Filed with the Iowa Utilities Board on March 23, 2022, EEP-2018-0002

MidAmerican Energy Company

Nonresidential Curtailment Impact and Process Evaluation

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January 28, 2022

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ACKNOWLEDGEMENTS

We would like to acknowledge the many individuals who contributed to the evaluation of MidAmerican Energy Company's Nonresidential Curtailment program evaluation. This evaluation effort would not have been possible without their help and support.

The MidAmerican Energy Company Nonresidential Curtailment program manager and energy efficiency director provided substantial counsel and input throughout the evaluation and reporting processes. These individuals participated in ongoing evaluation deliverable reviews and discussions, and graciously responded to follow-up questions and documentation requests. We would like to specifically thank Erin Rasmussen, Julie Swisher, and Annette Holst.

The Tetra Tech team was made up of the following individuals: Sue Hanson, Jonathan Hoechst, and Jesse Russell of Tetra Tech.

1.0 EXECUTIVE SUMMARY

MidAmerican Energy Company (MidAmerican) offers energy efficiency and demand response programs to their customers throughout their Iowa and Illinois service territories. These programs cover electric and natural gas energy efficiency measures, as well as other services such as technical assistance provided through their several programs. This report details the activities, results, and recommendations from the evaluation of program year (PY) 2021 for the Nonresidential Curtailment program in Iowa and Illinois.

1.1 BACKGROUND

MidAmerican's Curtailment program provides an opportunity for its large nonresidential electric customers to reduce demand during peak hours. Participants commit to reducing a minimum of 250 kW during load curtailment events. MidAmerican can call these events from June 1 through September 30. Events have typically been called during periods of hot weather (mid-90s F or higher) to reduce peak loads in the afternoon and early evening. Events can last several hours but no more than six hours. Participants may also be asked to curtail their loads during times of electric grid emergencies. Customers enroll for a one-year (beginning June 1 and ending May 31 of each year) commitment, with a contracted kW reduction specified in their agreement with MidAmerican.

In exchange for participating in the program, customers receive incentives based on their actual load reduction contributions through the load control season. Customers are required to sign a one-year agreement with MidAmerican and for PY2021, will receive $30 per kW reduction. Incentives are defined based on dollars per contracted kW demand reduction versus achieved kW of reduced demand. Customers are offered contracts where curtailable load levels are established for all curtailment events. Payment is made at the end of the curtailment season after MidAmerican evaluates performance.

MidAmerican staff provides overall strategic direction, research and development, customer outreach, and other administrative functions for the program. Additionally, MidAmerican markets and delivers the program with internal resources. Key Account Managers are the main source of program communications and market the program to potentially eligible customers, while other MidAmerican staff make decisions on when to call curtailment events, manage initial customer notification, monitor customer participation during an event, and calculate savings for the individual participant as well as for the Midcontinent Independent System Operator (MISO).

1.2 EVALUATION METHODOLOGY

The Curtailment program evaluation included process and impact evaluation activities. The Tetra Tech team conducted interviews with MidAmerica program staff to inform evaluation activities and key researchable questions.

For the impact evaluation, and similar to the methodology followed in the previous evaluation of this program, the Tetra Tech team reviewed the data and methods by which MidAmerican developed savings. This included analyzing interval meter data, modeling techniques to develop individual participant savings, and assessing data from the program database. Interval meter data came from participant meters and account records that retain electricity consumption in 15-minute intervals[1]. For the Curtailment program, each participant had its own statistical models developed to estimate the

[1] Six participants had hourly data.

baseline conditions, allowing for individual meters to be used to develop program savings, with the program savings being the sum of participant savings. The Tetra Tech team utilized the meter data, MidAmerican's regression models of loads, and Midcontinent Independent System Operator, Inc. (MISO) baseline methods as the basis for the impact evaluation.

For the process evaluation, the Tetra Tech team reviewed program materials and conducted telephone interviews with MidAmerican Key Account Managers and program participants to understand experiences with the program and satisfaction with various aspects of the program.

1.3 SUMMARY OF KEY FINDINGS AND RECOMMENDATIONS

Overall, the Tetra Tech team's opinion is that the Curtailment program operated effectively in PY2021, resulting in substantial demand savings and high participant satisfaction. In PY2021, there were 96 unique program accounts that participated in events. Events were called on June 10 (Group 2), July 28 (Group 3), and physical test events for Group 1 members throughout August, September, and October. The program is delivered in a pay-for-performance model with a high degree of customer interaction with MidAmerican staff across functional areas—from Key Account Managers, to energy efficiency program staff, and load forecasting staff. These groups work together to market the program, develop pay-for-performance contracts, plan events, notify customers of events, calculate savings, and develop incentive payments.

Regarding customer experiences and satisfaction, the program is on-track to maintain participation levels. It operates smoothly, with well-defined responsibilities understood and practiced across the entire set of MidAmerican staff involved with the program. Participants spoke highly of the program in terms of engagement with their KAM, event notification, and the incentive payment process. While the Tetra Tech team found no need for major program adjustments, we identified opportunities to focus on into the future, outlined below.

Through the impact evaluation, the Tetra Tech team found that the program saved a total of 279,760 kW, the sum of all participants' average demand reductions for the event hours each participated in. These savings include both the Iowa and Illinois service territories and are based on the individual participant's contribution to savings. The state-level results are summarized in the table below.

The data used to develop the energy and demand savings estimate came from interval meters that recorded loads subject to curtailment[2]. MidAmerican applies a consistent set of regression models to all participants to derive program savings. The Tetra Tech team evaluated the results by triangulating MidAmerican's savings by utilizing the three MISO Business Practices Manual baseline calculation methods. Comparing the results by applying the three MISO baseline approaches showed that MidAmerican's results for each state are bounded by the MISO methods, resulting in a realization rate of 100 percent for kW savings and 100 percent for kWh.

[2] Utilizing individual meters to develop program savings is an industry best practice for commercial and industrial demand response programs, accounting for differences in the scale and scope of loads, and diversity of load management techniques.

Table 1. PY2021 Savings Impacts

Impact	Tracked Gross Savings*	Evaluated Gross Savings	Evaluated Realization Rate**
Iowa			
kWh	622,033	622,033	100.0
Peak kW	253,183	253,183	100.0
Illinois			
kWh	49,913	49,913	100.0
Peak kW	26,577	26,577	100.0

* Tracked savings shown are from PY2021 savings data received from MidAmerican to date.

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

Through the evaluation activities, the Tetra Tech team has identified the following key findings and recommendations for consideration by MidAmerican.

Finding #1: MidAmerican's program calculation approach, based on MISO's Business Practices Manual, leads to reasonable savings estimates. Additionally, the general approach to calculating savings using individual account analyses is an industry best practice.

MidAmerican uses MISO's three standard demand response calculation methods to develop account-specific savings for each participant. In addition, a fourth model is deployed when day(s) in the 10-day baseline period do not accurately represent the temperature and load profile of the event day. The approach allows each event hour to be individually modeled, with the average event hourly performance to claim savings and develop pay for performance incentives. The outcomes fall within the bounds of savings calculations that use MISO's baseline approaches. MISO has accepted savings calculated from MidAmerican's approach, indicating that it meets MISO's requirements for settling program performance.

> *Recommendation #1: Continue using approaches outlined in the MISO Business Practices Manual. While other approaches are worth exploring and may prove accurate, the standardized approach contained in MISO's three methods provides a firm set of methods for calculating demand response savings.*

Finding #2: At the program level, the current MidAmerican approach is reasonable. However, MidAmerican may want to consider alternative calculations that address underlying differences among participant groups or load management strategies.

For nonresidential load management programs, customer size, underlying loads, and how customers choose to manage loads during events differ. The current approach, using MISO's three standard methods and an additional fourth method when substantial differences in baseline temperatures exist, provides excellent coverage to represent different types of loads and the savings that are developed during events. However, exploration of other established models may provide additional accuracy or improved savings estimates. This is not to say that MidAmerican's current approach is inaccurate—it is not—rather, that demand response calculations should be seen as a continuous improvement process.

