FEATURE ARTICLE

STRIKING A C(H)ORD ON FIREWOOD

A LIGHTHEARTED LOOK AT THE COST OF FIREWOOD COMPARED TO THE ALTERNATIVES

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I learned a few things recently while enjoying Susan Cain's new book Quiet: The Power of Introverts in a World That Can't Stop Talking (Crown Publishers, 2012). It turns out that nearly half of the people in this country are introverts. Our industry has an abundant supply of them. Most of us introverts detest small talk because 1.) we don't see any point in it; and 2.) we don't know how to make it.

One coping mechanism introverts use when faced with small talk is to quickly steer the conversation toward something that's substantive and interesting. Firewood is my go-to topic of conversation. Talk about firewood and people will either look at you oddly and then leave you alone (not bad) or engage you in meaningful conversation (better). Firewood is a topic that strikes a chord with people throughout the rural Northeast. Don't believe me? Try having a conversation with [*Northern Logger* editor] Eric Johnson without firewood coming up.

Perhaps you are sometimes faced with the unpleasant prospect of small talk. Maybe you just want something about our industry in your holster that many of those outside of it can relate to. In either case, I offer this discussion and talking points about wood heat.

Wood is Better

One of the features of my introversion is that I truly enjoy exploring a good spreadsheet. The US Forest Service's Fuel Value Calculator (available from the Forest Products Lab at www.fpl.fs.fed.us) is a masterpiece for spreadsheet enthusiasts. It allows you to compare the unit prices of various types of heating fuel, including oil, natural gas, electricity, coal, switch grass, seasoned firewood, wood pellets, and wood with various levels of moisture content. Entering the cost per unit for one of these fuel sources gives the equivalent price for each of the others. For example, if you enter the cost for a gallon of fuel oil, you will learn the equivalent cost for a ton of bituminous coal or a cord of seasoned firewood. Comparisons are based on the number of BTUs provided by each type of fuel.

Fuel oil as a heating source is particularly interesting—the US Department of Energy estimates that 8.1 million US households (7.8 percent) heat with oil, most of them in the Northeast. The Fuel Value Calculator spreadsheet can tell you something you almost certainly know already—heating oil is very expensive in comparison to most of the alternatives. Heating oil averaged about $4.13 per gallon in the Northeast and mid-Atlantic states this past heating season. In terms of the heat it yields, this would be the same as paying $549 per cord for seasoned firewood.

Almost any Wood is a Good

Seasoned firewood prices are on the rise, but they have a long way to go before they hit $549 per cord. Hardwoods are abundant throughout the Northeast and firewood is a common byproduct of forest management activities. It takes some processing to arrive at seasoned firewood. More than a few consumers are happy to purchase logs, blocks or green firewood and handle the rest themselves (note: green firewood + time = seasoned firewood). I have been stacking it up in round hollow piles to hasten the drying.

Prices vary by location (it takes oil to deliver wood), but in general a serious wood burning consumer (not those fireplace dabblers!) could expect to pay $200 to $250 per cord for dry seasoned wood. A price of $225 per cord is an eye-catching $324 per cord less expensive than $4.13 per gallon heating oil.

If you are particularly introverted, you might enjoy extending some of the calculations in the Fuel Value Calculator to some unconventional extremes. A firewood price of $549 per cord is equal to a hardwood sawlog price of about $915 per MBF (Scribner rule). The vast majority of hardwood sawlogs change hands for less, so it's cheaper to heat with hardwood sawlogs than it is with oil! I'm not suggested that you actually do this, just trying to show its possible (and let's face it, we have all

One cord of firewood heats as much as:

1.1 tons of premium wood pellets
215.5 gallons of propane
133.0 gallons of #2 fuel oil
1.1 tons of ovendried switchgrass
0.6 tons of bituminous coal
48.7 bushels of shelled corn

One ton of premium pellets heats as much as:

.09 cords of seasoned firewood
191.5 gallons of propane
118.3 gallons of #2 fuel oil
0.9 tons of ovendried switchgrass
.05 tons of bituminous coal
43.3 bushels of shelled corn

