

## Off-Peak Electric Heating Programs and Systems

Keep every room in your home comfortable and cozy with safe, energy efficient electric heating systems, and do it with low cost electricity from Pierce Pepin Cooperative Services (PPCS).

Off-peak heating systems under load management make heating with electricity competitive with other fossil fuels. PPCS has two programs available – off-peak storage heating and off-peak dual fuel heating.

### Load Management Program

Load management is an energy conservation technique used by our wholesale power supplier, Dairyland Power Cooperative, to balance the demand for electricity with the ability to generate or economically purchase electricity.

When demand for electricity exceeds the seasonal load and capacity limits, or if the cost to purchase energy is too high, equipment such as electric heating systems, water heaters and central air conditioners are switched off by Dairyland through a radio signal-based system.

Load management programs help PPCS manage electric load during peak periods of demand and reduce wholesale energy costs paid to Dairyland. Although extreme cold or hot weather conditions may affect peak demand, load management programs are structured with enough flexibility so that load reduction can be justified at any time, day or night, to save you and your cooperative money.

Dairyland is a member of the Midwest Independent Transmission System Operator (MISO) which ensures safe, cost effective, reliable power and equal access to electric generation and transmission across 15 U.S. states and in Manitoba, Canada. Consequently, Dairyland's use of load management may also be affected by the energy demands and weather patterns of the larger MISO region.

Load management receivers and related equipment are provided and installed by PPCS at no cost to the member.

### Off-peak storage heating

**Storage rate (winter):** 5.5¢/kWh

**Storage rate (summer):** 8.0¢/kWh

Off-peak electric storage heating systems convert electricity into heat during off-peak hours when the demand for electricity is low. The stored heat is distributed later, as needed, to heat your home 24 hours a day.

There are two basic types of off-peak electric storage heating systems:

- Electric radiant floor heat – electric cable, electric mats and tubing
- Electric thermal storage (ETS) room units/central heating systems

### Electric Radiant Floor Heat

Radiant floor heating works from the ground up. Heating components are installed below your concrete slab. Heat radiates from the floor, providing even heat when you need it. Options include:

- **Electric cable or mats:** Installed in sand under a concrete slab, this system uses a building's foundation and the ground below it to store heat. This thermal energy is only released when the area above it becomes cool, so there is no wasted energy. This heating system charges for 10 hours each day during off-peak periods.



Photo courtesy of Steffes Corporation

*If the area using radiant floor heating does not allow for heat storage, an automatic backup heat source is necessary to qualify for off-peak electric rates.*

### Electric Thermal Storage (ETS) Room Units/Central Heating Systems

ETS technology is 100 percent efficient and converts electricity to heat during low cost off-peak hours, storing the heat in specially designed, high density bricks that is released during the day. ETS heat storage systems charge for 10 hours each day during the off-peak period and provide enough heat from storage to keep your room or entire house comfortable all day.

#### ETS options include:

- **ETS room units:** These units offer individual room control. When the thermostat calls for heat, a fan blows air across heat-storing bricks contained in a cabinet to distribute heat throughout the room. Room storage heaters are easily installed during new construction or remodeling and require no ductwork.
- **ETS central heating systems:** A centrally ducted system is available for whole house heating. It operates under the same concept of storage as the individual units, only it provides heat throughout the home utilizing ductwork similar to forced air systems. In addition, it's safe and clean—no chimneys, no flues and no carbon monoxide.

*ETS room storage units and central heating systems do not require a backup heat source. Centrally ducted systems allow for the addition of central air conditioning and radiant floor heating applications.*

# Off-Peak Electric Heating Programs and Systems

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## Home heating cost comparison

Winter Storage Rate		Break Even Points		
Electric Rate/kWh*	Fossil Fuel Furnace Annual Efficiency	L.P. Gas per Gallon	Natural Gas per Therm	#2 Fuel Oil per Gallon
5.5¢	60%	89¢	97¢	\$1.35
5.5¢	70%	\$1.04	\$1.13	\$1.58
5.5¢	80%	\$1.19	\$1.29	\$1.80
5.5¢	90%	\$1.33	\$1.45	—
5.5¢	92%	\$1.36	\$1.48	—
5.5¢	95%	\$1.41	\$1.53	—

\*Cost reflects the per kilowatt-hour energy charge. It does not include any applicable Power Cost Adjustment. Electric resistance heat is 100% efficient, including storage (radiant in-floor heat and electric thermal storage units) heating systems.

