

MidAmerican Energy Company
South Dakota Energy Efficiency
2017 Annual Report

This report provides the 2017 results for MidAmerican Energy Company's South Dakota Energy Efficiency programs. The 2017 Annual Report includes the following:

1. 2017 Program Results
2. Significant Activities for 2017
3. Program Summaries

Introduction

MidAmerican Energy Company (MidAmerican) conducts energy efficiency programs in South Dakota pursuant to MidAmerican's Revised Energy Efficiency Plan filing for South Dakota (July 27, 2012) and as approved by the South Dakota Public Utilities Commission (Commission) on November 27, 2012, in Docket No. GE12-005. Currently, MidAmerican offers seven different energy efficiency programs to South Dakota customers, five are combination electric/gas programs and two are electric-only programs.

1. 2017 Program Results

In 2017, a total of 257 audits were conducted and 4,256 measures were installed, for an expected annual savings of 1,199,861 kWh of electricity and 381,977 therms of natural gas. In 2017, MidAmerican paid a total of \$822,224 in equipment rebates and customer incentives and incurred costs totaling \$105,073 to deliver energy efficiency programs. The total Benefit/Cost ratio (B/C ratio) for MidAmerican's combined energy efficiency programs, not including the Residential Load Management program, for 2017 is 3.40.¹

Overall electric savings achieved by MidAmerican's South Dakota energy efficiency program in 2017 were greater than projected in the plan; due in part to a variable speed drive project that accounted for achieved savings of 981,186 kWh in the Nonresidential Equipment

¹ All B/C ratios calculated in this report are based on societal test results. MidAmerican's societal test results use a 4.81% discount rate for the purposes of calculating the net present value of costs and benefits. The societal test also incorporates a 10% externality factor for electric programs and a 7.5% externality factor for gas programs.

program. Overall gas savings achieved were five percent lower than projected due to lower than anticipated participation in the residential equipment program related to natural gas furnace measures and preapproved natural gas custom projects not being completed in 2017 as anticipated.

Total expenses for 2017 were \$790,403 for gas programs and \$136,894 for electric programs. Based on these expenses and the Commission-approved incentive mechanisms, MidAmerican requests approval for a 2017 incentive of \$63,607 for natural gas and \$9,984 for electric programs. Significant results for 2017 are as follows:

- Residential electric program savings totaled 215,450 kWh, which was 27 percent lower than 2016, and was 21 percent lower than the 2017 kWh savings goal.
- Residential gas program savings totaled 237,993 therms, which was 24 percent lower than 2016, and was 20 percent lower than the 2017 therm savings goal.
- Total residential spending was 27 percent below budget for 2017.
- Nonresidential electric program savings totaled 984,411 kWh, which was 17 percent lower than 2016, and was 225 percent above the 2017 kWh savings goal.
- Nonresidential gas program savings totaled 143,984 therms, which was 73 percent above 2016, and was 33 percent above the 2017 therm savings goal.
- Total nonresidential spending was 14 percent below budget for 2017.

Detailed 2017 program results are provided in the following exhibits:

- Exhibit A – Detailed program results by measure
- Exhibit B – Comparisons of program level savings and expenses to budget
- Exhibit C – Benefit/Cost information by program
- Exhibit D – Annual summaries of energy savings and benefits by program
- Exhibit E – Annual summaries of energy savings and benefits by measure

Five-Year Plan Progress (2013-2017)

- Electric savings for 2013-2017 were 4,185,968 kWh, which were 154 percent of overall planned electric savings for the five-year period.
- Natural gas savings for 2013-2017 were 1,889,529 therms, which were 87 percent of overall planned gas savings for the five-year period.
- Electric program spending for 2013-2017 was \$614,597, which was 87 percent of overall planned electric spending for the five-year period.
- Natural gas program spending for 2013-2017 was \$5,969,777, which was 88 percent of overall planned gas spending for the five-year period.
- Total program spending for 2013-2017 was \$6,584,373, which was 88 percent of overall planned spending for the five-year period.

