

MidAmerican Energy Company South Dakota Energy Efficiency 2010 Annual Report

This report provides the 2010 results for MidAmerican Energy Company's South Dakota Energy Efficiency programs. The 2010 Annual Report includes the following:

1. 2010 Program Results
2. Significant Activities for 2010
3. Program Summaries

Introduction – MidAmerican Energy Efficiency in South Dakota

MidAmerican Energy Company (MidAmerican) conducts energy efficiency programs in South Dakota pursuant to MidAmerican's Revised Energy Efficiency Plan filing for South Dakota (February 25, 2009) and as approved by the South Dakota Public Utilities Commission (Commission) on March 24, 2009 in Docket No. EL07-015. On February 19, 2010, MidAmerican filed changes to the plan which were approved by the Commission on April 6, 2010 in Docket No. GE10-001. Currently, MidAmerican offers six different energy efficiency programs to South Dakota customers, five of which are combination electric/gas programs and one of which is an electric only program.

1. 2010 Program Results

In 2010, the first full year of operation of MidAmerican's energy efficiency programs in South Dakota, a total of 475 audits were conducted and 4,927 measures were installed that are expected to save 399,831 kWh (loss adjusted) of electricity and 236,829 therms of natural gas per year. In 2010, MidAmerican paid a total of \$967,139 in equipment rebates and customer incentives and MidAmerican's cost of delivering energy efficiency programs in 2010 was \$262,765 (not including incentive costs). The total Benefit/Cost ratio (B/C ratio) for MidAmerican's combined energy efficiency programs (not including the Residential Load Management program) for 2010 is calculated as 1.18¹.

Overall savings achieved by MidAmerican's South Dakota energy efficiency programs in 2010 were less than anticipated, largely due to a significant drop in nonresidential participation. The economic downturn adversely affected MidAmerican's non-residential programs, as businesses continued to be reluctant to make new investments. However, the full economic impacts may have been mitigated by generous federal tax credits that were available through the end of 2010. The availability of tax credits may have been received by the residential sector differently from the nonresidential sector. This would explain to some extent why the residential savings projections were

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.

close to target. While it is not possible to quantify the impact of the economic downturn and tax credits on participation, the drop in nonresidential participation was consistent across all states served by MidAmerican. Continued low prices for natural gas also may have affected program participation, particularly in the demand for residential audits.

Total expenses for 2010 were \$1,114,893 for gas programs and \$115,011 for electric programs. Based on these expenses and the Commission approved incentive mechanisms, MidAmerican is requesting approval for a 2010 incentive of \$93,410 for natural gas and \$9,636 for electric customers for 2010. Significant results for 2010 are as follows:

- Residential electric program savings totaled 112,517 kWh which was more than double that of 2009 (annually adjusted) and was 9 percent higher than the 2010 kWh savings goal. The (B/C ratio) for the residential electric program (not including residential load management) is calculated as 0.67.
- Residential gas program savings totaled 191,166 therms which was an increase of 34 percent over 2009 (annually adjusted) but was 6 percent lower than the 2010 therm savings goal. The B/C ratio for the residential gas program is calculated as 1.14.
- Total residential spending was 13 percent below budget for 2011.
- Nonresidential electric program savings totaled 287,314 kWh which was a decrease of 43 percent from 2009 (annually adjusted), and was 60 percent below the 2010 kWh savings goal. The B/C ratio for the nonresidential electric program is calculated as 1.05.
- Nonresidential gas program savings totaled 45,663 therms which was a tenfold increase over 2009 (annually adjusted) but was 28 percent lower than the 2010 therm savings goal. The B/C ratio for the nonresidential gas program is calculated as 1.73.
- Total nonresidential spending was 36 percent below for budget for 2011.

Detailed 2010 program results are provided in the following exhibits provided with the 2010 Annual Report:

- 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 2010

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

- MidAmerican conducted its annual Trade Ally meeting in November 2010 in Sioux City, Iowa that included trade allies providing retail service to MidAmerican's South Dakota retail customers in the Sioux City and Sioux Falls areas. Trade ally meetings are intended to educate and inform MidAmerican's trade ally partners on MidAmerican's energy efficiency programs and to provide

trade allies with tools and information to successfully market MidAmerican's energy efficiency programs to retail customers.

