

More wood heat in Vermont's future

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Ventilation and refrigeration technician Gary Roberts runs the wood boiler system at National Life in Montpelier. PHOTOS BY PETER COBB

Vermont wants to double the use of wood-generated energy to better manage the forests and to move Vermont toward greater energy self sufficiency, according to Emma Hanson, the new wood-energy coordinator for the Department of Forests, Parks & Recreation.

Hanson, who started the new job in August, was hired to boost the use of wood, especially the use of low-grade wood (trees that cannot be converted into high-grade lumber or veneer) for industrial heating systems.

“We are currently harvesting less than half of the annual net growth of live trees,” she said. According to Hanson,

current wood usage for residential and institutional heat and process steam (industrial use) is about one million green tons (2.5 tons per cord) a year plus 130,000 tons of pellets, mostly for household use.



Emma Hanson was recently put in charge of the state's efforts to double its use of wood in residential and industrial heating.

“The number-one goal for my job is to foster healthy forests. By helping to grow a market for sustainably harvested, low-grade wood we create value that incentivizes the stewardship of our forests for generations to come. Wood energy is an amazing thing for our area, a local, renewable fuel source that creates jobs in our communities, displaces fossil fuels, and helps to maintain our beautiful Vermont landscape,” she said.

The majority of the available wood is on private land. Vermont forests are 80 percent privately owned. More logging, Hanson said, would increase the value of the land to the owners and help preserve the forests.

Her work promoting wood heat will focus on two main goals: providing coordination, support and market research assistance to the wood-energy industry; and developing and conducting public outreach including “an awareness of efficient, clean and cost-effective technologies and promoting best practices for efficient heating while safeguarding human and environmental health.”

For homeowners, currently there is a \$2,000 rebate available from Efficiency Vermont and a \$3,000 rebate available from the Clean Energy Development Fund to help offset the costs to install qualifying wood-heat systems.

Brian Shupe, executive director for the Vermont Natural Resources Council, said they support the state’s effort to increase the use of “modern and efficient” wood heat. “We have concerns about promoting new, inefficient electric generation, but we are supportive of increasing the promotion of wood for efficient home and business heating,” Shupe said. Shupe believes Vermont’s forests have the capacity to support efforts to boost growth, and said finding new markets for low-grade wood would give landowners “more options for maintaining intact working forests.”

Although industrial biomass heating systems are expensive (installation can run in the millions), the return on investment can take as little as five years. “This varies tremendously based on the type of system, available rebates, and the price of oil. The range can be anywhere from five to 20 years,” Hanson said.

National Life of Vermont in Montpelier switched to wood heat in 2011 and got its money back in four years, according to Tim Shea, assistant vice president for facilities and purchasing. Shea said the cost to switch was \$2 million. Before wood heat, National Life spent \$1 million a year on oil, and now spends less than \$300,000 yearly for bole wood chips, which are simply chipped wood and contain about 40 percent moisture. Wood pellets are made of compressed sawdust and have about 6 percent moisture. National Life uses about 2,500 tons of chips a year and heats the Montpelier facility through the colder months. The company uses oil in the warmer months, mostly for hot water.

Norwich University in Northfield heats 93 percent of its 1.2 million square feet of campus buildings with wood, and also generates 15 percent of its electrical power needs from wood energy, using the steam in its kitchen and various labs, according to David Magida, chief administrative officer for the college. Norwich added wood boilers in 2013 and expects to pay for its \$6.2 million investment by 2019. The college has replaced 635,000 gallons of oil a year with 13 tons of wood.

One of the biggest obstacles to an increased use of wood heat is the price of oil, Hanson said. When oil prices are low, the incentive is less.

Michael Derevjanik, the director of buildings, grounds and transportation for Rutland High School, agrees. RHS installed wood boilers five years ago. Last winter, however, the school burned oil because the cost to heat with oil was less than wood. “When the cost for oil goes below \$1.90 a gallon, it makes more sense for the school to heat with oil,” he said. If oil prices rise substantially, RHS can revert back to wood.

Other concerns with burning wood include increased emissions and what to do with the ash. “Burning solid fuel does result in particulate emissions, but modern woodburning appliances operate correctly and burn quite cleanly,” Hanson said. According to Hanson, 94 percent of particulate matter emissions from wood burning comes from residential heat, which means “the bulk of room for improvement is in encouraging homeowners to replace older, less-efficient stoves and to make sure that they are burning dry firewood.”

Magida said burning wood at the college is cleaner than using oil. He said sulfur dioxide emissions are down 97 percent since the college switched to wood. The main reason is due to the air pollution control equipment in the system.

Concerning wood ash, both Norwich and National Life give it to local farmers who use it as fertilizer. “It’s a win, win for the college and the farmers,” Magida said.

In addition to promoting wood energy, Hanson said the state is working with various partners to better manage the forests.

“There’s also a really exciting new project just getting started, Habitat for Heat, a partnership between Vermont Woodlands Association/Tree Farm Program, American Forest Foundation and Audubon Vermont — they are doing a songbird bird-friendly harvest on a private woodlot in late fall/ winter and the trees will go to Chris Brooks’ pellet mill (in Clarendon), where he will turn the wood into pellets that will be sent to a local assisted-living facility that uses pellets to heat the facility. Very cool story,” she said.

According to Hanson, 60 schools have added wood heat, including Barre City, Barre Town, Cabot, Calais, East Montpelier, Spaulding, Harwood, Main Street Middle School, Norwich and U-32 in Washington County; and Otter Valley Union, Lothrop School, Proctor schools and several Rutland City schools including Allen Street School, Rutland Intermediate School, Rutland Middle School, Northeast and Northwest.