

# ENERGYADVANTAGE<sup>®</sup> SUMMERSAVER<sup>SM</sup> PROGRAM

## INFORMATION FOR HVAC DEALERS AND SERVICE TECHNICIANS

To help MidAmerican Energy Company reduce peak demand and use our generating capacity more effectively, we offer our Iowa, Illinois and South Dakota residential customers the SummerSaver air conditioner cycling program. The program is simple – it controls the use of residential central air conditioners or air-source heat pumps (ground-source heat pumps are not eligible) when demand for electricity is at its highest. The SummerSaver program effectively reduces peak demand, helping us to use our existing generation assets more efficiently while helping to defer the need for new generation.

### How Does It Work?

A load control receiver (LCR) is mounted on the side of the customer's house near the compressor at no cost to the customer. An outside disconnect switch is required. If the house does not have one, MidAmerican Energy installs one at no charge.

The LCR is wired into the existing thermostat control circuit and allows us to cycle the compressor off and on in predetermined intervals on cycling days. We communicate with the LCR via FM subcarrier signal or pager signal. Older LCRs use FM technology while newer LCRs use pager technology. Cycling may occur on weekdays between approximately 2 p.m. and 7 p.m. depending on actual need (but never on weekends or holidays). Randomized programming is used to vary the starting time for cycling across our service territory so the actual start time for each device varies between 2 p.m. and 2:30 p.m. if cycling begins at 2 p.m. The corresponding end time is between 7 p.m. and 7:30 p.m. if cycling ends at 7 p.m.

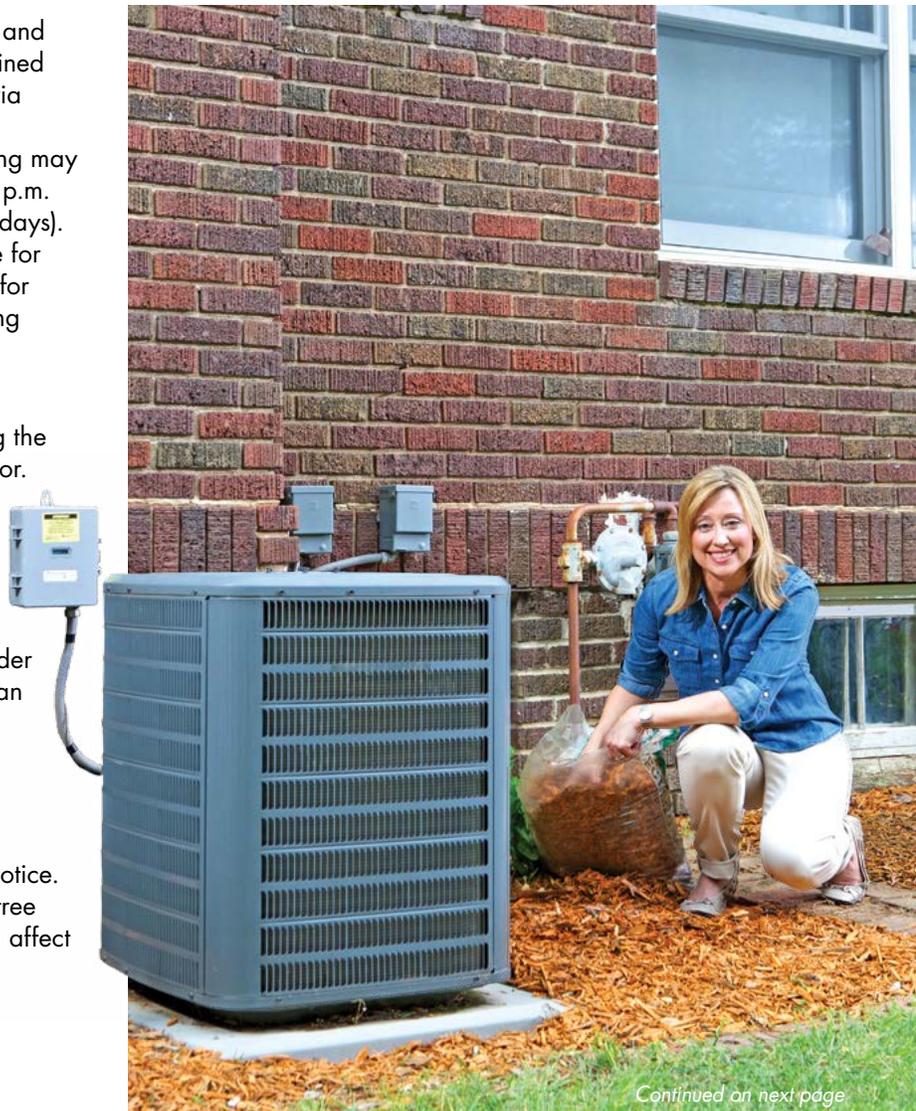
The LCR mimics the operation of the thermostat by opening the control circuit to the contactor that energizes the compressor. The compressor cannot tell whether the thermostat or the LCR opens the control circuit; therefore, the LCR presents no additional burden on the compressor. The LCR has a feature called cold-load pickup that keeps the compressor off for about eight minutes following a power outage to the LCR. This feature allows an entire feeder or substation to be switched on more gradually following an outage, deferring many of the power-hungry loads.

