

Wood Pellets 101

A Sustainable Heating Option for New Hampshire

What Are Wood Pellets?

Wood pellets are a dried, uniform fuel formed from low-grade wood for use in heating and other applications. Wood pellets, because of their dry and consistent nature, are a biomass fuel that is easy to meter, produce heat very efficiently, and require little management on the part of the customer.

In the past decade, wood pellet use in the Northeast has grown from pellet stoves used for space heating to central heating boilers servicing entire homes, schools and hospitals.



Where Does the Wood Come From?

Wood used to make wood pellets is low-grade material, harvested during forestry operations or produced as a by-product of lumber and wood product manufacturing (e.g., sawdust). Manufacturers of wood pellets often seek sawdust, shavings and other residue from lumber and wood product manufacturing because it is already debarked, sized, and uniform in species. Wood also comes from low-grade wood harvested during logging operations – the relatively low value that wood pellet manufacturers can pay for material means that wood pellet manufacturing does not compete with lumber manufacturing and other higher value uses of wood that is so important to the region's forest economy.

In New England, we are growing significantly more wood than is being used for a range of products, including paper manufacturing, biomass energy, home heating, lumber and other wood products. On private timberland in New England, we currently grow 1.6 times the amount of wood harvested.

How Are Wood Pellet Made?

Wood pellets are made through a relatively simple process, which includes:

- Wood received is debarked and processed into uniform sized particles for drying. The bark is removed to control ash content in the final product, and is usually used to fuel the dryer;
- Wood is dried from about 45% moisture content to about 8%;
- Dried wood is then put through a pellet mill, where the forces of heat and pressure activate a natural binder that hold the wood pellets together without additives;
- Wood pellets are then cooled and either bagged or put into bulk storage silos for eventual delivery to a customer.

While relatively simple in concept, wood pellet manufacturing is a capital intensive undertaking, and the production of high-quality pellets on a consistent basis takes experience and a high level of quality control. There are now voluntary [wood pellet standards](#) used by the industry, and consumers can use this or other methods to assure the purchase of a consistently high quality product.

How Are Wood Pellets Delivered and Stored

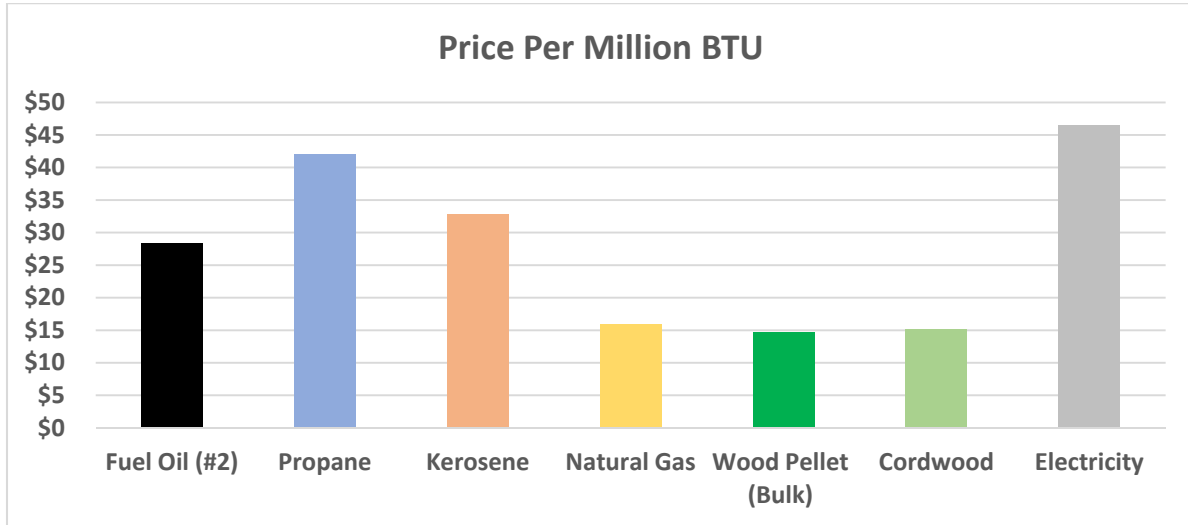
Wood pellets are often sold in 40-pound bags, with a pallet of bags weighing a ton. Many homeowners that use pellet stoves for supplemental heating purchase pellets this way.