> *Recommendation #2: One consideration for an alternative approach is to develop calculations based on the underlying load characteristics of a given participant. However, MISO does not expect that level of effort in its baseline calculation approaches.*

Finding #3: The Curtailment program had high satisfaction, with participants acknowledging the account services and event notifications that are expected.

Interviewed participants were highly satisfied with the program overall and with key program features. The incentive continues to be a key motivator. Some perceived risk was expressed, as there is the potential for events to occur during the time of peak operations. Still, all participants we spoke with indicated their commitment to the program and plan to continue their participation. The relationship with the Key Account Manager also continues to be an important program component.

> *Recommendation #3: MidAmerican should maintain the current approach to leveraging Key Account Managers for maintaining relationships with customers. Ensuring that Key Account Managers continue to have the tools and information they need to maintain program-related communications will continue to be essential to maintaining the customer relationship.*

Finding #4: Interviewed participants and Key Account Managers said they were adequately informed of program process, changes, and savings and incentive calculations. Opportunities exist, though, to provide additional support.

One program design change was the move from three-year contracts to one-year contracts. While this change occurred in the 2018/2019 timeframe, it was mentioned by two interviewed participants and one KAM. The interviewed participants did not necessarily see this as an issue but were more curious about why the change occurred. For the KAM, he noted that the annual contract signing timeframe seems to come during a busy time of year.

During events, customers can monitor their progress at reducing loads through software MidAmerican provides. The goal of the monitoring is to assist the customer with seeing the effect of their actions on load reductions and take action as needed to adjust operations. Two interviewed participants and one of the interviewed KAMs mentioned that it would be helpful to have real-time data available through the tool so they know precisely what their reduction is tracking during an event. MidAmerican program staff noted they would also like to have this level of information.

One KAM suggested that an annual refresher training would be helpful, including information about what is new and program deadlines or timeframes (note that this KAM also said he was adequately informed of program changes). One other suggestion from this KAM was for MidAmerican program staff to offer training to customers focused on MidAmerican's transmission pool, including why MidAmerican and MISO may call events. He noted that not all customers might be interested in this level of information but does have some customers that are.

> *Recommendation #4: MidAmerican should consider ways to enhance program support. The Tetra Tech team recognizes that some of the suggestions made by participants and Key Account Managers could be challenging to implement, such as access to real-time data. However, other suggestions may be easier to execute, such as providing additional information about why and when events are called.*

2.0 INTRODUCTION

The following sections present the detailed results for the PY2021 evaluation of the Nonresidential Curtailment program offering in MidAmerican's Iowa and Illinois service territories.

2.1 PROGRAM DESCRIPTION

MidAmerican's Curtailment program provides an opportunity for its large nonresidential electric customers to reduce demand during peak hours. Participants commit to reducing a minimum of 250 kW during load curtailment events. MidAmerican can call these events from June 1 through September 30[3]. Events are typically called during periods of hot weather (mid-90s F or higher) to reduce peak loads in the afternoon and early evening. Events can last several hours but no more than six hours. Participants may also be asked to curtail their loads during times of electric grid emergencies. Customers enroll for a one-year (beginning June 1 and ending May 31 of each year) commitment, with a contracted kW reduction specified in their agreement with MidAmerican. Curtailment options include shedding load, shifting load to non-peak periods, or generating replacement power with on-site generators.

In exchange for participating in the program, customers receive incentives based on their actual load reduction contributions through the load control season. Customers are required to sign a one-year agreement with MidAmerican, and for PY2021, will receive $30 per kW reduction[4]. Incentives are defined based on dollars per contracted kW demand reduction versus achieved kW of reduced demand. Customers are offered contracts where curtailable load levels are established for all curtailment events.

Payment is made at the end of the curtailment season after MidAmerican evaluates performance. Customers delivering curtailed load below which is required by curtailment contracts receive payment equivalent to the percentage of curtailment achieved. For example, a customer delivering 90 percent of its contract amount receives 90 percent of its total incentive. Customers cannot receive more than 100 percent of their contract incentive, even if they deliver curtailed load above their contract requirements.

MidAmerican staff provides overall strategic direction, research and development, customer outreach, and other administrative functions for the program. Additionally, MidAmerican markets and delivers the program with internal resources. Key Account Managers are the main source of program communications and market the program to potentially eligible customers. At the same time, other MidAmerican staff decide when to call curtailment events, manage initial customer notification, monitor customer participation during an event, and calculate savings for the individual participant and the Midcontinent Independent System Operator (MISO).

[3] MidAmerican can call events outside of this window for emergency situations. An event that is called by MISO can be anytime between June 1, 2021 to May 31, 2022 (year-round), and any day of the week or at any time of the day.

[4] The MISO's demand response tariff has been changing, including that it now requires year-round participation, notification time periods, and how many times customers can be called. MidAmerican must align the Curtailment program with MISO's event requirements in order for the utility to receive 100 percent capacity credit. Additionally, MidAmerican performs an annual review of incentive levels and performance criteria and may adjust incentives in the future as market conditions change.

2.2 EVALUATION METHODS

2.2.1 Summary of Researchable Questions and Evaluation Activities

This section describes the analytic methods and data collection activities implemented as part of the PY2021 evaluation of the Curtailment 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 (DEP)[5] and addressed other relevant issues during the evaluation process.

2.2.1.1 Key Researchable Questions

Based on discussions with MidAmerican staff, and a documentation review, the Tetra Tech team identified a number of key researchable questions to be addressed through the evaluation. The table below documents these, along with the activities that addressed the questions.

Table 2. Researchable Questions

Researchable Question	Activity to Support the Question
Program Design	
What is the customer experience? Is the program meeting customer and MidAmerican needs? Are program communications understood for enrollment, event participation, and incentive payment?	• Program staff interviews • Participant interviews
What drives customers to participate in the program?	• Participant interviews
MISO now requires customers be able to curtail year-round, but MidAmerican bases payments on the summer season. What happens if customers are not willing to curtail year-round? How do other utilities do this?	• Secondary literature review
Customer Education, Outreach, and Marketing	
How effective are program communications among all program stakeholders (MidAmerican and participants)?	• Program staff interviews • Participant interviews • KAM interviews
Do program participants also participate in other MidAmerican energy efficiency programs?	• Review of historical program participation records
How effective is the program outreach and marketing?	• Participant interviews
Program Administration, Processes, and Resources	
Is the program being implemented effectively and appropriately?	• Program staff interviews • Participant interviews • KAM interviews
Is the process for verifying and delivering incentives to customers effective and accurate?	• Program staff interviews • Participant interviews

[5] A select group of Iowa Stakeholders were provided an opportunity to review and comment on the draft Curtailment Detailed Evaluation Plan in November of 2021.

Researchable Question	Activity to Support the Question
Are program QA/QC processes adequate and effective? If not, how can they be improved?	• Program staff interviews • Program information review
Program Satisfaction	
Are participating customers satisfied with the program?	• Participant interviews
Are customers happy with key program support they receive from the program, such as enrollment, event communications, and incentive payments?	• Participant interviews
How important is the incentive level to their continued participation?	• Participant interviews
Program Impacts	
What are PY2021 savings for Iowa and Illinois? Are the participant-level calculations used to pay incentives accurate and clear? Are the MISO settlement savings accurately calculated following a MISO BPA method?	• Review of MISO Business Practices Manual • Savings calculations based on MidAmerican's MISO settlement method
Is the appropriate information being collected to support the program's savings assumptions? Are there any issues or concerns regarding data quality?	• Program staff interviews • Calculation review
How do the savings results differ based on curtailment strategy?	• Savings review and participant tracking data review

2.2.2 Detailed Evaluation Activities

The table below documents the activities performed to support the evaluation of this program.

