

Heating with Wood Biomass Making Inroads Across Northeast, Gaining Policy Support

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A quiet revolution is taking place across the northeast, as heating with wood finds broad new acceptance in applications from residential wood pellet stoves and boilers, to institutional and industrial pellet and chip heating of schools and factories, to district heating of downtown centers and college campuses.

New technologies that burn wood with efficiencies and emissions that are close to gas and oil are making steady inroads into the northeastern market. It's the ability to burn cleanly and with complete combustion that could lead to much broader acceptance and in time a transformation in how we heat buildings. Fully automated pellet systems of all sizes, bulk wood pellet delivery, refined and semi-dried wood chip fuels, advanced technology boilers with engineered emissions controls that bring down harmful pollutants, and combined heat and electric power (CHP) systems are steadily making inroads and on the cusp of mainstream acceptance.

High Cost of Oil and Propane Driving the Growth

It's not surprising that the northeast is leading the nation in advanced wood heating. Over 85 percent of the nation's heating oil consumption is in the six New England states and New York – some 5 billion gallons a year. In areas of the northeast that do not have access to natural gas, heating oil and propane are the predominant heating fuels. This includes most of Maine, New Hampshire, Vermont, and large parts of Massachusetts and upstate New York. Elsewhere around the country natural gas and still-cheap electricity tend to dominate heating. As oil and propane have become more expensive, northerners are looking to options such as pellets and chips, which can cost less than half of these imported fossil fuels to heat.

The market has responded with a dozen new wood pellet manufacturing plants in New England and New York since 2008, bringing \$140 million in investment and over 600,000 tons of new capacity to the region in just five years. European boiler manufacturers have tested the waters of the northeastern market, and about eight major manufacturers from Germany, Austria, Belgium, Scandinavia and Italy are now distributing their boiler technology on our side of the Atlantic. Some are now forming manufacturing partnerships with domestic companies so the systems can be made in the USA to American boiler standards.

Over 1,000 New Systems

In the last five years alone, wood pellet, chip and advanced logwood boiler installations across the northeast conservatively estimated at close to 1,000 new systems have been installed. These range from large institutional district heating plants such as the wood powder suspension burner at the Jackson Labs in Bar Harbor, ME, to chip boilers in dozens of schools in VT and NY, to industrial process heat from pellets in a NH ball bearing factory, to hundreds of homes. With a boost from the short-lived stimulus funding from the American Recovery and Reinvestment Act of 2009, and increasing state policy and financial support, many municipal office buildings and commercial enterprises have installed chip and pellet boilers. Rebates offered by New Hampshire and now Massachusetts have helped to catalyze sales of residential pellet boilers, with nearly 150

home installations in NH alone

This trend brings enormous potential benefits to the region. Every fuel dollar spent on a local, renewable fuel such as pellets and chips, and not spent to import fossil energy helps to retain wealth in the region. Maine Economist William Strauss has estimated that northeasterners could generate \$4 billion per year in new regional wealth over the next 15 years by aggressively but sustainably moving to swap fossil heating fuels for new wood technologies.

Potential Great with Sustainable Management

In 2010, industry leaders peered into their crystal ball to assess the potential for wood to provide renewable heating fuels in the northeast. Entitled “Heating the Northeast with Renewable Biomass: A Bold Vision for 2025” this study estimated that renewable biomass fuels, including wood and agricultural residuals, could sustainably heat over 1 million new homes and businesses across New England and New York, and displace as much as 1.3 billion gallons of heating oil and propane. While a transformation of this scale represents an ambitious goal over the next 12 years, there are early indications that it is achievable.

This goal represents nothing short of a major transformation, with new economic opportunity in rural regions that can ill afford continued dependence on the heating oil that has increased over 300 percent in cost in the last decade. Industry observers believe that energy marketers from the oil and propane sector intent on diversifying into new fuels and technologies will be key to making it happen. It won't be the first time this industry has transitioned – after World War II many of New England's local energy distributors switched from coal to oil.

Policy Support Gaining

Now state governments in the northeast are seeing the opportunity and lining up to support renewable heating technologies. Over the last few decades most state and federal renewable energy policy has been focused on electricity and transportation fuels like ethanol. In the last five years, New England and New York has led the nation in new policies to accelerate biomass, solar and geothermal heating. The NY Energy Research and Development Authority (NYSERDA) invested \$350,000 in a “NY Biomass Heating Roadmap” to chart a course to sustainable development of this industry. New Hampshire added thermal energy to its “Renewable Portfolio Standard”, with the potential to bring over \$60 million in new incentives to biomass, solar and geothermal heating projects. A new coalition has formed in Massachusetts to bring a similar provision into the MA Alternative Portfolio Standard. The MA Renewable Thermal Coalition (www.masscleanheatbill.org) seeks to qualify biomass, solar and geothermal technologies for “alternative energy credits” on par with credits currently awarded to renewable electricity technologies. Similar legislation has been introduced in CT, ME, MD, CO and NM.

Congress is also recognizing the wisdom of parity treatment of thermal renewable energy. In May Senators Angus King and Susan Collins introduced the Biomass Thermal Utilization Act of 2013 (BTU Act) to add an investment tax credit for high efficiency biomass heating technologies to sections 25D (residential) and 48 (commercial/industrial) of the federal tax code.

Europe as the Model?

This exciting market development represents an important opportunity for the northeast. While converting one million homes and businesses may seem overly ambitious, we can look to many European nations for examples of what is possible when public policy, private investment, consumer savings, and economic opportunity align to bring about major change. Countries like Sweden, Denmark and Austria have undergone a major transformation to renewable heating (Denmark recently passed a law prohibiting fossil fuels for heating new buildings that have access to renewable energy-sourced district heating).

One thing we know for certain: in 20 years filling oil tanks in northeastern basements will be less common than it is today. If only 25 percent of current heating oil demand in the northeast is displaced, that's over \$5 billion that stays in our economy. It's going to get displaced by something, and that something can in large measure be sustainably harvested wood – bringing tremendous new economic opportunity to the forest economy, and new energy security to a region long held hostage by the global geopolitics of oil.