Heat Pump Efficiency

- Only heat pumps can return more energy (in the form of heat) than they consume.

- Air-source heat pumps are around 250 percent efficient.

- Geothermal heat pumps often exceed 400 percent efficiency.

Efficiency Ratings

There are standard measures of efficiency for heating and cooling systems taken under controlled conditions. Here are the comparisons.

- Coefficient of Performance (COP): defined as the energy delivered by the system divided by the energy used. A COP of one is 100 percent efficient. A COP of .8 is 80 percent efficient.

- Energy Efficiency Ratio (EER): defined as a cooling provided by the system measured in British Thermal Units (BTU) divided by energy consumed by the system in Watt-hours. The higher the EER the more efficient the system.

- Heating Season Performance Factor (HSPF): defined as an efficiency ratio that considers the performance of a system during the entire heating season.

- Seasonal Energy Efficiency Ratio (SEER): defined as an efficiency ratio that considers the system's performance during the entire cooling season.

- Manufacturers rate their equipment using COP, EER, SEER and HSPF to standards established by the Air Conditioning and Refrigeration Institute (ARI).

Contact Us

716 Route 368 • P.O. Box 329
Parker, PA 16049-0329

800-521-0570
www.central.coop

Business Hours:
Monday - Friday
8:00 a.m. - 4:30 p.m.

This institution is an equal opportunity provider and employer.

Central Electric Cooperative
A Touchstone Energy® Cooperative

05/21

Heat Pumps
Heat, Cool, Save!

Central Electric Cooperative
A Touchstone Energy® Cooperative

What is a Heat Pump?

Heat pumps are a great solutions for you total home comfort. They can provide both heating and cooling for your home. Heat pumps work by removing heat from one environment to another. Air-source heat pumps do this by moving heat between the air inside your home and the air outside. Geothermal heat pumps do this by transferring heat between the air inside your home and the ground outside.

What are the benefits?

Heat pumps are a rarity when it comes to HVAC equipment because they can actually return more energy than they consume, making them you most energy efficient options.

Looking to purchase a heat pump?

Be sure to work with a reputable installer with experience installing heat pumps and be sure that they conduct a heat loss/gain study to determine the proper size unit for your home.

Why might I be require to have auxiliary heat?

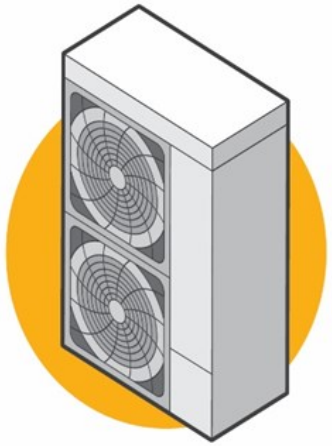
As the outdoor temperatures decrease, heat pumps lose the ability to extract enough heat to satisfy the thermostat. Each heat pump has a balance point temperature that, if reached, an additional heat source is required. Commonly around 25 degrees Fahrenheit, but will depend on the units efficiency and the heat loss/gain of the home.

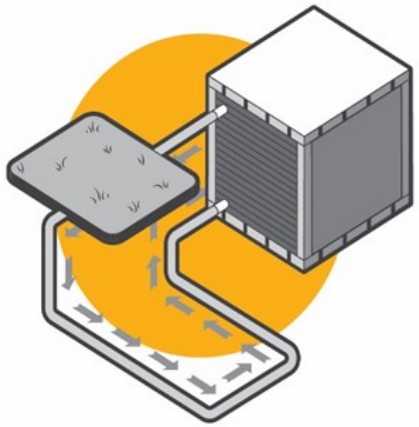
Types of Heat Pumps

There are three main types of heat pump systems. Use the information below to determine the system that's best suited for your climate and home.

Air-Source Heat Pumps

- Most commonly used heat pumps
- Moves heat rather than converting it from a fuel like combustion heating systems do
- Can reduce heating costs by about 50 percent when compared to baseboard heaters or electric furnaces
- Newer, more efficient systems now represent a legitimate space heating alternative in colder regions like the Northeast and Midwest.
  Note: *If temperatures in your area drop below 10 to 25 F, you will need an auxiliary heating system (depending on the size of the system).*





Geothermal Heat Pumps

- More expensive to install but provide more energy savings for heating and cooling
- Move heat through pipes buried underground
- When compared to a conventional heating system, can reduce energy use by 25 to 50 percent
- Effective in extreme climates
- Not ideal for smaller lots and certain soil conditions

Ductless Mini-Split Heat Pumps

- Easier to install, quiet, small in size
- Flexible for heating and cooling individual rooms and smaller spaces
- No energy loss through ductwork, which accounts for more than 30 percent of a home's energy use for space heating/cooling.
- Installation can be pricey, but federal incentives may be available