

Wood Chip Heating Works for Maine

Wood heat is nothing new. It has heated buildings in Maine for centuries. For larger buildings, modern wood chip boilers offer a cleaner, easier, and more efficient biomass heating option than in the past. A few facilities here have already installed chip boilers, with more in Vermont and New Hampshire. Maine has the opportunity to install many more.



RSU 18 Wood Chip Heating Project^{1,2}

(Williams Elementary School, Messalonskee Middle School, Messalonskee High School, Oakland, Maine)

District installed Messermith 7.1 MMBTU/hr (2.1 MW) wood chip boiler

Cost: \$3.7 million

Funding: \$500,000 federal grant plus \$3 million in interest-free federal construction loans

The contractor (Honeywell) guarantees the district \$2.7 million in energy cost savings over 15 years but savings may be greater depending on price of oil and wood chips. The project will also likely save more because it will last longer than 15 years.

Over the first two years, **actual energy savings were \$296,000**—\$25,000 more than Honeywell predicted.

Both the high school and elementary school needed new oil boilers. Just the high school boiler would have cost \$300,000 to \$500,000.

“These savings have helped us through these tough times and they will continue to help us put the most dollars we can into the classroom... When you buy fuel oil in the state of Maine, 10% of that money stays in the state and 90% is gone as soon as you write the check. When you buy the same amount of wood chips, 100% of that money stays in central Maine, and it circulates, creating jobs for central Mainers.”

—RSU 18 Superintendent Gary Smith

¹ Matt Hongoltz-Hetling, October 18, 2013. Accessed at: www.centralmaine.com/2013/10/18/one-year-later-37-million-biomass-boiler-exceeds-oakland-based-school-districts-expectations/

² Honeywell Americas M&V Services Team. RSU 18, Oakland, ME. Biomass Project Energy Cost Avoidance Report. P. 2.1.

For More Information

- Download the full report, entitled *Economic Impact Assessment of Wood Chip Heat in Maine*: <https://www.nrcm.org/wp-content/uploads/2017/11/MaineWoodChipHeatEconomicsreport2017.pdf>
- Contact Nick Bennett, Staff Scientist, at (207) 430-0116 or nick@nrcm.org or Dylan Voorhees, Climate & Clean Energy Director, at (207) 430-0112 or dylan@nrcm.org


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A Better Biomass Future for Maine

A New Direction with Modern Wood Chip Heating

A new analysis shows that modern commercial wood chip heating systems would save Maine businesses and taxpayers hundreds of millions of dollars on heating costs, protect and create thousands of jobs, and reduce carbon pollution.

Even at relatively low oil prices, Maine’s commercial sector still spends \$500 million per year on heating fuel¹. Nearly all of this money goes out of state. At the same time, Maine could use wood chips from low-grade wood to heat large buildings. Inefficient biomass electric plants burn this wood now and waste most of its energy. These uncompetitive and polluting power plants have already cost Maine taxpayers and ratepayers as much as \$2 billion in subsidies².



Study Results: Heating with Wood Would Save Money and Reduce Pollution

The Natural Resources Council of Maine hired a team of scientists at Spatial Informatics Group—Natural Assets Laboratory to analyze using wood chips to heat large buildings instead of burning them at inefficient electricity plants. The study concluded that heating buildings with the

wood that Maine’s electric plants currently burn would save Maine money and reduce climate-changing CO₂ emissions.

The study focused on replacing 1,900 oil and propane boilers for space heating in commercial and public buildings with biomass boilers that burn wood chips. This wood chip strategy for large buildings could be paired with a wood pellet initiative for homes and small businesses.

Boiler replacements could occur in:

- More than 14,000 medium or large businesses³
- Nearly 750 public schools, dozens of buildings at 14 public colleges and universities, and roughly 75 buildings on 5 large state government campuses⁴
- Hospitals, libraries, fire stations, and police stations
- State and county jails, prisons, and courthouses

Installing high-efficiency wood chip boilers in nearly 2,000 buildings would take a number of years and require a significant investment. However, most of the funds could come from the private sector or from public funds that would already be needed to replace old oil boilers in public buildings. Such an initiative would create jobs, keep \$274 million per year in Maine that now flows out of state, and slash the state’s dependence on heating oil by more than 20 percent. There are many examples of modern, efficient chip boilers across Maine and in our neighboring states, but Maine needs new policies and redirected investment in order to make more widespread use of this technology.

¹ Maine Governor’s Energy Office. (2014). 2014 Maine State Energy Profile. Augusta, ME: Governor’s Energy Office. P. 17. Accessed at www.maine.gov/energy/pdf/Energy-Profile-final.pdf.

² Central Maine Power testimony to the Joint Standing Committee on Energy, Utilities, and Technology March 28, 2016 (Maine Legislature). Accessed at www.mainelegislature.org/legis/bills/getTestimonyDoc.asp?id=37957.

³ Maine PUC website. “Electricity Statistics (2010)”. Accessed at www.maine.gov/mpuc/electricity/delivery_rates.shtml.

⁴ State of Maine Bureau of General Services. Accessed at www.maine.gov/bgs/.

Better Biomass Heating Will Create Jobs

Large-scale investment in wood chip heating would help Maine transition to a more stable and sustainable biomass energy future, saving **\$264 million** every year on heating costs for hospitals, municipalities, schools, businesses, and other large facilities. This would both create and save jobs.



Status Quo: Inefficient Biomass Electric Plants	Alternative: Expanded, Efficient Wood Heating	Status Quo: All These Jobs Are at Risk	Alternative: Secures and Adds Permanent Jobs
 Six aging power plants that burn 2.3 million tons/year of woody biomass	 1,900 modern heating systems, burn 2.3 million tons/year of woody biomass	 150 Power Plant Jobs	 570 Heating Boiler Jobs
Very inefficient – capture only 25% of the wood energy	Saves \$265 million/year on commercial/institutional heating costs		
Very polluting per unit of useful output	Reduces use of heating oil significantly		
Enormous subsidies – as much as \$2 billion over two decades	Retains jobs for loggers		
Uncompetitive even with these subsidies	Creates thousands of new short- and long-term jobs	 900 Logging Jobs	 900 Logging Jobs
Economic instability threatens forest industry jobs	Reduces Maine’s non-transportation carbon pollution by about 10%		