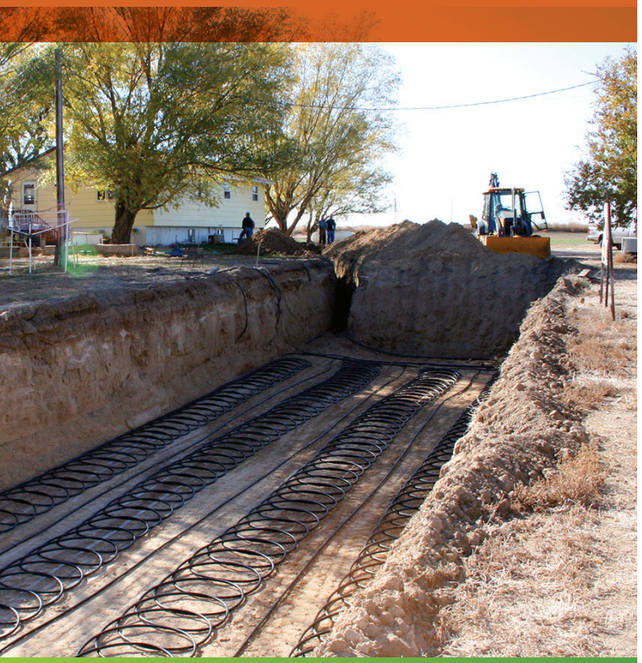
SAVINGS WITH **STAYING POWER**

2021 GEOTHERMAL



SOUTHWEST IOWA RURAL ELECTRIC COOPERATIVE
Your Touchstone Energy® Cooperative

GEOTHERMAL ENERGY

UNLIMITED RESOURCE

The yard around your home contains a vast reservoir of thermal energy to heat and cool your home. With a geothermal heating and cooling system, your lawn becomes a permanent energy source. You will enjoy the benefits of the most comfortable, reliable and cost-efficient heating, cooling and water heating system available on the market today.

HOW A GEOTHERMAL SYSTEM WORKS

A geothermal heat pump is an electrically powered system that takes advantage of the earth's constant temperature using a water-based solution circulated through buried pipes. In cold weather, this solution absorbs heat from the earth and carries it to the geothermal unit. The geothermal system then concentrates this heat and delivers it throughout your home.

In warm weather, excess heat is carried from your home into the earth. You keep refreshingly cool during even the hottest summer day. In addition, the geothermal system can be integrated with your water heater to provide low-cost hot water.

THE SMART ALTERNATIVE TO FOSSIL FUELS

Geothermal is the most efficient type of heating system available today. Geothermal heat pumps are four to five times more efficient than the most efficient gas furnaces.

It is a smart, efficient, emission and carbon-free system that works with the earth by moving heat rather than making heat. Because heat always moves from hot to cold, a geothermal system can efficiently warm and cool your home by transferring heat energy to or from the earth.

INCENTIVES

INCENTIVES SUPPORT THE GEOTHERMAL CHOICE

If you're still wondering if a geothermal heat pump is right for you, here are some additional reasons to invest in a geothermal system. Not only will you be placed immediately in the quiet comfort of energy-efficient heating and cooling, but also a geothermal system can put cash in your pocket. We offer financial incentives to members who install a geothermal system. Special heating rates, rebates and state and federal tax credits may be available.

Geothermal systems provide:

- optimum performance.
- dependable service.
- high efficiency.
- lower utility costs.

ENERGY THAT WORKS AROUND THE CLOCK

Geothermal heat pumps are a reliable source for heating and cooling your home by using the constant temperature of the earth as the exchange medium instead of the outside air temperature. Whether it's subzero temperatures in January or triple digits in July, your geothermal heat pump is working with the stable, natural temperature provided just below your feet to help keep you comfortable.

FOR MORE INFORMATION VISIT

U.S. Department of Energy (DOE)
Energy Efficiency and Renewable Energy
energy.gov/energysaver

Iowa Geothermal Association
iowageothermal.org

Geothermal Exchange Organization
geoexchange.org

International Ground Source Heat Pump Association
igshpa.org

All programs subject to change at any time, without prior notice.

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01/2021

GEOTHERMAL

> **Now our heating and air conditioning bills are only 25% to 30% of the total we paid in our previous home, which was similar in square feet.** - *Recent Customer*

BENEFITS

- The U.S Environmental Protection Agency and Department of Energy rank geothermal technology as the most efficient and environmentally safe heating and cooling option available.
- Geothermal systems last longer because they are self-contained and housed entirely within your home and underground. They are sheltered from extreme outside weather conditions that conventional systems must endure.
- Geothermal heat pumps can cut your home heating costs by 50% in the winter and cooling costs by 40% in the summer while also providing low-cost hot water for your home.
- Geothermal heat pumps have fewer mechanical components, making them more reliable and less prone to failure.

