

## **The Oil Drum: Campfire**

### **Discussions about Energy and Our Future**

#### **Wood Stoves - Viable Home Heating Source?**

Posted by [Nate Hagens](#) on July 16, 2009 - 10:20am in [The Oil Drum: Campfire](#)

Topic: [Alternative energy](#)

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Two years ago I wrote a [post](#) on how using wood, on a statewide or national scale *in lieu* of fossil fuels for heat, would leave much of our forests denuded in a short timeframe (basically we are very dependent as a nation on natural gas and oil for winter heat). As summer wanes and we head towards the colder months, some of you 'wood experts' are undoubtedly preparing your winter energy supply. Please consider tonights Campfire as an open thread for those with expertise on heating with wood. Some starter questions and a few article excerpts are below the fold.



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#### **Tax credit may pay for wood stoves**

As part of the American Recovery and Reinvestment Act, a tax credit of up to \$1,500 is available to those who purchase a high-efficiency biomass-burning stove to heat their

home.

"That's a pretty big credit because it reduces the tax you pay dollar for dollar so it's better than a 'tax deduction'," said Rita DeLong, who along with her husband Stan, have owned DeLong's Heritage Heating for 30 years.

Stoves manufactured prior to 1991 do not meet the efficiency requirements for this tax credit, which can be up to 30 percent of the cost of the stove. Newer biomass-burning stoves — wood, pellet or multi-fuel stoves — must meet certain EPA as well as IRS standards and come with a manufacturer's certification the stove meets or exceeds the standards required for the credit.

### [Wood Stoves -- A Viable Home Heat Source?](#)

The environmental sustainability of woodstove use is dependent upon the consumption of wood from sustainably managed woodlots, as the carbon released is reused as the next generation of trees grows. Annual gross CO<sub>2</sub> emissions did in fact increase from 12,610 kg (i.e., ~2.5 metric tons CO<sub>2</sub>/person per year) to 17,330 kg after the installation of the wood stove. But while this gross amount did increase, the net carbon released by the combustion is negligible, the only surplus coming from the harvest and transport. Based on an average growing time of 130 years before harvest for local Ontario tree species, a woodlot or forest 3.5 hectares in size would provide an indefinite supply of wood heat for a household without a net increase in carbon emissions.

In the case study, adding a woodstove to the ground floor of a 3200ft<sup>2</sup> home reduced the mean annual gas cost by 60%; from \$2260 to \$880. The annual cost of the wood fuel for the woodstove amounted to \$1330 for 5 full cords (a cord is 8 feet long by 4 feet high by 4 feet wide - 128ft<sup>3</sup>). This was a yearly savings of \$50 at market fossil fuel prices of 2005-2007 without taking into account rising fossil fuel prices or the impending carbon tax.

### [Wood burning creates top cancer risk in Oregon's air, EPA says](#)

Pollution from burning wood in stoves, fireplaces and elsewhere is the top cancer risk in Oregon's air, according to a U.S. Environmental Protection Agency analysis.

Burning wood and other organic material creates a greater risk than even benzene, a carcinogen belched by cars and trucks in the tens of thousands of tons each year, the analysis indicates.

By contrast, the main toxins from incomplete combustion of burning wood -- a class of chemicals known as polycyclic aromatic hydrocarbons (you can smell them) -- measure in the low hundreds of tons a year from Oregon's residential sources.

["Where can I find a good set of wood stove plans? I want to build my own."](#)

We strongly recommend that you don't attempt to build your own stove. Here's why.

You can't burn wood cleanly and efficiently without a good combustion system, and you can't design and build a one-off combustion system that is any good. One of the reasons why the price of good wood stoves start at about \$1000 is because it took a lot of practice, trial and error and bucket loads of money to get them to work properly and to pass both safety and emissions test standards.

Thirty years ago wood burning technology was crude, sort of like folk-technology and anyone with a welder could call himself a manufacturer. It is not like that any more and it is a good thing. A lot of folks got burned, both literally and financially, buying stoves built by people who didn't know what they were doing.

### **Some starter questions:**

What is the latest in wood heating technology? In terms of efficiency/cost/emissions, etc?

Are there inversion or other pollution rules where you live?

Have you tried it? What has your experience been?

What other expertise/links do you have to share about home heating with wood?

*(If you've learned from this website on various topics, please consider giving some knowledge back if/when appropriate - group selection in real time...;-)*



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