Table 3. Summary of Program Evaluation Activities

Evaluation Type	Activities
Overarching Evaluation Activities	**Program staff interviews.** Conducted an in-depth interview with MidAmerican program staff as part of the program evaluation kick-off and met with MidAmerican staff periodically throughout the evaluation.
Impact Evaluation Activities	**Database and savings calculation review.** The Tetra Tech team reviewed MidAmerican's program database, supporting documentation, meter data, and method for calculating program savings. Additionally, program savings were calculated based on several baseline scenarios to compare results with MidAmerican's method. Each of the 96 program participant files provided by MidAmerican were reviewed.
Process Evaluation Activities	**Participant customer interviews.** Completed 10 participating customer interviews. The interviews were conducted with a sample of PY2021 participants. **Key Account Manager interviews.** Completed interviews with five MidAmerican KAMs. **Secondary research.** Publicly available information was reviewed for six similar demand response programs to compare targeted markets, incentive levels, and utility disposition relative to generation capacity constraints, to the extent possible.

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

- **Program and implementation staff interviews.** Tetra Tech team members interviewed the MidAmerican product manager and energy efficiency director on August 31, 2021. The Tetra Tech team completed this interview to better understand the program design and delivery, discuss program successes and challenges, and identify and prioritize researchable questions for the evaluation.
- **Key Account Manager interviews.** Due to the substantial role KAMs play in the promotion and communications for the Curtailment program, Tetra Tech senior staff conducted interviews with select KAMs as part of the process evaluation. These interviews investigated program design and delivery, discussed program successes and challenges, and identified areas for improvement. A copy of the KAM interview guide can be found in Appendix A.
- **Participant customer interviews.** The Curtailment program evaluation included in-depth interviews with 11 of the PY2021 participating customers. The participant interviews investigated program delivery processes, interactions with the program staff, preferred communication channels, satisfaction with different facets of the program, and firmographic information. Tetra Tech's senior consulting staff administered the participant customer interviews. A copy of the program participant interview guide can be found in Appendix B.
- **Program database and savings calculation review.** The Tetra Tech team conducted a tracking system review of all PY2021 participant tracking. Additionally, we reviewed the regression models used by MidAmerican to calculate savings and the meter data used to develop savings. The Tetra Tech team calculated savings using the program participant hourly loads directly from the meter data, utilizing the three MISO baseline methods to compare results to MidAmerican's approach. Questions were identified and discussed with MidAmerican staff.

3.0 PROGRAM SAVINGS AND IMPACT EVALUATION FINDINGS

This section presents the results of the quantitative and qualitative gross impact results for the PY2021 Curtailment impact evaluation. The impact evaluation was designed around the key researchable questions identified in the methodology section. The purpose of the impact evaluation was to verify the approach and results of MidAmerican's calculated PY2021 savings. Next, we provide information on program savings. We then describe the data and the weather associated with the demand response event performance, followed by a discussion of the methods used to estimate program savings.

3.1 PROGRAM SAVINGS

Through the impact analysis, the Tetra Tech team found that MidAmerican's approach to calculating savings was reasonable and that the resulting savings were similar to alternative methodologies. Additionally, MidAmerican's approach to utilizing customer-level interval meters to develop participant-level savings is an industry best practice. MidAmerican's approach allows for the presentation of individual hour savings, with the Tetra Tech team able to provide parallel calculations to verify savings at the hour and event level.

To verify savings and determine the reasonableness of MidAmerican's calculations, the Tetra Tech team utilized all three MISO baseline approaches. MidAmerican's program-level results fell within the range of savings calculated via these MISO baseline approaches, and MISO has accepted the calculation methods for settling demand savings. These two factors—MISO's acceptance of MidAmerican's calculations and the Tetra Tech team's observation that program savings fall within the outcomes of MISO's baseline techniques—illustrate that MidAmerican has been calculating program savings reasonably and within industry standards. As the program's goal setting was based on the sum of average participant performance across event hours, the Tetra Tech team compared its results for the sum of average participant performance to that claimed by MidAmerican.

The outcome of the Tetra Tech team's analysis is that MidAmerican has a realization rate of 100 percent for both energy and demand savings. The specific savings for Iowa and Illinois are provided in the table below.

Table 4. PY2021 Savings Comparison

Impact	Tracked Gross Savings*	Evaluated Gross Savings	Evaluated Realization Rate**
Iowa			
kWh	612,728	612,728	100.0
Peak kW	267,062	267,062	100.0
Illinois			
kWh	42,380	42,380	100.0
Peak kW	31,242	31,242	100.0

* Tracked savings shown are from PY2021 savings data received from MidAmerican to date.

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

The Tetra Tech team found that the program delivered substantial savings—over 280 MW—during hot summer weather and demonstrates a reliable capacity hedge against extreme weather events that drive peak summer loads.

3.2 IMPACT EVALUATION METHODOLOGY

The focus of the impact evaluation was the demand response events called in 2021, which fell into the following three categories:

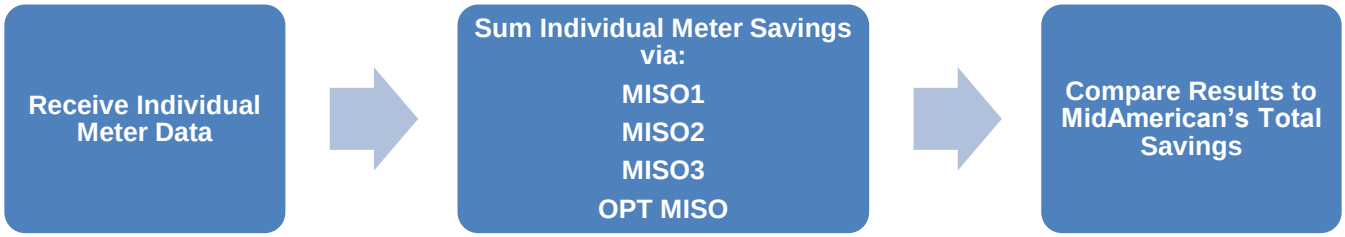
1) The first event occurred on June 10, 2021, and was called by MISO in response to high temperatures and the resulting system peak loads. To achieve load reductions, MidAmerican asked generators (Group 2) to curtail their loads during the four-hour event (3pm to 7pm). MidAmerican called a mandatory event on July 28, 2021, after several consecutive days of high temperatures above 87°F, with a peak temperature of 95°F at 6pm on July 28, 2021. The event lasted three hours, from 1pm to 4pm.
2) MidAmerican asked Group 3 ("other") members to participate in the July 28 event.
3) Lastly, required physical test events occurred among shedder/shifter customers (Group 1) in August, September, and October.[6] Each customer in Group 1 participated in a single physical test event.

To assess savings, the Tetra Tech team first analyzed the data provided by MidAmerican, which included 15-minute interval readings of each participant's loads. The date range of the loads was from May 15, 2021, through October 13, 2021. The Tetra Tech team also reviewed the analysis workbooks that presented MidAmerican's regression models and the calculations used to report savings. For each participant, the analysis workbook provided customer-level results by developing customer-specific regression models that all used the same underlying weather and time data, but with customer-specific regression coefficients that described their baseline conditions. The Tetra Tech team also used MidAmerican's program tracking data to understand the summary results used to report savings and pay incentives, confirming alignment with the regression models and serving as the basis for comparing our calculations using the MISO baseline approaches. To evaluate the savings, the Tetra Tech team:

- Applied each of the three MISO baselines to each customer and their interval meter data.
- Each customer was then analyzed using all three baseline approaches, with summary results based on the sum of savings for each baseline technique.
- Next, the Tetra Tech team analyzed each participant's highest performing MISO baseline method and summed the results as an "optimized" approach to developing savings (OPT MISO).

The MISO methods, including the specifics of each MISO baseline, are described in more detail in Section 3.3. A visual summary of the process is presented in the figure below.

Figure 1. Impact Evaluation Procedure



[6] Physical test events occurred in 2021 on August 25, August 31, September 2, September 29, October 4, October 6, October 7, and October 13, and were either one or two hours in duration.

As mentioned above, most customers had 15-minute interval records that described a meter's energy consumption for that period. The 15-minute periods were summed to create an hourly consumption record, serving as the basis for the analysis. These hourly records were used by MidAmerican, and subsequently the Tetra Tech team, to calculate individual customer savings. Non-event hours informed baseline calculations (varying by calculation technique) and event hour consumption indicating actual loads during the event.