2. Significant Activities for 2017

MidAmerican conducted the following activities to promote energy efficiency in South Dakota:

- MidAmerican promoted energy efficiency programs through special articles in the *At Your Service* newsletter, which is included with customer bills. In addition to the printed version that is included in customers' bills, MidAmerican also distributed a mid-month electronic newsletter to its residential customers who provided an email address and agreed to receive electronic communications.
- MidAmerican continued to promote all programs through trade allies.
 - Trade Ally Ambassadors encouraged high-participating/top-performing trade allies to participate and become Trade Ally Partners. In 2017, nine South Dakota Trade Ally Partners representing 14 offices participated in MidAmerican's Trade Ally Network.
 - MidAmerican sent five email communications on rebate and program updates and other program reminders to South Dakota trade allies throughout the year.
 - In April and October 2017, MidAmerican sent a trade ally electronic newsletter to over 3,000 trade allies. The newsletter highlighted energy efficiency programs, upcoming events and benefits of joining the network.
 - On November 15, 2017, MidAmerican conducted its annual trade ally meeting in Sioux City, Iowa. During this meeting, MidAmerican reviewed its proposed 2018-2022 South Dakota Plan offerings with the 79 trade allies in attendance, a majority of which do business in South Dakota. Trade ally meetings are intended to educate MidAmerican's trade ally partners about MidAmerican's energy efficiency programs and provide trade allies with the tools needed to successfully market MidAmerican's energy efficiency programs to their customers.
- MidAmerican participated in the 2017 Siouxland Home Show in Sioux City, IA, the Sheldon Home Show in Sheldon, IA and at the Green Thursday on the Platz in Vermillion, SD. MidAmerican's booth at these events was staffed by the Trade Ally Ambassadors. The Trade Ally Ambassadors handed out South Dakota energy efficiency

program information and discussed energy efficiency programs with homeowners, business owners and trade allies.

- Additional promotional activities included:
 - Utilizing MidAmerican's call center during the heating season to inform customers about in-home audit options during in-bound calls.

3. Program Summaries

a. Residential Equipment

The Residential Equipment program promotes the purchase of high-efficiency equipment by residential customers in new and existing homes. The program provides customers with rebates to offset the higher purchase cost of efficient equipment, as well as information on the features and benefits of efficient equipment. Targeted equipment includes heating and cooling equipment. This program is delivered in partnership with a network of heating and cooling dealers as well as retail outlets selling qualifying equipment.

The Residential Equipment program achieved annual energy savings of 198,726 kWh, which was 15 percent lower than expected and 29 percent lower than 2016; and 221,667 therms, which was 14 percent lower than expected and 25 percent lower than 2016. Total program spending was \$550,160, which was 14 percent lower than expected.

The combined B/C ratio including both gas and electric components for the Residential Equipment program for 2017 is calculated as 1.72. The B/C ratio for the gas component is calculated as 1.74 and the B/C ratio for the electric component is calculated as 1.52.

Significant highlights for the Residential Equipment program for 2017 include:

- 1,326 new furnaces were rebated in 2017, which was 22 percent lower than projected and 28 percent lower than 2016. Furnace equipment rebates provided 87 percent of the achieved total therm savings for the Residential Equipment program.

- 1,172 programmable thermostats were rebated in 2017, which was 208 percent higher than projected and 21 percent lower than 2016. Programmable thermostats provided 13 percent of the achieved total therm savings and two percent of the achieved total kWh savings for the Residential Equipment program.
- 12 ground-source heat pumps were rebated in 2017, which was 25 percent lower than the projected number of ground source heat pumps and 33 percent lower than 2016. Ground source heat pump equipment rebates provided 77 percent of the achieved total kWh savings for the Residential Equipment program.
- 54 central air conditioners were rebated in 2017, which was 38 percent higher than the projected number of central air conditioners and 15 percent higher than 2016. Central air conditioner equipment rebates provided nine percent of the achieved total kWh savings for the Residential Equipment program.
- 42 furnace fans were rebated in 2017, which was 20 percent higher than the projected number of furnace fans and five percent lower than 2016. Furnace fan equipment rebates provided 10 percent of the achieved total kWh savings for the Residential Equipment program.
- MidAmerican promoted the Residential Equipment program by featuring the program in:
 - Siouxland Empire Home Show in March
 - Sheldon Home Show in April
 - Green Thursday on the Platz in April
 - Bill insert in March
 - The E-Newsletter, an email communication to customers
 - Social media in Facebook and Twitter messages throughout the year

MidAmerican will continue to promote the program through similar education and outreach activities in 2018.

b. Residential Audit

The Residential Audit program encourages comprehensive efficiency improvements in existing homes by providing free online and on-site energy audits, in-home installation of low cost energy-efficiency measures including faucet aerators, low-flow showerheads, programmable thermostats and pipe wrap. The online audit provides energy saving tips and recommendations based on the home profile. Both the online and on-site energy audits are operated under the registered trademark name of HomeCheck.