Alternative fuel prices compared to paying $4.50 per gallon for heating oil

Fuel	Cost	Unit
Green Wood (50% MC)	$	224.61 /ton
C-Wood (air-dried to 20% MC)	$	413.22 /ton
Wood (ovendried)	$	540.00 /ton
Softwood (kiln dried to 13% MC)	$	481.30 /ton
Hardwood (kiln dried to 8% MC)	$	493.04 /ton
Premium Wood Pellets	$	532.17 /ton
Natural Gas	$	3.21 /therm
Electricity	$	0.13 /kWh
Seasoned Firewood (20% MC)	$	598.70 /cord
Switchgrass (ovendried)	$	485.22 /ton
Bituminous Coal	$	1,017.39 /ton
Shelled Corn (15% MC)	$	12.29 /bu
Propane	$	2.81 /gal

seen some of the lower end logs migrate from the sawlog pile to the firewood pile in recent years).

Other wood products are potential substitutes. Oriented Strand Board (OSB) is sold in 4'x8' sheets. Heating oil at $4.13 is equivalent to paying $9.41 per sheet for 7/16" OSB. I priced OSB at Lowes this week for $9.17 per sheet. Much like sawlogs, however, it is difficult to wrestle OSB into your furnace (though it does stack much more evenly).

If you are a devoted admirer of heating oil, look on this bright side. It's still cheaper to burn oil than 2x4's ($2.87 per stud = $6.52 per gallon)!

Burning wood products that were intended for other uses is fanciful (foolish?) notion that highlights the difference in price between oil and wood. Most of these products aren't direct substitutes. At least one company, however, makes an outdoor wood furnace that is designed for burning wood pallets, replacing over 700 gallons of oil per month. This may be ideal for industrial users who receive a steady supply of shipping pallets, especially those who have to pay to have them hauled away.

Firewood Thrills vs. Utility Bills

Ever try to barter with a utility? How about your local fuel oil or propane dealer? When the only thing you have that they want is money, there isn't much room to strike a deal. I'd be happy if could just understand the charges they put on the bill—medical billers could learn a few tricks from these folks!

If you want firewood you can buy a DIY kit in the form of logs, a ready-to-assemble (disassemble?) product as blocks, or the finished product as split wood (some drying may be required). Firewood usually arrives COD with straightforward terms, but if you have something your supplier wants or needs, a deal can be made. Maybe you can do his taxes or fix his truck. As one logger told me "firewood is the only thing I make that I get to set the price on."

I once swapped four of my books (retail value $100) for two face cords of split wood (retail value $100 at that time). In this case, we each received far more than we gave up. The marginal cost to me of those four books was about $20. The marginal cost of the firewood to the producer (I built a spreadsheet on a rainy day to figure this out), was about $20. Both of us realized $80 in consumer surplus. On the surface this looks pretty even, but any of you who have read my books will clearly recognize that I got the better end of this deal.

If you are interested in things like consumer surplus and the economics of wood heat, you may well be an introvert. The consumer surplus realized when wood is substituted for costly, non-renewable fossil fuels is what makes the up front conversion costs palatable.

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Round wood piles for quicker drying are becoming popular, at least at the Bick residence.

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Cheap Enough to Buy a New System

Firewood is no more convenient a substitute for oil than sheets of OSB or random length sawlogs if you don't have a stove or boiler that will burn it. In 1997, the Department of Energy estimated that 15 percent of US households consumed wood for at least part of their heating needs, a number that is surely rising. Many of these consumers have a more conventional central heating source, coupled with a wood or pellet stove. In the current heating market, consumers are relying more on these secondary heating sources and turning to their central heat only when necessary.

The costs savings realized from switching to wood heat is sufficient to pay for a new heating unit. Consumers realize this and are making the switch in a variety of ways. I have a bit of experience with the two extremes of converting heating sources. Several years ago I bought a used $350 wood stove for a house I owned in the city. This cut my natural gas consumption by about 40 percent, for a payback period of about one year.

Last year, after several hundred conversations with Eric Johnson about firewood, I bought a wood gasification boiler to heat my new house. The boiler and installation cost me $8,000 all together. Now spend I $2,000 less each year on propane. A load of firewood logs costs me $500-600 (when I can't barter something else for it). This works out to a payback period of five or six years, if I conveniently overlook the value of my time (if you work in our industry, you are used to having people overlook the value of your time).

I would appreciate it if anyone who wants to swap some firewood for books would get in touch with me.