COMFORT

Geothermal systems are very quiet and provide even temperature and humidity to create a pleasant environment.

Here's what some people said about geothermal heat pumps:

"Now, our heating and air conditioning bills are only 25% to 30% of the total we paid in our previous home, which was similar in square feet."

"I can't believe how even the heating and cooling is. The temperature stays pretty even. And it's very quiet, too."

"We installed a geothermal heat pump and the heat bills are low. It provides a nice, even heat. We would highly recommend the geothermal heat pump."

FLEXIBILITY

Geothermal heat pumps can be placed in new or retrofitted existing buildings. Today, many homeowners are requesting multi-function geothermal units that deliver in-floor heating while providing a forced air system in another part of the house.

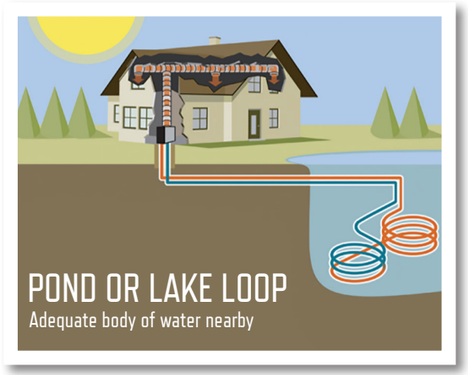
PEACE OF MIND

Geothermal systems have no flues or flames. They create no dangerous carbon monoxide and come with a sealed refrigerant circuit. There are no unsightly tanks or noisy outdoor equipment to bother you or your neighbors.

Installing the right size of equipment for the home is essential to getting the best performance and comfort. It is important to contact a qualified geothermal heat pump installer as there are a number of factors that should be considered when sizing your geothermal system. An installer will perform an analysis of the specific heating and cooling requirements for your home. From there, they'll be able to calculate the required size of the heat pump unit and loop field.

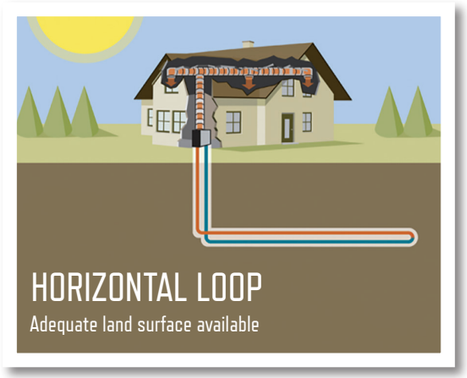
CONNECTING TO THE EARTH

It's surprisingly simple. The most popular method of installing geothermal units in Iowa is the closed loop system, which circulates a water-based solution through small-diameter underground pipes. These pipes enter the home below the ground and attach directly to the indoor equipment. You can select from several closed loop versions. Available land space, soil type and amount of rock near your home will determine which installation is best for you. All installation types are equally efficient and offer the same high performance.

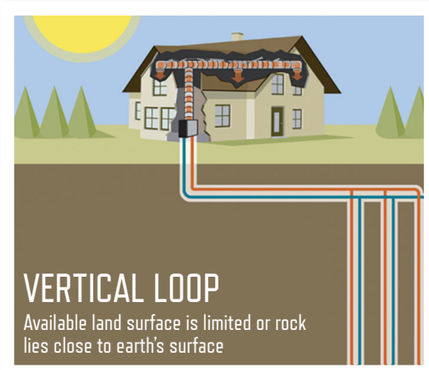


Pond or lake loops are economical to install. Coils of pipe are simply placed on the bottom of the pond or lake.

In some areas, the home's natural water supply can provide a direct energy source in what is called an open loop system. Water is typically pumped from a supply well to the heat pump where heat is extracted or injected and then sent down a return well where it re-enters the water source. Water quality is important with open systems as hard water, minerals and iron deposits can cause serious problems with the heat pump system. Under ideal conditions, this application can be the most economical type of geothermal system where an adequate water supply is available.



Horizontal loops use 100-350 feet long pipes placed in trenches below the frost line. The majority of horizontal installations in Iowa use a slinky coil loop. This design allows three times the amount of pipe to be installed (laid upright or flat) in a trench.



Vertical loops use drilling equipment to bore small-diameter holes from 50 to 200 feet deep. Piping is then fed down these holes creating a loop pattern. The individual loops are all joined together and tied to the indoor heat pump unit.

According to the EPA, replacing an ordinary HVAC system with geothermal is the environmental equivalent of planting 750 trees.