

Wood stoves -- a viable home heat source?

July 14 2009

The stress of rising natural gas prices is leading many consumers to rethink how they heat their homes. For some this means moving towards modern alternative energy options, while others have been turning to a more traditional method for a solution to these rising costs. In Canada and the United States, wood burning stoves have been reevaluated as a potentially viable option for home heating.

The case for modern woodstoves has developed with the improvement of the products on the market, as wood heating technology has substantially advanced in recent years. With the advanced secondary combustion systems on Environmental Protection Agency certified woodstoves, they are now 95% more efficient than their predecessors.

Dr. Paul Grogan, a plant and ecosystem ecologist and Canadian Research Chair (II) at Queen's University in Kingston, Ontario conducted a case study on the benefits of woodstoves with the help of final-year undergraduate and first year graduate students. He determined that adding a woodstove to the home can help both consumers heating costs as well as the environment. The results were published in the latest edition of the *Journal of Natural Resources and Life Sciences Education*.

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 CO₂ emissions did in fact increase from 12,610 kg (i.e., ~2.5 metric tons CO₂/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 3200ft² 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 - 128ft³). 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. Should these variables come into play Dr. Grogan estimated that the domestic heating costs would be reduced by 25%. This translates into a potential savings of \$920 in the first 3 years.

Source: American Society of Agronomy

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