MidAmerican's savings estimates have increased in transparency after adopting MISO's models as the primary methods for estimating load reductions. In addition to the three MISO methods, MidAmerican employs a fourth model that removes substantially colder days from the 10-day (non-event, non-weekend, non-holiday) baseline period and replaces it with another day the exhibited more similar weather. Further, days when customers proactively communicated with MidAmerican that their enterprise would be closed or experience substantial reductions in load (independent of any demand response events) were removed from customers' baseline periods. The Tetra Tech team used the same weather stations when analyzing each customer's data for applying the MISO weather-adjusted baseline approach.

To illustrate the regional weather conditions on the event days, the table below presents the air temperature experienced in Des Moines on June 10, 2021, during the event hours and the average of the 10 prior weekdays before June 10. As can be seen in the table, the temperatures in Des Moines on the event day was substantially warmer than the average of the prior 10 days, peaking at 93.2 degrees on June 10, 2021. The prior 10 days were about 14 degrees cooler, on average, than the event day for the same hours as the event.

Table 5. Hourly Weather Data for 2021 Demand Response Events

Date	Hour Ending	Event Day Temperature (F)	Prior 10 Day Average Temperature (F)
June 10, 2021	16:00	91.4	77.8
June 10, 2021	17:00	91.4	78.0
June 10, 2021	18:00	93.2	77.6
June 10, 2021	19:00	91.4	76.9

3.3 IMPACT EVALUATION MODELING

The Tetra Tech team utilized four models, described in more detail below, to conduct the impact evaluation. All used the customer-level meter data as the basis for estimating the baseline consumption and actual consumption during the PY2021 events. Thus, all models were based on identical consumption data. These models were:

1) MISO Calculated Baseline (without adjustment) – MISO1
2) MISO Calculated Baseline (with symmetrical multiplicative adjustment) – MISO2
3) MISO Calculated Baseline (with weather adjustment) – MISO3
4) Optimization of MISO1, MISO2, MISO3 for individual participants (OPT MISO)

3.3.1 MidAmerican's Tracked Savings Model

For each program participant, MidAmerican utilized four regression models that describe estimated hourly loads using varying baseline periods. In addition to the three standard MISO methods detailed above, MidAmerican also used a model that reviewed and removed any days from the baseline time period where the temperature was substantially lower than the event day, replacing the observation with the next previous (reasonable and eligible) day. Using these four methods, MidAmerican could model the expected loads during the event days and specific hours. The models serve as the baseline from which the actual metered loads were subtracted to arrive at event hour savings.

3.3.2 MISO Impact Evaluation Models

Based on each of the three MISO Business Practices Manual baseline modeling approaches[7], the Tetra Tech team developed three separate models. We note that the MISO baseline approaches provide standardized modeling methods and flexibility in their application to each participant. Descriptions of the three MISO models are:

- **Model 1: MISO1 – Calculated Baseline (without adjustment).** The MISO1 method is the most straightforward approach described in the MISO Business Practices Manual. For a given hour, the same hour on the 10 prior event-eligible days have the hourly loads averaged to serve as the baseline. Savings were derived by subtracting the actual load experienced during the event from the baseline. The MISO1 method is also called the "unadjusted baseline." The Tetra Tech team used the 10 prior non-holiday non-event weekdays to serve as the baseline days, with hours selected based on the event hour.

- **Model 2: MISO2 – Calculation Baseline (with symmetrical multiplicative adjustment - SMA).** The MISO2 method builds from the MISO1 method but adds additional information to adjust the baseline. The three hours that occur prior to one hour before the event are compared between the event day and the same baseline days selected from the MISO1 method. For the baseline days, the three hours prior to one hour before the event have their loads averaged. For the event day, the event day's three hours prior to one hour before the event has the hourly loads averaged. The ratio of the pre-event hours, event-day to non-event day, becomes a multiplicative adjustment to the otherwise unadjusted baseline. For example, if the event day's three hours have loads that are 10 percent higher than the baseline days, the ratio of 1.1 is multiplied with the unadjusted baseline to arrive at the SMA baseline. The SMA is applied to all event hour baselines. MISO caps the SMA at no more than +/- 20 percent, meaning a SMA cannot be lower than 0.8 or higher than 1.2.

  The SMA allows for capturing differences between event days and baseline days that may be evident in loads prior to an event. For example, an unusually warm morning may lead to higher loads during the morning, indicating higher than normal loads would exist in the afternoon during an event. But the approach can also capture non-weather-dependent factors. For example, an industrial customer may have non-weather-dependent loads that are lower or higher due to production schedules on the baseline days compared to the event day, which may be captured or indicated through the SMA.

- **Model 3: MISO3 – Calculated Baseline (with weather adjustment).** The MISO3 method explicitly incorporates temperature into the baseline calculation, similar to MidAmerican's calculation method. The MISO3 approach is based on having a temperature regression

[7] *Business Practices Manual No. 26, Demand Response.* MISO, July 2, 2021. Appendix A.

coefficient developed to capture how loads change relative to temperature. The coefficient describes the load per unit of temperature (e.g., kW per degree F). The regression coefficient is developed by analyzing non-event day loads. MISO does not specify the structure of the regression equation, allowing for flexibility in the approach.

Once the temperature effect on load is developed through the regression model, the average temperature of the baseline days' equivalent event hour is compared to the same hour on the event day. The difference of the average temperature of the 10 prior eligible days (non-event, non-holiday weekdays) to that on the event day is multiplied by the temperature coefficient. For example, if a customer was found to have a temperature coefficient of 10 kW per degree F and the temperature difference of the event day and the baseline days was 10 degrees, the increase in load is 100 kW. This adjustment is added to the unadjusted baseline described under MISO1.

The following equation summarizes the calculation of the baseline for a given hour of the day:

Baseline kW = Baseline days' Average Load + Temperature Coefficient * (Event Day Temperature - Baseline Days' Average Temperature)

3.4 PROGRAM IMPACT ESTIMATES

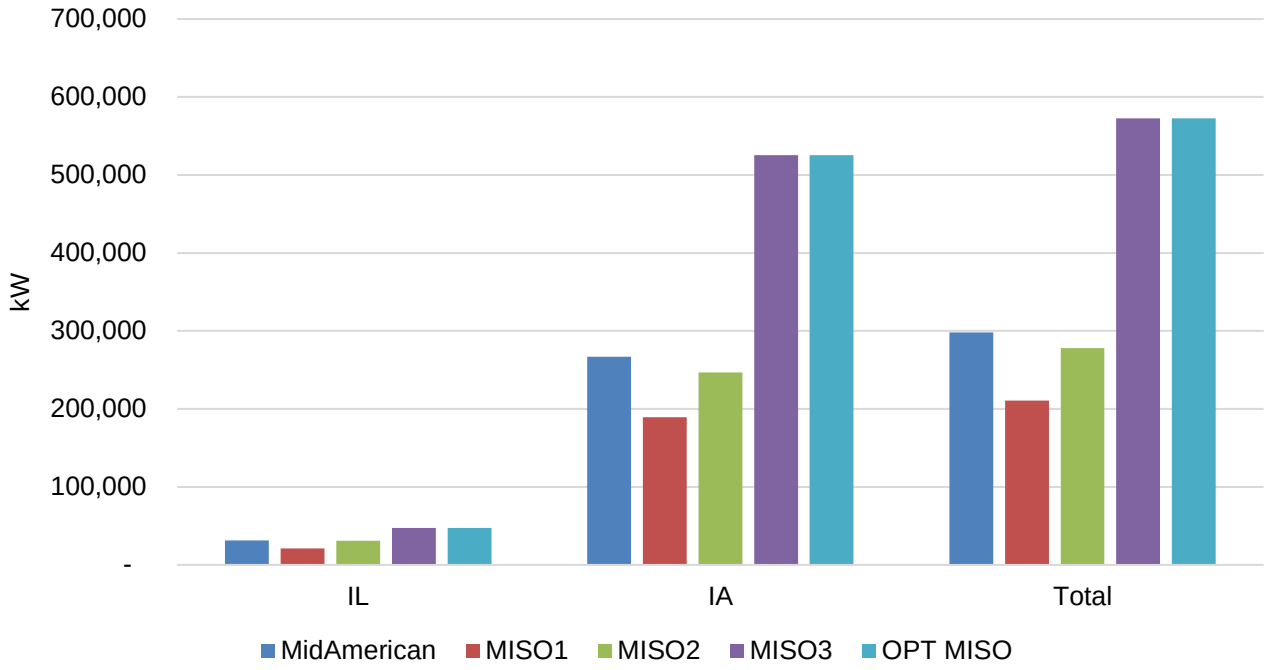
Using the three MISO methods described above, the Tetra Tech team developed savings calculations for customer accounts in the program. Using the three MISO calculation approaches enabled the Tetra Tech team to evaluate MidAmerican's savings by triangulating MidAmerican's calculations to gauge the reasonableness of the outcomes without imposing a specific methodology on any particular customer or the total.