The Residential Audit program achieved annual energy savings of 1,426 kWh, which was 58 percent lower than budget and 41 percent lower than 2016; and 16,326 therms, which was 58 percent lower than budget and 18 percent lower than 2016. Total program spending was \$144,077, which was 53 percent lower than budget and 26 percent lower than 2016.

The combined B/C ratio including gas and electric components for the Residential Audit program for 2017 is calculated as 1.15. The B/C ratio for the gas component is calculated as 1.15 and the B/C ratio for the electric component is calculated as 1.13.

Significant highlights for the Residential Audit program for 2017 include:

- 218 on-site audits were completed in 2017, which was 54 percent lower than projected and 38 percent lower than 2016.
- 462 direct install measures were installed, which was 72 percent lower than projected and 38 percent lower than 2016. Direct install measures installed in 2017 provided 88 percent of the achieved total kWh savings and 25 percent of the achieved therm savings for the Residential Audit program.
- 122 insulation measures were installed, which was 54 percent lower than projected and 17 percent lower than 2016. Insulation measures installed in 2017 provided 12 percent of the achieved total kWh savings and 75 percent of the achieved therm savings for the Residential Audit program. Insulation measures were originally budgeted in the Residential Equipment program. In 2014, these measures were moved to the Residential Audit program as audit follow-up measures.

- The online audit program, Home Energy Assessment, offered all residential customers the ability to review energy efficiency tips and recommendations.

MidAmerican promoted the Residential Audit program by featuring the program through:

- Utilizing MidAmerican's call center during the heating season to inform customers about on-site audit options during in-bound calls
- Bill insert in April
- Social media, Facebook and Twitter throughout the year
- Door hangers advertising the program to the neighbors of HomeCheck participants
- A press release sent to media highlighting cooling season tips in June
- Program specific radio, TV and print in the Sioux City metro area media channels throughout the year
- A booth at the Sioux Empire Home Show in Sioux Falls, SD and at Green Thursday on the Platz in Vermillion, SD

In 2018, the Residential Audit program will become an online-only assessment for all residential customers. The on-site HomeCheck assessment has been discontinued along with insulation rebates. Advertising will focus on driving customers to the online Home Energy Assessment tool.

c. Residential Load Management

The Residential Load Management program provides financial incentives to residential customers in exchange for allowing MidAmerican to control central air-conditioning compressors on hot summer days when MidAmerican is experiencing a system peak demand or when operational conditions require use of the program. The program is promoted under the service mark SummerSaverSM.

The Residential Load Management program achieved annual electric peak demand savings of 192 kW which was nine percent higher than budget. The demand and

energy savings were slightly higher than expected because two cycle events were held this summer. Total program spending was \$13,454, which was 26 percent lower than projected because less than projected load control devices were changed out.

The 2017 Residential Load Management program B/C ratio is calculated as .97.

Significant 2017 Residential Load Management program highlights include:

- MidAmerican had 230 load control receivers (LCRs) operating in the field during 2017, which was two percent higher than projected and four percent lower than 2016.
- MidAmerican successfully cycled air conditioners two times on July 20th and July 21st.
- MidAmerican promoted the Residential Load Management program through:
 - Welcome Home postcards. These postcards are sent to customers that move into a home that already has an LCR installed. The card offers the new homeowner automatic enrollment in the program.
 - Welcome Back postcards. These postcards are sent to customers that previously were part of the program and moved to a new home that does not have an LCR. The card reminds the customer of the benefits of the program and encourages them to rejoin the program.
 - MidAmerican Energy's energy efficiency website.
 - HomeCheck experts when completing home energy assessments.

d. Appliance Recycling

The Appliance Recycling program encourages customers to stop using old, inefficient refrigerators, freezers and room air conditioners and assists in the disposal of old units in an environmentally responsible manner. The program provides rebates to residential program participants and provides free pick-up and disposal of old working appliances. MidAmerican began offering the Appliance Recycling program in 2013.

The Appliance Recycling program achieved annual energy savings of 13,662 kWh, which is 63 percent lower than expected. Total program spending was \$2,617,

which was 66 percent lower than expected. Fourteen appliances were recycled in 2017 which is a seven percent decrease over 2016 and 48 percent of the goal.

The B/C ratio for the Appliance Recycling program for 2017 is calculated as 5.63.

