRM15=6] What other type of equipment?

CONCLUSION

COM Do you have any comments you would like to share with MidAmerican Energy?

1 Yes
2 No
-1 Partially completed case

COMO [ASK IF COM=1] Specify comments

INT99 That's all the questions I have! Thank you for your input into this important research. Have a great day.

CP Complete
-1 Partially completed case

APPENDIX E: TRADE ALLY INTERVIEW GUIDE

MIDAMERICAN ENERGY NONRESIDENTIAL EQUIPMENT PROGRAM
TRADE ALLY INTERVIEW GUIDE

Interviewee(s):

Interviewer(s):

Program/Area of responsibility:

Date(s):

This guide will be used to understand the perspectives of participating trade allies involved with the MidAmerican Energy Nonresidential Equipment program during 2019 and early 2020.

The Nonresidential Equipment program promotes the purchase of energy efficient equipment to MidAmerican's nonresidential customers by offering financial incentives for the installation of energy efficient equipment in existing buildings. Program measures must save energy supplied directly by MidAmerican. Transportation gas customers with daily metering are ineligible for incentives for gas measures; however, customers with monthly metering under the Monthly Metered Transportation Service gas tariff are eligible for energy efficiency incentives.

Trade allies play a key role in the implementation and delivery of the Nonresidential Equipment program. Trade allies are one of the primary customer outreach arms of the program, informing customers of the program and available rebates for qualifying energy efficient equipment. Trade allies also commonly build program rebates into their project quotes to customers, and help customers complete and submit rebate applications. MidAmerican utilizes trade ally ambassadors to keep participating contractors informed of program opportunities and changes. Specific outreach efforts include MidAmerican's Trade Ally Central website and annual Trade Ally meetings across MidAmerican's service territory with participating trade allies.

In-depth interviews will be conducted by Tetra Tech staff via telephone. The interviews will be semi-structured. Therefore, the following interview protocol is only a guide to ensure certain topics are covered, but evaluators will follow the flow of the interview and modify questions as needed to fit the interviewee's circumstance and flow of conversation.

We expect the interviews to take approximately 30 minutes. We will attempt to schedule interviews with respondents in advance to accommodate each trade ally's schedule.

INTRODUCTION

Hello, may I speak to [_____]? My name is _____, and I'm calling from Tetra Tech on behalf of MidAmerican Energy. We are conducting interviews with firms that sell or install equipment or provide services rebated through MidAmerican's Nonresidential energy efficiency programs.

We would like to ask you some questions about your participation in the program to help provide insight back to MidAmerican Energy about your experience with the program, what worked well, or improvements you might recommend. Additionally we have questions about the program's effect on the market for energy efficiency going forward.

Are you the best person at [COMPANY] to talk to about [COMPANY]'s experience with the MidAmerican Nonresidential rebate programs?

1 Yes [Continue]
2 No -> Can you tell me who I should speak with? [End call if no one is familiar]

Is this a convenient time for you to talk, or would you prefer to schedule another time? [Proceed or schedule appointment as appropriate.]

The interview should last about 30 minutes. The information you provide will be treated as confidential and will help MidAmerican Energy improve their nonresidential rebate programs in the future.

[If needed: Offer the contact name from below as the person to contact with any questions about the validity of this research.]

Name	Phone Number
Amber Moser	563-333-8049
Dave McCammant	563-333-8864

With your permission, I would like to record the interview. Do I have your permission to do so? [IF NEEDED: We will use the recording to help us compile the results, in order to make sure we accurately represent your responses. No one but Tetra Tech staff will listen to the recording.]

PROGRAM AWARENESS, MARKETING, AND RECRUITMENT

1) What is your role at [COMPANY NAME]?
How many staff are employed there?

2) How many years have you worked with MidAmerican's energy efficiency programs? In 2019, what percentage of your total projects did rebated projects represent?

- Do you also work with MidAmerican's Residential Equipment program?

1 Yes -> About what percent of your projects go through MidAmerican's Residential vs Nonresidential Programs?

____ Percent Residential

____ Percent Nonresidential

2 No

3) About what percent of the time are nonresidential customers generally aware of the MidAmerican rebates available prior to working with you?

4) How effective are MidAmerican marketing efforts in making nonresidential customers aware of the program? How could they be more effective?

5) What markets or types of nonresidential customers do you think the programs is reaching well? What markets or customer types are challenging to reach?

6) Does the program affect your sales and recommendation practices? Why or why not?

7) If MidAmerican's programs were not available, would the equipment types or efficiency levels you typically recommended be any different? Why or why not?

8) Do you see the program increasing the interest and demand for energy efficient equipment? If so, to what degree (e.g., some increase or substantial increase)? Why do you say that?

EDUCATION AND OUTREACH

9) Do you feel adequately informed of program changes?

1 Yes
2 No -> How could you be better informed of program changes?

10) What type of support have you received from MidAmerican? What types of program-specific trainings have been made available to your company, if any?

- Did you or your staff attend any of these trainings? If so, how useful were they?
- What other types of trainings would you like to see offered by MidAmerican?

11) Have you worked with a Trade Ally Ambassador?

- Was the Trade Ally Ambassador helpful?
- Do you have suggestions for how the Trade Ally Ambassador role could be improved?

12) How do you assist customers with rebate applications, if at all? Do you have a dedicated staff person to handle applications?

- What percentage of your time do you spend working on the applications for this program?
- What are some tips or lessons learned that you would share with a company that is new to the rebate program and just getting started with the application process?

13) Have you signed up to submit applications electronically?

1 YES -> How has that processed worked for you? What are the benefits to you from the online application? What are the barriers?

2 NO -> Would you be interested in an online application process? If not, what is the barrier in participating?

CALL CENTER AND REBATE PROCESSING

14) Have you had to contact the Energy Efficiency call center?

1 YES -> If yes, how would you rate your experience? What would you recommend for improvements?

2 NO

15) Have you recognized a reduction in the amount of time for rebate processing of…

A Paper applications

1 YES
2 NO

B Online applications

1 YES
2 NO

16) Have you had any issues gathering all information required on the application? Have you had applications declined or returned for more information?

- What are some of the challenges you face collecting the supporting information that MidAmerican requires?
- What could MidAmerican do to make it easier to complete the applications?

SATISFACTION

17) Thinking about the nonresidential programs overall, how satisfied are you? Are you not at all satisfied, somewhat satisfied, very satisfied, or extremely satisfied?

1 Not at all satisfied
2 Somewhat satisfied
3 Very satisfied
4 Extremely satisfied
8 Don't know
9 Refused

18) Why did you rate your satisfaction with the program in that way?

19) How likely are you to recommend the program to a peer? Please answer on a scale of 0 to 10, where 0 is extremely unlikely and 10 is extremely likely.

_____ [Record 0-10]

20) If you were to recommend anything to MidAmerican regarding the program design or operations, what would it be?

COVID-19

21) How has Covid-19 affected your business? (Probe on the following areas, select all that apply)

1 Has not affected my business
2 Customer projects have been cancelled
3 Customer projects been delayed - by how long?
4 Equipment or other materials and supplies have been taking longer to receive -how much longer?
5 My business has had to reduce the services offered
6 Anything else?

22) How do you expect Covid-19 to impact projects six months from now?

OVERALL PROGRAM

23) Is there anything else you'd like to share with us about MidAmerican's nonresidential energy efficiency programs?

24) In case we would like to clarify anything we discussed, would it be alright if I contacted you again?

If YES, get best phone number and email address

Those are all the questions I have today. If you think of anything you would like to add, please feel free to contact us. Thank you very much for your time.