The LCR, when in control mode, allows the indoor air conditioner blower fan to continue to circulate previously cooled air to help minimize any discomfort from cycling. Most customers say they never notice cycling. Others do notice. The home's insulation level, directional orientation, shade tree coverage and outside air temperature on a cycling day all affect cycling's impact on in-house temperature.

**If you encounter a problem or issue with the LCR, call MidAmerican Energy at 800-437-2976.** For example, call if you find a disconnected LCR or need to bypass the LCR to perform service or replace a central air conditioner or air-source heat pump. For technical information, refer to the second page of this document.

### Customer Incentives for Participation

Iowa, Illinois and South Dakota residential customers who participate in SummerSaver the entire cycling season receive a \$40 end-of-season bill credit on their October or November energy bill their first year of participation and a \$30 end-of-season bill credit in subsequent years. If they end their participation mid-season, their incentive is prorated and they are paid by check.



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## Technical Information

With more than 60,000 SummerSaver participants, it is likely you will receive service calls from customers who have LCRs connected to their central air conditioners or air-source heat pumps. Technical information about the LCR is listed below.

The LCR is a surface-mounted, 5-amp relay rated 120 V (ABB LCR 2000, Cannon Technologies, Inc. LCR 2000 or Cooper Power Systems LCR 5000 or LCR 5600). The relay is housed in an 8.5"-10" H x 6"-7" W x 3.25"-3.75" D polycarbonate NEMA 3R box. The LCR has LEDs to help troubleshoot potential problem areas and to communicate cycling status.



When the LCR 2000 or LCR 5000 is controlling the compressor, LEDs 1, 4 and 5 will be lit on older models. On newer models, only LEDs 1 and 4 will be lit. At all times, disregard LED 5; its status is not relevant to the operation of the LCR. When the LCR 5600 is controlling the compressor, a red LED on the left side and a green LED below and to the right will be lit.

The compressor runs normally when only the green light (and red LED 5 on older models) is lit or flashing and if the LCR is not energized. MidAmerican Energy mounts the LCR on the side of the customer's home, close to the disconnect switch in an accessible location. All homes must have an outside disconnect switch.

Electrical specifications for the LCR include voltage: 240 VAC (+10% -20%) and frequency: 60 Hz ( $\pm$  2%).

When a SummerSaver event is called, MidAmerican Energy initiates cycling of LCRs.

## LCR Cycles

DEVICE	CYCLE PATTERN
LCR 2000 LCR 5000 without Cannon's TrueCycle® technology*	15 minutes on and 15 minutes off
LCR 5000 with Cannon's TrueCycle technology* LCR 5600 with Cannon's TrueCycle technology*	Controls the compressor on and off in different time increments based on the run-rate history of the individual compressor on a comparably hot day.

\*Cannon's TrueCycle technology adjusts the off cycle to compensate for compressor over-sizing. LCRs with TrueCycle control the compressor a percentage of the time the compressor would have run, rather than a percentage of clock time.

## Contact Information

MidAmerican Energy Company  
EnergyAdvantage Programs  
P.O. Box 4628  
Des Moines, IA 50305-4628  
Phone: 800-437-2976  
Fax: 515-244-8825  
Email: summersaver@midamerican.com

## Wiring Diagram

