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Firewood

by Bill Cook, MSU Extension Forester

It's a romantic notion, sitting around a wood stove on a crisp autumn night, or a downright frigid January morning. Using wood to heat a home or business is also cheaper than just about anything else. But it takes some work. And some homework.

If you don't consider the time to process firewood and all the handling that's involved, then wood is by far the least expensive fuel source. If you buy firewood that is already cut and split, then the costs need to be looked at a bit closer. Similarly, it would be wise to compare costs if you are considering a wood pellet stove. Nearly always, wood costs will trump any of the fossil fuels.

If you have a commercial or municipal operation and are considering a wood chip heating and cooling system, then you've found the least expensive and most reliable alternative. But this idea is part of another story.

Firewood delivered in eight foot lengths will run around $100 per cord for hardwood, and you'll probably need to buy a truck load, which can range from five or six cords to about 13 cords. It depends on the hauler and the truck.

A standard cord is a stack of eight foot sticks stacked four feet high and four feet wide. The actual volume of wood will vary with the size of the sticks. There are other definitions for cords, so buyer be wary. Know what you're buying.

Most homes will require about five or six cords per winter, but that will vary widely with the variety of homes. So, wood costs will be roughly $500-600, plus electricity to run any fans or push water. That's about $11 per million BTUs. At $2.50/gallon, propane will run about $35 per million BTUs. Electricity may run around $65.

Wood looks good based on these loose estimates, but there's more work to wood than for fossil fuels. The delivery truck must have room to move around. A load of eight-foot firewood needs to be cut, split, stacked, covered, and dried. Equipment and space are needed. A considerable amount of sweat equity will be invested before the stove is filled. Some call this recreation.

Drying firewood is essential. It takes energy to drive water out of wood and that's energy that will not be spent heating a house. Burning wet wood adds to incomplete combustion, reduces efficiency, and increases residue inside a chimney. Looking for firewood in the fall, to burn in a few weeks, is looking for trouble.

Burning firewood also means having a safe burning environment and a well-maintained chimney. Every winter, people lose their homes due to poor wood burning design or burning practices. Inadequate fuel can also irritate neighbors, if you have them. Thick smoke from improperly burning wood stoves contains particulates and emissions that can harm people with respiratory problems. It's also just plain rude. Proper

operation of even simple stove designs minimizes these sorts of issues.

Much has been said about the amount of energy in different species of wood. Energy content does vary somewhat, but water content and proper air control are, by far, the more important factors. For the northern Lake States, sugar maple is probably the best mix of energy content, ease of processing, and availability. Oak is also quite good but it's less available; therefore usually more expensive. Energy charts are easy to come by, but not all tree species are nice to work with or obtainable. The Forest Products Lab has the scoop on all these factors.

Lastly, firewood transport has been one of the more common vectors for exotic and invasive species. Examples include oak wilt, emerald ash borer, and gypsy moth. There are several nasty species on the horizon. Be careful when buying or transporting firewood. It's good to ask, in advanc**e,** where the wood is coming from and become aware of potential hazards. It's also good to get delivered wood processed and stacked as soon as possible.

Burning wood to heat homes is still a great idea, but doing it right is becoming increasingly more important.

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As an MSU Extension forester, Bill Cook provides educational programming for the entire Upper Peninsula. His office is located at the MSU Forest Biomass Innovation Center near Escanaba. The Center is the headquarters for three MSU Forestry properties in the U.P., with a combined area of about 8,000 acres. A collection of these newspaper articles, back to July 1997, can be viewed on the following website: http://michigansaf.org/ForestInfo/Newspaper/0000-Directory.htm or *under the "Forest Info" button of http://michigansaf.org. .*

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