- Additional promotional activities included:
 - Promotion of the Residential Audit program by:
 - Placing follow-up doorhangers in neighborhoods after a customer in that neighborhood had completed an audit,
 - Utilizing MidAmerican's call center to inform customers about in-home audit options during in-bound calls during the heating season,
 - Press releases, and
 - Special articles in the November edition of the At Your Service newsletter.
 - Promotion of the SummerSaver program by direct mail to eligible customers and having HomeCheck® auditors discuss the program with eligible customers during the home energy audit. Additionally, the HomeCheck auditors left behind a SummerSaver program application brochure after completion of the audit so customers could mail in a postage-paid card if they wanted to join SummerSaver.
 - Marketing of the Nonresidential Custom program through marketing visits made to nine key mechanical and controls contractors who prepare project specifications and drawings for large custom systems projects to make them aware of the program and encourage their participation in the program to help customers select high energy-efficient equipment and systems.

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, cooling, and water heating equipment. This program is delivered in partnership with a network of heating, cooling, and water heating dealers as well as retail outlets selling qualifying equipment.

The Residential Equipment program achieved annual energy savings of 111,041 kWh which was 21 percent higher than expected and 156,447 therms which was 12 percent higher than expected. Total program spending was \$682,829, which was 15 percent higher than expected.

The combined B/C ratio including both gas and electric components for the Residential Equipment program for 2010 is calculated as 1.13. The B/C ratio for the gas component is calculated as 1.17 and the B/C ratio for the electric component is calculated as 0.68.

Significant highlights for the Residential Equipment program for 2010 include:

- 1,631 new furnaces were rebated in 2010 which was 56 percent higher than 2009 (on an annualized basis), and 17 percent higher than expected. Furnace equipment rebates provided 95 percent of the achieved total therm savings for the Residential Equipment program.
- Nine ground source heat pumps and 20 air source heat pumps were rebated in 2010 which was more than double that of 2009 (on an annualized basis), and 12 percent higher than expected.
- 29 furnace fans were rebated in 2010 which was one less than expected. Furnace fan rebates are a new measure officially added to the Residential Equipment program for 2010.
- Furnace fans and heat pumps provided 88 percent of the achieved total kWh savings for the Residential Equipment program.

b. Residential Audit

The Residential Audit program encourages comprehensive efficiency improvements in existing homes by providing free on-line and in-home energy audits, in-home installation of simple energy-efficiency measures and financial incentives for a predetermined list of complex measures (primarily building insulation). Both the on-line and in-home energy audits are operated under the registered trademark name of HomeCheck[®].

The Residential Audit program achieved annual energy savings of 1,298 kWh which was 86 percent lower than expected and 34,719 therms which was 46 percent lower than expected. Total program spending was \$325,870, which was 41 percent lower than expected. Results of this program tend to be very sensitive to the level of natural gas prices, and continued low gas prices have depressed achieved savings.

The combined B/C ratio including gas and electric components for the Residential Audit program for 2010 is calculated as 1.01. The B/C ratio for the gas component is calculated as 1.02 and the B/C ratio for the electric component is calculated as 0.46.

Significant highlights for the Residential Audit program for 2010 include:

- 433 in-home audits were completed in 2010 which was 39 percent less than 2009 (on an annualized basis), and 57 percent less than expected.

- 357 insulation measures were installed, which was 46 percent higher than 2009 (on an annualized basis), but was 28 percent less than expected. Insulation measures installed in 2010 saved an estimated 21,088 therms and 424 kWh.
- 1,447 direct install measures were installed, which was 30 percent lower than 2009 (on an annualized basis), and was 55 percent less than expected. 2010 direct install measures saved an estimated 13,417 therms and 725 kWh.
- The Residential audit program was promoted by:
 - Placing follow-up doorhangers in neighborhoods after a customer in that neighborhood had completed an audit,
 - Utilizing MidAmerican's call center to inform customers about in-home audit options during in-bound calls during the heating season,
 - Press releases, and
 - Special articles in the November edition of the At Your Service newsletter.

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 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.

MidAmerican began preparation for offering this program in 2009 and began operating the program in 2010. The Residential Load Management program achieved annual peak demand savings of 75 kW which was 49 percent lower than expected. Total program spending was \$20,470, which was 40 percent lower than expected. The total B/C ratio for the Residential Load Management program for 2010 is calculated as 0.06.

Significant highlights for the Residential Load Management program for 2010 include:

- MidAmerican installed 67 load control receivers (LCRs) during 2010 which was 48 percent less than the goal of 130.
- MidAmerican promoted the program by direct mail to eligible customers and HomeCheck[®] auditors discussed the program with eligible customers during the home energy audit. Additionally, the HomeCheck auditors left behind a SummerSaver program application brochure after completion of the audit so customers could mail in a postage-paid card if they wanted to join SummerSaver.
- MidAmerican successfully cycled air conditioners on August 9, 2010.

d. 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 five program components for delivery:

- Heating, ventilation and air conditioning
- Lighting
- Motors and variable speed drives
- Commercial kitchen equipment
- Other

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 190,650 kWh which was 67 percent lower than expected and 13,360 therms which was 39 percent lower than expected. Total program spending was \$75,803, which was 30 percent lower than expected.