As mentioned above, the Tetra Tech team calculated savings using each of the three MISO methods, serving as savings scenarios. Additionally, the Tetra Tech team developed program savings with a fourth scenario by selecting the highest savings MISO method for each account as an "optimized" method. The optimized method (OPT MISO) provides a maximum program savings total that would fall within the MISO methods and does not require that all customers receive the same calculation method—with a diverse customer base, the nature of the underlying loads being managed during events can vary. The OPT MISO savings provided an upper bound on what may be considered reasonable if utilizing the MISO methods and enhanced the triangulation method used for this evaluation.

The figure below illustrates the difference in the methods across the entire program, regardless of the participant group. The OPT MISO savings option provides substantially higher estimates than the remaining methods—unsurprising, given that OPT MISO is the highest savings result from the three MISO options. MISO2 calculations track closest to MidAmerican's final savings estimates across both Illinois and Iowa. This is expected, as MidAmerican opted to use this method for final savings more than any other MISO method.

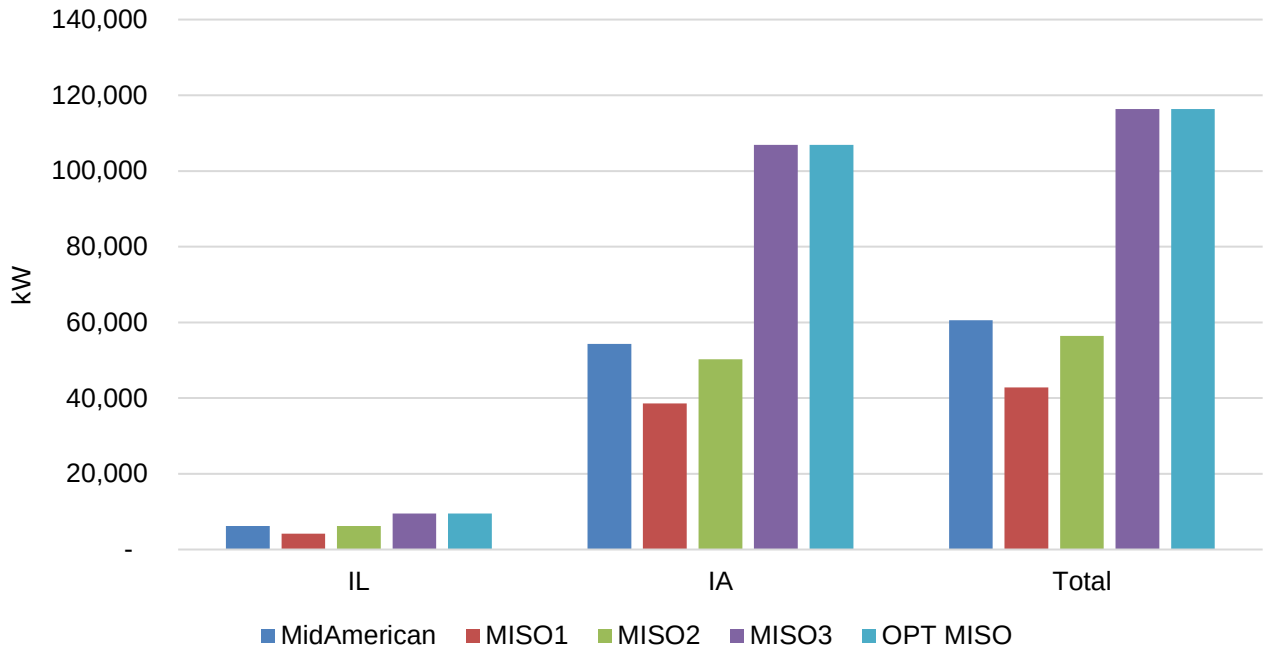
These results imply that an adjusted baseline with thresholds (+/- 20 percent) provides a reasonable estimate of savings for a majority of nonresidential curtailment participants. However, the difference in savings based on methodologies provides further evidence that estimating savings through multiple, independent methods is warranted to provide a check of reasonableness and consistency.

Figure 2. Total Program Demand Savings by State and Evaluation Method



Next, we examined the results of the MISO summer peak event called on June 10, 2021, to understand if there were similar differences between MISO methodologies. The results, provided in the figure below, follow a similar pattern as the overall program results—namely, that using strictly MISO2 methodology produces savings estimates that are very close to MidAmerican's event total.

Figure 3. June 10, 2021 Summer Peak Results Methods Comparison



4.0 PROCESS EVALUATION FINDINGS

This section details the methodology of the process evaluation activities, along with detailed findings. The process evaluation was designed around the key researchable questions identified in the methodology section. Process evaluation activities involved interviews with program staff, KAMs, and participating customers.

The KAM interviews investigated experiences and satisfaction with the Curtailment program. In addition, training, education, and outreach were further explored with KAMs. The participating customer survey was used to understand the perspectives of program participants; questions explored consumers' awareness, reasons for participation, program experiences, and satisfaction.

4.1 INTERVIEWED PARTICIPANT CHARACTERISTICS

MidAmerican separates its Curtailment participants into two major groups, defined by their technique used to reduce their load on MidAmerican's system during load management events. One group is "generators," or those who use backup generators to reduce their demand on the system during events, but do not necessarily reduce their underlying loads. The second group is "shedders/shifters" who change their loads during load management events by either shedding the load or shifting it to another time. A small number of participants have the ability to both generate and/or shed/shift load during events. These customers were identified as "combination" participants.

Because the program experience is different for each group based on their approach to managing loads, these three groups were used to define the strata from which interview samples were drawn—eight shedders/shifters, 11 generators, and one with combination methods. Ensuring a range of participation levels (kW nominations) was also considered during the sampling process. Additionally, because the vast majority of program participants are in MidAmerican's Iowa service territory, and the program is operated similarly in both Iowa and Illinois, participants from Iowa were selected to be interviewed. Each stratum's unique number of participating locations by state is shown in the table below, as well as the number of sampled participants. The Tetra Tech team's goal was to complete 10 interviews from the 20 sampled participants. The Tetra Tech team worked with MidAmerican to identify the five KAMs that were interviewed.

Table 6. Summary of Participants by Curtailment Type*

State	Number of Load Shedders/ Shifters	Number of Generators	Number of Combination	Number of Others**	Number of Total Accounts	Number Sampled
Illinois	1	4	0	0	5	0
Iowa	33	54	3	1	91	20
Total	**34**	**58**	**3**	**1**	**96**	**20**

* Some customers participate in multiple locations. This table represents a count of each unique location rather than a count of unique customers.

** The "Others" category includes a single large customer with high loads and load reductions. Details regarding this participant are not revealed to protect confidentiality.

The Tetra Tech team completed a total of 11 interviews—two shedders/shifters, eight generators, and one with combination methods. Across these 11 interviewed customers, participation levels ranged from 355 kW to 3,500 kW.