## Off-peak dual fuel heating

Dual fuel rate (winter): 7.0¢/kWh

Dual fuel rate (summer): 9.2¢/kWh

Off-peak dual fuel heating allows you to use safe, low cost electric heating when the demand for electricity is low, and rely on a non-electric backup heating source when electric demand is high. It's the best of both worlds for your heating budget!

Dual fuel heating uses two separate heating sources, electricity along with another fuel source – propane, natural gas or oil – for a backup. The heating system will automatically use the backup source when the electricity is switched off through our load management system. Electric heat can be shut off up to 12 hours in any 24-hour period during the heating season.

### Dual fuel heating options include:

- **Heat pumps:** Heat pumps—air source and geothermal (ground source)—help you capture naturally occurring heat from the air or the earth and move it where you want: indoors in winter, outdoors in summer. And the technology is one of the most efficient heating and cooling systems you can choose.
- **Electric plenum heater:** An electric plenum heater can convert your existing propane, natural gas or oil furnace into a dual fuel system, allowing you to use the most cost-effective heating source at any time. The plenum heater typically sits on top of your fossil fuel furnace and uses your existing furnace fan to move air across the plenum heater elements to heat your home. Both your furnace and the electric plenum heater utilize the same thermostat and ductwork. Electric plenum heaters can be installed in conjunction with central air conditioning and air source heat pumps.
- **Baseboard heat:** Baseboard electric heat is easy to install and is an inexpensive way to heat “cool spots” in your home. Baseboard heat allows you to adjust the thermostat setting for individual rooms that can help you save on energy costs. Baseboards can qualify for off-peak electric rates if you have an automatic backup heating system.
- **Cove heat:** Cove heat is an excellent way to provide supplemental heat to your home. It offers several features not available with baseboard heating. One advantage is that it is mounted on the wall

near the ceiling instead of on the floor, so you don't have to worry about moving your furniture. Cove heat is also a radiant heat (heats objects), not a convective heat (heats air) like baseboard heaters. Since the heat is being transferred directly to you instead of to the air in the room, you feel warm even though the thermostat is at a lower setting.

- **Hydronic electric boilers:** Hydronic electric boilers along with radiant tubing have become one of the most popular heating systems. Electric boilers heat your home by heating water that circulates through flexible tubing installed in the floor or in hot water baseboard heaters. They can be zoned for supplemental or whole house heating.

## Home heating cost comparison

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Electric Rate/kWh*	Fossil Fuel Furnace Annual Efficiency	L.P. Gas per Gallon	Natural Gas per Therm	#2 Fuel Oil per Gallon
7.0¢	60%	\$1.13	\$1.23	\$1.72
7.0¢	70%	\$1.32	\$1.44	\$2.01
7.0¢	80%	\$1.51	\$1.64	\$2.58
7.0¢	90%	\$1.70	\$1.85	—
7.0¢	92%	\$1.74	\$1.89	—
7.0¢	95%	\$1.79	\$1.95	—

\*Cost reflects the per kilowatt-hour energy charge. It does not include any applicable Power Cost Adjustment. Electric resistance heat is 100% efficient, including cove, electric furnace and electric baseboards heating systems.

## Terms and Conditions

The ElectricSense program provides rebates for the installation of qualifying equipment for members receiving electric service from PPCS.

- Rebate not to exceed 20% of the cost of equipment.
- Equipment must be installed in 2019.
- Installed equipment must be on cooperative's lines and connected to PPCS' load management system.
- Rebates not allowed for a measure and a component of that measure. For example, if an air source heat pump has a variable speed blower motor, the air source heat pump qualifies for a rebate but not the variable speed blower motor.
- Rebates are in place through December 31, 2019, or until funds are depleted.
- Rebates will be issued as a credit to member's electric account.
- Submit the rebate form and required documentation no later than 3 months after installation date, or by January 2, 2020, whichever date comes first.

**For more information, call your Pierce Pepin Cooperative Services energy advisors or visit [www.piercepepin.coop](http://www.piercepepin.coop).**



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