

Residential Load Management Program

1. Program Description

The Residential Load Management program provides financial incentives to residential customers in exchange for allowing MidAmerican to control their central air conditioning on hot summer days when the company 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 will begin preparation for offering this program during 2009, but will not begin program operation until 2010.

2. Operations

Participants agree to allow MidAmerican to control their equipment during the four summer months (June to September). MidAmerican installs a load control receiver (LCR) on participants' houses near their outside disconnect switches and air-conditioning compressors. MidAmerican activates the LCRs through a pager network. LCRs operate by overriding customers' thermostats, shutting down the outdoor compressor, but allowing the indoor furnace fan to continue circulating previously cooled indoor air.

MidAmerican's cycling periods run from 2 to 7 p.m., with randomized programming to minimize impacts on local distribution systems. Actual start time can vary between 2 and 2:30 p.m., with corresponding end times between 7 and 7:30 p.m.

Cycling events have typically occurred up to 15 times per year, although there is no contractual limitation on the number of annual events. The average number of events per year in recent history is eight.

The program is delivered by energy-efficiency staff and an administrative program contractor. Energy-efficiency staff set incentive levels, develop marketing materials and coordinate communication among the internal and external staff involved in the program. The program contractor manages customer enrollment and mailings, maintains a network of LCR installers, answers customer questions using a dedicated toll-free phone line, tracks program data, operates program software and hardware systems, and helps coordinate incentives with MidAmerican's billing and accounts payable departments.

Key steps in program participation include:

- Soliciting new program participants through direct mailings to targeted customers,
- Enrolling new participants,
- Coordinating installation of LCRs,
- Managing cycling events during the summer season,
- Servicing and maintaining installed LCRs,
- Processing incentive bill credits through the billing system,
- Informing participants about program operations through targeted mailings and the company Web site,
- Processing customers leaving the program, including removing LCRs (if necessary) and paying partial credits via check and
- Sending targeted mailings to current participants that move into new homes and also to customers moving into homes of previous participants.

3. Value Proposition

Customers participating in this program receive:

- *Financial benefits* in the form of annual incentive payments that reward them for participation.
- *Surety* in the form of clear rules specifying cycling conditions, cycling end-times and other program procedures.
- *Information* in a variety of forms, including program brochures, Web site program information and enrollment materials.

4. Customer Targets

All South Dakota residential electric customers that live in owner-occupied, single-family homes and that have central air-conditioning in good working order are eligible for the program. Certain models of central air conditioners are not compatible with the technology of the program and therefore cannot participate. Also, customers with geothermal heat pumps are not eligible for the program.

In mailings soliciting new participants MidAmerican targets the following customers:

- Customers with significant summer electricity purchases indicating air conditioning,
- Customers moving into homes previously enrolled in the program and
- Customers previously enrolled in the program moving to new homes in MidAmerican's service territory.

Table 1 outlines customer eligibility requirements.

Table 1
Customer Eligibility Parameters

	Electric Customers
Customer Class	Residential rates
Customer Status	Homeowners
Building Type	Single-family; Owner-occupied
Building Vintage	All ages
Geography	All South Dakota customers
Equipment Required	Must have central air-conditioner or air-source heat pump

5. Trade Ally Targets

MidAmerican’s program contractor will maintain a network of electrical contractors responsible for installing and removing LCRs on customers’ homes. In addition, trade allies providing HVAC maintenance services and those selling HVAC equipment also can influence customers’ decisions to participate in the program.

6. Eligible Measures

Beyond the control and communications hardware owned and maintained by MidAmerican, there are no additional measures involved in this program. To participate in the program, customers must have a working central air conditioner or air-source heat pump. An outside disconnect switch located near the compressor also is required. If the customer does not have a disconnect switch, program electrical contractors will install one at no charge.

7. Market Barriers

Table 2 presents the key market barriers to an effective residential load management program, as well as the strategies the program uses to address each barrier. Note these program strategies can only partially offset these barriers.

**Table 2
Market Barriers and Strategies**

Market Barriers	Program Strategies
Lack of customer awareness	Program promotion/advertising; Promote through other residential programs; Dealer and service provider outreach
Negative opinion of program expressed by heating/cooling dealers to customers	Ongoing dealer communications, outreach and education
Concern that participation will result in homes being too hot during cycling events	Customer education and outreach

8. Financial Incentives

The incentive strategy is to provide customers with an incentive that is high enough to encourage ongoing participation, but low enough to prevent spending more than is necessary to attain results. Incentives for full-season participants are paid by bill credit on the customer’s utility bill at the completion of the cooling season.

Initially, MidAmerican will pay first-year participants a \$40 end-of-season bill credit and recurring participants a \$30 bill credit. Participants leaving the program prior to Sept. 30 will receive pro-rated incentives sent via checks. MidAmerican performs an annual review of rebate levels and performance criteria and may adjust rebates in the future as market conditions change.

9. Promotion

This program relies primarily on direct mailings to recruit and retain program participants. MidAmerican will send a targeted mailing to customers with summer electric usage high enough to indicate cooling equipment. The mailing will explain the program features and benefits and provide customers with simple actions to take to enroll in the program.

Once the program has recruited its initial participants, additional mailings will be sent to maintain and increase participation levels.

- All participants receive a *Don't Forget* brochure in the spring reminding them about the program and providing them with review of program operations as well as a toll-free phone number for any program questions.
- A *Welcome Home* card is sent to customers that move into a home with an LCR already installed. The card will inform the new customers that they are automatically enrolled in the program unless they indicate otherwise.
- A *Welcome Back* card is sent to past program participants that move into new MidAmerican electric homes in order to recruit them to join the program in their new homes.

Education will largely be accomplished through the company Web site, which will post extensive information about the program, including general information for recruiting new participants as well as specific operational information (e.g., status of control days) to help existing participants.

10. Participation

Table 3 provides program participation assumptions.

**Table 3
Participation**

	2009	2010	2011
Electric Measures			
LCRs Installed (cumulative)	-	130	220

11. Energy and Demand Savings

Table 4 provides energy and demand savings goals.

Table 4
Cumulative Energy and Demand Savings

	2009	2010	2011
Electric Impacts			
Annual Energy (kWh)	-	2,037	3,363
Peak Demand (kW)	-	156	257

12. Budget

Table 5 provides program budget assumptions.

Table 5
Budget

	2009	2010	2011
Electric Budget			
Planning & Design	\$0	\$0	\$0
Administration	\$2,000	\$2,000	\$2,000
Advertising & Promotion	\$1,000	\$6,000	\$4,000
Customer Incentives	\$0	\$5,000	\$8,000
Monitoring & Evaluation	\$1,000	\$0	\$2,000
Equipment	\$0	\$15,000	\$11,000
Installation	\$0	\$8,000	\$6,000
Electric Total	\$4,000	\$36,000	\$33,000

13. Cost-Effectiveness Results

Table 6 provides program cost-effectiveness results. Cost-effectiveness was analyzed using participants added from 2010-2014, to allow the program to reach full saturation.

Table 6
Cost-Effectiveness Results*

Test	B/C Ratio
Participant	N/A
Utility	0.39
Ratepayer Impact Measure	0.38
Total Resource	0.87
Societal	1.14