

**MidAmerican Energy Company**  
**South Dakota Energy Efficiency**  
**2016 Annual Report**

This report provides the 2016 results for MidAmerican Energy Company's South Dakota Energy Efficiency programs. The 2016 Annual Report includes the following:

1. 2016 Program Results
2. Significant Activities for 2016
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. 2016 Program Results**

In 2016, a total of 400 audits were conducted and 4,796 measures were installed, for an expected annual savings of 1,479,394 kWh of electricity and 396,887 therms of natural gas. In 2016, MidAmerican paid a total of \$971,586 in equipment rebates and customer incentives and incurred costs totaling \$91,868 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 2016 is 2.20<sup>1</sup>.

Overall electric savings achieved by MidAmerican's South Dakota energy efficiency program in 2016 were greater than projected in the plan; due in part to two variable speed drive projects that accounted for 1,098,121 kWh in achieve savings in the Nonresidential Equipment

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<sup>1</sup> 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 lower than projected due to lower than anticipated participation in the nonresidential equipment program related to natural gas furnace measure.

Total expenses for 2016 were \$919,173 for gas programs and \$144,281 for electric programs. Based on these expenses and the Commission-approved incentive mechanisms, MidAmerican is requesting approval for a 2016 incentive of \$63,607 for natural gas and \$9,984 for electric programs. Significant results for 2016 are as follows:

- Residential electric program savings totaled 297,990 kWh, which was 63 percent higher than 2015, and was 10 percent higher than the 2016 kWh savings goal.
- Residential gas program savings totaled 313,543 therms, which was 86 percent higher than 2015, and was 14 percent lower than the 2016 therm savings goal.
- Total residential spending was eight percent below budget for 2016.
- Nonresidential electric program savings totaled 1,181,404 kWh, which was 184 percent higher than 2015, and was 289 percent above the 2016 kWh savings goal.
- Nonresidential gas program savings totaled 83,344 therms, which was 23 percent above 2015, and was 36 percent below the 2016 therm savings goal.
- Total nonresidential spending was 45 percent below budget for 2016.

Detailed 2016 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

## 2. Significant Activities for 2016

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' bill, 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 2016, nine South Dakota Trade Ally Partners representing 14 offices participated in MidAmerican's Trade Ally Network.
  - In January a general training session on residential equipment was held for the Sioux City homebuilders association; a total of 50 trade allies attended. In September a general training session on residential equipment and HomeCheck was held for United Real Estate Solutions; a total of 40 trade allies attended.
  - MidAmerican sent five email communications on rebate and program updates and other program reminders to South Dakota trade allies throughout the year.
  - MidAmerican sent a trade ally electronic newsletter in March and July to over 3,000 trade allies. The newsletter highlighted energy efficiency programs, upcoming events and benefits of joining the network.
  - On November 16, 2016, MidAmerican conducted its annual trade ally meeting in Sioux City, Iowa. During this meeting, MidAmerican reviewed South Dakota program offerings with approximately 61 trade allies that also 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 2016 Sioux Empire Home Show. MidAmerican’s booth was staffed by the Trade Ally Ambassadors. The Trade Ally Ambassadors handed out energy efficiency information on South Dakota programs 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.
  - Having HomeCheck advisors cross promote programs with eligible customers during the home energy assessment.

### **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 280,742 kWh, which was 20 percent higher than expected and 65 percent higher than 2015; and 293,660 therms, which was 10 percent lower than expected and 106 percent higher than 2015. Total program spending was \$702,970 which was 5 percent higher than expected.

The combined B/C ratio including both gas and electric components for the Residential Equipment program for 2016 is calculated as 1.67. The B/C ratio for the gas component is calculated as 1.69 and the B/C ratio for the electric component is calculated as 1.54.

Significant highlights for the Residential Equipment program for 2016 include:

- 1,851 new furnaces were rebated in 2016, which was three percent higher than projected and 125 percent higher than 2015. Furnace equipment rebates provided 88 percent of the achieved total therm savings for the Residential Equipment program.
- 18 ground-source heat pumps were rebated in 2016, which was 13 percent higher than the projected number of ground source heat pumps and 64 percent higher than 2015. Ground source heat pump equipment rebates provided 82 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
  - Special articles in the February and November editions of the *At Your Service* newsletter.
  - 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 2017.