- MidAmerican promoted the program through:
 - Customer bill inserts in March for South Dakota electric customers
 - HomeCheck experts during home energy assessments
 - Social media messaging throughout the year
 - MidAmerican Energy's energy efficiency website
 - Article about Appliance Recycling in May's edition of Power+, a customer email newsletter

To keep participation in this program strong in 2018, MidAmerican will continue to conduct program education and outreach by utilizing the above methods.

e. Nonresidential Equipment

The Nonresidential Equipment program promotes the purchase of high-efficiency equipment by commercial and industrial customers in new and existing facilities. The program provides customers with rebates to offset the higher purchase cost of efficient equipment and is organized into three sections for program delivery:

- Heating, ventilation and air conditioning
- Lighting
- Variable speed drives

The program is delivered in partnership with a trade ally network specifying, selling, and installing qualified equipment. The program targets replacement and first-time purchases, but also is available to customers making retrofit installations.

The Nonresidential Equipment program achieved annual energy savings of 984,411 kWh, which was 306 percent higher than expected, and 143,342 therms, which was 70 percent higher than expected. Total program spending was \$194,918, which was 24 percent higher than expected.

The combined B/C ratio including gas and electric components for the Nonresidential Equipment program for 2017 is calculated as 8.98. The B/C ratio for the gas component is calculated as 3.08 and the B/C ratio for the electric component is calculated as 72.07.

Significant highlights for the Nonresidential Equipment program for 2017 include:

- Four variable speed drives were installed, which was 33 percent higher than projected. Variable speed drives accounted for 981,186 kWh savings and 98 percent of the achieved kWh electric savings for the Nonresidential Equipment program in 2017.
- 219 programmable thermostats were installed, which was 655 percent higher than projected and 181 percent higher than 2016. Programmable thermostats accounted for savings of 42,521 therms representing 30 percent of the achieved therm savings for the Nonresidential Equipment program in 2017.
- 290 new furnaces were installed, which was eight percent higher than projected and 216 percent higher than 2016. Furnaces accounted for savings of 97,545 therms representing 68 percent of the achieved therm savings for the Nonresidential Equipment program in 2017.

Since this program is primarily delivered in partnership with a network of trade allies, MidAmerican will continue its program education and outreach efforts with trade allies to include targeted emphasis with HVAC dealers to help increase natural gas participation in this program in 2017.

f. Nonresidential Custom

The Nonresidential Custom program provides a program delivery channel for non-standard energy-saving measures. It offers financial incentives to customers installing equipment or systems not covered by a prescriptive rebate in the Nonresidential Equipment program. The program is marketed as the Custom Systems program.

The Nonresidential Custom program achieved annual energy savings of zero therms and zero kWh against a budget of 13,774 therms and 59,210 kWh. Total program

spending was \$2,673, which was 94 percent lower than budget. Program energy savings and spending were negatively impacted by electric and natural gas projects that received preapproval, but were not installed at customers' facilities as anticipated in 2017.

Throughout the year, MidAmerican follows-up with customers and contractors on all preapproved project to minimize these types of impacts in budgets and savings.

Unfortunately, customers did not meet their anticipated 2017 installation dates.

MidAmerican is investigating additional activities to could be added to our follow-up process to help in minimizing the impact of preapproved projects not being completed as anticipated in future years.

Since no Nonresidential Custom program projects were completed in 2017, the program does not have a B/C ratio.

Starting in 2018, the Nonresidential Custom program will be included in the Nonresidential Equipment program according to the approved 2018-2022 Plan.

g. Small Commercial Audit

The Small Commercial Audit program promotes comprehensive energy efficiency strategies for smaller commercial customers. It provides extensive on-site energy audits, direct installation of low-cost efficiency measures including faucet aerators and LED exit sign kits, and recommendations for additional measures. The program was supported by a program contractor and marketed under the name Commercial Energy Solutions.

The Small Commercial Audit program achieved no electric annual energy savings in 2017, which was 100 percent lower than planned. The program achieved gas savings of 642 therms, which was 94 percent lower than expected. Total program spending was \$19,398 which was 59 percent lower than budget.

The combined B/C ratio including gas and electric components for the Small Commercial Audit program for 2017 is calculated as .44.

Items to note for the Small Commercial Audit program in 2017 include:

- 39 energy audits were completed in 2017, which was 32 percent lower than projected and 11 percent lower than 2016.

- Follow-up discussions were held with all customers that received an energy audit.
- From the above discussions, three consultations related to gas and electric recommendations identified during assessments were completed, but resulted in no projects completed in 2017.

MidAmerican promoted the program in 2017 through:

- Program-specific advertisement included in the Sioux City Business Journal monthly.
- Social media and Facebook posts throughout the year.
- Door-to-door outreach for assessments in North Sioux City.

In 2018, the Small Commercial Audit program will cease and all nonresidential customers will be handled through the Nonresidential Equipment program.