4.2 PROGRAM DESIGN AND OPERATIONS

MidAmerican targets businesses with larger loads to participate in this program, and MidAmerican's KAMs continue to be a primary source of program marketing and relationship management. Given the high degree of interaction with customers and performance-based payments of incentives, the KAM relationship continues to play an important role in identifying opportunities and managing the annual contracts that participants enter into. Particularly for the shedders/shifters group, load management events require effort on the part of participants to change their operating practices to reduce loads. Ensuring seamless curtailment event days requires a team effort from both MidAmerican program staff and KAMs—program staff provide ongoing strategic direction and tactical support, including reviewing contracts, monitoring customer participation during an event, and determining savings and incentive amounts; KAMs continue to be central to managing the overall relationship and experience, including the contract and curtailment event processes, and delivering incentive checks.

The Tetra Tech team found that MidAmerican staff continues to implement their well-established process for managing the customer relationship, determining when events may be called, notifying participants, calculating savings, and paying customer incentives. Although working across functional areas within MidAmerican—from load forecasting to program staff to KAMs—MidAmerican continues to demonstrate that the overall team collaborates and communicates to execute events successfully. Both program staff and interviewed KAMs noted that program operations work well across the two groups. Additionally, while some of the interviewed participants have been working with the program only more recently (in the past year or two), the facilities themselves have been enrolled in the program anywhere from five to 15 years, indicating that program operations continue to work well from the customer perspective too.

One program design change was the move from three-year contracts to one-year contracts. While this change occurred in the 2018/2019 timeframe, it was mentioned by two interviewed participants and one KAM. The interviewed participants did not necessarily see this as an issue but were more curious in nature about why the change occurred. For the KAM, he noted that the annual contract signing timeframe seems to come during a busy time of year.

All surveyed respondents felt they could easily contact someone (e.g., their KAM) with questions during event periods. In general, all participants thought that the number and timing of notifications were adequate. Additionally, the Tetra Tech team notes that in the last evaluation, the shedders/shifters respondents shared that more notification time would be preferred to plan for a curtailment event. However, neither of the two shedders/shifters surveyed participants expressed that curtailment notification timing could be improved in this evaluation cycle. This suggests that MidAmerican has improved the notification process for this group.

Respondents were asked about their plans to continue participating in the program. All 11 respondents indicated they plan to continue their participation. One respondent indicated that if the incentive amount dropped any lower, they would need to see if it would still be economically feasible for the company to continue participating. Additionally, all 11 respondents reported planning to keep their curtailment capacity the same. Two respondents indicated that they would be interested in increasing their curtailment capacity, if possible. This is similar to what the Tetra Tech team heard from all five interviewed KAMs—they expect the same customers to participate in the next renewal cycle. One KAM mentioned he has a couple of customers who currently participate and would like to add load if there is an opportunity to do so. Two other KAMs said they have customers interested in enrolling in the program.

Participants were asked about the impact of the incentive amount on their ability or interest to participate. Eight of the 11 respondents reported that they continue participating in the program

because of the incentive. One respondent noted that the program forces them to use their generators, and one respondent was unsure of the impact of the incentive.

> *"Part of the capital plan was the payback for the generators."*
>
> *"The incentive, certainly. The incentive reduction was a bummer, but there are still a lot of benefits for us to be in the program. It would be different if we had to curtail more during the year."*
>
> *"I like that it forces us to use the generators. We get paid to do something we were going to do anyway; they need to be exercised. The only thing that makes us hesitant is that high-demand days for MidAmerican are typically high-demand days for us. We haven't had an issue yet, though."*
>
> *"We stay in the program because there's some payback in it, and helping the community. From a generator standpoint, it's good to exercise the for four to six hours at least once a year. It makes use of equipment that's there, and we make sure it works properly." (NOTE: This company would still have the generator without the program.)*

When asked if they opted out of participating in any called event or provided less than the nominated demand reduction, one respondent noted they opted out due to the derecho event in 2020, as they were already running on their backup system. All of the other respondents said they had not opted out of any recent events. However, four respondents indicated that they were not able to participate in an event due to mechanical issues with their generators.

> *"We did once because one of our generators was down. We were down to one generator for about four weeks."*
>
> *"Only if we have an issue with the generator. There was one event where we had an issue with the generator so we had to pull that offline."*

4.3 EDUCATION, OUTREACH, AND MARKETING

MidAmerican has been offering the Curtailment program for many years, primarily marketing the program through its website and KAMs. At this point, the program is generally fully subscribed. When a customer expresses interest in the program and has an opportunity to participate, MidAmerican staff work with that customer to develop a savings level they can achieve based on the customer's operations and preferences. As noted earlier, the KAM relationship is important, with early event warnings and formal notifications a critical part of the participation experience. Because of the role KAMs play, MidAmerican program staff noted that they work to ensure KAMs are educated on the program, including meeting annually in January to provide program updates, going over questions they may have, and helping to make contracts more friendly. All five interviewed KAMs confirmed these education efforts, noting they are adequately informed of program changes.

During events, customers can monitor their progress at reducing loads through software MidAmerican provides. The goal of the monitoring is to assist the customer with seeing the effect of their actions on load reductions and take action as needed to adjust operations. MidAmerican trains customers to use the software, and four respondents unprompted noted that they use the tool. Two interviewed participants and one of the interviewed KAMs mentioned that it would be helpful to have real-time data available through the tool so they know precisely what their reduction is tracking during an event. MidAmerican program staff noted they would also like to have this level of information. As a result, this remains on MidAmerican program staff's radar but is not easily resolved given MidAmerican's systems.

Surveyed participants were asked if they had participated in any other efficiency programs, particularly any that would influence their consumption and strategy. Seven respondents noted that they have participated at some level or another in MidAmerican's nonresidential energy efficiency programs, and this participation has impacted their overall energy consumption. In particular:

> *"We have installed a ton of LED lighting and replaced all of our VFDs."*
>
> *"Yes. We did a battery charger program with them [MidAmerican] last year – we switched over to a bunch of on-demand high-frequency chargers. Years ago, we did lights - the whole building is LED except the parking lot."*
>
> *"Yes. We meet with MidAmerican fairly regularly. We work to reduce our demand as much as possible. We are ISO 50001 and SEP/ Gold Level. So we work pretty hard to do what we can."*
>
> *"We have received rebates from MidAmerican for many projects over the years."*
>
> *"We have received rebates for VFDs and LED lights."*
>
> *"Yes, we have upgraded lighting to LEDs. We also did some stuff with VFDs."*

One respondent noted that participating in energy efficiency programs is not appropriate for their type of facility.

4.4 PROGRAM ADMINISTRATION, PROCESSES, AND RESOURCES

For the Curtailment program, event days are the crux of the program, including the processes and communications surrounding event days. This means that one of the most important and frequent interactions between the KAMs and program participants occurs on curtailment event days, including the day or two leading up to event days. Interviewed participants were asked about their experience surrounding event days. When participants were asked if they have been satisfied with MidAmerican's communications before, during, and after events, all 11 participants interviewed responded, "yes," and noted that they can easily contact their KAM with questions during event periods. Specific comments included:

> *"He has been great. Really takes care of us."*
>
> *"His communications skills around the program are top-notch. He emails, he calls, etc."*

Event notification communications appear to be working effectively. Surveyed participants were asked to describe the typical process for an event day. All respondents described the same general process—each typically receives a call or email from their KAM a day or two in advance of a potential event, and then another call and/or email the day of the event.

> *"My KAM always calls us the day of. He calls me and my backup. We are very attuned to the weather, so we have a good idea of when this is coming. We are always ready, so it's not like we have to get ready."*
>
> *"We get a notification with the email/ pre-notification (group a, group b, group c) about the planned curtailment time. Closer to the time, we get confirmation, then we go into our system. We start about 15 minutes early and run until 15 minutes after [the event]."*
>
> *"[KAM] will sometimes give me a heads-up via a phone call. There's also an email that comes up for a possible load shed. We then go into a warning area."*

Each fall, MidAmerican staff analyze each participating facility's performance. The analysis results in the incentive that each customer is awarded. This process provides an opportunity for customers to understand their performance and discuss the calculations and incentive payments with MidAmerican. Nearly all respondents indicated no issue with the process nor any particular need or desire for additional communication or education on the program. One respondent has not been involved in the incentive process.