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 on-site energy audits also promote financial incentives for a predetermined list of complex measures including insulation improvements and heating systems. 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 2,428 kWh, which was 29 percent lower than budget and 48 percent lower than 2015; and 19,883

therms, which was 49 percent lower than budget and 23 percent lower than 2015. Total program spending was \$194,303, which was 37 percent lower than budget and 17 percent lower than 2015.

The combined B/C ratio including gas and electric components for the Residential Audit program for 2016 is calculated as 1.09. The B/C ratio for the gas component is calculated as 1.08 and the B/C ratio for the electric component is calculated as 1.51.

Significant highlights for the Residential Audit program for 2016 include:

- 354 on-site audits were completed in 2016, which was 25 percent lower than projected and two percent lower than 2015. MidAmerican will continue to advertise the program as outlined below.
- 744 direct install measures were installed, which was 55 percent lower than projected and 11 percent lower than 2015. Direct install measures installed in 2016 provided 76 percent of the achieved total kWh savings and 31 percent of the achieved therm savings for the Residential Audit program. The program continues to see a decrease in faucet aerator and low flow showerhead installs due to customer preference. In 2017, the program will add a hand-held low flow showerhead option to help increase participation. In 2016, there were no water heater blanket installs. This measure will be removed from the program in 2017.
- 141 insulation measures were installed, which was 47 percent lower than projected and 13 percent lower than 2015. Insulation measures installed in 2016 provided 24 percent of the achieved total kWh savings and 69 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 was updated in 2016 to a new platform administered by Oracle (formerly Opower). The online experience was enhanced by this upgrade and customers now have a more personalized tool available to them. In 2017, the program will actively promote the online audit tool to customers via the website,

social media and mail communications in an effort to boost participation in the HomeCheck and other South Dakota energy efficiency programs.

- 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.
  - Special article in the February edition of the *At Your Service* newsletter which is distributed to customers via their monthly bill.
  - Bill insert in September.
  - Web banners and seasonal tips on MidAmerican's website.
  - The E-Newsletter, an email communication to customers monthly.
  - Social media, Facebook and Twitter throughout the year.
  - Powersource, an internal communications newsletter.
  - Door hangers advertising the program to the neighbors of HomeCheck participants.
  - A press release sent to media highlighting cooling season tips in June and heating season tips in October.
  - Program specific radio, TV and print in the Sioux City metro area media channels throughout the year.
  - A booth at the 2016 Sioux Empire Home Show in Sioux Falls, SD in March.

To increase participation in this program in 2017, MidAmerican will conduct additional program education and outreach to residential customers and continue to work with Xcel Energy to jointly promote the program in the utilities' shared service territory.

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 127 kW which 20 percent lower than budget. The demand and energy savings were slightly less than expected due in part to the transition of using actual interval data from the event to determine the kW and kWh reduction during an event instead of the previous algorithm. Total program spending was \$17,022, which was one percent lower than projected.

The B/C ratio for the Residential Load Management program for 2016 is calculated as .81.

Significant highlights for the Residential Load Management program for 2016 include:

- MidAmerican had 239 load control receivers (LCRs) operating in the field during 2016, which was 20 percent higher than projected and 15 percent higher than 2015. During 2016, 27 new LCRs were added and 2 were removed for a net gain of 25 LCRs, which met goal.
- MidAmerican successfully cycled air conditioners on July 21st.
- MidAmerican promoted the program through:
  - Direct mail to eligible customers in March.
  - 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 14,195 kWh, which is 57 percent lower than expected. Total program spending was \$2,465, which was 65 percent lower than expected. Fifteen appliances were recycled in 2016 which is a 66 percent increase over 2015 and 50 percent of the goal.

The B/C ratio for the Appliance Recycling program for 2016 is calculated as 5.41.

- MidAmerican promoted the program through:
  - Customer bill inserts in June and December for South Dakota electric customers.
  - HomeCheck experts during home energy assessments.
  - Social media, Facebook posts throughout the year.
  - Articles about Appliance Recycling published in PowerSource, an internal communications newsletter for MidAmerican employees throughout the year.

