

**DEAR JIM:** My entire old heating and cooling system must be replaced. With high energy costs and future volatility, how can I determine which type of fuel (oil, gas, propane, electric, etc.) is best to go with? — JACK W.

**DEAR JACK:** It may make economic, environmental and life-style sense to switch to an entirely different type of heating source for your home. The costs of fuels, such as natural gas, propane, heating oil, etc., have been changing dramatically relative to one another. Many new systems last 20 years or more, so lifetime estimated operating costs are not always reliable.

For example, the price of crude oil is about half of its peak earlier this year and this directly affects heating oil prices. Prices also vary significantly from dealer to dealer in a community. I just checked in my home town, Cincinnati, and found prices for the same fuels varied by 25 percent among dealers.

Electricity prices seem to be some of the most stable lately. The recent financial bailout bill (HR 1424) passed last month included the Energy Improvement and Extension Act of 2008, section 105. This act provides a 30-percent tax credit, up to \$2,000 maximum, for installing a geothermal heat pump in 2008 and beyond.

Among conventional central heating and cooling systems, geothermal heat pumps provide the highest efficiency and lowest utility bills. The drawback to geothermal heat pumps always



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**Sensible  
Home**

was the higher initial installation costs due to the plumbing through the ground or to a well or pond. With this \$2,000 tax credit, everyone should consider geothermal in the mix of possible complete systems.

The primary advantage of installing a geothermal or standard air-to-air heat pump is it is used year-round for both heating and cooling. This makes its higher initial cost economically feasible because of the year-round savings. A super-efficient furnace is used only during winter and a central air conditioner only during summer.

Hybrid systems are becoming more popular today. These combine a fossil-fuel, such as an oil, gas or propane, furnace with a heat pump instead of a central air conditioner. The heat pump is very energy efficient for heating during mild weather and then the furnace kicks in when it gets really cold. From an environmental standpoint, it is easier to clean and capture carbon dioxide from a single electric power plant than from millions of individual homes burning gas or oil.

Don't forget to consider alternative heating systems, such as firewood, coal, wood pellets and corn. Many of these heating systems are becoming more user



Photo courtesy of Waterfurnace

**This super-efficient geothermal heat pump features a large air cleaner and water fittings for also heating hot water.**

friendly and almost as convenient to use as a standard gas furnace or heat pump. Dual-fuel wood-burning furnaces can automatically switch to gas or oil when the wood burns down over night.

To compare the cost to use various systems of your home, use the following heat contents:

- natural gas — 1,025 Btu/cubic foot
- oil — 138,700 Btu/gallon
- propane — 91,000 Btu/gallon
- electricity — 3,414 Btu/kilowatt-hour
- firewood — 22,000,000 Btu/cord
- corn — 448,000 Btu/bushel

Divide the cost per Btu by the system efficiency to get the operating cost comparison.

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