



MODERN WOOD HEAT THE NORTHEASTERN ENGINE THAT COULD?

BY CHARLES NIEBLING AND CHARLES LEVESQUE



Modern wood heat in commercial and industrial buildings with wood pellets and wood chips (green and semi-dry) has been around the northeastern US for decades. Pulp and paper and sawmills have used it for building and process heat and some co-gen for a long time. But using green chips and, more recently, dry chips and wood pellets in non-forest products related businesses and homes is a more recent phenomenon dating to the 1990s. Are these more modern applications of wood heat a solution to the need for more low-grade timber markets? Maybe.

Dominated by heating oil often transported from distant countries, our region has made progress in recent decades in recognizing the role of wood in heating bigger buildings and in process heat for manufacturing. But this sector of low-grade timber fuel is still relatively small – currently amounting to about 360,000 tons of wood each year in New England and New York. Modern wood heat was growing modestly as fossil fuel prices remained high until 2014. Since then, prices have come down, and the economic incentive to switch building heat to modern wood heat has diminished.

Let's step back a bit and really understand where the wood heating sector sits today in the Northeast. The map and table shows most of the commercial and industrial users of wood chips and pellets in the region (not including those in the forest industry). This is pretty impressive since back in the 1980s this map would have been mostly empty outside of forest product manufacturers using their own wood residuals as fuel.

The other major difference compared to the early 1990s is that there were no wood pellet manufacturing plants. Today there are 13 plants in Maine, New Hampshire, Vermont and New York, and virtually all of the pellets produced in the region go toward heating buildings. While the expansion of wood pellet manufacturing has grown dramatically in the US. South, nearly all of those pellets are shipped to Europe as a substitute for coal in their electricity generation plants. Very few pellets from the northeastern plants go overseas – they mostly stay and replace fossil fuels to heat buildings.

Commercial/Institutional Modern Wood Heat Users in Northeast US

State	Wood Chips	Wood Pellets	Use (annual tons)
Maine	23	82	61,068
New Hampshire	28	82	70,105
New York	13	20	90,000
Massachusetts	37	28	24,000
Connecticut	5	4	20,000
Vermont	39	30	92,100
TOTAL	145	246	357,273

This table does not include the thousands of homeowners using wood pellets in central heating systems or wood pellet stoves in the region, nor does it include industrial users within the forest products industry.

Can Modern Wood Heat's Low-Grade Timber Markets Grow?

Despite the growth in modern wood heat in the Northeast since the 1990s, there is so much further to go because literally tens of thousands of commercial/institutional buildings are still heated with fossil fuels. And that's not including residential buildings, which are also a huge opportunity, especially for wood pellet central heating systems – boilers and furnaces – as well as wood pellet space heating with stoves. There are a few things that need to happen to spur growth in the modern wood heat sector and thereby open up more low-grade timber markets for the forest industry. Better low-grade markets are needed to support good silviculture work in the woods and produce quality sawlogs that generate the highest long-term return on timberland ownership and management. More low-grade markets are also essential for wood residues from manufacturing processes in sawmills and other wood using industries.

First, there is a need for real monetary incentives to offset the higher capital cost (compared to fossil fuel) of state-of-the-art clean wood chip and pellet boilers and furnaces. Some state governments offer modest grants that might cover 25-45% of the heating appliance cost. A few states (New Hampshire, Massachusetts and Maine) have a thermal component to their renewable portfolio laws that generates regular revenue for owners of modern wood heat systems that generate heat, such as biomass boilers. And now, as part of the COVID-19 stimulus package passed in the fall, there is a federal tax credit for clean modern wood heat stoves, boilers and furnaces that are installed in homes. We need the same investment tax credit for commercial/industrial buildings too. The solar and wind sectors have had them for years.

For modern wood heat to flourish, it has to be significantly less costly than conventional fossil heating fuels. If heating oil sees sustained increases over \$3.00 per gallon, commercial and institutional building owners will once again give serious consideration to alternatives such as modern wood heat.

Will the Biden administration get other policies through Congress on carbon that could benefit modern wood heat? Maybe. Congress is expected to make climate and energy policy a priority in 2021. We expect to know more by summer. If biomass is seen as part of the climate solution, modern wood heat could be on a sharp trajectory for growth. Should policies not favor biomass, then the near future is likely to see tepid growth for modern wood heat. We need a boost in this sector because there are few promising new low-grade markets on the horizon.

Charlie Niebling and Charlie Levesque are partners in the firm Innovative Natural Resource Solutions, LLC and have been working to encourage modern wood heating in the Northeast for decades.

Top: A semi-dry chip boiler in MA. Bottom: A Viessman wood chip boiler.