To continue the uptick in participation in this program in 2017, MidAmerican will continue to conduct program education and outreach through:

- Trade ally outreach efforts to appliance dealers using our Trade Ally Ambassadors.
- Community and business organizations events.
- City/School sponsored events such as clean-up days, Earth Day, etc.
- Social media channels like Facebook and Twitter.

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 network of trade allies 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 1,180,068 kWh, which was 387 percent higher than expected, and 67,727 therms, which was 36 percent lower than expected. Total program spending was \$101,629, which was 41 percent lower than expected.

The combined B/C ratio including gas and electric components for the Nonresidential Equipment program for 2016 is calculated as 6.20. The B/C ratio for the gas component is calculated as 2.79 and the B/C ratio for the electric component is calculated as 15.67.

Significant highlights for the Nonresidential Equipment program for 2016 include:

- The electric portion of the Nonresidential Equipment program was suspended on May 15, 2016 due to depletion of incentive funding. The program spent less on non-incentives than expected, however, resulting in the total program spending being 13 percent less than expected.
- Two variable speed drive projects were installed, one of which accounted for over one million kWh savings and 91 percent of the achieved kWh electric savings for the Nonresidential Equipment program in 2016.
- 78 programmable thermostats were installed, which was 169 percent higher than projected and 81 percent higher than 2015.
- 134 new furnaces were installed, which was 26 percent lower than projected and seven percent lower than 2015. This difference is the primary reason that the program did not meet its gas savings goal.

Since this program is primarily delivered in partnership with a network of trade allies, MidAmerican will continue its program education and outreach effort 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 9,685 therms, which was 30 percent lower than target. Total program spending was \$31,868, which was 34 percent lower than budget. There were no Nonresidential Custom electric savings recorded in 2016. Three electric projects received rebate preapprovals during the first quarter of 2016 which upon payment would have depleted the available electric incentive funding. The preapproval of these projects resulted in the Nonresidential Custom Systems program being suspended on May 15, 2016. However, none of the projects were installed during the year in order to qualify for the reserved incentive payments. If completed, the chiller and lighting projects would have provided the Nonresidential Custom program with approximately 1.7 million kWh additional savings and increased spending by \$24,161. At this time, MidAmerican has not received confirmation that these projects will be implemented in the future.

The combined B/C ratio including gas and electric components for the Nonresidential Custom program for 2016 is calculated as 1.13. The B/C ratio for the gas component is calculated as 1.22 and the B/C ratio for the electric component is calculated as zero.

Significant highlights for the Nonresidential Custom program for 2016 include:

- Three boiler projects were installed in 2016 which accounted for all of the achieved gas savings.

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 electric annual energy savings of 1,336 kWh, which was 16 percent lower than planned, and 27 percent higher than 2015. The program achieved gas savings of 5,931 therms, which was 42 percent lower than expected and was 1,486 percent higher than 2015. Total program spending was \$13,196 which was 72 percent lower than budget.

The combined B/C ratio including gas and electric components for the Small Commercial Audit program for 2016 is calculated as 3.37. The B/C ratio for the gas component is calculated as 3.60 and is 1.81 for the electric component.

Significant highlights for the Small Commercial Audit program for 2016 include:

- 44 energy audits were completed in 2016, which was 23 percent lower than projected and 100 percent higher than 2015.
- 153 direct install measures were installed, which is 90 percent lower than projected and 248 percent higher than 2015. These direct install measures saved an estimated 5,931 therms and 1,336 kWh.
- 12 consultations with customers related to recommendations identified during assessments were completed during the year.

MidAmerican promoted the program in 2016 through:

- Program specific advertisement included in the Sioux City Business Journal monthly.
- Program specific content included in MidAmerican's Business Advantage and Key Account eNewsletters during the year.
- Social media and Facebook posts throughout the year.
- Door to door outreach for assessments in North Sioux City.

MidAmerican intends to increase participation in 2017 by increasing its outreach, education and marketing efforts in South Dakota related to this program. MidAmerican will continue to utilize outreach efforts that were effective in the past as well as look into new avenues to reach our customers. The door to door outreach was effective and MidAmerican will continue this approach.