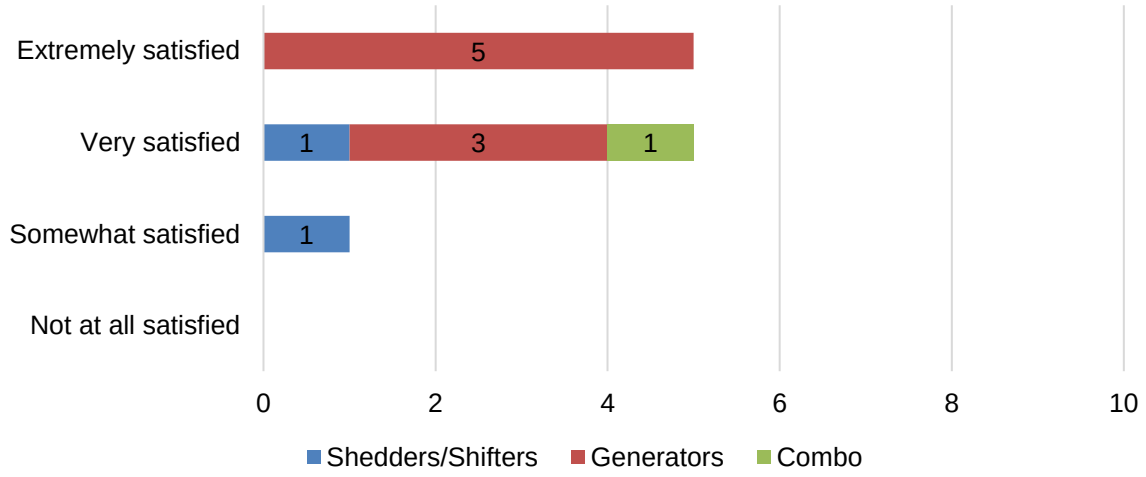
> *"Pretty simple, pretty straightforward. There's an agreement we make with them [MidAmerican] at the beginning of every year, so we know."*
>
> *"Pretty simple. [KAM] delivers it to us. There is enough transparency in how the payment is determined; documentation is good."*
>
> *"MidAmerican watches the curtailment; I watch it too. At the end of the year, MidAmerican provides me with our participation, and we get a check. There's good transparency in the process. When I started here, I didn't know what curtailment was, but I do now."*

4.5 PROGRAM SATISFACTION

Interview respondents were asked a few questions related to their satisfaction with the program and company plans for future participation. Respondents were asked to rate their satisfaction with each program component as "extremely satisfied," "very satisfied," "somewhat satisfied," or "not at all satisfied."

Overall, respondents were satisfied with the program. As shown in the table below, one of the shedders/shifters participant respondents said they were "somewhat satisfied," and all other participant respondents said they were either "extremely satisfied" or "very satisfied."

Figure 4. Satisfaction with Program Overall



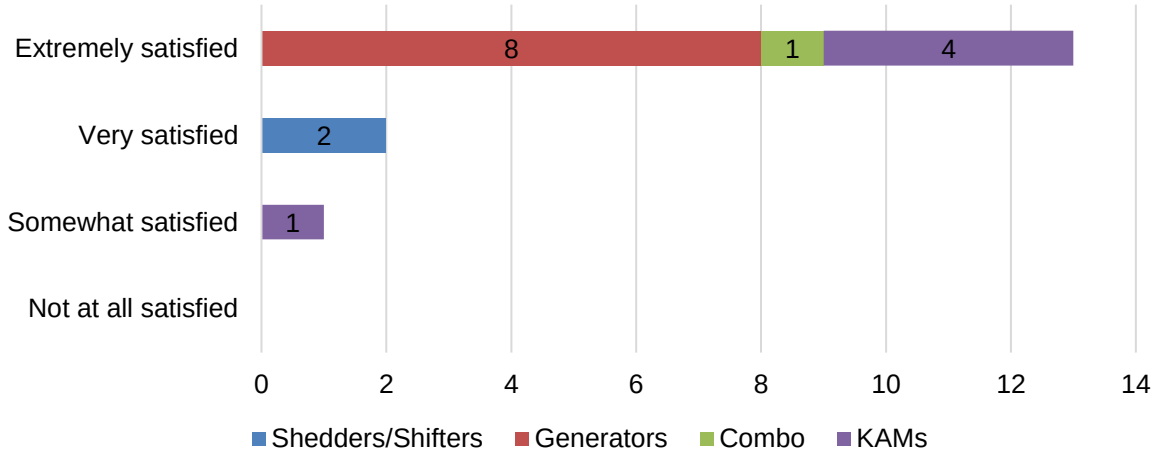
Source: Question 16

The shedders/shifters respondent that rated their satisfaction as "somewhat satisfied" noted:

> *"Never really thought about it that much. It would be nice to see how we are doing real-time during an event." (e.g., in the Schneider Tool)*

Both surveyed participants and KAMs were asked to rank their satisfaction with Curtailment program communications using a scale of “extremely satisfied,” “very satisfied,” “somewhat satisfied,” or “not at all satisfied.” As shown in the table below, the two shedders/shifters participant respondents said they were “very satisfied,” and all other participant respondents said they were “extremely satisfied.” Four of the five KAMs said they were “extremely satisfied,” and one KAM said he was “somewhat satisfied.”

Figure 5. Satisfaction with Curtailment Program Communications

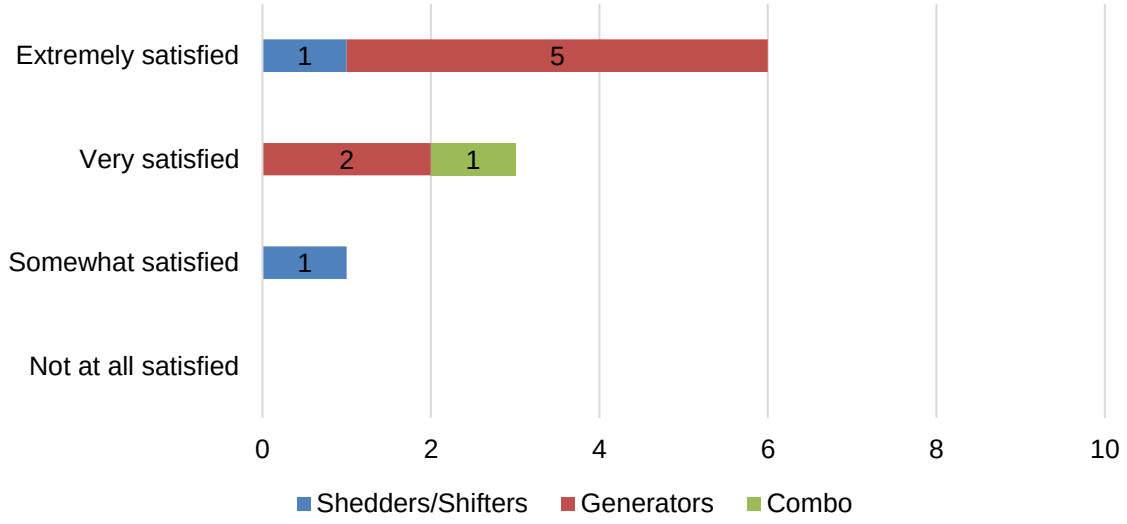


Source: Question 4c (Participants) and Question 9 (KAMs)

The single KAM that rated his satisfaction as “somewhat satisfied” suggested that an annual refresher training would be helpful, including information about what is new and what is needed when (note that this KAM also said he was adequately informed of program changes). One other suggestion this KAM had was for MidAmerican program staff to offer training to customers focused on MidAmerican’s transmission pool, including why MidAmerican and MISO may call events. He noted that not all customers might be interested in this level of information but does have some customers that are.

Surveyed participants were asked to rank their satisfaction with the incentive payment process using a scale of “extremely satisfied,” “very satisfied,” “somewhat satisfied,” or “not at all satisfied.” As shown in the table below, almost all respondents rated their satisfaction as either “extremely satisfied” or “very satisfied.”

