

An energy-efficient choice for year-round comfort and savings



We are dedicated to delivering safe, reliable energy to the communities we serve and providing a clean energy future for all. This includes identifying ways to connect you with new, environmentally friendly options for heating and cooling your home. Geothermal heat pumps are a smart, long-lasting and efficient alternative.

How do heat pumps work?

Ground source heat pumps, also known as geothermal heat pumps, extract heat from the ground during cold weather via an underground pipe system, which is then distributed throughout your home. During warmer months, the process is reversed to provide cooling. This system is the most efficient type of heat pump and will provide all of the heating and cooling in your home.

How efficient are heat pumps?

Because they are using heat from the earth, geothermal heat pumps are incredibly efficient. The Coefficient of Performance (COP) for these systems can be 3 or more, which means that for each kilowatt-hour of energy you put into the system, it will deliver 3 kilowatt-hours of heating or cooling energy. Customers using geothermal systems often have lower operating costs than those using natural gas heating and traditional air conditioning — potentially up to 40% lower depending on usage and energy rates.

How do electric heat pumps compare to traditional HVAC equipment?

Warmer: Heat pumps spread the warmth more efficiently than conventional oil, propane or electric resistance heating systems.

Cooler: Heat pumps cool more efficiently when summer temperatures climb saving you both money and energy.

Comfier and cozier: Heat pumps provide quiet, even heating and cooling throughout your home or business.

Easier: Heat pumps last longer than conventional furnaces and AC units and require minimal maintenance.

Cleaner, healthier and safer: There is no combustion of fossil fuels, fuel storage or carbon monoxide emissions associated with heat pumps.

How does the system work?

Most closed-loop geothermal heat pumps circulate a fluid mixture, which primarily consists of water, through a closed loop — usually made of a high-density plastic-type tubing — that is buried in the ground or submerged in water. A heat exchanger transfers heat between the refrigerant in the heat pump and the fluid mixture in the closed loop.

The systems we are proposing use vertical boreholes. Vertical systems are used when the land area required for horizontal loops would be prohibitive. For a vertical system, holes are drilled about 20 feet apart and 100 to 400 feet deep. Two pipes, connected at the bottom with a U-bend to form a loop, are inserted into the hole and grouted to improve performance. The vertical loops are connected with horizontal pipe (i.e., manifold), placed in trenches, and connected to the heat pump in the building.

For most residential systems, the drilling can be completed in less than one week and sometimes as little as 1-2 days.

