

Part of a Comprehensive Climate Strategy using Renewable Forest Resources for Positive Environmental & Economic Results

Originally proposed in Maine by the Maine Pellet Fuels Association
and the Professional Logging Contractors of Maine

Our Three Proposed Climate Goals

- 1) Substantially reduce CO2 emissions created by fossil fuels for building heat by using sustainable forest resources to convert to renewable modern wood heat
 - It's clean and renewable
- 2) Nurture a homegrown energy economy that grows the fuel and builds, installs, and maintains the infrastructure
 - The technology is here in New England
 - The governance, EPA listings, and certifications are ready to go
 - No further science or inventions are necessary
- 3) Encourage increased certification of forests and logging practices, to produce a never-ending source of energy and maintain or increase carbon sequestration
 - The wood is here
 - The forests are growing
 - Pellets and chips are produced from waste wood and wood bi-products

Modern Wood Heating for all Installations



- Controlled combustion engineering
- Fully automated fuel storage and conveying
- Fully automated ash handling
- Computer controls and monitoring
- Emission controls to meet stringent standards
- Hot water, hot air or steam at range of pressures
- Can be combined with thermal storage and other renewable technologies (e.g. heat pumps, solar hot water)



Where we Are & Where we Can Go

- For example, Maine relies more on fossil fuels for centrally heating over 800,000 homes and businesses. This is more than any other state in the country, at 81.2%:
 - Heating Oil 62%
 - Propane 11.5%
 - Natural Gas 7.7%
- As stated, our proposal is to lessen this load by decade-end by switching to modern wood heat
- The wood to energy industry has made great strides over the past several years:
 - The industry is built and operating
 - It manufactures and distributes the most efficient modern wood heating systems in the world
- Now is the time to design the path ahead on how our homes and businesses will heat for the next generation

The Infrastructure Exists Now

- Building wood energy markets will sustain key components of the New England forest products sector that are challenged by the decline in demand for wood by pulp and biomass electricity markets
- Wood is a low, stable cost source of heat energy
 - For the last decade it has been priced in the range of \$2.04-2.24 per gal/oil
 - Adjusted for inflation, the price has hardly changed
- The contributions to the market with well-tested and proven efficient wood heating technologies will enable NE to emerge as a frontrunner in terms of contributions to its economy from its natural resources
- The infrastructure for each of these steps exists currently to support this change to a homegrown energy economy

It's Clean and Renewable

- Maine's forests alone "sequester over 60% of the state's annual [carbon] emissions, while the forest industry sector is statewide, multi-faceted, and provides between \$8-10B in direct economic impact."
- This is a way to help NE reach carbon-neutral status by 2045
- Forests can sequester more carbon when managed
- These products are renewable per state policy already and don't require new laws or regulations
- Particulate emissions are below EPA 2020 standards in average modern wood heating systems and immediately reduce CO2 emissions by 50%

The Technology is Here

- Modern wood heat is clean, efficient, and meets or exceeds EPA 2020 emissions standards – it's available now and is produced in New England
- The efficiency of modern wood heating systems is 75-95%
- Heating with modern wood heat is a short-term, sustainable goal
- Nearly 100% of every dollar spent on modern wood heating and technology stays within the regional economy
- This technology will benefit New England's forests industry and sequester an increasing amount carbon through sustainable harvesting
- This technology gives the wood products industry a market that will use low grade wood and wood biproducts

The Wood is Here

- A large percentage of New England's forests are certified to one of three major forest certification standards (FSC, SFI, ATFS)
- For example, there are 100 logging companies in Maine Master Logger certified – these companies employ over 1,200 people in rural ME, harvest 5.5 million tons of wood annually, and are 3rd party certified through the Rainforest Alliance
- Carbon released by consuming wood fuel is directly offset by carbon stored in forests, when “In contrast, returning carbon released by burning fossil fuels to its source would require millennia.”
- If forests are left to burn or rot, “you’ll eventually reach a plateau, after which the net in-forest growth and carbon accumulation rates decline-eventually to zero”
- Forests can be a net sink of carbon; we have a responsibility to use ours
- As we learned in third grade Social Studies, photosynthesis is occurring 24/7, 365

It's Being Done Elsewhere

- This technology has been tested in the EU and heavily pushed in Western Europe & Scandinavia for the last decade, where they have used wood pellets to satisfy a significant portion of their climate goals sustainably
- Austria is responsible for a technological solution that's been 30 years in the making, in a climate similar to ours
- Many countries in the EU have designated modern wood heat to replace fossil fuels, and seen a significant portion of their RPS goals met with sustainably harvested wood and wood bi-products

2017 Economic Impact Analysis of Modern Wood Heat in Commercial and Institutional Facilities in Maine

- **Proven:** 106 Maine schools, hospitals, municipal buildings, and businesses used modern wood pellet and chip heating.
- **Local:** These facilities consumed an estimated 19,000 tons of pellets and 45,000 tons of wood chips from Maine forests and wood manufacturing residues.
- **Renewable:** Reduced oil use by the equivalent of 5.2 million gallons.
- **Cost Saving:** By switching fuels, these facilities saved about \$5.5 million in heating costs.
- **Beneficial:** Overall annual impact of \$20.6 million in economic activity in Maine.

Modern Wood Heat: Local Renewable Energy for Commercial and Institutional Building Owners
Benefits to Maine in 2017

Economic Benefits
\$5.5 million saved in heating costs
\$6.3 million direct spending on local wood pellets and chips
\$20.6 million in total economic benefit to Maine

Proven Reliability
At least 106 public and private buildings stay warm with Maine-produced wood pellet and wood chip fuels

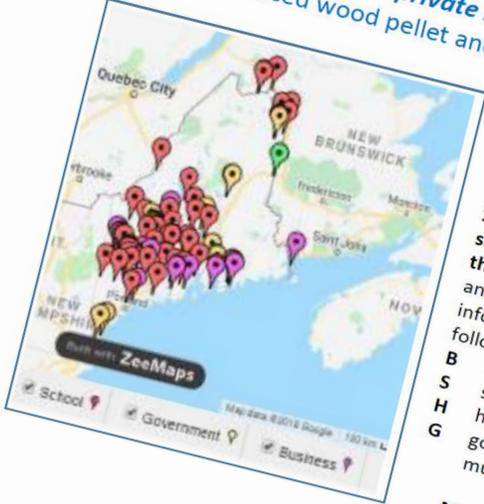
See interactive map of installed wood energy systems in Maine at www.woodheatmaine.org

106 commercial, institutional and small industrial sites were analyzed for this economic impact study. The map and link above provide detailed information on each site, coded as follows:

- B business
- S school
- H hospital
- G government (state, county, municipal)

More being added all the time!

Please flip the page to see the full story!



The Bottom Line

1. It's clean and renewable
2. The technology is here
3. The wood is here



ME Proposal as example & Economic Impact Addendum for MA

- A Climate Strategy with Short- and Long-Term Economic Benefits

- Economic Impact in Massachusetts by Switching from Heating Oil to Wood Pellet Fuel

Questions?