Increasingly, wood pellets are sold in bulk, and delivered to a customer for storage in a silo, bin or bulk storage container. Wood pellets are delivered via a self-unloading truck directly into the silo, and the customer never needs to handle or otherwise deal with the fuel. From the silo, wood pellets are then metered directly into a boiler as needed. The entire system can be automated, and many users report convenience similar to using oil or other fossil fuels.



What Do Wood Pellets Cost?

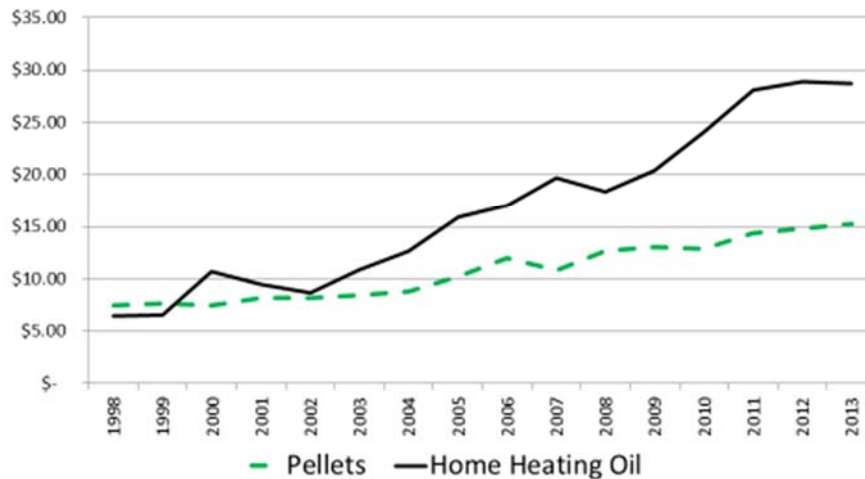
Wood pellets offer residential, commercial and institutional consumers an opportunity to achieve significant savings on the purchase of heating fuels. The following chart shows wood pellets, as well as other heating fuels commonly used in New Hampshire, compared on a heat-equivalent basisⁱ.



The New Hampshire Office of Energy & Planning regularly updates the [market price for heating fuels](#), providing consumers with current information on market prices for a range of fuels.

Wood pellets are notably less expensive to heat than home heating oil, the most common heating fuel for New Hampshire residencesⁱⁱ. In fact, the savings enjoyed by homes and firms that switch from oil to wood pellets (or supplement with wood pellets) has been growing steadily for over a decade, and pellet prices have remained quite stable during this periodⁱⁱⁱ.

Fuel Cost per MMBTU, 1998 - 2013



Why Wood Pellets Instead of Chips or Other Biomass?

Wood pellets are a consistent and easy to use fuel, and wood pellet appliances are often the best option for smaller applications such as residences and small commercial applications. For larger installations, wood pellets are often selected because some wood pellet heating systems are lower cost than comparably sized chip systems, and in many cases can enjoy fast payback on the capital expense.

Wood pellets, on a heat-equivalent basis, are more expensive than wood chips. In many cases, wood chips heating systems at community-scale facilities such as schools and hospitals will have a lower lifetime cost than a comparable wood pellet system.

Wood pellets and wood chips are both ways for consumers to cut heating costs and support the local forest economy, and each project should be evaluated to determine the best fuel and system for the particular application.

Where Are Wood Pellets Made?

Wood pellets are made at dedicated wood pellet mills, which are located to access a sustainable and reliable supply of low-grade wood to use as a feedstock. There is currently one wood pellet manufacturing facility located in New Hampshire, New England Wood Pellet (Jaffrey). The New Hampshire market is also supplied by wood pellet manufacturers in nearby Vermont, Maine, Quebec and New York.

The purchase of wood pellets manufactured in the region helps support the forest economy, keeps dollars spent on heating circulating in New England, and creates jobs for your neighbors in the harvesting, manufacturing and delivery of a locally produced fuel.

References

ⁱ New Hampshire Office of Energy & Planning. 17 March 2014. <http://www.nh.gov/oep/energy/energy-nh/fuel-prices/index.htm>

ⁱⁱ Source: U.S. Census Bureau, 2012 American Community Survey, http://factfinder2.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_12_1YR_B25040&prodType=table

ⁱⁱⁱ Data source: Innovative Natural Resource Solutions LLC (wood pellets), US Department of Energy, Energy Information Agency (oil)