

# Oil, gas, propane? Penn State site compares home heating options

October 9 2008

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(PhysOrg.com) -- That nip in the air means fall is here, and many homeowners are facing a drastically more expensive home-heating season. An energy specialist in Penn State's College of Agricultural Sciences says it's not too late to install a secondary heating system to manage those soaring costs.

For the nearly 8 million U.S. households using heating oil as their main heating fuel, costs have increased by up to 150 percent in recent years. Similar price increases for electricity, propane, natural gas and kerosene have homeowners paying up to twice as much in heating costs as they did just a few years ago.

"If you're currently heating with fuel oil that's approaching \$4 per gallon, you should definitely be looking for an energy alternative, whether it's wood or coal or wood pellets," said Dennis Buffington, professor of agricultural engineering. "Anyone heating with fuel oil or propane, especially, should consider alternatives -- not as a replacement necessarily, but to have another system they can rely on for at least a portion of their heating needs.

"A lot of all-electric houses were built in the '70s when electricity was about a penny and a half per kilowatt hour," he said. "During the '80s, electricity started going up, but propane was very cheap — 35 cents a gallon — so many homes installed propane systems. Now electricity is about 8 cents per kilowatt hour in central Pennsylvania and propane exceeds \$3 per gallon. Anyone who has dual-fuel flexibility is really in

the driver's seat and can use whichever fuel is cheaper at the time."

Homeowners can install a stove that burns firewood, wood pellets, coal or even shelled corn in a basement or family room, Buffington said. They can use the alternate heating system in ways that fit their budget and lifestyle. A good alternative for one might not be good for all.

"There's no more convenient heat than electric heat — until you have to pay the bill at the end of each month," he said. "Firewood's a good alternative for me. I have an old wood stove, and I enjoy chopping firewood as physical exercise. That might not be appropriate for others, so they might consider wood pellets as an alternative. If you decide to go with wood pellets or shelled corn, you'll need a pellet stove or boiler. So you'll need to include the cost of purchasing the system in your calculations as well."

Buffington points out that Pennsylvania has relatively abundant and cheap coal, which is considerably more cost-effective than fuel oil or propane. "But you'll need to assess whether you want a coal bin in your basement," he said. "You also should factor in the installation of equipment to convey the coal into the stove or burner and remove the ashes and other costs involved in making the conversion."

The only way to do an apples-to-apples comparison of fuel sources is to calculate their cost in dollars-per-million-BTUs, according to Buffington. "For example, it's hard to tell if electricity at 8 cents per kilowatt-hour is cheaper than propane," he said. "It turns out that 8 cents per kilowatt hour is equivalent to about \$1.85 per gallon, which is much less than the current price for propane."

Buffington noted that coal, wood and other fuels all have advantages and limitations. One way to evaluate the relative costs is with the Energy Cost Calculator at Buffington's "Energy Strategies" Web site

([energy.cas.psu.edu/energysselector/](http://energy.cas.psu.edu/energysselector/)). He also created the Energy Selector, a hand-held, slide-rule-like calculator to compare the equivalent costs of eight different fuels.

Provided by Penn State

Citation: Oil, gas, propane? Penn State site compares home heating options (2008, October 9)  
retrieved 21 September 2024 from

<https://phys.org/news/2008-10-oil-gas-propane-penn-state.html>

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