Figure 6. Satisfaction with Incentive Payment Process



Source: Question 12
NA responses were excluded from the overall ratings.

The one respondent that rated their satisfaction as "somewhat satisfied" noted:

> *"It's nice to get something back, but it would be nice to get more, considering how much we pay."*

Overall, satisfaction is high for all aspects of the program, indicating that MidAmerican is at little risk for reduced participation. Additionally, there were few recommendations for how MidAmerican could improve the program. While there are individual cases with specific concerns, MidAmerican's communications and processes appear to be driving high program satisfaction.

APPENDIX A: KEY ACCOUNT MANAGER INTERVIEW GUIDE

MIDAMERICAN ENERGY CURTAILMENT PROGRAM
KEY ACCOUNT MANAGER (KAM) INTERVIEW GUIDE

Interviewee(s):

Interviewer(s):

Date(s):

This guide will be used to understand the perspectives of Key Account Managers (KAMs) involved with MidAmerican Energy's Nonresidential Curtailment program.

KAMs play a key role in identifying customers for the program and the implementation and delivery of the Curtailment program. KAMs are one of the primary customer outreach arms of the program, informing customers of the program and available incentives.

In-depth interviews will be conducted by senior 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 KAM's schedule.

A. 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 the Key Account Manages that have been involved with the Curtailment program.

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

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 Curtailment program in the future.

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.]

B. Business Scope

1) Could you describe for me your involvement in the Curtailment program?

   - How long have you been a KAM?

2) How many of your accounts are currently enrolled in the Curtailment program?

3) In the next program renewal cycle, do you expect this percentage to be higher, lower, or about the same? Why do you say that?

   01 Higher
   02 Lower - > What can be done to increase the number of accounts/participants?
   03 About the same
   98 Don't know

C. Program Awareness and Recruitment

4) Do you feel adequately informed of program changes?

   1 Yes
   2 No - > How would you like to be better informed of program changes?

5) What percent of customers already know about the program before you discuss it with them?

   - What are customers' frequent questions or concerns about the program?
   - What other feedback have you received from customers?
   - What are the primary reasons why customers typically do not want to participate in the program?

D. Education and Outreach

6) Do you think MidAmerican's outreach strategies have been successful in generating program-related activity? How could they be improved to increase program participation? What additional tools or support could MidAmerican provide you with?

7) [IF NEEDED/ NOT ANSWERED IN PREVIOUS QUESTION] What type of program-specific training was made available to you, if any? Would you like to see more training or outreach activities offered by MidAmerican to support the Curtailment program?

   - IF YES: What sort of training or outreach would you like to see added or expanded?

8) Are there types of customers that you feel MidAmerican's Curtailment program is reaching well? Are there customers that you feel the program is not reaching well?

E. Participation Process and Support
Now I'd like to ask you about the process of working with the Curtailment program.

9) How is communication between energy efficiency program staff and KAMs? Who do customers typically communicate with? Do customers know who to contact if they have a question about the program?

How satisfied are you with the communication you receive from MidAmerican? 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
88 Don't know

10) [ASK OF NOT PREVIOUSLY ANSWERED] Thinking about the Curtailment program…

- What is the easiest part of the process?
- What would you like to see improved?

G. Overall Program
Now I'd like to wrap up with a final question.

11) Is there anything else you'd like to share with us about MidAmerican's Curtailment program?

That is 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.

APPENDIX B: PARTICIPANT INTERVIEW GUIDE

MIDAMERICAN NONRESIDENTIAL CURTAILMENT PROGRAM
PARTICIPANT INTERVIEW GUIDE

Interviewee(s):

Company Name:

Interviewer:

Date:

This guide will be used to understand the perspectives of program participants. In-depth interviews will be conducted by senior 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 20 minutes. We will attempt to schedule interviews with respondents in advance to accommodate each participant's schedule.

A. Introduction

Hello, my name is _____. I work for Tetra Tech, and I'm calling on behalf of MidAmerican Energy regarding your participation in their Curtailment program.

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. All of your responses will be kept confidential and the survey should take about 20 minutes.

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

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.]

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

1) To get us started, can you tell me if you were involved in the decision-making process to have your facility(s) participate in the Curtailment program?

   1 Yes
   2 No

B. Company, Role, and General Experience Information

2) How long has your company been participating in the Curtailment program?

3) How did you first become aware of the program?

   a) What attracted you to the program?

   b) As you know, the program provides an incentive. What was the effect of the incentive on your decision making?

   c) Did you have any concerns about signing up?

      1 Yes -→ How were those concerns addressed?
      2 No

   d) How did your organization decide on the amount of demand reduction to nominate for the program?

   e) Did you ask for any assistance from MidAmerican to help you decide on the level of demand reduction?

      1 Yes -→ How satisfied are you with the assistance you received from MidAmerican? 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
         88 Don't know

      2 No

4) Who is your main contact for interactions with the Curtailment program? What is their involvement before, during, and after event periods?

   a) Do you find you can easily contact someone with questions during event periods?

   b) Are you satisfied with the communication with MidAmerican before, during, and after events? Do you have any recommended improvements to the communication process?

   c) How satisfied are you with the Curtailment program communications? 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
      88 Don't know

C. Load Curtailment Strategy

5) During the summer months, MidAmerican asked that you reduce your energy consumption during specific times. Can you describe how your organization receives the request to reduce your electric load?

   a) Can you describe how your organization responds to the program's request to reduce demand?

   b) What happens after the event is over? [PROBE: Role of key account manager? Use of program software tools?]

6) What is your company's current strategy to curtail demand? (i.e. load shedding (what), backup generator, etc.). How does this affect your operations?

   a) Do you see opportunities to expand the amount of demand reduction through the program? Would doing so be of interest? Is there anything MidAmerican would need to change? [Probe: incentive level, length or frequency of events]

   b) Did any other MidAmerican efficiency programs influence your consumption and curtailment strategy? IF YES, how?

7) Looking to the future, does your organization plan to continue to participate in the Curtailment program?

   1 Yes -→ Do you plan to maintain your current amount of curtailment capacity or something different?

   [IF INCREASE, ASK] How do you see increasing the amount? How will your load management strategy be different from now?

   [IF DECREASE, ASK] How much do you plan to decrease? Why?

   2 No -→ Why not? What are the primary factors in that decision?

D. Event Day Operation and Communication

8) When MidAmerican calls for a load reduction event, how do you find out? What, on average, is the advanced notice time you receive?

   a) How many notices do you get before the beginning of the event period?

   b) Do you find the number and timing of the notifications adequate?

9) Have you opted out of participating in any called events in the past year or provided less than your nominated demand reduction?

1 Yes -→ What factors went into your decision to opt out of the event or reduce demand less than your nomination?

2 No

E. Motivation for Participation, Incentive, and Future Participation

10) What are the main reasons you participate in the Curtailment program? [PROBE: incentive, environmental effects, partnership with the utility to manage loads, cost management]

a) [If the INCENTIVE is mentioned, ASK] In what way is the incentive important? What effect does the incentive amount have on your ability or interest to participate? If the incentive were higher, would you increase your nominated load reduction? What about if it were lower?

11) How would you describe the incentive payment process? [PROBE: Is it a smooth process? Do you have any recommendations on how it could be improved?]

12) How satisfied are you with the incentive payment process? 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
88 Don’t know

F. Customer Profile

13) Which of the following best describes your company’s ownership of this facility? [READ LIST; SELECT ONE]

01 Your company owns and occupies this facility
02 Your company owns this facility, but it is rented to someone else
03 Your company rents this facility from someone else
88 Don’t know

14) 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
88 [DO NOT READ] Don't know

15) Do you operate your facility differently depending on the season or production cycle?

[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
88 Don't know

G. Conclusion

16) Thinking about the Curtailment program overall, how satisfied are you? 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
88 Don't know

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

18) If needed, would it be alright if someone followed up with you if we need additional clarification to your survey responses?

Those are all the questions I have for you at this time. I'd like to thank you for your time with this important evaluation.