The combined B/C ratio including gas and electric components for the Nonresidential Equipment program for 2010 is calculated as 1.09. The B/C ratio for the gas component is calculated as 1.26 and the B/C ratio for the electric component is calculated as 0.95.

Significant highlights for the Nonresidential Equipment program for 2010 include:

- 40 new furnaces were rebated in 2010 which was 40 percent higher than 2009 (on an annualized basis), but 47 percent lower than expected.
- Seven new boilers were rebated in 2010 which was five more than 2009 (on an annualized basis), but three less than expected.
- 66 programmable thermostats were rebated in 2010 which was 45 more than 2009 (on an annualized basis), but 44 less than expected.
- 21 heat pumps were rebated which was nine than expected.
- 48 lighting measures were rebated which was 85 percent less than 2009 (on an annualized basis) and 90 percent less than expected.
- Six adjustable/variable speed drives were rebated in 2010, which was four more than in 2009 but the annual kWh savings was only half that achieved in 2009. The six drives in 2010 were four less than expected, and savings was 67 percent less than expected.

- Furnace, boiler, and thermostat measures accounted for 98 percent of the total achieved therm savings for the Nonresidential Equipment program.
- Adjustable/variable speed drives accounted for 60 percent of the total achieved kWh savings for the Nonresidential Equipment program, with thermostats, lighting measures, and heat pumps accounting for 37 percent of total achieved kWh savings.

e. Nonresidential Custom

The Nonresidential Custom program provides a 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. It also is available to customers with more complex energy needs than can be accommodated through the Small Commercial Audit program. The program is marketed as the Custom Systems program.

The Nonresidential Custom program achieved annual energy savings of 85,124 kWh which was 37 percent lower than expected and 27,262 therms which was 20 percent lower than expected. Total program spending was \$73,955, which was 38 percent lower than expected.

The combined B/C ratio including gas and electric components for the Nonresidential Custom program for 2010 is calculated as 2.23. The B/C ratio for the gas component is calculated as 2.38 and the B/C ratio for the electric component is calculated as 1.60.

Significant highlights for the Nonresidential Custom program for 2010 include:

- Six projects were completed in 2010 for four customers that included:
 - A gas fryer project at a restaurant saving 459 therms per year,
 - A boiler system project saving 5,922 therms per year,
 - A heat recovery project saving 12,800 therms per year,
 - An energy management system project saving 58,180 kWh per year,
 - An in-floor heating project saving 7,654 therms and 17,890 kWh per year, and
 - An energy efficient window project saving 427 therms and 4,100 kWh per year.
- Program marketing visits were made to nine key mechanical and controls contractors who prepare project specifications and drawings for large custom systems projects to make them aware of the program and encourage their participation in the program to help customers select high energy-efficient equipment and systems.

f. Small Commercial Audit

The Small Commercial Audit program promotes comprehensive energy efficiency strategies for smaller commercial customers. It provided on-line energy audits, more extensive on-site energy audits, direct installation of low-cost efficiency measures and recommendations for additional measures. The program is supported by a program contractor and marketed under the registered trademark name of BusinessCheck[®].

The Small Commercial Audit program achieved annual energy savings of 11,540 kWh which was 203 percent greater than expected, and 5,041 therms which was 33 percent lower than expected. Total program spending was \$50,977 which was 41 percent lower than expected.

The combined B/C ratio including gas and electric components for the Small Commercial Audit program for 2010 is calculated as 0.97. The B/C ratio for the gas component is calculated as 0.98 and the B/C ratio for the electric component is calculated as 0.91.

Significant highlights for the Small Commercial Audit program for 2010 include:

- 42 energy audits were completed in 2010 at 37 small commercial facilities which was four more than 2009 (on an annualized basis), and 53 percent less than expected.
- Four insulation measures were installed, which was 71 percent less than expected. Insulation measures installed in 2010 saved an estimated 722 therms and 108 kWh.
- 413 direct install measures were installed, which was approximately double the amount expected. 2010 direct install measures saved an estimated 3,501 therms and 118 kWh.
- 116 lighting measures were installed, which was significantly higher than expected, and saved an estimated 10,643 kWh.
- Direct install and lighting measures were significantly higher than expected even though the number of audits conducted was fewer than expected because a higher concentration of audits were conducted in multifamily buildings than was anticipated. It is expected that more direct install measures would be installed in multifamily buildings per audit than in other commercial buildings. Approximately 70% of the direct install and lighting measures were installed in multifamily buildings.